ANNEXURE-II

PART -A

SYLLABUS OF ARCHERY SPORTS

Development and Organization: Development of Archery, Historical Origins, Transition to Sport, Organization of Modern Archery, International Governing Body, National Governing Bodies, Competitive Formats. World Championships, Continental Championships, Dates, Allocation of Championships, Management Structures, Invitations, Entries, Accreditation, Championship Documents, Director of Shooting, Tournament Judge Commission, Roles and Responsibilities of Judges, Jury of Appeal, Scorers, Draw for Shooting Positions, Repositioning on Targets, Equipment Inspection, Championship Tournaments, Program and Protocol, Field of Play Competitions Disciplines, Classes, Divisions, Categories, Rounds, Events and Tournaments, World Archery Events, Official Recognition of Tournaments Titles and Records World Championship Titles, World Records – Definition, World Records, World Record Tournaments, Confirmation of World Records, Olympic Records, Confirmation of Olympic Records; **Warm up, Strength & Conditioning:** Warm-Up & Specific exercises Reasons for warm-up exercises, Oriented Warm-up with rubber band, General exercises outside the shooting range, Exercises right before shooting, Simple exercises for the shoulder girdle, General (isotonic/isometric) & Specific exercises, Shooting warm-up**,** Introduction to Strength and Conditioning: Overview of strength and conditioning in sports coaching, Role of strength and conditioning in archery, Basic anatomy and physiology related to archery performance**,** Strength Training Basics, Principles of strength training, Types of strength (maximal strength, strength endurance, explosive strength), Periodization in strength training for archery**,** Conditioning for Archery, Cardiovascular conditioning and its importance, Specific endurance training for archers, Integration of conditioning with technical training**,** Flexibility and Mobility, Importance of flexibility and mobility in archery, Stretching techniques and exercises, Mobility drills and their application in archery**,** Injury Prevention and Rehabilitation, Common injuries in archery and their causes, Rehabilitation exercises, Rehabilitation strategies for archery injuries**,** Practical Application and Case Studies, Designing strength and conditioning programs for archery athletes, Case studies on successful strength and conditioning interventions, Practical sessions on program implementation and adjustment**,** Assessment and Evaluation, evaluating athlete progress and performance, Assessing the effectiveness of strength and conditioning programs; **Equipment**: Types of Bow, Anatomy of A Bow and Arrow, Functions of Recurve & Compound Bow Accessories, Assembling the Accessories, efficiency, matching Stringing the Bow; Types of Compound Bow press, Advantages & Disadvantages of different methods, Eye dominance Test, Principle of Using Left-Hand & Right- Hand Bow, Method of Aiming & Procedure; **Glossary of Archery Terms / Terminology:** Related with Target Archery Equipment (Recurve, Compound) Skill, Faults & Technical Field Competition Rules & Judging; **The Disabled Novice Archer:** Para Archery & its classification, Types of Disability, Archers with Limited use of the Arms, Standing Archers with Balance Problems, Archers with Visual Impairment, Archers with Mental Disabilities, Archers Using Wheelchairs, Archers Shooting from and Ordinary Chair or Stool, Archers with Communication

Difficulties, Archers with a Combination of Difficulties. Other Medical Issues & Conclusions. **Introduction to NTS (formerly known by the B.E.S.T) Fundamental Steps /Classic form:** Stance, Nock, Hook and Grip, Set, Setup, Draw to Load, Anchor, Transfer to Hold, Expand/Aim, Release/Follow Through, Feedback, Rhythm and shooting time. Equipment and body alignment, Rhythm; From Basic form to Efficient Shooting: Biomechanically Efficient Shooting Technique, Arrow Shot**; Shooting Control and Safety**: Group safety, Individual safety, Equipment safety, Field Safety, Competition Safety, Range etiquette, Field of Play setup – Target Rounds; **Order of Shooting and Timing Control:** Shooting Time and Time Limits, Visual and acoustic time control, The WHISTLE Commands; **The steps to determine proper Archery equipment selection:** Archery equipment selection, Determine proper bow size Determine draw length Determine proper draw weight Selection Procedure of Equipment's and accessories, for Novice Intermediate .and elite level Different types of archery equipment; **Target Faces and Equipment:** 1-10 Scoring Zones Target Face Multiple Scoring Zones Target Face Outdoor target butt set-up Scoring, Consequences of Breaking Rules; **Methods and technique of Teaching**: Training and Coaching. Class management and control in Archery; First **Lesson in Archery**: Setting up the archery range, Archery Safety Briefing, Equipment Overview, Mimetics without tackle, with tackle. General Shooting and Instruction; **The Progressive Training Method for the Beginner: Step-1:** Training with the empty hands**, Step-2:** Drawing a rubber band, **Step-3** Drawing the bow the use of a bow sling: The use of the stabilizer on the practicing bow**,** Grip, The posture of the body Practicing hooking the string fingers for the beginner**,** The height of setup Drawing Anchor**,** The use of the kisser button for anchoring, The effect the bow length has on the anchor position**,** Full draw**; Step-4:** Preparation practice of the release Practicing the release feeling for the fingers**,** The length of travel of the release The direction training of the release**; Steps-5;** The exercise for the "Follow through"; **Scoring, Seeding Diagrams, Ranking, Results preparation (Computer Application) - Building Up Shooting Form:** 1 Bow arm unit, breathing control, Aiming is Really Aim, Study aiming, back tension, control/Collapse, control fallow through, getting a right Rhythm; **Yoga:** Role of yoga in Archery, Development of Mind concentration & Breathing, Yoga Asana's & Meditation. Benefits of Archery, Physical Benefits, Mental Benefits: Fitness Considerations: Cardiovascular Training. Strength Training Integration into Training: Warm-up and Cool-down Regular Practice: Role of yoga in Archery, Development of Mind concentration & Breathing, Yoga Asanas; **Benefits of Archery:** Exercise, Strength, Control, Coordination, Patience, Relax, Self-Confidence, Socialise, Imagery Training, Mental Preparation, Mental aspects of archery, Psychological preparation Pre competition, during competition & Post competition management of Yoga

RESISTANCE-BASED ARCHERY TRAINING: Physical conditioning / Training for physical power, General endurance, jogging, Long Distance running, Various Games and Calisthenics, General Strength – Weight training circuit training. Medicine ball exercises, Flexibility exercises - stretching exercises. Draw practice with rubber tubes. Draw practice with the training bow, An exercise of repeatedly drawing the bow, Drawing a bow and holding at full draw, an exercise of the time for normal shot. Practical Demonstrations of strength and conditioning techniques, Written assignments on program design and athlete assessment, Case study analysis

Unit No. 10 - Technique training and practice with tackle and without tackle and placing students on the shooting line according to station as per learning stage: Teaching of

various basic technique, Teaching stages. Application and importance, Stringing the bow in various ways, Square stance. Close stance. Natural stance. Open stance, Nocking the arrow to the string. In line draw and proper anchoring, Dry Practice without bow, Draw practice with flexible rubber band, Draw practice with training bow (less pound); 1. Eye dominate test: Through cross palm method, Finger pointing method, Card board method; 2. Lesson plan procedure; 3. string making

Fundamental Techniques, Training and practice: 1)Draw ii) Chin Anchor iii) Side anchor. iv) Hold iv) Aiming. vi) Alignment of string and sight. vii)Release viii) Follow through: Set to set up, pre-draw, opening the bow; **Overdraw Prevention and Imaginary Shoot**: Shot target archery, arrow Bow selection Expansion, aiming & follow-through Biomechanical Efficient Skill and technique, Application of Latest technology and Software /Video and Photo Analysis, Analysis of techniques, Training for Biggane's to eight level Progressive Methods; **Practicing Archery on the Hand-eye Co-ordination:** Fault, Problems and Corrections /Solutions Arrow grouping Arrow Patterns Breathing Patterns, Bow/ String Alignment Leaning overall Body position; Field marking and officiating practice, Organizing competition i) Field layout (ii) Target setting (iii) Fixing the target faces (iv)fixing the target numbers, flags and placing red and yellow flags (v) Positioning the audio- visual time control equipment, zebra plate; **Pedagogic practice, fault correction:** (i) Checking bow hand, wrist, elbow, grip, shoulder (ii) Checking string arm, elbow (iii) Head angle checking (iv) Shot sequence (v) Breathing Patterns (vi) One Arrow Attitude (vii) Right amount of practices When not to Practice (viii) 100%cantrol conscious and subconscious mind Practical applications Target panic and solution; **Shooting in wind and rain:** (i) The changing location of the arrows landing in the Target (ii) The changes in the flight of an arrow (iii) Changes of team tactics during a team round contest when wind Blows; Knocking point making and Training for the Physical power & ability to aim at various points around the target face: (i) Measuring string height (ii) Nocking height; **Preparatory movements:** feet position, arrow loading, string grip, bow hand setting (end and sling), body pre-position, end of body pre-position, point on preparation, bow raising, pre-draw; **Force production:** Bow shoulder/arm, draw (source, still top body, practical subjects assignment, direction, balance, speed), anchor, alignments of body/forces and string, full draw form, point on getting to full draw, expansion with checks, introduction to a clicker, aiming; **Follow through:** release (predispositions, exercises, form pending expansion types), bow hand and bow arm follow-through, string clearance and target panic, Rhythm and shooting time Equipment and body alignment: Rhythm; Aiming time and Clicker time; **YOGA**: Physical Benefits Mental Benefits: Fitness Considerations: Cardiovascular Training, Strength Training Integration Training: Warm-up and Cool- down Regular Practice; **16. Skill, Technique & Fault Rectification:** Shot Cycle Introduction Emphasis on "Barrel of the Gun", What is Holding?, Establishing Proper Back Tension and Expansion, Stance, Posture, Continuing Emphasis on "Barrel of the Gun" Hook and Grip (Finger Slings), Set to Set-up & Strong Bow Arm, Introduction to Mindset, Build Sequence of shooting, Common Problems, The Archer cannot close the Non-Dominant Eye when Aiming, Shoulders moving up whilst raising the Bow, Drawing the Bow with the Arm instead of the Muscles in the Back, Variations of the string fingers pressure on the string, Moving the Head toward the String, The Arrow falls off the Rest while Aiming, Moving the Body Weight onto the Bow Foot, Moving the Body Weight onto the Rear Foot, The Bow Shoulder moving Upwards and Backwards, Expanding at full draw with the arm instead of muscles from the

posterior part of the shoulders and the back, Canting the bow whilst Aiming, The String hits the Bow Arm, Elbow or Forearm, Grabbing the Bow upon Release, Target Panic; Shot Cycle: Shot Sequence Shot Cycle for 10x, Total Science of Shot Cycle, Archery Technique Angular Movement Breathing and breath control during the shot cycle; **Arrow pattern:** Causes of High arrow, Low arrows, Right Arrows, Left Arrow, Scattered Arrows; **Teaching Suggestions for Practical Coaching/ Sequence of Shooting**: Stance - Stance and Body Stability, Nocking the arrow, Hooking the String and Grip, Bow Hand and Elbow Body Pre- setting, Raising the bow, Pre- draw, Draw, Anchor, Facial Marks or References. Draw, Expansion, Aiming, Release, String Clearance, Follow-through, Breathing pattern; **17. Arrow Selection**: Proper Bow Arrow Selection For Target Archery and Indoor Shooting Arrow Spine, Spine Rating, Arrow Spine Testing, Machine, Arrow Front of Center (FOC) Balance and Why We Should Care Aligning and Weight, Balancing of Bow; **Making Practice More Effective (Teaching /Coaching Aids)**: Developing a Training Program, Training Drills and Activities, Stretch-Band Shooting Drill, Lightweight Bow Training Drill, Static Strap Training Drill Blank Bale, Execution Drill, Bow Release Drill, Posture Drill; SPT Drill: - Flexibility SPT Drill, Holding SPT Drill, Structure SPT Drill, Power SPT Drill, Competition Training, Distance Shooting, Four-Minute Drill, Olympic Round Practice, Volume Practice, Intensity, Practice; **Biological Cycles**: Jetlag. Effect of time zone Body build in clock, Daily cycle. Effect of time zone changes of human body; **18. Talent Identification and Development**: (a) Definition and importance of talent selection (b) Criteria, Principal and procedure for talent selection, scouting and Grooming in Archery (c) Development of talent on long term basis (d) Monitoring and registration of progress Selection of elite Archery for high performance training and selection of Archery team for competition; **Recurve & Compound Bow Equipment Tuning**: Introduction to tuning competitive Recurve & Compound bows, this section includes step-by- step tuning procedures for obtaining optimum performance and accuracy from bow and arrow setup; **Preliminary Bow Set-up**: Install All Accessories, Static & Dynamic Alignment, "Centering" the Arrow: Adjusting the Arrow's Left/Right Position, Clearance, Forces acting on the arrow, static tune. Nocking point location stabilizers. Control and Rotation Weight Balance, String and bow Aliening; **Different Tuning Methods,** Walk back, Bare shaft, Elision. Fine tune. micro tune - Tuning for Groups' Tuning for 10[X], Front of Centre Balance (FOC), Objective of Bow Tuning, Starting the Tuning Process, Establishing a Basic Tune, Cushion Plunger Setting, Vertical & Horizontal grouping patterns, Cam Synchronization, Stabilization, Compound technique, **Using various software's for tuning**

19. The method of using a clicker: When to introduce the use of a clicker, Preparation training for using a clicker, The using a clicker and extending for the beginner. The selection of the arrow length. Checking the arrow length for the growing young archer. The first step to using a clicker (To draw a bow watching the arrow point). The second step of using a clicker; **Training to be confident in the wind**: The situations to consider in windy conditions. The positional change of the arrows hitting the target. The change of the arrow flight. When the archers clothes flutter during windy conditions. The change of the centre of the body, The direction of the bow arm, Changing the extending time Changing the balance of extending, The reduction of the physical stamina, The complication of the decision about the aiming off, Uneasiness feeling about the wind Changing the team tactics, during a team match; **Measuring the archer's ability to adapt**

the wind: The technique of aiming off from the centre of the target, Measuring the archer's ability to judge the direction and strength of the wind, The observing changes of the extending time Evaluating the psychology of the archer A method of training to help shooting in the wind An exercise of repeatedly drawing the how for a given set, The drawing of a bow and extending at full draw in excess of the time for a normal shot Training for the various abilities to aim off Training a sense of unity and direction of extending when "aiming off", The aiming off and follow through The adaptation of changing the extending time, Maintaining the balance of extending, The cultivating the ability to judge the aiming off location for different wind strengths and conditions, The observation and information gathering about wind conditions of a sports g round before taking part in a competition, What to practice during an "open" practice time; **Bow String**: String function, String attachments, Factors Influencing breakage, Abrasion, String construction method, String twist, Serving direction, Brace Height, Wax application serving, reinforcement String dynamics. Basic compound bow setup, Setting tiller, setting wheel or cam rollover, Setting a nocking point. Setting up an arrow rest, Setting rest pressure, Setting peep height or kisser button, Setting peep rollover. Choosing peep sight size, Setting other components, Miscellaneous, components; **20. Injuries related to archery and women in Sports:** Form Related Injuries Sore finger, Type of finger Tabs Added finger Protection Sore shoulders Strings hand side, Training Technique Bursitis, Tendonitis, The bow arm side, Upper back pain, Use of head and ice, Psychology reason for injury. Physiological and anatomical difference between sexes, Special creatures for Training of women; **ARCHERY ANATOMY**: Important muscles of the shoulder girdle and the back, collaboration of these muscles when shooting, deltoid muscle, supraspinatus, infraspinatus, subscapular, major and minor teres muscle, anterior serratus muscle, major and minor pectoral muscle, major and minor rhomboid muscle, latissimus dorsi and trapezoid muscle, biceps muscle, triceps muscle, Other muscles used in archery muscles of the neck, muscles of fingers and hand, deep grip versus shallow grip (release hand), high grip versus low grip (bow hand), muscles of the legs and buttocks, square stance versus open stance; **Software technology analysis**: Use software and technology to study performance Analysis of Skill and Technique Video Analyze / Archer shooting Form By Using Different software's Dartfish, Kinovia etc.,Changes in archery technology briefing and video filming, Analysis of techniques; **Bow, Arrow & String Dynamics**: Bow Mechanics, energy, Transfer of energy, Bow design, Length, Bow arrow Relation. Thickness, Width of Limb, Limb Stress Distribution, Limb design, Degree of centre shot, handle design, Bow alignment. Bow efficiency, Stack, dynamic Balance, tillering. Arrow Behavior, Arrow's Paradox, Spine, weight. Point of Balance. Arrow size arrow length. Torque and damp. Control rotation and function of stabilizer. String dynamics. **21. FIGHT AGAINST DOPING:** Prohibited Substances and methods In Archery, Therapeutic Use Exemption procedures, Doping Control Procedure; **Environmental effects and remedies and excessive sun and performance:** Introduction, Shooting, Equipment, Field fixture, Competition-Internal and External, Dealing with sunburn. Stress and anxiety effect on performance why does stress occur for the Archer?, Physiological and psychological symptoms before and after competition, Suggested training technique effective and corrective procedures, Improving focus on attention. concentration and confidence Training. Integration of mind and body the Nideffers theory on attention and archery suggested training techniques, cues, guidelines, Importance of confidence training, Objective self-assessment and analysis, Recommendation Implementation for coaches, **22. NTS/ BEST**

Method (Biomechanically Efficient Shooting Technique): The BEST method has been derived by careful study of the most successful archers in international competition combined with extensive scientific research into all aspects of the archery shot. Included study areas and methodologies include - Newtonian Mechanics, Motion Analysis Systems, High Speed & Normal Speed Video**,** Types of Forces & Force Measurement Devices (Force Plates), Electromyography (EMG), Computer Video Analysis, Delayed Video Playback, Heart Rate Monitors The result of these study efforts is a shooting form approach that maximizes the body's strengths and minimizes the shot variables. Leg Strength, Grip Strength, Draw Force, Reaction Time, Visual Reaction time, clicker reaction time: Anticipation time. Body type, Visual Activity, Stance and center of gravity. Classification of Stance position. Consistency of stance position, summary of force platform Result, Sighting Motion Result, Summary of sighting analysis, Body sway, Segmental stability; **High Performance Plan:** This plan represents the primary focus of Indian Archery – Sustained Competitive Excellence. The High-Performance Plan will outline specific performance markers, objectives and the means to achieving these objectives. A key element to the HPP is Coach Training. Led by the National Head Coach and integrating Sport Science personnel, LTAD Train to compete, Train to Excel: Swot Analysis, Planning and periodization's, Training Plan, Athlete Development Pipeline International Competitive Analysis, High Performance Program Structure, High Performance Program Operational Chart, Performances Assessment and Analysis, **Long-Term Archer Development,** Short team performance plan, Block periodization's and plan, Planning to win and excel Performance Enhancement Team - Planning & Programming a Season, Planning to Peak/calculations, Planning a session, Training Schedule. National Archery Team Training Plan, Team management and coaching in competition, Physical development and conditioning, training plans "Mental aspect of Archery Preparation of High level Computations; 23. Physical conditioning/ Training - General Endurance, Jogging, Running, General Exercises, Calisthenics Game, General and specific strength development weight training medicine ball exercise, Warming up general and Specific, Practical demonstrations of strength and conditioning techniques, Written assignments on program design and athlete assessment, Case study analyses; **24. Physical Condition Development in Archery**: Breathing during anchor and release - Set, Set up, Drawing, Anchor, The speed of release, The distance of finger travel during the release, The use of back muscles at the time of release. Application of different software and video analysis, Biomechanical shot. application and correction, Shot Cycle, **Shot Sequence**, **Shot Cycle for 10x Total Science of Archery Technique = Angular Movement**, **Breathing and breath control during the shot cycle**, Heart rate monitoring and enhance Performance level, B E S T (BIOMECHANICALLY EFFICIENT SHOOTING TECHNIQUE, COMPOUND BOW – use of the release/ proper shot- back tension / TARGET PANIC / Recurve & Compound; 25. Preparation for shooting in the wind and rain and shot analysis. The adoption of changing the extending time – (a) Training for maintaining the balance of extending (b) Proper stance (c) Body balance at the time of anchoring (d) Proper anchor point (e)Drawing under the clicker (f) Release pattern; 26. Shooting Practice and assessment (Long distance and short distance), Application of fundamental technique training for clicker control, bow control Scoring shot sequences. Shot cycle SHOOTING FORM, RHYTHM AND SHOOTING TIME; **ARCHERY BALANCE WITH STABILITY AND ACCURACY ARCHERY RECURVE BOW:** Pedagogic Practice and mental practice, Teaching, Coaching, Problem correction, Tension relaxations, Imagery training, Yoga, Shot Sequence. Shot Cycle for 10x**,** Total

Science of Shot Cycle Archery Technique Angular Movement, Breathing and breath control during the shot cycle; 27. customize equipment, Aliening and balancing. string making and Bow tuning: Arrow repairing - Replacing an arrow rest; Remarking the Nocking point - Clicker setting; Arrow making - Bow Tuning Various distance method, Bare shaft method; Paper tuning. Tuning for Groups Fine and micro tune 10 tune; 28. Proper Alignment For Compound Bow Using Biomechanics To Your Advantage, Archer's Evaluation; 29. Video Analyze / Archer shooting Form By Using Different softwares Dart fish ,Kinovia etc. Changes in archery technology briefing and video filming Analysis of techniques; **Efficient Archery Posture Training Analysis of Archery:** 30. From Basic form to efficient shooting, B E S T (Biomechanically Efficient Shooting Technique), Analysis of techniques Training for Beginners, Progressive Methods

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Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

DETAILED SYLLABUS FOR ATHLETICS SPORTS

1. Introduction of Track and Field Events Kids Athletics Track Marking(400m): Race Walking - 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Steeplechase -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Middle and Long Distance -** 1. Introduction, 2. Brief History, 3. Rules**,** 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions)**; 2. Fundamental of Running Sprint and Start -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Hurdles -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions)**; Relay -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique 6. Fault-Reason-Correction, (Axis, Planes, Coaching Positions)**, 3. Fundamental of Jumps Long Jump -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Triple Jump -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **High Jump -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Pole Vault -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions)**; 4. Fundamental of Throwing Shot Put -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Discus Throw -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Javelin Throw -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **Hammer Throw -** 1. Introduction, 2. Brief History, 3. Rules, 4. Statistical Information, 5. Technique, 6. Fault-Reason-Correction (Axis, Planes, Coaching Positions); **5. Special Lecture and Revision, 6. General Warm-up (Sprints, Jumps, Throws, Hurdles and Middle Long Distance, 7. Kids Athletics, 8. Introduction of Equipment Specification, 9. Track Marking(400m)-** 1. Sprint and Hurdles, 2. Jumps, 3. Throws, 4. Middle and long distance**; 10. Specific Gymnastic, Flexibility and coordination Drills for -** 1. Sprint and Hurdles, 2. Jumps, 3. Throws, 4. Middle and Long Distance; **11. Specific Coordination Drills for:**1. Sprint and Hurdles, 2. Jumps, 3. Throws, 4. Middle and Long Distance; **12. Specific Coordination Drills for -** 1. Sprint and Hurdles, 2. Jumps, 3. Throws, 4. Middle and Long Distance; **13. Specific endurance Drills for -** 1. Sprint and Hurdles, 2. Jumps, 3. Throws, 4. Middle and Long Distance; **14. Recreation (Basketball, Volley ball etc.), 15. Track Maintenance, 16. Sprints - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment -4hr); **17. Crouch Start - Teaching Progression** - (Teacher - 4hr, Self-Practice - 4hr and Assessment -4hr), **18. Relays - Teaching Progression -** (Teacher - 2hr, Self-Practice - 2hr and Assessment - 2hr), **19. Sprint Hurdles - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment - 4hr), **20. Steeplechase - Teaching Progression** - (Teacher - 2hr, Self-Practice - 4hr and Assessment, **21. Race Walk -**

Teaching Progression - (Teacher - 4hr, Self-Practice - 4hr and Assessment, **22. Middle Long Distance - Teaching Progression -** (Teacher - 2hr, Self-Practice - 2hr and Assessment - 2h**, 23. Long Jump - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment, **24. Triple Jump - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment), **25. High Jump - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment - 4h)**, 26. Pole Vault - Teaching Progression -** (Teacher - 4hr, Self-Practice - 4hr and Assessment, **27. Shot Put – Teaching Progression** , **28. Discus Through - Teaching Progression** - (Teacher - 4hr, Self-Practice - 4hr and Assessment, **29. Javelin Through - Teaching Progression** - (Teacher - 4hr, Self-Practice - 4hr and Assessment, **30. Hammer Through - Teaching Progression** - (Teacher - 4hr, Self-Practice - 4hr and Assessment - 4hr), **31. Athlete Development Demand Profile of the Events and Performance Limiting Factors** - 1. Sprint, 2. Hurdles, 3. Steeple Chase, 4. Race Walk, 5. Middle and Long Distance Track Marking (200m, 300m); **32. Combined Events Competition Kit and Diet Demand Profile of the Events and Performance Limiting Factors** - 1. Long Jump, 2. Triple Jump, 3. High Jump, 4. Pole Vault; **33. Demand Profile of the Events and Performance Limiting Factors:** 1. Shot Put, 2. Discus Throw, 3. Javelin Throw, 4. Hammer Throw, 5, Combined Events; **34. Athletic Specific Periodization Models (Planning/Micro/Miso/Macro/Session unit) - Designing Annual Training Plan:** 1. Sprints and Hurdles, 2. Race Walk, Middle and Long Distance, 3. Jumps, 4. Throws Revision; **35. Specific Warm-up**, **36. Track Marking (200m, 300m)**, **37. Events specific exercises**, **38. Track and Field Maintenance**, **39. Preparation for Inter moral**, **40. Recreation, 41. Teaching and Coaching Practice, 42. Test and Performance Evaluation (Training Diaries/Protocols), 43. Teaching and Coaching Lesson plan, 44. Core Strength and Injury Prevention (general and specific aspect), 45. Specialized Training in group of Events, 46. Guest Lecture**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

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palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

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SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART – A

SYLLABUS FOR BADMINTON SPORTS

1. History and Laws of Badminton: History of Badminton & its global development**,** Laws of Badminton, officiating (ITTO)**,** International competition organization**,** Key terminology in badminton**; 2. Competition Management:** Making knockout draws Conducting league matches and tie-breaking, Alterations and substitutions in draws; **3. Code of conduct**: Coaches code of conduct, Players code of conduct;

4. Basic Coaching Concepts: Philosophy of coaching, Basic qualities of a badminton coach, Talent identification methods and principles, Class organization techniques, Importance of concentration, Anticipation and Correct positioning; **5. Longterm Athletic Development in Badminton**: Basic Characteristics of Children, Common mistakes made by the beginners, Different Age group training; **6. Fundamentals of Technique Teaching**: Types of grips and correction of faulty grips, Teaching basic & advance strokes, Basic and Advance tactics in singles & its qualities, Basic tactics and Advance in doubles & its qualities, Basic tactics and Advance in mixed doubles & its qualities, Footwork: Traditional and modern techniques, Creating effective lesson plans, Video analysis for self-correction;

7. Practical Skills Development: Court marking & equipment maintenance, Officiating practical, Footwork training and techniques Teaching and coaching, Teaching Lesson plan, Evaluate moter test and Skill test; **8. Multi-shuttle and Shadow Practice**: Multi-shuttle drills and shadow practice for Singles basics, Multi-shuttle drills and shadow practice for doubles basics, Multi-shuttle drills and shadow practice for mixed doubles basics;

9. Advanced Badminton Training: Training for Adolescence, Training for Adult Talent identification for advanced players, Elite player training: methodology and tactics; **10. Training Management**: Trands in Modern Badminton and its effect Common injuries in Badminton and its prevention, Game Specific Fitness training Prevention of overtraining, Advanced skill teaching and coaching; **11. Match and Video Analysis**: Pre-match preparation and stress management, Hydration and nutrition before, during, and after competition, Tapering concept, Match analysis;

12. Periodization and individualized training plans: Factors to be considered for a training plan, How to make annual plan, Organisation of Lesson plan; **13. Badminton Specific Skill Test**: French Shor Service Test, Miller Wall Volley Test, Badminton Smash Test, Poole Long Serve Test, Poole Forehand Clear Test, Poole Backhand Clear Test

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Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction

time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication,

Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

SYLLABUS FOR BASKETBALL SPORTS

1. Latest trends in Warm up – Limber down: Importance, Principles, Methods, Means; **2. History and Development & Organizations:** Origin and development of Basketball in the world, Asia and India, Organization governing Basketball at various levels (FIBA Asia,BFI,AIU,SGFI, Khelo India Games); **3. Latest trend in organization and management of Competitions at:** Olympic Games, World Championships, FIBA Asian Games, FIBA Asian Championship, National Championships, Organization of competitions and drawing of fixtures (Olympic Games, FIBA, National Championships); **4. Rules, Regulations, their Interpretation and latest rule changes in:** Men, Women and Mini, Qualities of Officials & Mechanics of Officiating, 3*3 Rules and Officiating; **5. Latest trends in Basketball Terminology: FIBA Glossary**; **6. Latest trends in facilities and their managements:** Developmental trends in facilities and technical equipment, Construction, marking and maintenance of play fields, Playing/training facilities, training equipment; **7. Latest trends in Methods of teaching and Training: (Preparation of Lesson plan)**; **8. Requisites of Basketball player:** Kinanthropometric requirements. Motor qualities required as per modern trends, Psychological and sociological abilities required, Technical and tactical abilities required as per modern trends, Knowledge of rules, regulations and their practical application along with latest rule changes; **9. Latest trends in techniques and their development in Basketball:** Introduction, Importance and classification of techniques, Stages of motor learning – principles of motor learning applied for Teaching the techniques, Methods and phases of teaching and training of techniques, Analytical descriptions of various techniques with respect to movement Coordination, applied Biomechanics and rule implications, Principle of performance of techniques during the game (Coaching hints for application of techniques during games), Latest trends in teaching and training aids – advantages – usages, Latest trends in means of evaluation of progress in learning techniques and performance of techniques during competitions (Skill test); **10. Latest trends in Tactics and their development in Basketball:** Introduction, importance and classification of tactics, Methods and phases of teaching tactics, Principles of playing individual and group tactics (offensive & defensive In various game situations), Descriptive analysis of various basic and advanced individual and Group tactics in offense and defense, Methods and means of training individual and group tactics, Means for evaluation of progress in learning of tactics (performance in training matches, competition matches, observation reports); **11. Latest trends in Warming up:** General warming up procedures, methods and forms of exercise, Specific warming up procedures, means & methods of exercises/drills; **12. Latest trends in Development of general motor abilities:** Free and exercise/ callisthenic exercises, Development of basic endurance, Development of basic strength, Development of basic speed, Development of flexibility, Development of coordination abilities. **13. Latest trends in development of personal performance and demonstration ability in:** Offensive techniques – with the ball, Player stance, ball handling and ball control (ball holding), Passing – Basic passes of two hands and one hand and their variation, Dribbling – stationary, on the move, change of direction and Change of pace, stop, pivoting and fakes and feints, Shooting – Basic techniques of close range shots (Lay ups and variations), With one hand and two hands, medium jump shots, long distance shots and

free throws, Offensive techniques – without ball; 14. **Latest trends in development of demonstration and teaching/ training ability of rebounding – basic rebounding techniques and tactics and their variations – offensive and defensive; 15. Latest trends in development of demonstration, teaching and training ability of individual defensive technical and tactical actions through analysis and personal practice:** Individual defensive techniques – stance, feet movements, arm position etc.; Individual defensive tactics while guarding a player with the ball: Player in triple threat position (perimeter), While guarding the dribbler, Player had complete the dribble (perimeter), High post with ball, Low post with ball; Individual defensive tactics while guarding a player without ball: At the perimeter (strong side and weak side), High post position (strong side and weak side), Low post position(strong side and weak side); **16. Latest trends in development of demonstration, teaching and training abilities of individual offensive tactical action through analysis and personal practice:** Individual offensive tactics without the ball: cutting to the basket, cutting to receive the ball and flashing at post, Cutting to replace, Individual offensive tactics with the ball – one on one situation (perimeter & post player); **17. Development of demonstration, teaching and training ability of group tactical offensive and defensive action through analytical methods:** Offensive tactics - Two men combinations (give & go, on the ball screen, two – on – two, out numbering situations, brush off with ball), Three men combination (out numbering situations, off the ball screens, brush off without ball, dribble weave attack); Defensive tactics: Against two men combination, Against three men combination; **18. Latest trends in test and measurements**: Skill test, General physical fitness test; **19. Pedagogic practice:** Practice teaching of techniques a tactics, Officiating the match; **20. Latest trends in Identification and development of talent in Basketball:** Principles, procedures and criteria for scouting talents at sub junior and later stage, Systematic development of the identified talent on the long term basis (mini-youth-juniors), Steps for periodical monitoring of the progress of talent; **21. Selection of team:** Criteria, methods and procedure of selection of a team, Criteria and principles of selecting starting five. **22. Planning and periodization of training in basketball:** Long term plan – aims and contents of training, methods and means of training various elements, Annual plan (periodization of training): Single periodization, Double periodization, Multiple periodization, Aims and contents of training in various periods; Schedule of training: Weekly schedule, Daily schedule (daily practice program); **23. Latest trends in psychological preparation of a basketball player:** Principle and methods of development of mental (intellectual) pre-requisite, Psychological preparation of a player and team for high intensity training, Psychological preparation of a team and player for competitions at varying levels; **24. Latest trends in Specialized training for:** Women basketball player, Extra tall players.

25. Competitions in basketball: Methods and means of scouting, content of scout reports–preparation of scout report, use of scout reports for preparation of team for competition, Statistics – content and statistical analysis, Planning of build-up competitions (practice matches) with specific tasks, Strategy in basketball- Definitions, different between tactics and strategy, playing strategy (general principles), Handling the Team Before competition (On and Off the court), Preparation for a match (Pep talk (psychological preparation as well as tactical assignments), Game plan/strategy, Competition warm-up), Managing the team during a match (coaching during the game), Methods and means of recording competition performance-Shot-charts, analysis of video recording, observation chart etc.; **26. Latest trends in Tactics in basketball – Team tactics**

and its development: Descriptive analysis of basic and advanced offensive team tactics and systems, Advantages and dis-advantages of various offensive and defensive team tactics, Principles of applying different offensive and defensive tactics, Methods and means of training offensive and defensive tactics, Trends in development of training and coaching aids and use of coaching aids for the development of tactics, Means for evaluation of progress in team tactics, Performance in practices matches, Performance in competition matches, Coaches observations reports; **27. Latest trends in motor abilities and their development in basketball:** Methods and means of determining the specific motor abilities, Requirements of specific motor abilities, Methods and means of development of specific motor abilities, Means for evaluation of progress in development of specific motor abilities (Specific fitness); 28. Audio Visual Aids in Teaching and Training: Video of correct form of techniques, Techniques correction, Identification of Individual mistakes, Rectification of identified mistakes in comparison with the video; 29. Video Analysis: Analysis on Substitution (Impact in progression and result of the game), Analysis on Timeout (Talks during timeout, was it timely, was it necessary), Implementation of Special situation moves and its impact, Technical and Tactical analysis of various plays in Offense and Defense, Officiating; 30. Entrepreneurship through Sports(Basketball): Event management in Basketball, Running an Academy, Online Coaching, Consultancy, Talent Identification, Infra availability, Popularity in that area (Public Interest), Financial Model and Legal issues, Performance Analysis; **31. Latest trends in development of specific motor abilities (through suitable means and methods):** Development of speed endurance, Development of explosive strength endurance, Development of explosive strength, Development of specific speed abilities, General physical fitness tests, Specific physical fitness tests; **32. Pre-game warming up procedures, methods and drills; 33. Latest trends in development of demonstration, teaching and training ability of team offensive and Defensive tactics through development of analytical abilities and improving personal performance through practice:**Offensive team tactics: Fast break offense: (i) Middle lane attack (ii) Side lane attack., Set play against man for man defense, Set play against zone defense, Freelance system of attack, Attack against pressing defense, Situational plays – out of bounds and free throw plays, Defensive team tactics - Defense against fast break attack, Aggressive man to man team defense, Defense against Situational plays – out of bounds, Basic zone defense with various formations, Combination defenses – Match-up zone defense, Pressing defense – full court, half court, ¾ court; **34. Pedagogic practice:** Practice teaching, Officiating

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

DETAILED SYLLABUS FOR BOXING SPORTS

1. History and Terminology of Boxing: Historical Development of Boxing, Women Boxing, Terminology used in Boxing, Competition in Boxing; **2. Technical aspect in Boxing:** Boxing Basics (i) On guard (ii) Footwork, Offensive Action, Defensive Action, Means of Developing Boxing Techniques, Art of making Combinations; **3. Facilities, Gears and their Maintenance in Boxing:** Maintenance of the Equipment and Boxing Gymnasium, Importance of Equipment for the safety of a Boxer, Latest Equipment for training and coaching in Boxing; **4. AIBA Rules:** Technical and completion Rules, Rules for scoring, Rules for completion Equipment and Uniform; **5. Tactical Aspect in Boxing: Ranges/Distances in Boxing:** Long Range/Distance, Medium Range/Distance, Close Range/Distance; **Sparring:** School Fight**,** Technique Sparring**,** Control Sparring**,** Free Sparring**,** Competition Bout; **6. Physical Qualities Required in Boxing:** Endurance, Strength, Speed; **7. Performance Structure in Boxing:** Importance, Requisite of Boxer; **8. Pedagogic Practice: Teaching of Basic Boxing skills and making of Lesson Plan - Organizational structure:** Teaching Methods, Training Methods, Organizing Training Sessions, Lesson Plan; **Technique Analysis Chart for Basic Techniques**; **9. General Topics: Structural and Orderly Exercise -** Organization of the class (Warming up), General & Specific, Warming Down; **10. Boxing Basic**: Clenching of Fist and wrapping of Bandage, On Guard Position, Foot Work - Advance, Backward, Left, Right, Circling to the left, Circling to the right, Side Step; **11. Technical aspect in boxing:** Offensive Actions, Defensive Actions, Combinations in Boxing, Practice of Boxing Techniques and their development; **12. Ranges/Distances in Boxing:** Long Range/Distance, Medium Range/Distance, Close Range/Distance; **Sparring:** School Fight**,** Technique Sparring**,** Control Sparring, Free Sparring, Competition Bout; **13. Development of General and Specific Motor Qualities:** Means and Methods for the development of (a) Endurance (b) Strength (c) Flexibility (d) Coordination (Ladder Training); **14. Pedagogic Practice: Teaching of Basic Boxing skills - Organizational structure: (a)** Teaching Methods (b) Training Methods (c) Organizing Training Session (d) Lesson Plan; **15. Strategy:** Definition, types and formulation of plan, Direct preparation for a competition, Long Term performance development; **16. Role of Seconds:** Prior to the Competition, During the Competition, Before, During & After the Bout; **Psychological Preparation of a Boxer:** During Training, Competition, **Team Management and strategy at Boxing Competition**; **17. Punching Pad:** Importance of punching pad, Role of punching pad in teaching, training and coaching, Use of punching pad by coaches in competition; **18. Weight Monitoring:** Weight management and weight control in boxing, Means and method used by boxer for weight control; **19. Identification and Development of talent in Boxing:** Definitions, Principles and importance, Test and Measurements; **20. Performance Analysis**: Analysis of sparring Bouts Video analysis of Olympic Games, world championship, Asian games and common wealth games; **21. Related to AIBA:** AIBA Medical Rules, WSB Competition rules; **22. Pedagogic Practice:** Coaching of deferent style of boxers (a) Strategy (b) Making of Coaching lesson plan; **23. Individual Conception of Boxing: Individual style of Boxing in various Models, their perfection and variations, Development of individual style of Boxer:** Taller, Shorter, Rusher, South Paw, Maneuver, High Speed / Tempo, Hard Hitter / KO Boxer, Universal; **Importance of Punching Pad for a Coach, Use of punching pad for coaching and in competition; 24. Ring Generalship:** Feinting, Drawing, Infighting and Shelling up, Corner Boxing, Clinching,

Caught on the Ropes; **25. Technical, Tactical perfection and Variations of Fundamental in Sparring of different Style of Boxers**: Organization of Sparring Sessions; **26. Organisation of Training Programs:** Endurance, Strength, Speed, General & Specific; **27. Pedagogic Practice:** Coaching of deferent style of boxers (i) Strategy (ii) Coaching plan; **28. Test and Measurement in Boxing:** Motor Ability Test, Skill Test

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Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

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Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

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Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART – A

SYLLABUS FOR CANOEING & KAYAKING SPORTS

INTRODUCTION OF THE COURSE: Course Objectives and Learning Outcomes, Different agencies of sports-eco-system, their structures and the roles (IOC, ISF's, IOA, NSFs, SOA/SSF's/SAS, MOYAS, SAI & Other Bodies, NIS -Academic Wings); **INTRODUCTION TO THE CANOE SPRINT**: Origin & History of Canoeing & Kayaking, History, Vision & Mission- ICF & IKCA, The Definition of Canoe Sprint Discipline (CSP), World Records and Olympic Events of Canoe Sprint, ICF Recognized International Competitions & Events of Canoe Sprint, Introduction to ICF Disciplines – Flat Water, White Water & Ocean Racing; **REQUIREMENTS OF ESTABLISHING CANOE SPORT,EQUIPMENT SPECIFICATION & SAFETY & RESCUE**: Requirements of establishing Canoe Sprint, Categories specifications and boats, Selection of Boats, Selection of Canoe & Kayak Paddles, Parts of the boats, Storage and handling the boats, Maintenance & Repairing of Equipment, Terminology of Canoe Sprint, Difficulty in water, Basics of swimming, Safety Guidelines, Personal Safety, Self-Rescue, Assisted rescue, Handling of Power Boats; **DETERMINATING ABILITIES OF CANOEING AND TALENT IDENTIFICATION**: Determining abilities in sprint Canoeing, The performance determined by some elite athletes and coaches, The physical characteristics of elite athletes and International trends, The psychological profile of elite athletes, Canoe Sport for Children, Talent identification, Talent Identification concepts; **INTRODUCTION OF TECHNIQUE, HYDRODYNAMICS OF CANOEING AND PROCESS OF SELECTING BEGINNERS AND TEACHING TECHNIQUE AND INTERRELATED PRINCIPLES OF CANOEING & KAYAKING**: The role of technique in canoeing, The brief technique history of Technique, Hydrodynamics of Canoeing, Stages of Teaching and Learning Process, Stages of progression, Process of teaching Kayak technique, Process of teaching Canoe technique, Interrelated principals of Kayaking & Canoeing, Common factors of technique (Balance & Stability, The Stroke's, Coordination, Rhythm, Dynamics, Style, Efficiency& Breathing, Teaching & Coaching Lesson Plan); **BASIC KAYAKING TECHNIQUE**: The Paddle and The Grip Position, The Position and Posture in A Kayak, Balance, The Summary of Entry, The Draw (Power Application), The Summary of Power Phase, The Exit Phase, The Relaxation Phase (Air Work), Firming (Preparation for The Next Stroke), The Leg Works, Common Mistakes in Kayak Technique; **BASIC CANOEING TECHNIQUE**: The Paddle and The Grip Position, The Kneeling Position in C1, The Position and Posture in Canoe, Balance, The Catch (Entry), The Draw (Power Application Phase), Steering – Control of Canoes, The Exit, Relaxation/ Firming, The Effect of Cross Wind on The Canoe, Trunk Rotation and Lifting, Required Elements Of The Technique, Common Errors in Canoe Technique; **TECHNIQUE OF CREW- BOATS ADVANCE CANOEING & KAYAKING TECHNIQUE**: Training in Crew Boats, Crew-boats in Kayak, Crew-boats in canoe, Advance Technique Principles, Power circle 5, Commandment (First 10 Commandments, Second 10 Commandments), **Adaptation to the training : Structural and orderly exercise:** Organization of the class, Marching in different formations; **Warming up:** General warming up exercises**,** Specific warming up exercises**; Warming Down:** During Training**,** During Competition**; Canoe Sprint:** Teaching & Coaching Lesson Plan**; Development of physical fitness components:** General preparation**,** Beginning of sports**,**

Continued specialization, Advanced sports specialization, Agility, Flexibility; **SAFETY GUIDELINES & RESCUE**: Basics of swimming, Safety Guidelines, Personal Safety, Self-Rescue, Assisted rescue, Rescue Skills, Open water towing; **Basic of Canoeing**: Basic Terminology of Canoe, On dry land or pontoons, Paddle setting up, How to hold, Basic Position, The right place and posture in the canoe, Basic Coordination Drills, Movements and muscles Analysis, Exercise and muscle; **Basic of Kayaking:** Basic Terminology of Kayak, On dry land or pontoons, Paddle setting up, How to hold, Basic Position, The right place and posture in the Kayak, Basic Coordination Drills, Movements and muscles analysis, Exercise and muscle**; Lifting, carrying and launching the Boats in water and basic strokes; Technique Of Crew- Boats Advance Canoeing & Kayaking Technique:** Parts of the Boats, Holding Griping, Basic Balancing Skills, Capsize, Swim and self-rescue, Rescue a capsized paddler, Advance Balancing Skills, Without Paddle Siting & Kneeling, Holding Paddle in Air, Standing in Boat, Capsize and Sitting in Water, Learning of paddling Strokes ex: - Forward, sweep, Backward, j stroke, Training in Crew Boats, Crew-boats in Kayak, Crew-boats in canoe, Advance Technique Principles, 5 Power circle and the connection with all circles, First 10 Commandments, Second 10 Commandments**; TALENT IDENTIFICATION & EVALUATION CANOE SPRINT:** General Observation, Training and Overtraining (Judgement of Overload, Symptoms of overload and its control, De-hydration), Canoe Sprint Anthropometrical Measurement **-** Body composition, Motor abilities tests, Talent identification Criteria; **TRAINING FOR VARIOUS MOTOR ABILITIES OF CANOEING, TRAINING METHODS & INTENSITY USED IN CANOEING, CONDITIONING WITH SUPPLEMENTARY SPORTS AND MONITORING**: Training (Principles of Training, Physiological training effects, The transition of training system at various age, Children and exercise, Stages of long term preparation), Endurance (Aerobic Endurance, Anaerobic Endurance, Endurance in Canoeing, Endurance Development, Test of Endurance), Strength Development (Muscle Analysis, The Muscular Strength, Training Methods for Strength Development, Strength Development by Isotonic Methods, Training Modalities, When to exercises and how much?, The Planning the training Programme, Warm Up and Stretching for Strength training, Conditioning and Strength Development Exercises, Examples Strength, Development Training), The Speed (Maximum and Starting Speed, Travelling or Racing Speed, Training Speed, The Stroke Rate, The Speed and the Stroke rate, Speed Endurance, Pacing, Pacing in competition, Speed Development), Training Methods (The Training methods in Canoeing, Examples for interval training, Training Zones, Training at various ages, Volume and intensity of workouts, Supplementary training for endurance development; **TRAINING AT VARIOUS AGE'S (LTDP) (**Beginner, Advanced, Training Of 10-13-Year-Old Paddlers (Beginner), Training Of 14 – 15-Year-Old Paddlers (1-3 Years Background), Training Of 16-18-Year-Old Athletes (3-5 Years Background in Canoeing, Training of Above 18 upto Under 23 Years, Training for Elite Athletes, LTADP of successful countries); **KAYAKING & CANOEING SPECIFIC SPORTS SCIENCE ATTRIBUTES:** Physiological characteristics of canoe sprint paddlers, Biomechanical and kinesiological analysis of paddling of canoe and kayak, Psychological aspects in Canoeing, Qualities and qualifications of Canoeing Coach**; PLANNING A TRAINING PROGRAMME, CANOE SPRINT PERFORMANCE MONITORING AND RACING TACTICS IN CANOE SPRINT -** Periodisation: Components of a yearly Training Programme, Training Periods, Elements of a yearly Training Programme, Training schedule for a Year, Reaching top Performance – "Peaking" or "tampering", The block periodization; **PERFORMANCE MONITORING**:

Understanding of relationship between intensity and volume, Training Intensity Measurements, Heart Rate measurement training, Training using Boat speed, Training using Stroke rate, High technology support for training, Training & planning as per Duration (Session Plan, Short term plan, Medium term Plan, Long term plan), Training & Planning as per developmental/calendar age (Grass root, Beginners, Intermediate, Advance, Elites); **PLANNING A TRAINING PROGRAMME, Periodisation (**Preparation of a yearly, Training Programme), Training & planning as per Duration (Session Plan, Short term plan, Medium term Plan, Long term plan, Training & planning as per developmental/calendar age (Grass root, Beginners, Intermediate, Advance, Elites, Teaching & Coaching Lesson Plan); **CANOE SPRINT PERFORMANCE MONITORING: Test and Controls (**Max Speed Test (100 m) flying start **(**Drop of Speed Test**,** 1000 Meters Test**,** 500 Meters Test**,** 200 Meters Test)**, Controls (**Daily**,** Weekly**,** Monthly**,** Quarterly)**; RACING TACTICS IN CANOE SPRINT:** The warming up, Stretching and Recovery**,** The Start-Canoe & Kayak**,** The Finish, Breathing During Race**,** Long-Distance & Middle-Distance**,** Wake Riding or Wash Hanging**,** Racing / Training in Strong Wind and Rough Water**,** Nutrition at the Competition**,** Ergogenic Aids**,** Behaviour, slipping, rest and lifestyle, Environmental Factors of the Competition**,** Check List of competition**,** Short distance Racing**,** Comparison between 200m and 500m / 100m, Testing of 200m specialist, Conclusion of the principle of requirements, Training for 200m, Psychological demands for 200m, Teaching & Coaching Lesson Plan**; INTERPRETATION OF ICF RULES OF VARIOUS DISCIPLINES:** ICF Sport Governance Rules (Cr)**,** ICF Principle Rules (PR)**,** ICF Sport Rules (SR)**; EXPOSURE TO TRAINING FOR VARIOUS MOTOR ABILITIES OF CANOEING, TRAINING METHODS & INTENSITY, CONDITIONING WITH SUPPLEMENTARY SPORTS AND MONITORING:** Training (Children and exercise, Stages of long term preparation), Endurance (Aerobic Endurance, Anaerobic Endurance, Endurance in Canoeing, Endurance Development, Test of Endurance), Strength Development (Muscle Analysis, Training Methods for Strength Development, Strength Development by Isotonic Methods, Warm Up and Stretching for Strength training, Conditioning and Strength, Development Exercises), The Speed (Maximum and Starting Speed, Travelling or Racing Speed, Training Speed, The Stroke Rate, The Speed and the Stroke rate, Speed Endurance, Pacing, Pacing in competition, Speed Development), Training Methods (The Training methods in Canoeing, Examples for interval training, Training Zones, Training at various ages, Volume and intensity of workouts, Supplementary training for endurance development; **TRAINING AT VARIOUS AGE'S (LTDP)** EXPOSURE IN TRAINING TO: Beginner**,** Advanced**,** Training Of 10-13-Year-Old Paddlers (Beginner)**,** Training Of 14 – 15-Year-Old Paddlers (1-3 Years Background), Training Of 16-18-Year-Old Athletes (3-5 Years Background in Canoeing), Training of Above 18 Years of Age Or**,** Elite Athletes, Preparation of Training plan**; Mechanical analysis of Canoe/Kayak Stroke and making Draws of races:** Video analysis**,** Technical Aspects**,** Tactical Aspects**,** Preparing draws for various event entry

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

SYLLABUS FOR CYCLING SPORTS

1. **BRIEF HISTORY & STRUCTURES OF CYCLING CONTROLLING BODIES:** Indian Cycling History, Structure of Indian Cycling, Schools, Distt, state, national levels, Continental Bodies, their structure, Duties, History, Working, International Cycling Union (UCI), Structure, History, Duties, Working. **2. COMPETITION HELD IN CYCLING:** Domestic Competitions (School, State, Nationals, NG), International Events (Type of Competitions, Classes etc.); Road (Road races, stage races, team event, grand tours); Track (sprint events, endurance events, team events); MTB (XCO, downhill, 4X, eliminator); BMX (BMX and BMX freestyle); Other cycling disciplines i.e. Cyclo-Cross, Trials, Artistic & Cycle ball; Para Cycling (events, World championships, Olympics); Asian Championships; Regional Games (i.e. Asian Games, CWG etc.); World Cups; World Championships; Olympic Games. 3. **COACHING PRINCIPLES AND SAFETY:** Roles of a Coach, Qualities of a Great Sports Coach (10 key qualities given by IOC), The Coaching skills (Communication, self- reflection, group management etc…), Learning process (Autocratic or Democratic), Planning coaching sessions, Working with SMARTER Principal, why warm up and cool down? How to prepare a general warm up, writing a session plan (coaching points, activity explain etc.), Reviewing your session. Why, what, how to review, Self-evaluation questionnaire. Did I do well? Do the children enjoy the session? Etc., Risk Assessment, what is risk assessment, why important, how to carry out. Etc. **4. COACHING CHILDREN AND LONG-TERM ATHLETE DEVELOPMENT:** Identifying the difference between children and adults, and their implication for coaching, Understanding the stages of growth and development for different ages, Explain Long Term Athlete Development Model (LTAD). **5. EXPLAINING BASIC EQUIPMENT USED IN CYCLING SPORT:** Equipment used in cycling (Road, track, MTB, BMX and other disciplines as well), Technical Regulations for bicycles by UCI, Demonstration with a Road, Road TT, Track Sprint & Track Endurance bikes. use an MTB Bike and a BMX bike., Fixing position on the bike (from basic to advance level), How to measure a bike. (use a bicycle jig) **6. UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 1):** Part I: General organization of cycling sport, Part X: Continental Championships, Part IX: World Championships, Part XI: Olympic Games**. 7. UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 2):** Part II: Road, Part III: Track, Part XII: Discipline and procedures. **8. UCI RULES & REGULATIONS (PART 3): Part XVI: Para Cycling:** Events, Class and Categorization Special considerations while dealing with para athletes; Special considerations while dealing with para athletes. Part IV: MTB Events and their conduct in Mountain bike, Equipment used in MTB races, Part VI & VII: BMX Basic overview of BMX events, Part XII: Disciplines and procedures Penalties during a Road race, Road TT, Track races, Types of warning & relegation during an event, Procedures for showing warning & disqualification during an event. **9. CHARACTERISTICS OF CYCLING VELODROMES AROUND THE WORLD:** Brief history of velodromes, Type of velodromes used around the world, Lines on the velodrome, Types of equipment used on velodromes, Maintenance and upkeep of the velodromes. 10. **ROLES OF COACHES & OTHER OFFICIALS IN CYCLING SPORT:** Role of coaches, in and out of field, in training and in competition. **11**. **BASIC LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN:** Basic technical skills development for children: Basic Mounting and dismounting a bicycle (Road/track bikes), Basic Mounting and dismounting with cycling shoes, Basic cornering, Basic braking, Basic gear change etc. **12. EQUIPMENTS USED DURING TRAINING OR COMPETITIONS:** Rollers/ Trainer (riding, safety precautions), Training on Wattbikes, Mechanical support (various tools, workshop, repair, upkeep & maintenance etc.), Clothing (Road, Track, training, competition, helmets, shoes, socks etc., Competition equipment's (disc wheels, tyres, tubulars, their uses), Gearing (gear calculations, gear restrictions etc.). **13. PRINCIPLES OF CONDITIONING:** Adaptation, Overload, Progression, Specificity, Reversibility, Variation, Recovery, Individual differences, Long term planning. **14.INDIVIDUAL DIFFERENCES & OVER COMPENSATION MODEL. 15. COMPONENTS OF FITNESS**:

Aerobic Endurance (AE), Short-term Muscular Endurance (STME), Muscle Power (MP), Strength, Speed, Flexibility. **16. GENERAL, SPECIFIC WARM UP, COMPETITION WARM UP & COOL DOWN**: Event specific warm up (sprinters, Pursuit, road TT, road race etc.), Warm up for team events (team sprint, team pursuit, road TTT, Madison etc.), Environmental effect on warm up Riding track ethics/rules at international events during warm up. **17. INTERMEDIATE LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN:** Intermediate technical skills development for children, Technical skills; Developing Group riding skills; Learning Standing start. 18. **RIDERS HYGIENE:** Standard of Rider health, Intensive knowledge about Hygiene - clean clothing, washing, bike cleaning, no sharing of clothing etc. **19. COACHING EQUIPMENT IN TRAINING:** Eqpt needed for smooth conduct of a session by coach, Stopwatch & whistle, Using stopwatch to count cadence, taking pulse, recording times, Lap & bell, Start Gates, Start pistol, Foam pads for track, weighing machine for bicycles, Bicycle measuring jig, Photo finish & computers for training analysis, Count down timer for start gates. **20. THE BODY AND EXERCISE (Sports Specific):** Basic concepts about Anatomy and Physiology, Skeletal & muscular systems, Muscle movements (isometric, concentric, eccentric), Energy System. **21. TALENT IDENTIFICATION AND SELECTION OF CORE PROBABLES:** Talent identification for cycling sport, Parameters for various tests, Selection for various events, Evaluation of test results. **22. NUTRITION & HYDERATION - Sports Specific:** Basic concept of nutrition, Pre, during & post training eating. Advise riders importance of hydration (before, during and after training/comp.), Nutrition before, during and after competition (as per their races), Dietary Nutrients: Carbohydrate, Protein, Fat & Water, Various sports specific Supplements. 23. **ANTIDOPING:** Part XIV: Anti Dope Rules and Regulations, Therapeutic Use Exemption (TUE), Part XIII: Medical Rules. 24. **COACHING PRINCIPALS AND SAFETY 25. TALENT IDENTIFICATION & SELECTION OF CORE PROBABLES. 26. LONG TERM DEVELOPMENT** Structure training according to needs (Specific), Individual differences, Long term planning & prescribing weekly training hours: **27. ADVANCE LEVEL: CONDUCTING COACHING SESSIONS OF ELITE RIDERS. 28.** Advance technical skills development for Elite riders, Trainee coaches to conduct practical coaching sessions of 30 min each, Advance Technical Skills**,** Standing Start on Track, Stand still on track, Race tactical moves in platoon, Sprinting tactics, Attack from front, behind on Road & Track, Riding on Road & track without looking ahead, watching Opponent…etc. **29. EVENTS ON ROAD AND TRACK: Detail about Road race (one day and Stage races, Team TT):** One day races, Stage races, Team time trial, Individual time trial, Detail about Track events: Sprint (techniques and skills required, latest rules of the event), Keirin, Team Sprint, 1km/500mtr Ind. Time trial, Points Race, Scratch Race, Individual Pursuit, Team Pursuit, Omnium, Madison. **30. COACHING FEMALE ATHLETES:** Things to kept in mind dealing with female athletes, Developmental changes between male and female. 31. **PLANNING AND PRESCRIBING TRAINING ON BIKE:** Volume and Intensity, Session Planning, Effects of cadence in different terrain, Workload - Applying FIT (Frequency, Intensity and time) principal, Training Zones, Importance of Functional threshold power (FTP) and its application, Heart rate Vs FTP (%), Lactate Monitoring, LT testing, Training prescription for sprinting events, Training prescription for endurance events, Physiological adaptations to training, Psychological adaptions to training. **32. SPORTS SPECIFIC PERIODISATION :** Concept and importance of periodization, Planning each phases/cycle of a periodized training year using an ATP, Factors to consider while periodization planning, Macro, Meso and Micro cycles in planning, Understanding Annual planning template. **33. ANNUAL TRAINING PLAN WITH MULTIPLE PERIODISATION. 34. PRESCRIBING TRAINING AS PER ANNUAL PLAN FOR RIDERS. 35. EVENT DEMANDS FOR PLANNING TRAINING:** Technical, Tactical, Physiological, Psychological, Nutritional, Equipment, Environmental, Organisational **36. ESTABLISHING TRAINING FOCUS FOR JR/ELITE RIDER:** Rider's Goals, Event Characteristics, Event Demands, Level of competition LTAD. **37. PERFORMANCE BENCHMARKS:** Technical/ Tactical benchmarking (summary of research, performance benchmark), Physical benchmarking …. Etc**. 38. ANALYSIS OF PERFORMANCE:** Physiological analysis, Psychological analysis, Technical analysis, Tactical analysis. **39. MONITORING AND PEROFRMANCE ANALYSIS**: Role of Sports Science in

enhancing performance, Defining sports physiology, psychology, bio-mechanics and nutrition for performance. **40. METHODS OF MONITORING PERFORMANCE WITH SPORTS SCIENCE**: Physiological (VO2max tests), Psychological, Aerodynamics & Bike fit, Technology - Power meters, HR sensors, training zones, altitude, temp…, Lab testing Vs Field testing, Medical testing. **41. INJURY, PREVENTION AND REHABILATATION:** Common injury in cycling sport, Prevention from such injuries, Rehab during injury period and come back. **42. SAMPLE OF PRESCRIBING TRAINING**: Sprint training examples, Endurance/Road training examples, Strength & Conditioning training examples, Core and Athletic exercises. **43. RECOVERY**: Importance of recovery, Process of recovery, Methods of recovery. **44. ORGANISATIONAL**: Planning to participate in a competition, Travel (ticketing, transfers, luggage, equipment etc.), Staying hydrated during travel, Jet leg, Continental travel, time zones, Hotels, food, environment, Social (family, kids, parents, schooling) **45. QUALIFICATION SYSTEMS: WORLD CUPS, WORLD CHAMPIONSHIPS & OLYMPICS. 46. TECHNOLOGICAL DEVELOPMENTS IN BICYCLES. 47. CLOTHING AND SAFETY GEAR. 48. ADVANCE LEVEL: CONDUCTING COACHING SESSIONS WITH RIDERS. 49. MONITORING AND PERFORMANCE ANALYSIS. 50. METHODS OF MONITORING WITH SPORTS SCIENCE. 51. SAMPLES OF PRESCRIBING TRAINING.**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

PART- C

1. General Awareness
2. Reasoning
3. Aptitude

PART-A

SYLLABUS FOR FENCING SPORTS

1. History and Terminology of Fencing: History & Development of Fencing **(**Ancient, Medieval, Modern) Terminology; **2. Basics of all three Weapons:** Footwork in fencing **(**Definition, Importance & characteristics of Footwork, Types of Footwork, Foot-movements and their execution, Teaching methods of Footwork)**,** Individual, Pair, Group (Foot work in Foil, Footwork in Epee, Footwork in Sabre, Holding of Weapon (The Grip)), Target Exercises**; 3. Basic Offensive Action in Fencing:** Engagements & change of the engagements, Simple Attacks, Attacks on the Blade, Takings of the Blade**; 4. Basic Defensive Actions in Fencing:** Types of Defensive Actions, Simple Parries and Classification, The Riposte and Counter Riposte**; 5. Technical Rules:** General rules and rules common to all three weapons, The Conventions of Fencing (Foil, Epee, Sabre), Refereeing & Judging**; 6. Disciplinary rules for Competitions:** Application, The Disciplinary Authorities and their competence, Penalties, The Penalties and Competent Juridical Authorities, Procedure**; 7. Organizational Rules: Administrative Rules & Status Rules:** Administrative Rules (Licenses and nationality, International Calendar of Events, FIE Code of Ethics), Status Rules (Basic Principles, Commissions)**;** Structural and orderly exercise (Organization of the class, Marching in different formations)**,** Warming up (General warming up exercises, Specific warming up exercises), Warming Down (During Training, During Competition Recreational games)**,** Development of physical fitness components (Endurance, Strength, Speed, Agility, Flexibility), Development of Tempo (General Tempo, Specific Tempo**),** Fencing Basic Stance and Footwork (The Fencers "Enguarde" (with & without weapon), Foot movements: (with & without weapon) (Advance and retreat, Double Step Forward & Backward, Cross Leg Forward & Backward, Jump Forward & Backward, Appel, The lunge & recovery, The balestra, The fleche, Distance apart Breaking), Combination of foot movements, Footwork with various tools, Holding of weapons & hand position in all three weapons, The salute**;** The Lines and Hand Positions (High outside, High inside, Low outside, Low inside); Fencing distance (Close quarter distance, Close distance, Middle distance, Long distance); Target exercise: Wall lunging pad, Dummy; Preparatory actions: The Engagement, Change of Engagement; Offensive Actions: Simple Attacks (Direct / Straight, Indirect / Disengagement, Cut Over / Cupe), Defensive actions: Simple Parries (Types of Parries, Classification of Parries), The Successive Parries (Double Parries, Mixed Parries, Combined Parries), The Blade Actions: The Attack on the Blade (The Pressure, The Beat, The Froissement); The Taking of the Blade: The Opposition, The Croise, The Bind, The Envelopment**;** Organization of competition: Rules of the FIE/FAI, Mechanism of officiating**; 8. Pedagogic practice:** Teaching & training of techniques**; 9. Event Specific Footwork:** Definition, Importance in training, Different Types of Footwork training; **10. Advance Offensive, Defensive and Counter Offensive Actions in Fencing - Technical and Tactical Development:** Technical Training in Fencing: Individual, Partner, Tactics and Strategies; Characteristics, various situations: Advantages and disadvantages (Taller & Shorter fencers), Individual & Team, Psychological Preparation**; Individual Lesson:** Introduction, Types, Importance**; Qualities to develop in a Fencer:** PHYSICAL - (Sensory, Nervous, muscular & Functional), INTELECTUAL – (Intelligence, Judgement), ETHICAL – (Strength of will, Honesty); **Technical and Tactical Development:** Technical Development **(**Individual Training, Partner / Pair / Group Training, Individual Lesson),

Construction of Individual Lesson **(**Basic Lesson, Developmental Lesson, Advance Lesson), Strategy and Tactical Training **(**Footwork, Partner Training, Individual Lesson); **Planning & Periodization in Fencing:** Definition & Principles, Types and formulation, Long Term Development Plan; **Talent Identification in Fencing:** Definition, Principles, General and Specific Motor Abilities, Tests and Parameters**; 11. Material Rules:** Fencers weapon and equipment (Weapons (Foil, Epee, Sabre), Equipment and clothing, Checking of material**),** Fitting and Material provided by the organizers (Scoring Apparatus, Spools, cables and their connections, Conductive Pistes, Source of electrical current, External Lamps)**; 12. Video Analysis (During Training & Competition):** Technical Aspects, Tactical Aspects**; 13. Latest Amendments / Development and Current Trends in Fencing:** The Special Footwork for all three weapons **(**Development of Specific Motor Qualities though footwork, Development of Sense of Distance, Development of Tactics)**,** The Compound Attacks **(**The Fast Feint, The Combined Feint, The Foot with Foot Raised, Flick Feint, The Feint of a Simple Attack, The Feint of a Compound Attack)**,** The Counter Attacks **(**The Stop Hit/Cut, The Time Hit, The Derobement, The Esquive)**,** The Renewed Attacks **(**Remise, Redoublement, Reprise**),** The Second Intention Attack (Feint in Temp **,** Counter Tempo**),** Tests and measurements (Motor abilities tests, Skill tests, Anthropometrical measurement); **14. Pedagogic practice: Teaching & training of techniques**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART- A

SYLLABUS FOR FOOTBALL SPORTS

1. Introduction to Football: History of Football, Structure& functions of football controlling bodies, Football training and development, Development of player for tomorrow; 2. Laws of the game and Coaching implication: Knowledge of conduct and management of competition, Nutrition & Supplements for soccer player; 3. The Coaching Profession: Task of a coach & Coaching Philosophy, Coaching of a training session (action involved to conduct a session), Skills required by the coach: 4. Development of " game sense": Game – technique –game –technique –game, Game without pressure – introduce competition- Competition with more decision making; 5. Coaching Methods: Different coaching methods, Choice of methods and it's implication, Requirement of a player for high performance; 6. Warming –up and cool down before& after training session& match Importance, factors and means & methods; 7. Technical preparation without ball –Running coordination techniques, Change of direction, Jumping , body swerves& Defensive position, Attacking techniques- Passing, shooting, Control(on the turn), Dribbling, heading, Feinting, Kicking, Defensive techniques- tackling, Intercepting the ball, Kicking the ball clear, Heading the ball clear, Defensive runs, Methodology of progression of technique training, Special technique training for G.K (Defensive Techniques- Basic positioning and, Gathering low l, medium & high ball, punching ,fisting and deflecting the ball, Diving, Attacking techniques- Different types of Kicks and throws), Modern trends of physical preparation in football. A modern scientific approach, Physical condition and today's game some facts & figure, Development of Motor abilities keeping in mind the modern trends (Endurance, Strength, Speed, Flexibility, Co-coordinative abilities, Assessment of physical performance by conducting tests and It's Comparison; 8. Demands of training and Coaching - Basic factors of performance: Condition- Physical aspect, Technical skills, Tactics, Mental factors; **The systematic aspect of training procedures:** Training plans, Training Contents, Training methods, Training loads, Training Objectives, Demands from the coach, Coaching Cycle: Role of SSG lead up games and Rondo, Technical preparation, Techniques without ball.(Running mechanics, jumping, changing direction, Game sense exercises; 10. All techniques with ball (Passing- Different parts of foots & body except hands, Receiving - Different parts of foots & body except hands), Dribbling & feinting (Heading – Attacking & Defending, Throw-in, Goalkeeping- Attacking and Defending); Practice with various stages, Game related approach, Different types and forms of warm up & cooling down, Development of motor abilities, SSG, Lead up games and Rondo training, Pedagogic practice – teaching, training and coaching, Different types and forms of warm up & cooling down; 11. Development of motor abilities: Group tactics (Attack) (players without ball possession, Players with ball possession), Group tactics (Defense)Man to man Marking, pressing & Zonal Marking (Opponents far away, Opponent expects the ball, Opponents on the ball, Opponents in numerical superiority, opponents in numerical inferiority); Strategy (Attacking & Defending- Factors effecting strategies, Game Plan); 12. Principle of play: Attacking principles(Penetration, Depth in attack, Mobility, Width, Creativity and improvisation), Defensive principle (Delay, Depth in defence, Balance, Concentration, Patience and Restraints), Positioning training and its Objectives & importance of each players in a team (G.K (covering goal angle, Narrowing

the angle), Wing Back, Central Defender, Central Mid-fielder, Wing Mid-fielder, Striker); 13. Set piece practice (Attacking & defending organization); 14. Match analysis: Evaluation procedure of training & Competition, Various methods apply for match analysis; 15. Coaching transitional play: Defense to attack, Attack to defense, Design exercises to overcome the problems of the team; 16. Talent identification and its development by LTAD: Age group training in relation of physical, physiological , technical ,tactical and psychological development, Methods and procedure of scouting of player from grassroots level to professional level; 17. Selecting a team for competition & selection of first eleven player; 18. Planning & periodization: Annual plan (Macro cycle) : Pre-season , In season & off season, Meso-cycle, Micro cycle & Myo-cycle plan, Aims and training contents in each season (periods), Tactical Periodization; 19. Special feature of training of women; 20. Competition preparation & handling of team, Media relation & public speaking, 21. Individual tactics, Attack (Getting free, Create space & time, Dribbling & challenging, Wall pass, Overlapping, Take over), Defense (Challenging 1vs 1& Tackling, Covering and Marking, Intercepting); 22. Group tactics: Attacking (players without ball possession, Players with ball possession; Defense (Defense-Man to man Marking, pressing & Zonal Marking - Opponents far away, Opponent expects the ball, Opponents on the ball, Opponents in numerical superiority, opponents in numerical inferiority); 23. Team Tactics, Attack And Defense; 24. Positional Training-Attack and Defense, Set plays; 25. System of play(Different formation as per the modern trends: Attack and Defense, Coaching Transition play; 26. Pedagogic practice – training and coaching

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Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

SYLLABUS OF GYMNASTICS SPORTS

1. History, Development and Organization, Origin and development of Gymnastics: Introduction of Gymnastics**,** Origin and development of Gymnastics in India and World in brief (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / Objective Type Questions E- Workbook Assessment; **2. Structure and Function of:** IOC, FIG, IOA, GFI, AGU (Self Learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / objective type Questions), **E- Workbook Assessment; 3. Organization and Management of Gymnastics Competition:** Technical Regalement (Latest edition), Qualifying criteria for Olympics and other National and International Championships (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / objective type Questions), **E- Workbook Assessment; 4. Technical Specifications of Gymnastics Apparatus & Allied equipment:** Men Artistic apparatuses, Women Artistic Apparatuses, Rhythmic Apparatuses, Trampoline Apparatuses, Allied equipment. (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / objective type Questions, **E- Workbook Assessment**; **5. Introduction of Code of Points- Men Artistic Gymnastics:** Developments of code of points, Qualification, right and duties of President and member of MTC, Chair of the Jury, Superior Jury, Supervisor, references Judges, Judges of D and E Jury, Secretaries & scorers, Generalities of evaluation of exercises, Evaluation of Exercises on all event sand difficulty tables (Floor Exercises, Pommel Horse, Rings, Vault Table, Parallel Bars, Horizontal Bar (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / objective type Questions), **E- Workbook Assessment; 6. Introduction of Code of Points - Rhythmic, Acrobatics and introduction of Gymnastics for All:** Generalities, Basic rules and regulations Evaluation criteria; **7. Planning and Periodization of Training in Gymnastics:** Long-term plan-aim sand contents of training methods and means of training, Annual Plan, Periodization of training for different events (Single Periodization, Double Periodization**,** Multi Periodization), Aims and contents of training in various period, methods and means of training of various elements in different period, Schedule of training **(**Weekly schedule**,** Daily schedule**,** Session Plan**,** Lesson Plan), Planning for competition (Competition schedule, order of event of each Gymnast, sequence of Gymnast; **8. Computer Application Competition Management (Software) Training Management System:** Every Students must assess Computer lab facilities or else they must have their own computer for improve Professional efficacy (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions / objective type Questions) E- Workbook Assessment; **9. Competitive and Non-Competitive Gymnastics:** Definition of Gymnastics**,** Kinds of Gymnastics**,** Importance of Gymnastics**; 10. General Development Exercises and Warm up and Warm down:** Definition**,** Importance at various stages**,** Means and Methods **(**Principles of WU & WD**,** Methods WU & WD**,** Importance WU & WD**,** General, Specific and Competitive warm up (WU) Warm down (WD)**); 11. Gymnastics Terminology:** Definition and Principle of Terminology**,** Methods of giving name to various Gymnastics terms, Type of grips**,** Name

and definition of some basic position and movement; **12. Philosophy of Coaching and Training:** Philosophy of Coaching, Process of Teaching Gymnastics movements, Principles of Teaching Gymnastics movements, Principles of Training Gymnastics movements, E-Teaching & Learning (Educational Technology); **13. Techniques and Methodic of some basic & fundamental Elements:** Floor Exercise (Men and Women), Pommel Horse, Rings, Vault Table (Menand Women), Parallel Bars, Horizontal Bar, Uneven Bars, Balancing Beam, Rhythmic, Acrobatics; **14. Movement Patterns for all Gymnastics disciplines and their Mechanical principles:** Stationary, Jumps (Springs), Locomotion, Rotation, Swings, Landing; **15. Growth and Development in Gymnastics:** Definition of Growth & Development, Age related training Programme (from toddler to elite), Its implication in Gymnastics; **16. Structural and Orderly exercises:** Class Organization & Management, Marching in different formations Movement & Music (Basic Choreography); **17. Warm up exercises:** General (free hand exercises), Specific & Competitive exercises, Exercise with Allied equipment; **18. General development exercises:** Through free hand exercises, Through apparatus i.e. Medicine ball, Swiss Ball, Elastic Band, Skipping rope, Wall bars Gymnastics bench, Free Weight, Dumbles, Multi gym and Climbing Rope etc., Through obstacle Gymnastics and recreational (Fun)games; **19. Body form (Shaping) exercises; 20. Specific Conditioning for development of Flexibility, Conditional and Coordinative abilities with and without apparatus; 21. Basics of Rhythmic, Acrobatic Gymnastics and Gymnastics for All; 22. Recreational (Fun) Games; 23. Teaching & Training of various basic & Fundamental element sand compulsory routine on the following apparatus:** Floor (Male and Female), Pommel, Rings, Vault (Male and Female), Parallel Bars, Horizontal, Uneven Bars, Balancing Beam; **24. Pedagogic practice- Teaching, Training and Coaching of basic elements and Officiating. Introduction to Sports Analytics and Technology Introduction of Popular Computer Software like, Visual Coaching Pro, HUDL, Sports Analytics and many more; 25. Sports Specific, Strength and conditioning, 26. Sports Specific , Psychological Preparation of Gymnast; 27. Introduction of Code of Points-Woman Artistic Gymnastics:** Developments in Women's code of points, Qualification, right and duties of (Chairperson WTC, Expert I, Expert II, Different Juries, Judges of D Jury, Technical Assistant Judges of JuryE, Line & time Judges, Secretaries and Scorers), Generalities of evaluation of an exercise, Evaluation of Exercises on all event sand difficulty tables (Vault Table, Uneven Bars, Balance Beam, Floor Exercises (Self-learning instructional materials onthe web link of the institutions, submission of small assignment in form of Small Questions/ objective type Questions), **E- Workbook Assessment); 28. Introduction of Code of Points of Trampoline, Aerobics & Parkour Gymnastics:** Generalities, Basic rules and regulation, Evaluation Criteria; **29. Talent Identification and Development:** Definition and importance of Talent Identification, Criteria, Principles and Procedure for Talent Identification in Gymnastics, Development of Talent on long term basis (BTS ATS HPTS), Monitoring and registration of progress, Selection of elite gymnast for high performance Training; **30. Safety measures in Gymnastics:** Spotting – its various methods, Security means and methods, Self -Security- methods, Various reasons of injuries in Gymnastic and their Preventive measures; **31. Pre-requisites of good Coach, Gymnast and their Legal responsibility: Pre- requisites to be good Gymnastics coach (**Qualities and abilities of a gymnastics coach (Physical, psychological, technical, tactical, pedagogical, social & theoretical), Personality characteristics of a Gymnastics coach), **Pre-requisite to be good Gymnast (**Kin anthropometrical demands (Physique & body Composition) of Men and Women, Conditional and coordinative abilities, Psycho-social abilities required to be a

successful gymnast, Personality attributes of successful Gymnast. (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions/ objective type Questions), **E- Workbook Assessment; 32. Gymnasium and other facilities:** Gymnasium -its sizes, Facilities required, Lighting, flooring system etc., Landing Pit, (Self-learning instructional materials on the web link of the institutions, submission of small assignment in form of Small Questions/ objective type Questions), **E- Workbook Assessment; 33. Psychological preparation of gymnast:** Principles and methods of developments of Mental pre- requisites for training, Mental preparation Achievement motivation Goal Setting; **34. Special features of training of women gymnasts**; **35. Classification of Gymnastics exercises (Structural group of exercises):** Importance of Structural group exercise, Structural group of Swing exercises-their basic technique & Information, Structural group of Strength exercises-their basic technique and Information, Jumps (Classification, various phases of a vaultand their basic Technique); **36. Biomechanical Principle in gymnastics:** Definition of Sports Biomechanics, Define Fundamental Law & Terms Used, Classification of Biomechanical Principles, Its implication in Gymnastics movements, **Introduction of HUDL, Sports Analytics Software; 37. Biomechanics for Gymnastics**: Concept of rotation Mechanics of swing, handstand turns, flight elements, dismount; **38. Anatomical and Physiological aspect of Gymnastics Movements:** Breathing during exercises on apparatus, Functions of Head, Arms, Trunk and Legs during exercises on Apparatus; **39. Technique and Methodic of advance elements on various Apparatuses:** Floor Exercise (Men and Women), Pommel Horse, Rings, Vault Table (Menand Women), Parallel Bars, Horizontal Bar, Uneven Bars, Balancing Beam, Trampoline (Basic), Aerobics (Basic); **40. Construction of exercises for Gymnastics:** Registration of Performance, Video analysis of skill, **Introduction of Popular Computer Software like, Visual Coaching Pro**; **41. Basic concept for Refining Gymnastics Movements**: Amplitude, Segmentation, Closure, Peaking Diversification; **42. Sports managements:** Sports Management System, Sports Venue Management, **E books / broachers / e marketing /** Media & community relations, public relation, Advertisement event promotion; **43. General and specific warm up**, **44. Choreography, Ballet, Zumba, balance, and music for Gymnastics Movements; 45. Trampoline, Aerobic and Parkour Gymnastics:** Basic exercises, Combination of Different Movements**; 46. Physical preparation of gymnast:** Wrist and ankle preparation through various practical exercises, - Knee and Shoulder preparation through various practical exercises Landing perfection exercises**; 47. Importance of Basic exercise for advance skill:** Important of swing and its perfection exercise, Importance of handstand it's perfection exercise, Importance of press handstand it's perfection exercise, importance of Balance and its perfection exercise, importance of Dynamic flexibility in advance skill and its development exercise**; 48. General and Specific Conditioning for the development of Motor Abilities; 49. Teaching and training of advance elements on all the apparatuses:** Floor (Men and Women), Pommel, Rings, Vault (Men and Women), Parallel, Horizontal Bar, Uneven Bars, Beam, Landing techniques on all apparatus; **50. Teaching compulsory exercises on all the apparatuses**; **51. Pedagogic and Officiating practice**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART- A

SYLLABUS FOR HANDBALL SPORTS

1. Introduction to Handball: History and Development of Handball - Origin and Evolution of Handball (Global and Indian Context)**,** Growth of Handball at Olympic, world championship, Asian and South Asian levels, Introduction and development of Handball in India**,** Role of International Handball federation (IHF) and Asian Handball federation (AHF)**; Structure and Governance of Handball:** International Handball federation (IHF): Structure, Roles, Tournaments**,** Asian Handball Federation(AHF): Structure, Roles, Tournaments**,** Anti-Doping regulations (WADA and NADA overview); **Basic Terminology, Abbreviation and Graphic sign used in Handball, Construction, Marking and maintenance of FOP; 2. Warm-Up Principles and Variations:** Definition and Aspects (Physiological and Psychological)**,** Types of Warm-up – General & Specific**,** Principles of warming up**,** RAMP Protocol for warm up & its importance**,** Progressive Functional Training Protocols for Handball: Level-Based Exercise Program for Warm-Up, Strength, and Injury Prevention, Limbering down – purpose, methods and means**; 3. Fundamental skills and Techniques overview: Passing**: Introduction, Types & there course of movements, Tactical Principle of Passing, Factors influence the execution of Passing, **Catching:** Introduction, Types & there course of movements, **Dribbling:** Introduction, Types & Preparatory Exercises, **Shooting/Throw on goal Techniques**: Introduction, Types & there course of movements (SSB, SSWB, JSH, JSL, FS, JFS, HT, etc.)**,** **Feints**: Introduction, Basic Types of Feints, Systemacy of Feints, **Goalkeeper Fundamentals:** Basic stance, Techniques, **Defensive Individual Techniques:** Basic stance, Tactical Principle of Defence; **4. Modern trends in Handball:** Technological advancement in coaching: use of video analysis software (Dartfish, Kinovea,..etc.)**,** Trends in physical conditioning, recovery methods, Nutrition and psychological preparation, Emerging tactics and styles from world handball, Special Sports Equipment, Pre requisite of a Handball coach, Pre requisite of Elite Handball player; **5. Coaching vs Teaching Practices:** Definition and meaning of teaching and coaching**,** Differences between Coaching and Teaching**,** Modern Teaching Practices (Formations/Commands/Techniques)**,** Models of Learning process, Styles of Coaching & Qualities of a Good Coach**,** Preparation and Planning**,** Training means used in handball (Form of Exercises)**,** Methodical steps used in handball, Teaching & Coaching lesson Plan**; 6. Teaching and Training of Basic and advance level of tactics;** Offensive Group tactics (RAP, ROP, PCH, SC), Defensive Group tactics (GTO, MTM, Tactics between G.K & Defender), Functional/Positional Training of Player on specific positions (Goalkeeper, Backs, Wings, Pivot player)**,** Peculiarities of training with children and juveniles, consideration of age specific features, Special situations Training in Attack and Defense (Numerical Equality, **(Numerical Equality, Numerical superiority, Numerical inferiority); Handball Rules, Interpretations, and Officiating Techniques:** Rules of the Game & Their interpretations, Changes of the new rules, Technical Regulations: IHF, AHF, NSF, **Officiating in Handball** (Philosophy of Officiating, Principle of Officiating, Duties & Qualities of Handball Referees, Mechanism of Officiating, Officiating Mechanics (Positioning, Communication, Signalization), Decision making (Foul Recognition, Progressive sanctions, VAR (Video Assistance referees); **8. Qualifying System and Competition / Tournament Organization, Qualifying and competition systems in Olympics Games, Asian Games and World Championship:** Types of

Handball competitions **(**Knock-out system**,** League (Round robin) system**,** Combination system**),** Drawing Fixture and seeding method**,** Planning and Conducting tournament at various levels (School, College, national); **9. Warming up – General and Specific RAMP Protocol General:** Fitness training - Development of motor abilities, Continuous method, Interval method, Repetition method, General and specific circuit training, Making use of specific training equipments; **10. Ball handling skills to develop the ball control; 11. Training means and methods used in techniques and tactics training:** Technical Training means (Drills, Repetition Training, Game situation drills), Tactical Training means (Small sided Games, Scenario based training, Video analysis), Training methods (Interval Training, Plyometric Training, Game based Training), Coaching Techniques (Positive feedback, Game planning, Player development)**; 12. Preparation, marking, and maintenance of handball fields; 13. Basic Fundamental skills – teaching, training, and perfection for performance. (catching, Passing, Dribbling, Feints, Goalkeeper, Defensive); 14. Teaching & Training of Group Tactics (Attacking & Defensive), Offensive Group tactics (RAP, ROP, PCH, SC), Defensive Group tactics (GTO, MTM, Tactics between G.K and Defender), 15. Functional/Positional Training of Players on Specific positions: Goalkeeper Training**: (Goalkeeper Basic stance and Positioning, Movement techniques, Save Techniques, Situation- Based Positional Training, Reaction and Reflex Training, Game Based Situational Training, Warm up and cool down (Goalkeeper specific)**, Back court Player Training**: (Warm-up and recovery (specific to Backcourt role), Physical and cognitive Training, Technical skill Development, Tactical training-individual and Team context, Game- like scenarios and situational training, Coordination with other position), **Pivot-Player Training**: (Role understanding and positional basics, Technical skill development, Movement and coordination, Tactical awareness and situation-based training, Physical conditioning and position- specific fitness, Game like situations and set plays), **Wing Players Training: (**Positional awareness and movement basics, Technical skill development, Tactical movement and position play, Fast break and Transition play, Physical and Agility training, Game- Based situational training)**; 16. Referees Practical Training:** Referees Positioning and movement on court, Signals, communication and Whistle techniques, Practical application of rules in game like situation, Special game situations, Match management and psychological readiness, Practical Evaluation and Match simulations; **17. Designing Game-like Drills, Organization of minor games, lead-up games, and conditioned games; 18. Age-Specific Training Methods for Children in Handball; 19. Pedagogic Practice: Teaching & Training of Lesson Plan; 20. Group and Team tactics in Handball: Fastbreak (**Introduction, Definition & Importance**,** Principles of Fast break**,** Phases of Fast break**,** Fast break combination)**, Free Throw combination (**Introduction, Definition & Importance**,** Group of Two players 1:1 (Different Possibilities)**,** Group of Three players 2:1 (Different Possibilities), Group of Four players 2:2, 3:1, 2:1+1 (Different Possibilities)**), Offensive Team Tactics** (Introduction, Definition & Importance, Tactics to keep the position**,** Tactics to change the position**,** Tactics to change the system**,** Structured Attack Systems: 3:3, 2:4, System and mode of play in special situations**,** Rapid Play)**; Defensive Team Tactics** (Introduction, Definition & Importance, Phases of Defense**,** Formation-Based Defensive system in Handball (Basic formation, Area of Action, Mode of Play), Types of Defensive Strategies: Zone Defense Man-to-Man, and Combined Defense; **21. Player Profiling: Testing, Talent identification, and Selection Strategies:** Test and measurement of motor qualities and skill of Handball players, Selection of Players**,** Talent identification**; 22. Beach Handball:**

Rules, Regulations, and Game Management: Introduction to Beach handball, Official IHF Playing rules, Scoring system, Match duration and structure, Player substitution rules, Fouls and Sanctions, Goalkeeper and Specialist roles, Overtime and shoot-out procedure, Refereeing and match officials**; 23. Substitution Tactics of Players:** IHF rules on Substitution**,** Tactical use of Substitution**,** Situational substitution strategies**,** Substitution in Beach Handball**; 24. Performance Analysis and Game Observation Technique:** Purpose and importance of match observation, Match observation Types, Tools and Methods of observation, Analyzing team and individual Performance, Key performance indicators (KPIs), Sheet Observation; **25. Long- Term Athlete Development (LTAD) in Handball**: Introduction to LTAD in handball, LTAD stages and age categories, Key focus areas at each stage, Age- appropriate training loads and volume; **26. Systematic Planning and Periodization for Handball coaches**: Introduction to planning in Handball, Principles of Training Periodization, Annual Training Plan, Physical, Technical, Tactical, and Psychological Periodization, Planning for different age groups and levels, Load management and recovery, Periodization of strength and conditioning in Handball; **27. Teaching and Training of Advance Tactics and planning of strategies**: Fastbreak or counter Attack, Free Throw combination, Complex Defensive formation, Attacking pattern; **28. Strategic planning**: Game Analysis, Team Strategy, In Game Adjustments; **29. Training Methods**: Tactical Drills, Scenario based Training, Video Analysis; **30. Coaching Techniques:** Clear communication, Positive Feedback, Player Development; **31. Training of Offensive Team tactics and Planning different strategies:** Introduction to 3:3 Attacking system (Initial position, Area of Action, Mode of play), Introduction to 2:4 Attacking system (Initial position, Area of Action, Mode of play), Attack against Offensive Defense, Attack against Defensive Defense; **32. Training of Defensive Team tactics:** Zone Defensive system (6:0, 3:3, 4:2, 3:2:1, 5:1 etc.) (Basic Positions in Different Defensive Formations, Area of Action, Mode of Play), Man To man Defensive system (Different Applicable forms), Combined Defensive system (4:0+2, 5:0+1, etc.); **33. Conduct of Beach Handball competitions for giving practical knowledge in organizing competitions and in officiating:** Marking of the Court, Mechanism of Officiating; **34. Practical Training to conduct Physical and Skill-Based Testing Procedures in Handball for Talent Identification and selection Procedure of Teams; 35. Training of Children with Active Defence:** Game Structure, Introduction to Defense concept suitable as per age Demands, Training concepts**; 36. Teaching & Training of Special Situations in Attack & Defense:** Attack 5v/s 6 (Psychology & Strategies), Attack 6v/s 5 (Psychology & Strategies), Defense 6 v/s 5 (Psychology & Strategies), Defense 5 v/s 6 (Psychology & Strategies), 7-players New Tactical Weapon, Solution for Defense playing against 7- players; **37. Observation & Match Analysis** (**Plan an educational tour to a national-level handball tournament to train the trainees in filling out observation sheets through real-time match analysis); 38. Pedagogic practice: Coaching and teaching Lesson Plan**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction

time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication,

Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training

frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular

velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes

and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude.

PART – A

SYLLABUS FOR HOCKEY SPORTS

History of Field Hockey and Field of Play (FOP): Early Origins and Indian History, Olympic Games History, World Cup History, Field, Facilities and Equipment, Playing Surfaces, Testing conditions and Field Certification, Construction, marking and maintenance of play field, Safety and Risk management in Hockey**; Administration and Management of the Game:** Governing Bodies (World, Continental, National, State) (FIH – Structure, Functions, Continental Federations, National Association – **HOCKEY INDIA** – It's role), **SAI** – Structure, Functions, Schemes, Academic centres, Tournament Management, Match Management - Event Officials, Tournament Officials (TD, Umpire Manager, T.O, Umpires) and responsibilities; **FIH Rules and Regulations in Different formats:** FIH Field Hockey Rules & Regulations 11 a Side, Other Formats of Hockey – Indoor and Hockey 5's (FIH Rules for Indoor Hockey, Rules for Hockey 5's, Hockey Terminologies – Rules book & Coaching; **Warm-Up Principles and Variations:** Definition and Aspects (Physiological and Psychological), Types of Warm-up – General & Specific, Principles of warming up, RAMP Protocol for warm up, Limbering down – purpose, methods and means**; Coaching vs Teaching Practices:** Definition and meaning of teaching and coaching, Differences between Coaching and Teaching, Modern Teaching Practices (Formations/ Commands/ Techniques), Models of Learning process, Styles of Coaching & Qualities of a Good Coach, Preparation and Planning, Preparing to Coach, Group Management, Observation, Analysis and Correction**; Introduction of the Game – Children and/or Beginners:** Teaching Gross Motor Skills, Eye Hand Co-ordination and Tracking Skills, Peripheral vision and its importance, Basic Hockey Skills (Holding the Stick, The Fundamental Grips of Hockey, Changing Grips - Grip Management, Teaching Stages - Stationary, Moving with ball), Passing Skills – Push Pass, Hit, Indian Dribble, Receiving Skills (Fore-hand - Close Receive, Open Receive, Back-hand - Close Receive, Open Receive, Upright Trap), Defensive Skills - Jab/Poke Tackle, Block Tackle and Lunge tackle, Goalkeeping Skills**,** Assessment of Basic Skills**; Intermediate and Advance skills:** Intermediate Hockey Skills (Moving the Ball, Slap/HIt Forehand and Backhand Flick Pass, Low Backhand Slider, Tomahawk (Low Backhand Reverse hit), Eliminating and 3 D Skills), Receiving the Ball - Flick Pass Receiving (Overhead), Defensive Technique's – Shave Tackle and Steal Tackle, Defensive Tactics – Delay, Channelling, Marking, Covering, Double teaming, Switching and Interception, Advanced Specialist Skills (Penalty corner – attack, Penalty corner – defense, Penalty Stroke, Penalty Shoot-out, Designing Game-like Drills, Organization of minor games, lead-up games, and conditioned games Transition of Skill Learning, **Session Planning and Skills (**How to Coach Skills, Session Planning / Preparing a Training Plan, Review to Improve); **Qualifying System and Competition / Tournament Organisation:** Qualifying and competition systems in Olympics Games and World Cups (Sr. and Jr.), Types of Tournaments: Knock-out, league, and combination, Definition of 'Bye', 'Seeding' and 'Special seeding', Drawing Fixtures**; Warming up – General and Specific RAMP Protocol:** Continuous method, Interval method, Repetition method, General and specific circuit training, Making use of specific training equipment, Specific fitness training with stick and ball, Pressure training, Practical experience to judge the load, making judgement of symptoms of overload, and to control loads, Preparation, marking, and maintenance of hockey fields, Basic skills – teaching, training, and perfection for performance (Passing

skills (Pushes, Hits, Flicks, Scoops), Receiving skills, Kinds of passes)**, Intermediate and advanced skills - teaching, training, & perfection:** Elimination skills: Dodge, Drag, Spin, Roll-out, Pop, Jink, 3 D skills, Defensive Skills : Tackling (Jab, Block, Lunge, Shave and Steel Tackle), Defensive Tactics: Delay, Channelling, Marking, Covering, Double teaming, Switching and Interception; **Pedagogic practice: Coaching and teaching, training (Individual and Group Task) and coaching - Field Hockey Coaching – Tactical:** Introduction, Phases of Play and Related terminology (With ball phase / Transition phase /Without ball phase, Standard Situations (Penalty Corner Attack / Penalty Corner Defense / Shootout), Field Positioning: Ball Starts / Ball Win (With the Ball, Without the Ball, Analyzing Ball Starts), Structure and formations 11-a-side, Hockey 5's structure; **Principles of Play - Field Hockey:** With the ball: Outlet (BS0-2) (Team Principles, Position Specific Principles); With the ball: Attack (BS 3-5) (Team Principles, Position Specific Principles); Transition Principles (Transition to Attack, Transition to Defense; Without the ball: Press (BS0-2 opposition team) (Team Principles, Position Specific Principles); Without the ball: Defense (BS3-5 opposition team) (Team Principles, Position Specific Principles); Penalty Corner Principles (Team Principles Penalty Corner Attack, Team Principles Penalty Corner Defense); Team Tactics or Game-plan**; Assessment / Selection Criteria of team / Players:** Fitness Components tests (Speed, Repeated Sprints, YoYo test, T-Agility Test for GK), Hockey Skills components tests, Match Playing efficiency test, SWOT analysis of playing squad; **Preparation of Team and Training Plan:** Competition Schedule and Training Calendar**,** Hockey Training Plan (Annual and Block Schedule)**,** Goal setting process – individual, team, player**,** Basic Principles & benefits of Goal Setting**,** Types of Goals**,** Who Needs to Set Goals?**,** Reviewing Goals**; Off season, Pre-season, and In-season training:** Off season: Priorities in the Off-season, Pre-season hockey training (How Long?, What are the priorities?, Testing of Athletes, Program Design), In-season hockey training (Priorities of In-season, Peaking and Resting, Season Review, Exit Interview), Designing Match Simulation Drills (Defensive, Mid-field, Forwards); **Tournament Preparation, Analysis, and Technology:** Tournament Preparation (Rotation schedule, Support Staff Roles/Responsibilities), Tournament Analysis (Team Analysis, Opposition Analysis, Individual Analysis, Technological Advances (Heart Rate Monitors, Global Positioning System (GPS), Smart Watches, Athlete Management System (AMS)); **Recovery:** Recovery Principles and Methods, Physiological Reasons for Recovery (Blood Pooling, DOMS), Principles of Recovery (Time is Numero Uno, Be Flexible, Load Matters, Monitor Recovery, Sleeping for Recovery, Recovery Therapies, Eating to Enhance Recovery, Active Recovery); **Nutrition, Analytics and Performance:** Nutrition – Pre, during, and Post-game (dentify the energy systems used by modern hockey players, Fuels Required for Field Hockey, Hydration for hockey players), Analysis and Performance (Role of Analysis in Modern Sport, Role of C (Coding), Statistical Information, Sports Analysis Software, Talent Identification and Selection); Development of specific physical abilities required for players as per demand of the positions, formations etc.; Development of fitness through small sided games, and tactical games; Functional training for forwards and defenders; Functional training for the Goalkeepers; **Practical teaching of Principles of Play:** With the ball: Outlet (BS0-2), With the ball: Attack (BS3-5), Transition Principles, Without the ball: Press (BS0-2 opposition team), Without the ball: Defense (BS3-5 opposition team); **Practical training of technique and tactics of set-plays:** Penalty corner, Penalty stroke, Penalty shoot-out; Practical training for performance development in attacking and defensive tactics; Practical teaching and training of various systems of play and Formations and its applicability against other systems of play;

Conduct of competitions for giving practical knowledge in organizing competitions and in officiating.

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR,

machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

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Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

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sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

SYLLABUS FOR JUDO SPORTS

Fundamental and Principle of Judo: Brief History of Kodokan Judo & Indian Judo, Growth & Function of Governing Bodies (International Judo Federation, Judo Union of Asia, European Judo Union, Commonwealth Judo Federation, State/District/Club Associations, Sports Authority of India (SAI), India Olympic Association (IOA), International Olympic Committee (IOC)); Judo Federation of India: Classification of Judo, ndian Grading System, Sports Organization Rules IJF (SOR) (General information, Competition schedule and systems, World Ranking list & IJF Ranking Events, Entries & accreditation, Draw, Weigh-in & Judogi Back number control, Competition venue, Sports Competition, IJF Judogi Rules, IJF Refereeing Rules); Development of motor abilities (General and Specific) Olympic Qualification System, First Aid, Safety & Hygiene, Judo Techniques Practice Methods (Tandokurenshu, Uchi Komi, Ido Uchi komi, San Nin Uchi, Komi, Nage Komi, Randori, Shiai), Physiological aspect of Choking, Renroku Waza, Kaeshi Waza, Importance of computer application, Latest software of Judo (Draws & score board) & web site; General Information – Introduction: Warm Up and Cool Down, Teaching, Demonstration and teaching ability of Fundamental skills, Supplementary Exercises for Developing Throwing and Grappling Techniques, Means and Methods of Developing Various Motor Abilities; Teaching of All Basic techniques of Judo (Standing & Ground work); Kata of Judo: Nage No Kata, Katame No Kata, Kodokan, Goshin Jutsu; Shiai & Officiating(Practical Implication of Contest rules in Competetion); Planning & Periodization (Macro Plan Meso Plan Micro Plan, Single Periodization Double Periodization, Multiple Periodization), Evaluation & Monitoring Of Training: JMG Test, Judo Special Fitness Test, Kodokan Morphological Test (Strategy & Tactics, Judo Training for Elite Children, Women, Veterans, Coaches duties during Camps & Competition, Planning for Competition, Talent Identification); General Information: Development of Demonstration, Teaching and Training/Coaching Ability of Techniques, Development of (Kaeshi-waza (Nage Waza & Katame Waza), Renraku-waza (Nage Waza & Katame Waza), Kumikata Tactics (Gripping), Nage-waza to Katame-waza (Throwing to Grappling), Entries for Newaza, Practice methods (Uchikomi, Randori and Shiai), Nage-no-kata, Katame No Kata, Kodokan Goshin Jutsu (without weapons and with weapons, Teaching/Pedagogic Practice, Shiai & Officiating (Practical Implication of Rules)

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and

rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13.

Yoga and meditation as warming up practice.

PART - B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART – A

SYLLABUS FOR KABADDI SPORTS

HISTORY AND DEVELOPMENT OF KABADDI: History and development of Kabaddi, Beach Kabaddi, Circle Kabaddi and Indoor Kabaddi in India, Asia and World, Present trends in the game at National and International; **STRUCTURE AND FUNCTION OF DIFFERENT CONTROLLING BODIES:** World body, Asian body, National Federation, State and District Association, Relationship of National Federation, IOA, SAI etc.; **RULES OF THE GAME AND OFFICIATING:** Terminology of Kabaddi, Beach Kabaddi, Circle Kabaddi, Indoor Kabaddi, Rules and interpretation, Signs and Signals used in Officiating, Qualities and Responsibilities of Referees, Umpires and Table Officials, Principals and Mechanisms of Officiating, 30 second Raid, Super Tackle, Third Raid; **ORGANIZATION, MANAGEMENT AND CONDUCT OF COMPETITION: COMPETITION SYSTEM FOLLOWED:** World Cup, Asian Championship, Asian Games, SAF Games, National Championship and other levels; **FORMATION OF COMMITTEES:** Preparation and Management of Budget for the conduct of Competition, Duties and Functions of different committees, Drawing of Fixtures, General Rules, Technical Rules, Facilities and Equipment, Marking , Public Relationship; **PREPARATION OF PLAYFIELD AND ITS MAINTENANCE:** Preparation of different surfaces, Flood light setting & arrangements, Method of marking of the ground, Laying of synthetic surface- Merits and Demerits; **REQUIREMENT OF KABADDI COACH:** Dynamic Personality, Philosophical concept to be followed, Physiological & Biological fact to be considered (Girls Trainees: - Starting of menstrual Cycle, changes during this cycle), Qualities, Abilities and Responsibilities of Coach, Knowledge of method of teaching and coaching applied in game, Class control, supervision, class management, personal performance, skill drills, Identification and rectification of mistakes, Use of Teaching Aids, Lesson Plan, Teaching method and methodical organization, Public & Player Relationship; **REQUIREMENT OF A KABADDI PLAYER FOR A HIGH PERFORMANCE - GENERAL AND SPECIFIC REQUIREMENT OF POSITIONWISE:** Physique, Anatomical & Physiological, Physical Abilities, Technical, Tactical, Intellectual, Social, Psychological, Moral Abilities, Behaviour of the Players with Officials and Public; **WARMING UP AND LIMBERING DOWN:** Importance, Principles, Methods, Means, Types, Stretching before and after activities, Limbering down after activities

TECHNIQUES OF KABADDI: Introduction, importance and classification of Techniques, Stages and Principal of Motor Learning applied in Kabaddi, Methodical Stage and Teaching Techniques, Practice, Correction, Encouragement and Discussion; **TEACHING, TRAINING AND DEVELOPMENT OF TECHNIQUES:** Practice of Techniques in easy situation, Practice of Techniques in different complex situations, Use Skill drill in Lead- Up Activities on weekly basis, Skill Drills, Training Aids of Techniques: - its importance, application and trends in development, Methods and Means of Training Techniques, Reason of committing faults, Methods and Means of identify faults and correction in Techniques, Performance Feedback (Verbal, Audio and Visual Means), Modern Training Equipment; **SMALL AREA GAMES: - ITS IMPORTANCE AND UTILITY, COACHING HINTS (**For applying various skill during practice & game situation, Aware players during practice), **METHODS OF EVALUATION OF**

PROGRESSION IN LEARNING AND PERFORMING OF TECHNIQUES: Skill Test, Fitness Test (Pull Ups, Sit-Ups, Shuttle Run, Standing Broad Jump, 30 mtr Sprint, Medicine Ball Throw), Statistics and Records, Game Recording, Observation, Rating by Scales and Coach, Using Computer and its application; IMPORTANCE, ANALYSIS OF MOVEMENT, CO-ORDINATION & BIOMECHANICS VARIATION IN TECHNIQUES OF KABADDI, BEACH KABADDI AND INDOOR KABADDI, DEFENSIVE TECHNIQUES: Position basic movements (Footwork) and Path defense, Ankle Hold - Types and variations, Thigh Hold - Types and variations, Knee Hold - Types and variations, Wrist Hold - Variations, Waist Hold – Variations, Blocking – Variations; OFFENSIVE TECHNIQUES: Basic footwork and path of raid, Leading, shuffling, Natural, Combination of footwork and in raid, Reverse Step Raid, Defensive and Offensive footwork, Changing the direction during raid: Variations, Change of footwork during Raid; LEG TOUCHES: ITS IMPORTANCE, APPLICATION AND VARIATIONS: Toe Touch, Kicks, HAND TOUCHES, Hand touch: Variations; **WARMING UP AND VARIOUS METHODS:** Stretching before and after activity, General warming up, Specific warming up, Free hand exercise, Skipping rope exercise, Various stretching exercise, Limbering down exercise procedure; **CLASS ORGANIZATION:** Class formation, Class control, Commands, Methodical organization; **PREPARATION, MARKING AND MAINENANCE OF GROUND:** Natural surface, Laying of synthetic surface and marking, Sand court (Beach kabaddi); **OFFICIATING AND ORGANIZATION OF COMPETITION - DEVELOPMENT OF GENERAL CONDITIONING ABILITIES - DEVELOPMENT OF ENDURANCE:** Continuous Method, Fartlek Method, Cross Country, Interval Method; **DEVELOPMENT OF STRENGTH:** Calculation of 1RM, Weight Training, Partner Exercise, Own Body Exercise, Medicine Ball Exercise, Plyometric Exercise, Barbell Exercises, Rope Climbing, Mobility Exercise, Resistance Exercise; **DEVELOPMENT OF SPEED:** Uphill and Downhill Running, Short Sprints, Strides and Speed forming Exercises; **DEVELOPMENT OF FLEXIBILITY:** Active and Passive Flexibility, PNF Exercises, Stretching, Swiss Ball Exercises; **DEVELOPMENT OF MOTOR CO-ORDINATION:** Agility Training, Exercises for developing agility, Sideward Run, Zig Zag Run, Sudden Direction Change and stopping, Shuffling Movement, Maze Running, Obstacles Run, Different Type of Running, Jumping, Turning and Rolling, Pivoting and different footwork; **DEVELOPMENT OF STRENGTH, ENDURANCE, SPEED AND OTHER MOTOR ABILITIES FOR BEACH KABADDI PLAYERS:** Exercises to develop balance, Kinaesthetic Perception and Orientation and other required coordinative abilities; **TRAINING LOAD AND RECOVERY:** Increase and Decrease of Load, Control of Load, Calculation of Training Load, Method of taking Pulse, using Pulse Rate to monitor Training Load, Means and Method of Recovery (Special reference to Beach Kabaddi; **MOTOR ABILITIES TEST:** General Specific: - Game Related; **PEDAGOGIC PRACTICE:** Development of Teaching Practice, Commands, Class Control and Organization of Drills, Correction and use of Teaching Aids; **DEVELOPMENT OF PERSONAL PERFORMANCE AND DEMONSTRATIVE TEACHING AND TRAINING ABILITIES - DEFENSIVE TECHNIQUES:** Position basic movements(footwork) and path of defense, Ankle Hold - By Corner, 2nd Man and Variations, Thigh Hold - by Corner, Cover, Center & 2nd Man and Variation, Knee Hold - by Corner, Cover, Center and 2nd Man and Variation, Wrist Hold - its Variation, Waist Hold - Types and its Variations, Blocking - Types and its Variations; **OFFENSIVE TECHNIQUES:** Basic Footwork and path of Raider, Leading, Shuffling, Natural and

Combination of Footwork in Raid, Reverse Step Raid, Defensive and Offensive Footwork, Changing the Direction during Raid and its Variations, Change of Footwork during Raid; **LEG TOUCHES: - IMPORTANCE, APPLICATION AND VARIATIONS:** Toe / Foot Touch: Variations Kicks - Reverse Kicks and Variations; **HAND TOUCHES -** Hand Touch: Importance, Application and Variations; **ESCAPES:** Escapes: from Ankle, Thigh, Knee, Waist & Wrist Hold and Blocking (Counter Actions), Basics of Turn and Falls; **BEACH KABADDI - DEFENSIVE TECHNIQUES (**Ankle Hold, Thigh Hold, Waist Hold), **OFFENSIVE KABADDI (**Raiding Path, Running Raid, Reverse Step Raid, Hand Touch, Toe Touch, Kick), **ORGANISATION: - RECREATIONAL, LEAD-UP, CONDITIONED AND SMALL AREA GAME (**Recreational Game related to games, Lead up activities for improvement of skill Practice in small area for perfection**), TALENT IDENTIFICATION AND DEVELOPMENT OF TALENTS:** Principles and Procedure for selection of Talents, Selection Criteria based on Scientific principles, Test and Measurement related to Kabaddi, using of test result for monitoring and control of Training Load, Development of Talent on basis of Long Term, Training Children at various age groups, Monitoring of progress of development of Talent in different aspects from time to time as per the need; **PLANNING AND PERIODIZATION OF TRAINING: Long Term Plan (**Importance, Stage of Long-Term Plan), **Short Term Plan (**Its Aim, Content, Methods & Means of Training), **Organization of Load and Recovery including Rehabilitation, Annual Plan of Periodization (**Single, Double, Multiple, Aim and content of Training for various stages, Methods & means of Training of various factors in different cycles(stages)), Preparation of Short- Term Training Plan based on long term training plans (Half Yearly Plan, Three Month Plan, Monthly Plan, Weekly Schedule, Daily Schedule, Session Plan, Team, Group and Individual Training Schedule; **PLANNING FOR COMPETITION (**Planning for competition, Competition for Schedule, Recovery before competition, Build – up competition, Decisive Competition), **DIRECT PREPARATION FOR MAIN COMPETITION (**Dates, Timing and cycle of matches, Recovery during tournament, Conditions for competition, Strong and Weak points of opponents' teams and individual players, Strong and weak points of individual and own team players, Means & Methods of recording the performance statistics, video, Analysis, observation, charts and tables, Education of players during training and competition), **EVALUATION OF COMPETITION PERFORMANCE (**Individual, Group and Team, Attack and Defense, Success and Failure, Various Means & Methods of recording the performance), **SPECIAL FEATURES OF TRAINING THE WOMEN PLAYERS (**Training during mensuration, Psychological Training, Plan for maintaining performance during rest period**), PSYCHOLOGICAL PREPARATION:** Long Term Preparation, Preparation during last days, Preparation immediate before the start of the match, Pep Talk during interval and timeout, Handling of the team/players in coaching camp and competition; **COMMON INJURIES IN KABADDI, REHABILITATION OF INJURED PLAYERS:** First Aid for Injuries, Rehabilitation Process, Recovery Period and Performance improvement; **ANALYSIS OF SPECIFIC PHYSICAL ABILITIES AND METHODS OF DEVELOPMENT:** Game Specific Requirement, Development: - Means & Methods, Progress Evaluation Methods, Position wise physical abilities development, Converting Special Abilities to meet game requirement; **SELECTION OF THE PLAYERS:** Selection of Players for Coaching Point **(**Short term, Long Term), Method of Selection of Players, Selection of Main Team/Players, Selection of Captain, Requirement of Captain; **ADVANCE DEFENSIVE TECHNIQUES:** Chain Holds - by cover & corner, Following Chains, Running Chain - Its Variation, Dive Catches, Support, During different

play of system, By different zone players, Combination Holds, Importance of super tackle; **ADVANCE OFFENSIVE TECHNIQUES:** Escape from Blocking and chain hold, Rolling & Falling Training - In & Out, Plunging through chain, Sliding & Jumping over the chain, Pursuit and lifting the antis, Importance of Do & Die raids; **TACTICS AND STRATEGIES:** Definition, Classification and development trends, Methodical Phases of Teaching & Training Tactics, Descriptive Analysis: - Basis & advance offensive and defensive of individual and group tactics, Attack Tactics, Defense Tactics, Support as Tactics, Match Tactics - according to situation; **PRINCIPLES OF PLAY: DEFENSE (**Aggressive defense, Passive defense, Fielding on bonus & baulk line, Substitution & time out, System as tactics, System of Play - Variation, Change in System - During Raid, According to raider attack, Defense during last 5min of game, Fielding - during Tie Breaker & golden raid, Defensive Footwork moves & strategy in super tackle, Positional Play and Support**); OFFENSE (**Raiding, Width & Depth in Raid, Penetration in Raid, Raid according to system of play, Raid tactics, Raid on Baulk & Bonus Line, Crossing bonus line, action of crossing bonus line (as tactics), Creating gap & Escapes, Choosing the raid (Tie Breaker, Golden Raid, Last 5 Min), Selection of raid during last 5min - Leading or Trailing, Offensive Footwork moves & strategy in super tackle; **PRINCIPLES OF PLAY - DEFENSE & OFFENSE: BEACH KABADDI (**System of play, Support, Tactics of raid), **INDOOR KABADDI (**System of Play, Support, Tactics of Raid, Width & Depth in Raid, Penetration of Raid, Raid according to system of play, Raiding Tactics), **MEANS & METHODS OF TRAININGTACTICS/STRATEGY (**Selection of Raid - During Tie Breaker, Golden Raid, Last 5 Min, Small Area games, Functional Training, Conditional Game, Coached Practice, Strategy & Tactics during Match situation), **POSITION PLAY (**Requirement of players for Specific Position, Choosing right player for right positional Play); **SPORTS MARKETING: INTRODUCTION TO SPORTS MARKETING (**Definition and explanation, Marketing Pioneers, Unique features of marketing, Importance of Sports Marketing, Impact & Effect of Sports marketing on players & sports), **CONSUMER BEHAVIOUR (**Sports Consumer - Professional, Educational & Recreational Setting, Internal & External Influencers, Decision making Process, Customer Motives, demand and Consumer satisfaction**), PUBLIC RELATION AND SPONSORSHIP (**Media & Community relation, Public Relation Tools, Image Enhancement, Sponsorship Trends, Endorsement, Planning & Sales Process, Sale Promotion, Advertisement Event Promotion & computer application, Communication Skill: - according to place, language & environment**), REQUIREMENT & QUALTIES OF PUBLIC RELATION MANAGER (**To promote sports and spread awareness through social media & advertisement, Knowledge about game, Good Personality, Communication Skills, Adequate Knowledge about Sports Marketing, sports equipment's & other sports related items)**; WARMING UP (**Stretching Before & after training, Pre & Post game & competition warm-up, Different methods of warming up: - Active, Passive, Equipment & with the help of partner, Prevention of Sports Injuries), **LIMBERING DOWN (**After training, Importance, Different Methods of limbering down, Effect on performance, Reduce risk of Injuries; **LEAD UP GAMES, SKILL DRILLS, GROUP DRILLS, TEAM DRILLS, RECREATIONAL GAMES, DEVELOPMENT OF SPECIFIC CONDITIONING ABILITIES THROUGH SUITABLE MEANS, DEVELOPMENT OF PERSONAL PERFORMANCE, DEMONSTRATION, TEACHING & TRAINING ABILITIES (ADVANCE TECHNIQUES) - KABADDI AND INDOOR KABADDI**: **DEFENSE** (Block, Chain Holds, Dive Hold, Supports, Combination Holds), **OFFENSE** (Falling & Rolling, Plunging through & jumping over

chain, Sliding, Pursuit, Turns, Lifting); **FUNCTIONAL TRAINING FOR DIFFERENT POSITIONS IN DIFFERENT SITUATIONS, PRACTICE OF THE TECHNIQUES & TACTICS UNDER VARIOUS SITUATION & COUNTER MOVES, DEVELOPMENT OF DEMONSTRATION & TEACHING ABILITY IN TEAM TACTICS THROUGH TRAINING, ANALYZING AND IMPROVING PERSONAL PERFORMANCE: PRINCIPLE OF ATTACK (**Raiding, Width & Depth of Raid**,** Penetration in Raid, Raid according to system of play**,** Raid on Baulk & Bonus Line, Crossing Bonus Line, Action of Crossing Bonus Line (Tactics), Action of Feint Movement: - Kick, Leg Touch, Bonus, Deceiving Defense through body movement to cross bonus line, Creating Gap & Escape, Choose the Raider, Selection of Raider during last 5 minutes, Type of Raid During: - Trailing & Leading, **PRINCIPLE OF DEFENSE (**Depth, width & balance (Small Area Games, Handicapped games, Set Plays, Practice under different number of players, Defense during: - Trailing & Leading, Defense during: - last 5 min, Tie Breaker & Super Tackle, Do & Die **,** Raid**), DEFENSE (**Aggressive**,** Passive**,** Field on Baulk Line, Bonus Line**,** Substitutions, Time Outs**,** System of Play - Variations**,** Change in system - During raid & according to Raider attack**,** Defense - During last 5 min**,** Fielding - During Tie Breaker & Golden Raid**), OFFENSE (**Raid according to System of Play**,** Raid on Baulk & Bonus Line**,** Creating Gap & Escape**,** Raid during Tie- Breaker)**, BEACH & INDOOR KABADDI (**Principle of Attack**,** Principle of Defense**,** Defense**,** Offense**), PEDGOGIC PRACTICE**

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems, Biomechanics & kinesiology, Sports psychology (motivation, resilience, anxiety management), Nutrition & hydration, Injury prevention & rehabilitation basics Growth, maturation & LTAD principles; **2. Pedagogy & Learning Science:** Motor learning & skill acquisition, Teaching styles & instructional strategies, Athlete-centered coaching approaches, Age-appropriate coaching (youth vs. senior athletes); **3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support; **4. Planning & Periodisation:** Micro, meso & macrocycle planning, Load management & tapering strategies, Competition calendar alignment, Recovery & regeneration principles; **5. Rules, Regulations & Governance:** Rules of the sport & latest updates, Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play, Institutional structure (SAI, NSFs, IOA, IOC, IPC), Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance; **6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports); **7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments; **8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART – A

SYLLABUS FOR KHO-KHO SPORTS

History and Development: History background of Kho-Kho in India , Asia and International Level, Present trend in the game at national and International level.**; Structure and functions of different (02) controlling bodies:** International (IKKFI) and Asian body, National Federation, State and District Associations, Relationship of National Federation with I.O.A., SAI etc.**; Rules of The Game and Officiating:** Terminologies of Kho – Kho (New Version)**,** Rules and interpretations, Qualities of technical officials and responsibilities of referee, umpires, scorers and time keeper, Rule Regarding Seven Side Attack in Kho-Kho (New Avatar), Principles and mechanism of officiating**; Organization, management and conduct of competition:** Competition system followed: International & National Championship and other level of Competitions, Formation of committees, Duties and functions of different committees, Preparation of Budget for conduct of tournament/competition, Drawing of fixtures-General and Technical rules**; Preparation of play field and it's maintenance:** Preparation of different surfaces (Mud & Synthetic) -Flood light arrangement -Method of Marking of the Ground -Laying of synthetic surface - Merits and Demerits**; Requirement of A Kho - Kho Player for High Performance:** Physique, Physiological Qualities, Physical abilities, Technical Skills, Tactical abilities, Intellectual, Social, Mental and Moral Abilities, Special requirement are seven Side Attackers in Kho-Kho & Wazir**; Warming – up and warm down:** Aim, Importance, Types, Methods and Means**; Lesson plan:** Teaching lesson plan, Training lesson plan**; Techniques of Kho- Kho:** Introduction, importance and classification of techniques, Stages and principles applied for learning in Kho-Kho, Methodical stages of teaching techniques, Practice - hints – corrections - encouragement-discussion**; Teaching, training and development of techniques:** Practice of technique under easy, different and complex Conditions, Teaching and training aids, it's importance, Methods and means of training technique, Reasons of committing faults, methods and means for identification of faults & correction in technique Performance and feedback, **Small Area Games and Their Usefulness, Means for Evaluation of Progress in Learning & Performance of Techniques:** Skill tests, Statistics and records, Game recording and Observation**; Importance, analysis with respect to movement Co-ordination mechanics and variation in techniques Kho-Kho defensive techniques:** Combination chains and mixed chains, Chain game when advance Kho is given, Reaching, settling, turning and pushing the post, Reaching post without taking entry, Front and back ring with and without fake, Half ring, combination of half ring and chain, Converting short to medium ring, Medium ring to long ring, Pulti-close and wide pulti (back dodge), Playing ring game (around the post) three cross lanes and post, Maintenance of the ring game, Pole Avoiding, Counter for Pole Dive and Judgment Kho, Counter for heel tapping, defensive technique Seven Side attacks; **OFFENSIVE TECHNIQUES:** Method of sitting in the chaser's block, Methods of giving Kho and their variations, Advance Kho and its variations, Pole turning and its variations, Covering on the cross lane and its variations, Angle of attack and its variations, Attack on post line and its variations, Tapping shoulder, Heel, Pole Dive and its variations, Judgment Kho and its variations, Offensive technique of Seven side attack; **Warming Up and Various Methods**: General and specific warming up, Free hand and Skipping rope exercises, Warm down exercises- procedures; **Warming Up**: Stretching before and after training,

Pre-game warm-up, Different methods of warming up; **Preparation, Marking and Maintenance of Ground:** Natural surface and marking, Laying of synthetic surface and marking; **Officiating and Organization of Competition Development of General Conditioning Abilities:** Development of endurance- Continuous method, Fartlek, Cross-country and interval method, Development of strength, Calculation of One RM, Weight training, partner exercises, own body exercises, medicine ball exercises, plyometric exercises, wall ball exercises, rope Climbing, mobility exercises, bench exercises and tier exercises, Development of speed uphill and downhill running, short sprints, strides, speed Forming Exercises and Use of signals during training, Development of flexibility active and passive flexibility exercise, PNF stretching, swiss ball Exercises, Development of motor co- ordination Running, jumping, turning, rolling, sudden changing life Direction, sudden stopping, pivoting and different footwork. • Stretching before and after activity, Agility Training Exercise to develop agility, sideward run Zigzag run, sudden change of direction, shuffling movement, Maze running, Obstacles run, Excercise to develop balance, kinesthetic perception and orientation and other required co-coordinative abilities**; Motor Abilities Test:** General, Specific**; Development of personal performance and Demonstration, teaching and training abilities kho-kho:** DEFENSIVE TECHNIQUES **(**Basic chains, combination chains, chain game when advance KHO is given, Reaching, settling, turning and pushing the post, Reaching post without taking the entry, Front and back ring with and without fake, Half ring, combination of half ring and chain, converting short to medium ring, Medium ring to long ring, Pulti -close and wide pulti, Playing ring game (around the post) three cross lanes and post, Maintenance of the ring -Pole avoiding, Counter for pole dive and judgment kho, Counter for tapping, Defensive technique seven side Attacks), OFFENSIVE TECHNIQUE (Method of sitting in chaser's block, Method of giving kho and its variations, Advance kho and its variations, Pole turning and its variations, Covering on cross lane and its variations, Angle of attack and its variations, Attack on post line and its variations, Tapping shoulder, Heel, Pole dive, Judgment Kho, Offensive technique Seven side Game)**, Organization of Recreational Game, Lead- Up Games, Conditioned Game and Small Area Game, Pedagogic practice,** Development of teaching practice, commands, class control and organization of drills, correction and use of teaching aids**, Yoga and Meditation, Talent identification and Development of Talents:** Principles and procedures for selection of talents, Selection criteria based on scientific principles**,** Tests and measurements related to KHO-KHO, using of test results for monitoring and control of training load, Development of talent on long term basis, Training children of various age groups**; Planning and Periodization Of Training:** Long- and short-term plan-importance - its aim, content, methods and means of Training, Single, double and multi Periodization, its aim, content, methods and means of Training of various stages, Preparation of training plan **(**Half yearly plan, Three month's plan, Monthly plan, Weekly schedule **,** Daily schedule, Session Plan, Team, group and individual training schedules)**; Competition in Kho-Kho:** Planning for competition and schedule, Recovery before competition, Build up and Decisive competition**; Direct Preparation for Main Competition:** Dates, timings and cycle of matches, Recovery during the tournament**,** Conditions of competition, Strong and weak points of opponent's teams and individual Players, Means and methods of recording the performance, statistics, video analysis, observation, charts and tables**; Evaluation of Competition Performance:** Individual player, Attack and defence, Success and failure, Various Methods and means of recording the performance. Special Reference to video analysis; **Special Features of Training the**

Women Players, Psychological Preparation: Long term preparations, Preparation during last Few days, Immediate preparations, Pep talk during interval, Specific Reference to the Handling of the team/players in coaching camp for Competition**; Common Injuries in Kho- Kho And Rehabilitation of Injured Players: Liaisoning With Physiotherapists, Analysis of Specific Physical Abilities and Methods of Development:** Requirement of games, Means and methods of development, Methods of evaluation of progress, Development of physical abilities as per the position (role), Converting special abilities to meet the requirement of Game, Special Requirements of Seven Side Team**; Selection of Players:** Selection of players from the coaching champs, Short terms, Long terms, Developmental champs (Organization of selection trails, General methods of selecting the players, Selection of main team (for specific role), Selection and qualities of a Captain)**; Advanced Defensive and Offensive Techniques in Kho- Kho:** Counter action for pole dive, judgement kho, tapping and pole avoiding, Attacks at the post, pole dive, judgement kho and tapping, Avoiding strong players during chain game defence, Placing the Chasers, Defensive Strategy and tactics of Seven Side Game; **Tactics and Strategies:** Defination, classification and development trends, Methodical phases of teaching and training tactics, Descriptive analysis of various basic and advanced offensive and defensive individual and group tactics, Tactics of attack and defence, Match tactics -according to situation; **Principles of play - Principles of defence (**Position, formation and movement at the beginning, Escapes (Individually and groups), Escapes from clubbing, Shifting position, disturbing the rhythm of attack, Entry during game, Positioning and shifting, order of running, placing the chasers, use of substitutes, Shifting position to safe place, Combination of chain and ring, positioning on central lane to escape, Selection of defender, order of defence/order of defence during tie break), **Principles Of Attack (**Initial and subsequent attacks, using reverse kho, advance kho after pole turning, Attack on shifting defenders, Double attacks, Attack during Entry)**, Offensive strategy for Seven side Game (**Use of clubbing, surprise attack and shifting of attack, Clubbing near the post, clubbing near the centre lane by using reverse kho, advance kho as tactics to clubbing, Surprise attack as tactic**,** Converting clubbing into surprise attacks -Surprise attack into clubbing, Attack during minimum chase, Substitution)**; Means and Method of Training Tactics/Strategy:** Small area games, Functional training, Conditioned game, Coached practice**; Positional Play:** Requirements of players for specific positions Nine & Seven Side**, Lead Up Games, Skill Drills for Techniques, Tactics, Group Drills, Team Drills, Recreational Games, Development of specific conditioning abilities through suitable means:** Development of strength, strength endurance, explosive strength, Development of speed endurance, Development of specific speed ability, Development of reaction speed, anticipation ability, complex reaction ability, Development of complex abilities through game, through different exercises, Development of special endurance (anaerobic power)**; Development of Personal performance, demonstration teaching and training ability defence:** Escape from pole dive, Escape from judgment kho in- between, Escape Tapping, Avoiding post OFFENSE, Pole dive, Judgment kho in-between, Flat dive -Reverse kh**; Functional Training for Different Positions in Different Situations: Practice of Techniques and Tactics Under Various Situations & Counter Moves - Principles of Play: PRINCIPLES OF DEFENSE (**Position, formation and movement at the beginning, Escapes (individually and groups), Escapes from clubbing, Shifting position, disturbing the rhythm of attack, Entry during game, Positioning and shifting, order of running, placing the chasers, use of substitutes, Shifting position to safe place, combination of chain & ring,

positioning on central lane to Escape, Selection of defender, order of defence/order of defence during the tie break, **Seven Side defensive Tactical Moves**), **PRINCIPLES OF ATTACK** (Initial and subsequent attacks, using reverse kho, advance kho after pole turning, Attack on shifting defenders, Double attack -Attack during entry, Use of clubbing, surprise attack and shifting of attack, Clubbing near the post, clubbing near the centre lane by using reverse kho, advance kho as a tactics to clubbing, Surprise attack as tactics, Converting clubbing into surprise attack, Surprise attack into clubbing, Attack during the tie break Substitution, **Offensive Tactics of seven side Move**)

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping

awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART – B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART-A

SYLLABUS FOR LAWN TENNIS SPORTS

Unit 1: HISTORY, DEVELOPMENT, EVOLUTION AND ORGANIZATIONS: Terminology in Tennis, Origin and Development of Tennis, Development of game in the World and India, Governing bodies and their Tournament Structure Iinternational: ITF, Davis Cup, Fed Cup, Olympics, Asian Games, Hopman Cup, Grand Slams, ATP, WTA, Junior Circuits. Domestic: TS, CS, SS, NS, Nationals, Inter- state. Role of SAI in Indian Tennis. **2. ITF RULES AND THEIR INTERPRETATION:** Knowledge AND Interpretation of the rules of Tennis and Mini Tennis, Mechanism of Officiating, Co-operation between, Chair Umpire and Line Umpires, Signals of the Chair Umpire and Line Umpires, Official Scorecard, Making Draws and Fixtures. **3. FACILITIES AND EQUIPMENT MANAGEMENT:** Developmental Tendencies in the equipment's and their role in the development of the game: Tennis Kit, Tennis Racquets, Tennis Balls, Tennis Net, Court Surfaces, Footwear, Tennis Court, Tennis Strings, Construction and Maintenance of different Tennis and Court surface. **4. REQUISITES OF A COACH:** Philosophy of Coaching and Concepts followed by a Coach, Qualities and abilities followed by the Coach, The Roles of a Coach and Coaching styles Communication skills for a Tennis Coach, The Business of Coaching, ITF Code of Ethics and TACP (Tennis Anti- Corruption Program) for Coaches. **5. REQUISITES OF A TENNIS PLAYER:** Physical Demands of a Tennis Player, Motor and Coordinative Abilities, Intellectual and Psychological Abilities. **6. TALENT IDENTIFICATION:** Introduction, Benefits, Limitations, Parameters used in Tennis for Talent detection **7. WARM UP, LIMBERING DOWN AND FITNESS (GENERAL AND SPECIFIC):** Principles of developing Fitness and its Guidelines, Warm up and Cooling Down, Fitness Components: Co-ordination and Agility, Balance, Endurance, Circuit Training, Speed, Strength and Power, Flexibility and Evaluating Fitness. **8: MINI TENNIS (ITF PLAY TENNIS):** Mini-Tennis Courts, Introduction to 10s Play & Stay, Mini Tennis – Stages & Goal of mini tennis, (Pathway for player development). **9. VARIOUS STAGES OF MOTOR LEARNING AND ITS PRINCIPLES:** How to buy a Tennis Racquet Ball Sense exercises with/ without Racquet and/or Ball Tennis readiness **10. FUNDAMENTALS OF TENNIS:** The Grip, The Timing, The Tennis Form, The Tracking, The Footwork, The Unit Turn, The Swing watch and hitting the Ball. **11. TENNIS TEACHING AIDS**: Off-court Instruction, make it yourself Aids, Available aids in Club/ Academy, Aids which can be purchased. **12. INTRODUCTION, IMPORTANCE AND ELEMENTS OF BASIC TECHNIQUES:** Various Types of Grips: Ground strokes: Forehand, Single/ Double han Backhand Service I, II, Net Game: Volley, Smash, Lobs. **13. DIAGNOSIS AND CORRECTION:** Handling the Racquet, preparing to hit, Ground strokes: Forehand, Single/ Double han Backhand
Service I, II, Net Game: Volley, Smash, Lobs. **14. BASIC STRATEGY AND TACTICS IN TENNIS:** Singles, Doubles. **15. BIOMECHANICS OF TENNIS AND ITS APPLICATIONS:** Developmental Tendencies in the equipment's and their role in the development of the game.
i. Balance ii. Inertia iii. Opposite Force iv. Momentum v. Elastic Energy vi. Co-ordination Chain BIOMEC Figure and application in stroke. **16. WARM UP AND LIMBERING DOWN (GENERAL AND SPECIFIC):** General warming up procedures and different exercises for warming up. **17. GENERAL TRAINING:** Co-ordination, agility and balance exercises (ladder,cones and dooms etc.) Basic endurance, continuous andinterval training, explosive strength and strength endurance, weight training, medicine ball exercises, Speed and speed endurance (sprints, relay races, court running, etc.), FLEXIBILITY**:** through passive stretching and ballistic stretch, PNF methods **18. MOTOR COORDINATION REQUIRED IN TENNIS:** Acceleration, change of direction, Quick start, suddenstop with specific footwork, Jumping on one leg and other coordination exercises, Opposite hand and leg movements, Motor coordination for stroke production. **19. BALL FEEDING:** Feeding variations to different level of players i. Hand: Drop and throw Feed ii. Racquet (static) Feed iii. Rally Feed iv. Live ball drills. **20. TECHNIQUE OF SPORTS:** Ball sense exercises- with and without racquet and/or with ball, Development ability to demonstrate and personal, Performance. Grip, ready position, back swing, poin of impact, follow through of BASIC strokes: Ground strokes: Forehand, Single Handed Backhand, Double, Handed Backhand, Service I, II, Net Game: Volley, Smash Lob, Moving Strokes,Applying Biomechanics in Strokes, Error and Correction techniques of Basic strokes. **21**.**MINI TENNIS**: Variation of equipment's and Marking Mini-Tennis Courts, Introduction to 10s, Play & stay **22. DEVELOPMENT OF CONSTANTVOLLEYING POWER, SPEED AND POWERBEHIND THE STROKES, TARGET PRACTICE AND CORRECTIONS. 23. SIMPLE TEACHING AND COACHING. 24. PREPARING ONE DAY SESSION(S) PLAN 25. RUNNING A**

COACHING CENTER & MAINTENANCE OF A COURT 26. GAME PLAY: APPLICATION OF STRATEGY AND TACTICS. 27. PSYCHOLOGICAL PREPARATION (MENTAL TRAINING) FOR TOURNAMENT PLAYERS: Motivation, Concentration, Self confidence, Emotional control, Relaxation Techniques, Mental performance in tournament play. **28. TRAVELLING WITH TOURNAMENT PLAYERS:** Responsibilities of a Coach (Captain), Developing Professional Attitude in young Players, what to do before, during and after the match. **29. COACHING/TRAINING FEMALE TENNIS PLAYERS**: Characteristics of Female player, Ideas for teaching Female players & its application. **30. GOAL SETTING FOR TOURNAMENT PLAYERS:** Goal setting applied to Tennis, Practical applications**. 31. NUTRITION FOR A TENNIS PLAYER:** Basic Principles of Nutrition, Eating for Practice and Competition, Drink to Win. **32. INJURY PREVENTION IN COMPETITIVE SPORTS**: The coach and sports medicine, Most common injuries in tennis and their prevention, Other common issues in tennis: drugs and doping. **33. PLANNING THE TENNIS TRAINING:** Introduction to periodization, Pluriannual cycle, annual plan, macrocycle, mesocycle, microcycle, daily plan and training session, Training guidelines for the different phases of the annual plan. **34. ADVANCE STRATEGY AND TACTICS:** Principles for strategy and tactics in Singles Play, Factors influencing Match Play, the different game styles and the ways to counter, Tactics used in five game situations, Strategy and Tactics for Doubles. Mentality for tournament Doubles Play:How to choose a Doubles partner, Communication in Doubles, . What to do during the match in Doubles. **35. AWARENESS OF STANDARDS AND ANALYSIS OF PLAYERS:** Long term planning for a tennis player, Player profiling, Guidelines for training plan (according to appropriate age group) **36. THE TRAINING SESSION: DRILLS, GROUP AND INDIVIDUAL TRAINING:** Introduction, principle and general structure, Drills planning and structure, Group training plan iii. Individual training plan. **37. WARMING UP AND COOLING DOWN**: General warming up procedures and different exercises for warming up during tournament.**38. METHODS AND DEVELOPMENT OF TEACHING ABILITIES AND TECHNIQUE, DIAGNOSIS AND CORRECTION:** Types of correction for tournament players, when to correct, how to correct tournament players, Correction techniques and methodology, Correction tips (teaching aids). **39. ON COURT MOTOR COORDINATION, DRILLS FOR ELITE PLAYERS. 40. DEVELOPMENT OF PERSONAL PERFORMANCE AND PERSONAL ABILITY TO DEMONSTRATE IN:** Advance techniques: i. Ground strokes, Service, Smash, Lob: flat, slice, topspin. ii.Volley: low, high, stop, drive, drop, touch, punch, lob volley(half) iii. Return of service: drive, chip, block and other variations of drives. iv. Rally, power behind the strokes v. Kill and finish for Approach and passing shots vi.Counter from baseline and net game. vii. Emergency shots, Shadow drill and sequence of approach, Defensive technique: footwork and movement, large number of rallies to specific targets. **41. OFFENVSIVE TACTICS AGAINST VARIOUS TYPES AND STYLES OF (LEFT-HANDED PLAYER, PLAYER, SERVE AND VOLLEYERS/ NET RUSHERS AND BASELINERS ETC.) 42. DEFENSIVE TACTICS AGAINST VARIOUS TYPES OF PLAYERSDEFENSIVE TACTICS AGAINST VARIOUS TYPES OF PLAYERS:** Use of variations to exploit the weakness in the opponent's game, Against hard hitters, counter punchers, net rushers, allrounder's, Lob return, chip and charge, block return of service. **43. DEMONSTRATION AND TEACHING ABILITY OF GROUP AND TEAM PRACTICE THROUGH ANALYSIS AND IMPROVEMENT OF PERSONAL PERFO:** Teaching and training of individual tactics, Variations in individual tactics Adjustment to various surfaces, Pace and controlled pace, Passing and approach shots with variations **44. STRATEGY AND TACTICS FOR ELITE PLAYERS:** Singles Game, Doubles Game **45. SPECIAL DRILLS FOR VARIOUS, ADVANCE SKILLS. 46. MATCHES AND GAME PLAN: Beginners:** Fundamentals of basic strokes, **Intermediates:** Biomechanical approach on drills for different skills, **Advance players:** Physical and Psychological fitness, technical strength and their implementation. **47**. **ANALYSIS OF GAME PLAY:** Application of Strategy and Tactics, Match Analysis and Match Charting, Evaluation of Progress and Training Program, Observation of Matches, Competitions, Statistics.

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear

Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m

sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

PART- C

4. General Awareness
5. Reasoning
6. Aptitude

PART- A

SYLLABUS FOR ROWING SPORTS

INTRODUCTION TO ROWING: Rules and Interpretations (FISA, RFI)**; Important Terminology Used in Rowing Facilities and Their Management**: Construction of Boat House, Boat Jetty, Laying of Rowing Tracks, Maintenance of Training Boat**; TRAINING AND CONDITIONING IN ROWING:** Specific Warming up and cooling down **(**Training, Competition), **Land conditioning in Rowing (**Iso-Kinetic machine exercises, Strength Training, Circuit Training, Core training Indoor rower, History and development, Assembling of indoor rower, Analysis of monitor, Various standardized test conducted on Indoor rower, Indoor rowing competition); **TEACHING ROWING AND SCIENTIFIC PRINCIPLES INVOLVED IN ROWING: Teaching Rowing to beginners (**Indoor Rower • Paddling pool, Trainer boat Safety& Rescue, Basics of swimming, Safety Guidelines, Personal Safety, Self-Rescue, Assisted rescue, At Boat house, On Water), **Mechanical Principles involved in Rowing (**Resistance effected in boat, Motion of the boat)**, Bio Mechanics of Rowing; BASIC RIGGING AND TECHNICAL ANALYSIS OF STROKE PATTERN: Basic Rigging (**Oars setting, The angle, height and placement of the foot stretcher, The height of the swivel, The spread in sculling and sweep rowing Technical Analysis of stroke Pattern), Drive phase, Recovery phase, Transition elements of stroke, Stroke Length, Speed of the boat**; Introduction of Rowing boat and equipment:** TERMINOLOGY used in Rowing, Parts of boat, Taking out of Boats, Return to stand, Parts of Oars**; Safety& Rescue:** Basics of swimming, Safety Guidelines, Personal Safety, Self-Rescue, Assisted rescue**; Facilities and their management:** Laying of rowing tracks, Construction of boat house, boat jetty**,** Maintenance of training boat, Basic Motor boat operations

Specific Warming up and cooling down: Training, Competition**; Teaching Rowing to beginners:** Swimming lessons, Indoor Rower, Paddling pool**; Mechanical Principles involved in Rowing:** Resistance effected in boat, Motion of the boat, Bio Mechanics of Rowing**; Technical Analysis of stroke Pattern:** Drive phase, Recovery phase, Transition elements of stroke, Speed of the boat**; Rigging:** Oars setting, The angle, height and placement of the foot stretcher**,** The height of the swivel, The spread in sculling and sweep rowing**; Land conditioning in Rowing:** Iso-Kinetic machine exercises, Strength Training, Circuit Training, Core training**; Interpretation of Rules. Faults and Corrections. Common injuries in Rowing:** Interpretation of Rules **(**Rules of Racing and related Bye-Laws, Para Rowing rules), Faults and Corrections (Importance**,** Methods, During Training, During Competitions)**; TESTS AND CONTROL:** Tests and Control **(**Maximal Test - 2000M, Sub maximal Test, 1 min max, VO2 max, 10 sec max)**,** Control **(**Daily, weekly, monthly, Quarterly)**, Programming, Advanced Rigging and Monitoring Devices (**Fundamentals of preparing a training, Schedule for Rowing, Planning in Rowing, Means and methods of training, Crew Selection - Seat Racing, Race plan**,** Nutrition and Hydration)**,** Advanced Rigging & Monitoring devices **(**Pitch of the Oar lock, Pitch of the Oar, Rigging Chart, Stroke Coach, Speed Coach, Stop watch, Familiarization of internet and MS Office in Sports training, Video analysis of International coaching classes)**, Identification of Talents, Knowhow of other Rowing activities (**Anthropometrical aspects of trainee, Basic motor qualities, test and measurements, Physiological, Psychological, Selection criteria)**,** Knowhow of other Rowing activities (Para Rowing, Costal Rowing**,** Masters Rowing)**, Application of Rules**

(Rules of Racing and related Bye- Laws, Para Rowing rules**), Faults and Corrections (**Methods, During Training**,** During Competitions)**, Teaching and Coaching Practice (**Causes, Prevention)**, Indoor rower (**Assembling of indoor rower, Analysis of monitor, Different training in Ergo meter)**, Advanced Rigging & Operations of Monitoring devices (**Pitch of the Oar lock, Pitch of the Oar, Rigging Chart ,Stroke Coach, Speed Coach, Stop watch)**, Identification of Talents (**Anthropometrical aspects of trainee, Basic motor qualities, test and measurements, Physiological, Psychological, Selection criteria)**, Programming (**Fundamentals of preparing a training schedule for Rowing, Planning in Rowing, Means and methods of training, Crew Selection - Seat Racing, Race plan)

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being,

Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART- B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART- A

SYLLABUS FOR SHOOTING SPORTS

Introduction to shooting: History of shooting & latest trend, Structure & functions of shooting controlling bodies, Latest training aids, Entry into shooting sport**; Rules of shooting & coaching implication:** Rifle rules**,** Pistol rules**,** Shotgun rules, Nutrition &Doping**,** Management of competition**; The coaching profession:** Task of a coach & Coaching Philosophy**,** Coaching of a training session (action involved to conduct a session)**,** Skills required by the coach**,** Skills required by the coach**; Development of "game sense":** Game – technique – game –technique – game, Game without pressure – introduce competition – competition with more decision making; **Coaching Methods:** Different coaching methods, Choice of methods and it's implication, Requirement of a player for high performance, **Warming – up and cool down before & after training session & match:** Importance, factors and means & methods; **Ballistics & Auto Operations:** Internal ballistics, Intermediate ballistics, Terminal ballistics, Auto operations I, Auto operations II; **Modern trends of training in shooting A modern scientific approach:** Physical condition and today's game some facts & figure, Development of Motor abilities keeping in mind the modern trends, Scatt & Trace, Assessment of shooting performance by conducting tests and its comparison; **Demands of training and coaching:** Basic factors of performance (Condition – Physical aspect, Technical skills, Tactics, Mental factors), The systematic aspect of training procedures (Training plans, Training Contents, Training methods, Training loads, Training objectives, Demands from the coach, Coaching Cycle)**; Role of lead up game and National Selection Policy; Range preparation:** Match settings through SIUS software, Layout of range and safety aspects**; Fundamentals:** Stance, Holding, Aiming, Trigger operation, Breathing, Follow through, Call the shot, Practice, Match conditions**, Scatt & Trace, Rules of the Game, Pressure situations & match conditions, Pedagogic practice – teaching, training and coaching, Motor Skill learning:** Definition & overview**,** Classification of motor skills**; Scheduling practice:** Massed & Distributed practice, Constant & Variable practice, Blocked & Random practice, Whole & Part practice, Practice variable, Contextual interference; **Improving performance though mental practice**: Pettlep Model, Performance routines, The five step strategy, Identifying the core components of action; **Breathing and Muscle tension / relaxation:** Arousal & Self-regulation overview, Breathing & respiratory pause, Tension relaxation & response; **Motivational Climate for Optimal learning and performance:** Introduction, Attribution theory, Achievement goal theory, Self-determination theory; **Performance Profiling**: Overview, Introduction, How to conduct performance profiling, Assessment; **Goal Setting:** Definition & types of goals, Why goal setting works, Guidelines for goal setting, Goal achievement strategies; **Talent Identification and its development by LTAD:** Age group training in relation of physical, physiological, technical , tactical and psychological development, Methods and procedure of scouting of player from grassroots level to professional level, **Selecting a team for team / mixed events, Planning & periodization:** Annual plan (Macro Cycle) : Pre- season, in season & off season, Meso-cycle, Micro cycle & Myo- cycle plan, Aims and training contents in each season (periods), Tactical periodization; **Special feature of training of women Competition Preparation:** Media relation & public speaking; **Scheduling Practice:** Training program (Designing a program, Classification, Individual VS Group), **Styles** (Massed & Distributed, Constant & Variable, Blocked & Random, Whole & Part), **Breathing & Muscle relaxation,** Respiratory

pause (Normal breathing cycle, Shooters breathing cycle), Tension Relaxation & response, **Motivation**, **Performance Profiling**, **Goal Setting**, **Talent Identification Specialization - "Rifle" Theory:** Shooting positions, Standing – Prone Kneeling, Biomechanics analysis of the position: Feet, legs and hips, position, Position of the back and shoulders, Left arm and elbow, position, Right arm position, Position of the head, Position of the butt plate in the shoulder and length of the rifle stock, Body balance, rifle balance & balance system shooter-rifle, Various position modifications in relationship with body constitution of the shooter, Position and size of the shooting cushion, Length of the sling, Differences in position between AR and FR, Aiming & Sighting Technique –Standing, Prone & Kneeling, Triggering Technique – Standing, Prone & Kneeling, Breathing Technique– Standing, Prone & Kneeling, Shooting in different weather conditions, Weapon maintenance; **Specialization – "Rifle" Practical:** Methodology of approaching and taking shooting position – Standing, Prone, Kneeling, Establishing middle line of position, Establishing" Zero Point" in the middle of the target, Position correction, for each position, Correction of the sighting elements on the rifle & sling corrections, Exercises for developing basic shooting skills, Work with beginners– didactical approach, siting position, standing position with support, Developing Shooting School System, How to aim, Size of the ring and opening of the blend, Approaching center of the target, Grip and gripping, Aiming – Breathing coordination, Detecting critical point based on shot group, Detecting critical points based on rifle recoil, Corrections of the most common mistakes, Tactics in shooting, Shooting diary, Use of optoelectronic equipment, Weapon and ammo testing; **Specialization – "Pistol" Theory**: Requirements for building a correct shooting stance, The leg position, The body position, The arm & hand positions, The head position, The gun gripping technique, Vertical movement to target (for precision disciplines and SP RF), Horizontal movement with transition (RFP), Sighting techniques for precision disciplines, Sighting techniques for SP RF, Sighting techniques for RFP (vertical and horizontal), Triggering techniques for each discipline (precision and dynamic), Follow through, Shooting in different weather conditions, Weapon maintenance; **Specialization – "Pistol" Practical**: Methodology of approaching and taking shooting position, Air Pistol, Sport Pistol, Rapid Fire Pistol, Establishing middle line of position, Establishing "Zero Point" in the middle of the target, Position correction, for each discipline, Corrections of the grip, and proper grip fitting, Exercises for developing basic shooting skills Work with beginners– didactical approach, siting position, standing position with support Developing Shooting School System, How to aim and sight Approaching center of the target, Grip and gripping Detecting critical point based on shot group, Corrections of the most common mistakes Tactics in shooting, Shooting diary, Use of optoelectronic equipment, Weapon and ammo testing; **Specialization – "SHOTGUN" Theory**: The shooting stance, The body position, The arm & hand positions, The head position, The gun hold positions, The eye hold positions, Initial movement to target, Transition phase of movement, Sight Picture, Triggering, Post-Shot Actions, Shooting styles; **Specialization – "Shotgun":** Methodology of approaching and taking shooting position, Position correction, for each discipline, Corrections of the shotgun grip, and proper gun fitting, Exercises for developing basic shooting skills, Work with beginners – didactical approach, skeet position, trap position, Developing Shooting School System, How to determine when to move to the target, Good and bad components of different styles, Shooting in different weather conditions, Corrections of the most common mistakes, Tactics in shooting, Shooting diary, Use of video equipment, Ammo testing

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication

with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive

Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART- A

SYLLABUS FOR SWIMMING SPORTS

History - Development & Organizations: History of Swimming -World, Asia, India, Development of modern competitive strokes; **Swimming Federation of India Organization structure and functions recognized by - 10A, SAI, MYAS (Its affiliated State Units) - Pre-requisites of a Swimming Coach:** Qualities, Duties & Code of Conduct of a Swimming Coach, Role and responsibilities of coaches at different level; **Rules & their Interpretations in swimming -** World Aquatics Organization, structure and its functions Swimming Competition, Rules-regulations & Interpretations, **Technical Analysis of Front Crawl:** Head position, The body position - Horizontal body alignment, Lateral body alignment, Breathing, Body roll, The Arm stroke, The Flutter kick, Coordination, Starts: Various starts - Grab start, Track start & circular arm swing start for free style (relay), use of 5th Stroke (Under water kick), Turns: Various turns - Open turn, flip turn, Advantages of flip turn over open turn. Use of 5th (under water kick), Finish: As per World Aquatics Rules, Front Crawl events; **Technical Analysis of Back Stroke:** The Back Stroke: Head position, Body position; Leg kick, Under water kick, Arm Action-Pull, The Recovery, The Breathing. The Coordination, Start-Use of Backstroke Ledges, Under water kick (5th Stroke), The Turns-Simple turn, roll over turn, under water kick (5th stroke), Finish As per World Aquatics Rules; **Technical Analysis of Breast stroke:** Introduction, Head position, Body position, Arm action-Pull, Recovery Breathing, Leg Action (Whip kick, wage kick), Coordination, Breast stroke start (as per World Aquatics Rules, pull out), Breast stroke turn, The finishes of Breast stroke event; **Technical Analysis of Butterfly Stroke:** Introduction- Head position, Body position, Arm action-Pull, Recovery, Breathing, Dolphin kick-Under water kick Coordination, The start, The turn, The finish of Butterfly events; **Individual Medley events switch over turns:** Butterfly to Backstroke, Backstroke to Breast stroke, Breast stroke to Freestyle; **Faults and Corrections of all four Competitive Strokes:** Definition, Causes of faults, Types of faults, Methods of correction of faults, Common diseases & injuries of Swimmers, their causes and Prevention in competitive swimming; **Facilities and their Management:** Swimming Pool Maintenance, Chemicals required for maintenance &Pool water tests, Safety & hygenic rules Maintenance of swimming pool equipment; **Organization and Management of competition:** Swimming, Water polo, Diving; **Teaching swimming to the beginners (Learn to Swim):** Teaching basic swimming skills-Submerging, Jumping Fisting, Locomotion and Breathing, Methods of teaching; **Diet & Nutrition for Swimmers:** Objectives, Diet during training (Pre-training, during training. post training), Tips on food, selection, Fluid and Glycogen replenishment, Tips for maintaining body weight, Vitamins and Minerals, Competition day diet (Pre- competition, during competition, post competition); **General & Specific warming up:** On land, In water-Methods, Means & control load; **Development of General conditioning abilities:** Freehand Calisthenics exercise, Development of basic Endurance in Swimming; **Development of basic strength, speed, flexibility & coordination abilities required in swimming on land; Development of personal performance & demonstration Ability in:** All four competitive swimming strokes, Turns in all competitive swimming strokes, Starts of all competitive swimming strokes; **Teaching (Pedagogic) Practice:** Teaching Lesson plan; **Test and Measurement:** General fitness and technical performance in strokes (Endurance test (1500m/800m), I.M. Test (400m /200m), An Olympic event test);

Water Polo (W/Polo): Interpretation of World Aquatics**,** Beginners exercises for ball handling, individual, pair & group exercises**,** Category of passes**,** Types of passes**,** Types of W/Polo shots**,** Specific training for W/Polo players & goal keepers; **Diving: (Spring board, High board, Synchronized diving):** Interpretations of FINA Diving Rules**,** Pre-requisites of a Diver for high performances**,** Teaching basic Dives to Novices**; LIFE SAVING :** Methods (Direct, Indirect)**,** Approach factors, Causes of drowing, Types of holds& Releases, CPR**,** Mouth to Mouth, Resuscitation**; Criteria for Life Guard selection:** 500m – 10mins, Underwater swimming – 20mtr, Picking up 25kg object from pool bottom, Toeing victim 25 mtr.,25m sprint Basic First Aid; **Indentification of Talent and Development : Long Term Athlete Development Plan (LTAD) - Training Sets,** Various Training sets/workouts used in swimming training; **Specific Swimming test: Swimming performance ability test: Endurance test** : 800m test, 2000m test, 20*50m test (R.I.10 Sec at 905); **Swimming technique, start & turn evaluation test:** Technique check list, Start & Turn Test**,** Stroke frequency test, Stroke length test, Maximum Heart rate test; **KHELO INDIA Proposed Test:** T 3000**,** T 20**,** 4*150 I M kick, 4*25 explosive (IM) @ 2'**,** 1000M mix IM (400 free, 300 back,200 breast ,100 butterfly), 4 * 200 step Test**,** 8 * 50 efficiency test; **Training load (Basic and high performance:** Types**,** Principle of load, The components of load**,** The volume, The speed/intensity, Interval of test, Frequency, Principles of DIRT**,** The judgment of load**,** The arrangement of load; **Fundamentals of preparing training schedule. (Macro, Meso, Micro & daily Session): The Warming up (**Warming up during training & Types of Warm-up, Warming up-during competition & Types of Warm up), **Limbering down (**During Training, During Competition)**; Planning and Periodization:** Short term planning**,** Long term planning, Lesson plan, Single periodization, Double periodisation**,** Multiple periodisation, Block periodisation**; Training systems:** Zone 1-Aerobic (A1, A2, A3), Zone 2- Anaerobic Threshold, Zone 3-High performance endurance, Zone 4-Anaerobic (Race-Pace training, lactic acid accumulation)**,** Zone 5-Sprint (alactic); **Competition warming up (Pre-race warm up):** Methods, Means and Control of load (Appropriateness for the targeted events); **Development of personal performance and demonstration ability in (**All four strokes. starts, turns & finishes, Stroke Techniques), **Development of specific land conditioning abilities**, **Personal performance and demonstration ability in Diving and Water Polo Life-saving skills practice**, **Tests and measurements-Swimming tests, Teaching (Pedagogic) practice:** Teaching lesson plan, Training lesson plan; **Active Recreation:** In water, On land.

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART- B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages,

Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

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Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

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Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation,

explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART- A

SYLLABUS OF SEPAKTAKRAW SPORTS

Introduction to Sepaktakraw: Brief History & Development of Sepaktakraw, Origin of the name (Sepak & Takraw), Evolution from Sepak Raga to modern Sepaktakraw, Terminology used in Sepaktakraw (Regu, Tekong, Feeder, Striker/Killer), Structure & Function of ISTAF (International Sepaktakraw Federation), ASTAF (Asian Sepaktakraw Federation), and STFI (Sepak Takraw Federation of India);

Methods of Coaching: Fundamental Postures and Stances, Principles of Teaching & Coaching Sepaktakraw, Class Management; Drills in Sepaktakraw: Types: Teaching, Training and Competition Drills, Criteria for the selection of Drills, Designing New Drills for Kicking and Spiking.

Rules of Sepaktakraw and Officiating: Official Laws of the Game (ISTAF), Latest Amendments of rules & their Interpretation, Specifications of the Court (Center line, Quarter circles, Service circle), Specifications of the Post and Net, Specifications of the Sepaktakraw Ball, The Players (Regu, Double Regu, Team, Quadrant), Substitution Rules, Scoring System, Penalty Cards (Yellow/Red), Mechanics of Officiating, Duties of Referee, Assistant Referee, Court Referee, and Line Judges.

Warm-up and Cool-down: Advantages of warm-up & cool-down, General, Specific & Competition warm-up for Sepaktakraw, Warm-up using Lead-up games (Circle Takraw), Flexibility exercises for high kicks and spikes;

Organization and Management of Competition: Competition Systems in Sepaktakraw: Knock-out, League, Combination, Drawing of fixtures; Preparation of Match Schedule & Result Sheet; Qualification and Competition system of major Sepaktakraw Competitions: Asian Games, SEA Games, World Championship (King's Cup), National Games, National Championship (Senior/Junior/Sub-Junior), School National Games (SGFI).

Basics of Technique Teaching: Principles and stages of motor learning in Sepaktakraw, Analytical **Description of fundamental techniques:** Inside Kick, Instep Kick, Knee/Thigh Kick, Toe Kick, Header, Sole Kick; Identification of faults and their correction; Assessment of Fundamental Techniques using Qualitative & Quantitative methods; Advanced Techniques: Service Skills (High Serve, Drop/Sole Serve, Horse-kick Serve), Spiking Skills (Roll Spike, Sunback Spike, Half-Sunback), Blocking Skills (Back Block, Leg Block), Feeding Skills (Setting with Inside/Knee/Head).

Development and Assessment of General Motor Abilities: Aerobic & Anaerobic Endurance for long rallies, Explosive Strength for jumping (Vertical Jump), Core strength for stability in air, Flexibility (Hip mobility and Hamstring flexibility), General Speed, Motor coordination, Test, Measurement & Evaluation of General Motor Abilities**;**

Prerequisites of Sepaktakraw Players: Performance structure, Physique (Anthropometrical demand for Tekong vs Striker), Motor and conditional abilities, Technical and tactical abilities.

Basic Tactics and its Development in Sepaktakraw: Definition, Classification and importance of tactics; Descriptive analysis of offensive and defensive individual tactics: Service placement, Feeding consistency, Spike placement, Block positioning; Analysis of Basic Group/Team Tactics: Service Strategies (Targeting weak receiver), Attacking Formations (2-1 Feeding system), Defensive Formations against Service, Defensive Formations against Spike (Blocking coverage).

Planning and Periodization in Sepaktakraw: Short term plan, long term plan and training concepts; General requirements and steps for planning Annual plan / macro cycle plan; Aim, contents, and characteristics of various periods (Preparatory, Competition, Transition); Preparation of meso-cycle, micro-cycle, training session; Individual training program for Tekong, Feeder, and Striker; Talent Identification: Criteria for Talent Identification in Sepaktakraw (flexibility, acrobatic ability, ball control), Procedure of Talent Identification, Long-term Athlete Development, Criteria for selection of Starting Regu.
Psychological Preparation: Importance of Psychological Training for high-pressure serving/spiking, Psychological qualities required for a Sepaktakraw player, Methods to develop Psychological Qualities (Visualization, Self-talk, JPMR, Imagery), Planning of Diet Before, during and after match/competition; Performance Analysis and Scouting: Methods of Performance Analysis in Sepaktakraw, Observation method, Video recording and analyzing technique (Service direction analysis, Spike efficiency), Scouting of the opponents.

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching

styles & instructional strategies, Athlete-centered coaching approaches, Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning, Load management & tapering strategies, Competition calendar alignment, Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates, Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play, Institutional structure (SAI, NSFs, IOA, IOC, IPC), Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities,

Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body

weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non-traditional implement training; **Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training, Programme design for plyometric training, speed and agility training and balance, Strength training for different population (children, females and senior citizens), **Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed, Meaning and definition of Agility, quickness and balance, importance and programme designing; **Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility, Programme designing and methods of flexibility training; **Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position, Types of planes and axes, Definition and explanation of various fundamental and auxiliary movements; **Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of

muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance

relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium),

Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude.

PART -A

SYLLABUS FOR TABLE TENNIS

General Topics: History and Development of Table Tennis -(3Hrs), Warm-Up & Cooling Down -(3Hrs) (General, Specific)); **Laws, Rules, Regulations & Terminology of the Game:** Constitution of ITTF, Mechanism of Officiating, Qualities & Duties of Referee and Umpires, Terminology of Game; **Techniques and Their Development:** Pedagogical principles in Table Tennis Teaching and Practice -(2Hrs), Basic Techniques (Grip & Stance Position -(2Hrs), Different Types of Footwork -(2Hrs), Backhand Push -(2Hrs), Forehand Push -(2Hrs)); **Techniques beyond the Basic:** Backhand Counter Attack without Rotation -(2Hrs), Forehand Counter Attack without Rotation -(2Hrs), Forehand Topspin Attack-(2Hrs), Backhand & Forehand Block -(4Hrs), Service Execution & Service Receiving -(6Hrs); **Draws of Fixtures:** Introduction, Knock Out Competition (Seeding, Byes, Qualifiers), Double Knock Out Competition, Progressive Knock Out Competition, Group Competitions, League cum Knock Out Competition; **Advance Techniques & Elements of Tactics and Strategies:** Forehand Power Drive, Forehand Smash, Chop to Chop Sparing play, Elements of Tactics and Strategies (Definition & Classification of Tactics, Description of Tactics, Regular Sequences, Semi-Regular Sequences & Irregular Sequences, Coaching Hints under the Competition situation, Pre-Competition, Post Competition, During Match); **Miscellaneous Organization and Management of Competition & Facilities, Equipment and It's Developmental Process - General and Specific Warming up:** Active and passive Stretching Exercises, Jogging, Co-ordination Exercises, Shadow practice (Shadow practice for foot work, Shadow practice for Techniques with heavy Racket, Thera-band and Thera-Loops); **General Motor abilities development:** Basic endurance with Variations, Explosive Strength and Strength endurance with weight training, Plyometric exercises and medicine Ball exercises, etc., Maximum Speed and Speed Endurance through Sprints, relay races, skipping rope and other high-speed footwork exercises, Agility, change of direction and Other Specific movements related to Table Tennis, Flexibility through active and passive stretching; **Motor Co-ordination required in Table Tennis:** Jumping, Hopping and Skipping, Motor Co-ordination exercises for hand, eye and foot Co-ordination; **Basic Technique & Development of personal performance and demonstration ability:** Grip and Stance position, Without ball shadow practice for various Techniques, Service execution including high toss services, Backhand and Forehand Push, Backhand and Forehand without rotation attack; **Different Techniques practice:** Backhand and Forehand Block Different Services execution including high toss service, Forehand topspin drive, Chop to Chop Sparing play; **Common tactics used against all type of players:** Switch tactics, Switch the Switch tactic, Wide ball tactic, Down the line tactic, X – point and Body line tactic, Half long and short service as Tactical game plan for third ball attack tactic, Regular, Semi-Regular & Irregular Sequences of Play, How to play against different type of players Such as: Attacker, Defensive Player, All round type of Player, Left-handed Player, Pen holding grip Player; **Strength & Conditioning Exercises for Table Tennis: (Basic Level):** Specific Shadow Exercises, Muscle Co-ordination, Footwork, Core strength, Plyometric Exercises; **Talent Identification in Table Tennis:** Definition & Principles, General & Specific Motor Abilities, Tests and Parameters; **Planning & Periodization in Table Tennis:** Definition & It's Principles, Types of Formulation (Long Term Plan, Annual Plan, Training Plan); **Advance Techniques:** Backhand Topspin Drive, Backhand Power Drive, Backhand Smash, Forehand & Backhand Long Table Défense, Forehand & Backhand Loop Drive, Different

Types of Flicks Including Banana Flick; **Multi-Ball Training:** Definition & Description, Feeding Mechanism (Regular Sequence, Semi-Regular Sequence, Irregular Sequence), How to Feed in the Different Stage of Training, Physical Specific Movements, Tactical Drills through Multi-Ball, Types of Exercise Through Multi-Ball; **Psychological preparation of Table Tennis Player & Special Feature of Women Training:** Methods for Development of Prerequisites, Questionnaire, Mental Techniques, behaviour Analysis, Psychological preparation for Training, Special Features of Training for women athletes & Sports Person with Extraordinary characteristics; **Table Tennis Tactics:** Offensive Tactics, Defensive Tactics, Tactics Against various Type of players, Tactics for Doubles, Method & Means for Tactical Training, Match Strategies; **Requisite of Player for Higher Performance:** Introduction, Development and Training of various age group, Physical, Physiological, Psychological, Technical, Intellectual level, Pedagogical Training Principle for Table Tennis; **Means of Evaluation To check the Training Process:** Match Observation & Match Analysis, Recording of Performance, Statistical Analysis; **Preparation for Competition:** Replicating Match Conditions, Managing Competition, Build up Competition with Specific Tasks and Psychological Preparation, Pep Talk, Advice during The Competition; **Advance Technique Practice:** Long Table Defense Forehand and Backhand, Backhand Topspin Drive, Backhand Power Drive, Backhand smash, Backhand and Forehand Loop Drive, Different types of Flicks including Banana Flick, Tactical Practice for Doubles and Team Events; **Multi-Ball Training System:** How to feed Multi-Ball to Beginner level Players - Technique Learning Phase – along with Footwork and Stroke Execution, How to feed Multi-Ball to Medium level Players - Technique Perfection Phase – Speed and Spin Variations, How to feed multi-ball to advance Players - Technique Mastery Phase – Preciseness in Placing, Speed and Spin, Tactical Practice through Multi-Ball (Regular Sequences, Semi Irregular Sequences, Irregular Sequences, Match Type Sequences), Physical Fitness through Multi-Ball Practice (Continuous Method, Interval Method, Trial and error Method), Statistics Through Multi-Ball Training (Individual Subjects Technique Execution Data Collection, Data Collection through Multi-Ball for a group of Subjects); **Teaching and Coaching Practice:** Phase wise Session Planning practical Implementation (Preparative Phase – I, Preparative Phase – II, Pre – Competition Phase, Competition Phase, Transitional Phase); **Tests and Measurements of Skills and Specific motor abilities for National level Players, Officiating Practice for National and International Level Matches, Multi-Ball Drill fabrication for different type of Players:** Shake-Hand Grip Players, Loop Drive Players, Attacking Players, All Round Type of Players, Away from Table Defensive Players; **Training camp organization**; **Strength & Conditioning Exercises for Table Tennis: (Basic Level):** Plyo-metric with Medicine ball, Circuit Training, Muscle Training with elastics, Postural Stretching, Weight Training on specific

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

SYLLABUS FOR TAEKWONDO SPORTS

Meaning, Philosophy & Etiquette of Taekwondo, Historical background of Taekwondo, Poomsae Theory & Terminology, Taekwondo Governing Bodies & it's functions: World Taekwondo, Asian Taekwondo Union, Kukkiwon; **WT Codes & Policies:** Code of Ethics, Safeguarding Policy; **WT Competition Rules and Interpretation; WT Poomsae Competition Rules; Teaching Methods in Taekwondo; Management of Taekwondo School; Basic Formalities of Taekwondo Training:** Wearing Dobok & Belt, Dojang Etiquette, Introduction with facilities and equipment, Maintenance of Dojang, Training Formalities**; Warming up & Cooling Down:** General Warm up & types, Specific Warm up & types, Cooling Down**; General Physical Fitness:** Endurance, Strength, Flexibility, Speed, Coordination**; Basics skills of Poomsae:** Stance, Punching, Blocking, Hitting, Thrusting, Kicking**; Basics skills of Sparring:** Stance & variations, Basics Steps & variations, Basic Kicks & variations, Attacking, Counter Attacking, Combinations Drills**; Specific Physical Fitness:** Specific Flexibility Test, Specific Balance Test, Body Kick Test**; Poomsae Performance:** (Taegeuk 1 to 8 Jang)**; Kyorugi Performance:** Imagery Sparring, Steps Sparring With Partner, Target Sparring**; Basics of Officiating:** Kyorugi, Poomsae**; Teaching Lesson Plan Practice:** Personality (Dress & Look), Lesson Plan, Class Organization, Demonstration, Explanation, Command, Detection of Faults, Correction of Faults; **Taekwondo Demonstration (**Introduction, Types, Contents & Components, Program Designing), **Talent Identification & LTAD (**Introduction, Challenges, Tests & Measurement, LTAD Model), **Taekwondo at Olympics (**Olympic History, Standing Procedure), **Ranking Bylaws, Scientific Basis of Taekwondo (**Taekwondo Physique, Physiological Demand, Biochemical parameters, Biomechanical Analysis, Common Injuries, Nutritional Aspects, Psychological parameters**), Training Methods & Planning (**Needs Analysis, Exercise Prescription, Program Designing); **Taekwondo Demonstration: Specific Physical Fitness (**Specific COD Test, FSKT Body Kick Test, Head Kick Test); **Basics of Dan Poomsae:** Koryo, Keumgang, Taeback, Pyogngwon; **Basics of Competitive Kyorugi:** Direct Attacking, Counter Attacking, Trapping, Steps Sparring; **Dan Poomsae Performance:** Koryo, Keumgang, Taeback, Pyongwon; **Competitive Kyorugi Performance - Specific Training Methods:** Repetition Method, Interval Method, Circuit Method, Intermittent Method**; Functional Training in Taekwondo:** Movement based**; Competition Officiating:** Kyorugi, Poomsae; **Training Lesson Plan Practice:** Personality, Lesson Plan, Class Organization, Demonstration, Explanation, Command, Detection of Faults, Correction of Faults

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict

resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

SYLLABUS OF VOLLEYBALL SPORTS

Introduction to Volleyball: Brief History & Development of volleyball, Nature of Volleyball as a Team Sports, Terminology used in Volleyball, Philosophical Concepts applied in Volleyball, Structure & Function of FIVB, AVC and VFI; **Methods of Coaching:** Fundamental Postures and Movements, Principles of Teaching & Coaching, Class Management; **Drills in Volleyball:** Types: Teaching, Training and Competition Drills, Criteria for the selection of Drills, Designing New Drills, Rules of Volleyball and Officiating: Official Rules of the Game, Latest Amendments of rules & their Interpretation, Mechanics of Officiating; **Warm-up and Cool-down:** Advantages of warm-up & cool- down General, Specific & Competition warm- up, Warm-up using Recreational/Lead-up games Organization and Management of Competition; **Competition Systems in Volleyball:** Elimination, Round- robin, Combination, Drawing of fixtures; Preparation of Match Schedule & Result Sheet Qualification and Competition system of major Volleyball Competitions: Olympic Games, World Championship, World Cup, Asian Games, Asian Championship, National Games, National Championship, SAF Games, Inter- university Games, School National Games (SGFI); **Introducing Volleyball to the Children:** Mini-Volleyball, Stages of Mini-Volleyball, Methodical Organization of Mini -Volleyball, Lead-up Games; **Facilities and Equipment Management:** Teaching and Training Aids, Construction and maintenance of various play fields, Storing and maintenance of equipment; **Basics of Technique Teaching:** Principles and stages of motor learning, Analytical Description of fundamental techniques of volleyball, Identification of faults and their correction, Assessment of Fundamental Techniques using Qualitative & Quantitative methods; **Development and Assessment of General Motor Abilities:** Aerobic & Anaerobic Endurance, Strength endurance, Core strength, Hypertrophy training, Maximum strength, General Speed, Motor coordination, Flexibility, Test, Measurement & Evaluation of General Motor Abilities; **Prerequisites of Volleyball Players for the High Performance:** Performance structure, Physique (Kin- anthropometrical demand), Motor and conditional abilities, Intellectual, psychological and social abilities, Technical and tactical abilities, Knowledge of rules and regulations, External factors, Basic tactics and its development in Volleyball, Definition, Classification and importance of tactics in volleyball, **Descriptive analysis of offensive and defensive individual tactics:** Service Passing Setting Attack Block Defense, Descriptive analysis of various basic group and team tactics in volleyball, **Analysis of Basic Offensive Group/Team Tactics:** Attack combinations using front row attackers, Attack covering: 1:2:3 and 1:3:2 system, 6:6 and 4:2 Playing System; **Analysis of Basic Defensive Team Tactics:** 2:1:3 (6 Up) Defense System, 2:1:3 (6 Down) Defense System, 2:1:3 Slide Defense System; **Analysis of Basic Reception Team Tactics:** 5 Player Reception System, 4 Player Reception System, Warm-up (General & Specific), Basic Footwork Movements of the techniques-Volley Pass, Underarm Pass, Underarm Serve, Training/Assessment of learnt the tasks - General Conditioning, Measurement and marking of Volleyball court, Mini Volleyball, Training/Assessment of learnt the tasks - General Conditioning, Tennis Serve, Float – serve, Forward High Set to # 4, 5 Player Receiving System (W), 4 Player Receiving System (U), Training/Assessment of learnt the tasks - General Conditioning, Straight Smash, Single Block, 1-1-4 Defense Formation, 1-2-3 Defense Formation, Training/Assessment of learnt the tasks, General Conditioning,

Body turn and Attack, Double Block, 2-1-3 Defense Formation (6 – Up), 2-1-3 Defense Formation (6 –Down), Training/Assessment of the learnt tasks, General Conditioning, Back set, Wrist Inward Attack, Wrist Outward Attack, Specific Motor ability Tests of Volleyball, Training/Assessment of the learnt tasks, General Conditioning, One arm pass with Side rolling, One arm pass with roll over the shoulder (women), Quick attack (Tempo. 1), Attack combinations (4 – 2 and 5 – 1 team composition), Training/Assessment of the learnt tasks, 1-3-2 Attacker coverage, 1-2-3 Attacker coverage, Retrieving the Ball from the Net, Specific motor ability tests in Volleyball Coaching Skills; Training/Assessment of the learnt tasks, Practice of Lesson Plans, Performance Analysis and Scouting in Volleyball: Methods of Performance Analysis: Observation method, Statistical method, Video recording and analyzing technique, Court diagram, Flow chart Scouting of the opponents - Methods of Scouting, Contents Scouting Report, Use of Scouting Report, Development and Assessment of Specific Motor Abilities – Agility, Balance, Co-ordination, Speed (Anaerobic endurance), Power, Jumping endurance, Special speed and agility (without and with ball), Special flexibility, Test, Measurement & Evaluation of Specific Motor Abilities, Planning and Periodization in Volleyball: Short term plan, long term plan and training concepts General requirements and steps for planning Annual plan / macro cycle plan, Single, Double and Multiple periodization), Aim, contents, and characteristics of various periods, (Preparatory, competition and transition period), Preparation of meso-cycle, micro-cycle, training session, individual training program and their aims, contents, Organization of load & recovery in different micro plans including rehabilitation; Training with Women and Children: Special consideration with reference to Physical, Physiological, Psychological and Sociological aspects; Talent Identification, Selection and its Development: Advantage of Talent Identification, Challenges in Talent Identification, Principles of Talent Identification, Criteria for Talent Identification in Volleyball, Procedure of Talent Identification, Long-term Athlete Development in Volleyball, Monitoring the process of talent development, Criteria and methods for the selection of Volleyball players, Criteria and methods for the selection of a Volleyball team, Criteria and methods for the selection of a Volleyball team captain, Criteria and methods for selection of starting six for a Volleyball match, Competition plan in Volleyball - Importance of Competition Planning, Process of Competition Planning, Travel Planning and managing Travel Fatigue, Planning of Buildup competitions with specific purpose, Before, during and after match/training Recovery, Strategies, Planning of Diet Before, during and after match/competition, Psychological preparation of Volleyball player: Importance of Psychological Training, Psychological qualities required for a Volleyball player, Methods to develop Psychological Qualities, Planning and process of Psychological training; Advanced Tactics in Volleyball: Analysis of Advanced Offensive Team Tactics - Attack combinations using Backrow attackers, 5:1 Playing System, 6:2 Playing System, Transitional attack; Analysis of Advanced Defensive Team Tactics-2:0:4 Defense System, 2:1:3 Box Defense System, 3:0:3 Defense System, Analysis of Advanced Reception Team Tactics, 3 Player Reception System, 2 Player Reception System, Competition Warm-up, Jump Serve, Jump Float Serve, 3 - Player Reception System, 2 - Player Reception System, Training/Assessment of the learnt tasks, Specific Conditioning, Jump Set, Shoot Set, Slide Attack, Back Court Attack (Zone 1 & 6), Training/Assessment of the learnt tasks, Specific Conditioning, Triple Block, 3-0-3 Defense, 2-1-3 (Box Defense), 1-1-4 Attack Coverage, Training/Assessment of the learnt tasks, Specific Conditioning, Sprawl, Pancake, Forward Dive & Pass, Playing the ball by

using the Leg, Training/Assessment of the learnt tasks, Specific Conditioning, Outside Hitter Training, Middle Player Training, Opposite Players Training, Setter Training, Libero Training, Training/Assessment of the learnt tasks, Specific Conditioning, Functional Training, Complex Training, Training/Assessment of the learnt tasks, Specific Conditioning Transitional Training, Pressure Training, Situational Training, Will Training, Training/Assessment of the learnt tasks Specific Conditioning, Concentration Training, Small court Games, Handicapped Game, Training/Assessment of the learnt tasks, Practice of Lesson Plans

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

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KINESIOLOGY & BIOMECHANICS

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and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

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palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

SYLLABUS OF WEIGHT LIFTING SPORTS

Weightlifting History, Development and its organization: Significant dates and events in the development of Weightlifting, Modern Olympic games, Commonwealth Games and Championship, Asian Games and Championship, Youth Olympic Games, National Games and Championship, Structure and Functions of controlling bodies of Indian weightlifting federation and international weightlifting federation; **Organization and Management of Weightlifting Competitions:** Olympic Games and World Championship, Continental Games and Championship, Domestic Competitions in India, Olympic qualifying systems; **Methods of Teaching and Coaching applied for Weightlifters training:** Methods and Procedures for Weightlifters Pedagogic training: Class Organization, Class Control, Class Management, Teaching Lesson. (Introductory, Main and Concluding), Coaching Lesson. (Introductory, Main Part and Concluding Part), Means of Weightlifting Training; **Coaching Skills**: Methods of training, their merits and demerits, Methods of weightlifting training. (Loading procedures, volume, intensity repetitions, sets, average weight, average intensity, intensity co-efficient etc), Methods of power lifting and body building training, Teaching aids and coaching aids for successful training; **Methods of evaluation:** Tests, Application of statistics, Observation, Training note Book, Theory note Book; **Required Facilities for Weightlifting training and competitions equipment's and their management:** Designing of Modern Weightlifting training and Competition hall, Construction and Maintenance of the re-in forced Weightlifting competition and training platform, Specifications of Weightlifting training equipment's: - Squat Racks, Box's, Mini platform, Super Power Racks, Multipurpose Bench for Bench Press, Gymnasium bench, Dumbbells, Multigym, Parallel Bar, Horizontal Bar, , Hurdles ,Wall Bars, training and competition platform and swing bells; **Technical Rules, their interpretations and Regulations:** TCRR Weightlifting, Terminology of Weightlifting, Para-Olympics; **Requisite of weightlifter (Male & Female):** Physical, Motor and Coordinative abilities, Psychological, Understanding the technical and tactical abilities; **Techniques of snatch, clean and jerk and their development:** Introduction, importance and classification of classical lifts, Stages, Phases and Elements of Classical lifts, Static and dynamic starting position of snatch and clean, Involvement of Muscles and joints at different phases and elements of classical lifts, The Rational Trajectory of the bar during the execution of classical lifts, Teaching and learning of rational weightlifting technique at different countries (Russia, Bulgaria, Cuba, Romania, China and India), Fundamental, Assistance/ supplementary exercises for snatch, and clean and jerk, Faults, causes and necessary corrections of snatch and clean & jerk, Perception of individual technique until automatization, adaptation during the training and competitions; **Warming up and Limbering down for Weightlifters:** Principles, Advantages and Disadvantages, Types of Warming up and Limbering down: - (i) General (ii) Specific (iii) Special/Competition, Warming up for the Training & Warming up for the Competition. (Pre And During the competition, warming up for snatch and clean & jerk), Warming up during different environmental conditions, Means and Methods, Specific Warm up for supplementary and assistance exercises; **Common Weightlifting injuries and their Management:** Understanding the specific kinds of weightlifting injuries during the training and competition (open injuries, closed injuries, injuries to cartilage, Nerve

injuries, contusion, fractures, dislocations, tendinitis and related condition, Bursitis, Myofascial pain and Syncope), Dealing with injuries (First Aid for dislocation, sprain, strains, Soreness, Training and around exercise), Common injury sites (wrist, fingers, elbow, shoulder, hip, knee groin pull, Patrice bruise, abraded skins, ankle and foot), Massage, physiotherapy, spinal and joint manipulation, cryotherapy Thermotherapy, Electro therapy, Naturopathy, acupressure & acupuncture etc for preventive measures; **Tactics and Strategy**: Definition and classification, Developmental trends, Phases of teaching tactics; **Teaching and Learning the proper movements and methods with good posture:** Walking, Jogging, Running, Jumping, Squat, Sitting with Snatch grip and clean position, Various class formations (single line, double line, parallel line semi-circle, circle etc., Commanding the group (attention, stand-art easy, right turn left turn, about turn and right wheel quick march etc.

General warming up exercises : Teaching of jugging, running, Sprinting, Standing, Bounding, Jumping and combined exercises, exercises with own body weight towards various ways, and various paces and various durations and various repetitions as required, Teaching callisthenic and exercises for various parts of body (joints, Muscles) including rotations, Swinging, pulling, Pushing, throwing, thrusting movements and partner exercises, Teaching the various stretching exercises (individual, partner, passive and ballistic movements) Polymeric exercises, Exercises with different sports equipment's with different weights**,** Gymnastic sticks, Gymnastic benches, parallel bar, Horizontal Bar, Wall Bar, medicine Ball, Hurdles, dumbbells, Kettle bells, dummy barbells, boxes, medicine balls own body weight and partners body weight etc.**; Specific Warm-up and special warm- up :** Specific warm-up exercises according to the skill/task, Specific warm-up for particular muscle groups, involve joints movement direction and demand, Competition warm-up for Snatch and up to competition first attempt, Competition warm-up for Clean & Jerk up to competition first attempt, Cooling down exercises during the training and competition; **Teaching the technique of classical lifts:** Rational technique of two hands Snatch and two hands Clean & Jerk, Static and dynamic start of two hands Snatch and two hands Clean & Jerk, Path of the bar during execution of classical lifts, Teaching and learning stages of weigh lifts at different countries (Russia, Romania, Bulgaria, Cuba German, China and India, Faults causes and its correction for two hands Snatch and Clean & Jerk, Involvements of muscles and range of joints during the execution of classical, semi classical, assistance, and supplementary weight exercises, Perception of individual technique until automatization, adoption & mastery during the training and competition; **Teaching and training the fundamental exercises of Weightlifting:** Classical lifts of Olympic Weightlifting (Semi classical, assistance, supplementary, Power and general under two hands Snatch. Semi classical, assistant, supplementary, Power and general under two hands Clean and jerk)**,** Teaching of squat, Bench press, Deadlift and Para Olympic lifters, Teaching of muscle building exercises for Legs, arms, back and abdominals, Stages, Phases and elements of two hand Snatch and two hands clean &jerk; **Evaluation of training & performance through tests.** Physiological tests Biomechanical tests Physical/motor tests Performance tests, Application of statistics, Graphic presentation of training and performance indicators; **Familiar with Weightlifting training and competition equipment's:** Specification, Standard manufacturing firms and maintenance of Weightlifting training equipment's Such as IWF approved Weightlifting barbell sets, Boxes, Squat Stand, Training platform and weightlifting electronic equipment, Improvisation of

Weightlifting training and competition equipment's, Manufacturing and installation of re-in forced competition and training permanent and portable Weightlifting platform, Weightlifting testing equipment's – physiological, Biomechanical, Anthropometrical, psychological, Arrangement, placement and installation of Weightlifting training and competition equipment's under Weightlifting training hall and competition venue, Specification standard IWF approved competition equipment's, firms and their maintenance; **Method and procedure of weightlifters pedagogical training (teaching, coaching):** Class organization, Class control, and class management, class formations, single line, double line, semi- circle, circular Pyramid, Teaching lesson plan (introductory, main, concluding part), Coaching lesson plan (introductory, main, concluding part), Process of Introduction, demonstration, explanation, observation, correction, Recreation, Feedback and self- feedback etc during teaching and coaching, Circuit training; **Tactics and strategy:** Tactical movements during pre- competition, Tactical movements during the course of competition, Assessment - Training diary, Intensity, Average intensity, Intensity co -efficient,Volume, Intensity zones, Average weight; **Trials and weightlifting officiating:** To perform the duties & responsibilities of referee, To perform the duties & responsibilities of jury, To perform the duties & responsibilities of announcer, To perform the duties & responsibilities of marshal & technical director, To perform the duties & responsibilities of score sheet, score board & familiar with official and competition documents**; Common Weightlifting injuries and its management, prevention and rehabilitation:** Complete knowledge of First-aid, Rehabilitation through therapeutic means of recovery, Prevention of injuries through core group development, pre safety precaution and optimum balance between motor factors; **Motor Abilities:** Requirement for weightlifter's: A general view, Bio-motor abilities and the methodology of their development, Mechanical, physiological characteristics of different motor parts, Means and methods of developing the required abilities, Means of an evaluation and analysis in relation to performance of weightlifters; **Talent Identification in weightlifting and their Development:** Principles, methods and criteria used for weightlifting talent identification, Procedure and phases of talent identification, Various tests used for talent identification & their interpretation, Talent identification in Russia, Bulgaria, Germany, Cuba, USA and India, Sources of talent identification in India and its procedure; **Regulation of body weight:** Means and methods for decreasing and increasing the body weight, Scientific basis for identifying suitable weight category for better result over the competition, Performance evaluation and control of body weight, Nutrition during pre-body weight weigh-in, pre-competition, during the competition and post competition, Nutrition during competitive week for training as well as competition**; Principles of weightlifting training for different age groups:** Weightlifting and children (Growth and maturation), Weightlifting training for beginners and novices, Weightlifting training for 12 years age group, Weightlifting training for 14 years age group, Weightlifting training for 16 years age group, Weightlifting training for 18 years age group, Weightlifting training for 20 years age group, Weightlifting training for above 20 years age group, Weightlifting training for National level weightlifters, Weightlifting training for International level weightlifters, Weightlifting training for physical handicapped/para Olympic lifters; **Training of weightlifters:** Shot-term, Long-term, Pre, during and post competition preparation**; Tactics and Strategies:** Characteristics, various situations, Individual & Team, Advantages and disadvantages, Psychological Preparation; **Recovery in weightlifting training:** Theoretical pre-requisites of modernization of restorative means,

Medico-Biological restorative measures for weightlifters, Rational diet including vitaminization, Hydro procedures, Balneology, Physiotherapy, Treatment at health resorts, Natural means of restoration; **Training of Women Weightlifters:** Women and weightlifting a great match, Physical and physiological differences between male and female weightlifters, Strength, speed and endurance differences between male and female weightlifters, Psychological and social conditions that can influence on women who are weightlifters; Weightlifting and mature weightlifters - Loss of physiological functioning with aging, Training and mature weightlifters; **Training and competition performance evaluation of weightlifters:** Training and competition performance analysis, Recording the performance in the competition, Application of statistics for weightlifting training and competition; **Methods and procedure for selection of weightlifter's for high performance:** Present weightlifting performance and their related sub- performance of weightlifters, Current classical performance and anticipated upcoming competition performance, Rate of growth of classical and semi-classical performances, Consistency of performance, Stages of selection of elite weightlifter**; Principle and guidelines for finalizing the selection of weightlifting team:** Relation of body weight and performance of lifters, Suitability of individual and team classification with consistency, Age and experience of individual lifter, Physiological and psychological parameters, Group dynamics of individual lifter, Personality traits of individual lifters; **Preparation of the weightlifter's for main competition to perform their best:** Building the mind of a weightlifting champion, Philosophical and theoretical issues relating to mental attitude, Pre-contest phase - Understanding the primary conditions of the competition, Getting to know the lifter, Making weight and preparing for during testing, Dietary consideration before the competition, Packing the competition bag, travelling and adopting to competition Environment, Pre-competition head games; The actual competition: Determining the optimum number of warm up attempts and sets, Physical and emotional warm up & their timings, Planning the jumps in between attempts, Selection of poundage's for 1st, 2nd and 3rd attempts; **Development of specific required strength, power and flexibility for top performance:** Specific strength, power and flexibility and their importance in weightlifting, The major methods of exercise, Application of degree of difficulties in weightlifting training, Developing flexibility for weightlifters; **Planning and periodization of Weightlifter's Training:** Creating the training plan, The essence of planning, Integrating long and short-term planning, The workout plans, Periodization of weightlifting (Soviet style, Bulgarian, Cuban and Indian methods), (micro, meso, macro, Olympic cycle and quadrennial plan), Peaking method, fatigue and overtraining; **General and specific warm-up exercises with different equipment:** General and specific warm-up exercises for snatch and snatch group of exercises. General and specific warm-up exercises for clean and clean group of exercises. General and specific warm-up exercises for Jerk and Jerk group of exercises General and specific warm-up exercises for strength developing training. General and specific warm-up exercises for speed developing training. General and specific warm-up exercises for endurance & circuit developing training. General and specific warm-up exercises for flexibility developing training. General and specific warm-up exercises for co-ordination & balancing developing training; **Development of weightlifter's motor abilities:** Methods of loading-: Progressive, Regressive, Bucket, Methods of training for the development of strength of all body parts explosive strength maximum strength and strength endurance, Means & methods of development of speed of all body parts, Means &

methods of development of flexibility with strength of all body joints, Training related to development of co-ordination of all motor aspects of weightlifters, Method of loading, 1 RM pyramid, double pyramid, flat pyramid, wave like increase load and load increase steps, Station training, set training, circuit training, constant resistant and constant reps, increasing; **Talent identification and their development:** Visual observation and assessment of physical development, clinical investigation, and anthropometry along with general assessment of development with growth, Examination of CNS, vegetative nerve system, muscular nerve system and muscles, cardio vascular system and respiratory system, Functional tests of physical development working capacity and training condition, Harvard step test, PWC Test; **Planning and periodization :** Load, training load, super compensation, judgment of load, fatigue, overload, Volume, intensity, sets, repetition, average weight, average intensity, and intensity co-efficient, Intensity, volume, sets, repetitions exercise and sequence of exercises at preparatory period, Intensity, volume, sets, repetitions exercise and sequence of exercises at competition period, Intensity, volume, sets, repetitions exercise and sequence of exercises at transitional period; **Comparison between Training and competition performance analysis & evaluation of Weightlifters;** Present training and competition performance with past and future, Comparison of co-ordination with performance, sub performance and motor performance by using cardiogram, Recording the performance in the competition individual, opponent, category and teams, Fixation of the optimum target for training and competition performance; **Training of women weightlifters;** Physical, Physiological, Psychological, and social differences, between the men and women weightlifters for training prospects, Strength, Speed, Endurance, Flexibility Balance, and co- ordination, differences between male and female weightlifters, Training differences between lower and upper category women weightlifters, Women Weightlifters training and volume and intensity at pre during and menstrual cycle, Women weightlifting training at injury post injury a prolonged training gap, Optimum women's weightlifting training in relation with training volume, intensity, exercises, Sequences of exercises, sets and repetition with effective training intensity training zone.

Weightlifting training for beginners & and different age groups: Determination of growth and maturation & development level of individual lifters according to biological age, calendar age and training age of various age groups and genders, The training program for first 1st three years of training, The training program for 3rd, 4th, 5th and 6th year of training including stage of preparatory, pre competition, competition and stage of translation preparation; **Psychological training of weightlifters for training and performance:** Training and competition performance anxiety and its control, (Trait& state) Motivation, Controlling emotion optimal goal setting, Physio regulation during competition and training venue, Psycho therapeutic methods & auto genius training; **Recovery Process of Weightlifters training:** Pedagogical means of recovery, Therapeutic means of recovery, Natural means of recovery Nutritional & balance diet with proper routine, Application of yoga, meditation and recreational means; **Weight training for weightlifters and for other games and sports:** Weight training according to prime movers and synergetic, smaller V/s bigger, agnostics, antagonistic, isometric, V/S isotonic muscular development of weightlifters; Weight training for team games :- forward back spikes, blockers, mid- fielders, Weight training for throwers& jumpers, sprinters etc., Weight training for combative sports persons, Weight training for racket

concern sports person, Weight training for injured sports persons; **Preparation of Weightlifters for the main competition:** Building the mind of competitive, weightlifters relating to the mental attitude, Understanding the primary condition and getting to know the lifters, Dietary consideration, pre competition head games and determining the optimum no. of warm-up attempt and sets; **Teaching lesson practices:** Introduction, command, turn- out, reporting, general warm- up, specific warm-up, Division of skill whole-part whole method, Demonstration, explanation, observation, correction, Adequate recreation, rewards and punishments and removal of doubts, double progressive system, flushing and functional isometric, Triangle program system, light to heavy, heavy to light system, multi poundage system, negative system, super overload system, priority system, rest pause system, blitz program isolated exercise system, Super pump system super setting system and super slow system; **Coaching lesson practice:** Introduction, command turn- out, reporting, general warm-up, specific warm up and ground formalities, Demonstration, explanation, observation, correction and practice, Judgment of load, volume, exercises, sets, repetition intensity, average weight average intensity and zone of intensity, Optimum cooling down exercises removal of doubts and hints about upcoming session, resistant and constant reps, change resistant and change reps, decreasing resistant and constant reps and contrast method.

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training,

Programme design for resistance training, Needs analysis, Exercise selection, Training frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration,

and projectile motion, Angular Kinematics: definition angular displacement, angular velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by

palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship,

Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching Effectiveness:** Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

SYLLABUS OF WRESTLING SPORTS

Chronicles of different organizations of the wrestling: UWW and its Constitution, AAWC and its Organizational chart, WFI and its Organizational chart**; Rules of Olympic style Wrestling:** International rules of wrestling and interpretation thereof, Vocabulary of wrestling; **Regulations for international refereeing body:** Conditions, Rights and Duties, Categories**; Organization and qualification system of different wrestling competitions:** Organization and qualification system for Olympic, Organization and qualification system for world cup; **Different profiles of an Elite Wrestler:** Genetic profile, Anthropometrical/ bodily profile**,** Bio-motor profile**,** Techno-tactical profile**,** Cognitive profile**,** Affective/Emotional Profile**; Wrestling facility:** Prerequisites/ check list**,** Main and ancillary facilities**; Teaching/Training Aids in Wrestling:** Meaning and importance**,** Purpose and dimension / structure**; Warm-up and warm- down in Wrestling:** meaning, types, importance, structure, mechanism and principles; **Technique/ Skill in wrestling:** Meaning and importance, Classification/types of wrestling techniques, Stages of technique/skill Perfection, Reasons of faulty techniques, Eradication of learned faults in techniques; **Bio-motor abilities – development of wrestling capacity:** Meaning, types and importance**,** Bio-motor abilities - Strength: meaning, types, importance and methods, Endurance: meaning, types, importance and methods, Speed: meaning, types, importance and methods, Flexibility: meaning, types, importance and methods, Co-ordination: meaning, types, importance and methods

Pedagogy of Wrestling: (a) **Lesson Plan** - Meaning, Types and Importance, Structure (b) **Different Teaching/ Training Methods** - **Analysis of the wrestling- Sport** - **Meaning and importance of analysis**- Key factor analysis: wrestling technique, wrestler and the wrestling competition, Balance: meaning, types and importance in wrestling, Force: meaning, types and importance in wrestling; **Warm-up and warm-down:** Structure, Procedure; **Stance – Greco & Free Styles:** Structure, Procedure; **Bio-motor abilities – conditioning orientation:** Strength, endurance, speed**,** Flexibility and coordination; **Mat/special conditioning orientation:** Sparring**,** Hold training**,** Technique training**,** Tactical training

Greco Roman techniques – standing positions - From under hook tie-up: Duck-under & its variants (a) Bear-hugs and its variants (b) Any other variants; **Greco Roman techniques – standing position - From 2 on 1 tie- up -** Arm-drag & its Variants, Arm-throw & its variants, Twist/hip-toss, Spirals, Any other variants; **Greco Roman techniques – standing position - From under-over hook tie-up:** Spiral/twisting, Suplex throw, Seat-belt throw, Any other variants; **Greco Roman techniques – standing position - From front head- lock tie-up:** Suplex – throw**,** Side rolls**,** Roll on back**,** Any other variants; **Greco Roman techniques – standing position - From over-hook tie-up:** Arm-spin, Arm throw, Suplex – throw, Hip-toss – throw; **Greco Roman techniques – standing position - From body-lock:** Bear-hug and its variants, Hip-toss, Any other variants; **Greco Roman techniques – ground Position - From body-lock at top position:** Chest rolls and tilts**,** Gut-wrench and its variants**,** Body lock lift**,** Reverse body lock lifts; **Freestyle/women techniques – standing position - From double inside – without knee drop:** Single-high-leg and its variants, Double-high-legs: angled and lifts and variants thereof, Twists/hip toss, Duck-under lifts and variants, Arm drags & its variants; **Freestyle/women techniques – standing position - From double inside – with knee drop:** Single & double leg and their variants,

Fireman's carry & variants, High crotch & variants; **Freestyle/women techniques – standing position - From elbow control:** Duck under and its variants**,** Ankle pick**,** Other variants; **Freestyle/women techniques – standing position - From non-contact opposition:** Knee-spin and its variants, Ankle dives, Ankle lifts and its variants, Blasts and its variants, Snaps and its variants; **Freestyle/women techniques – standing position - From over-under hook -** Leg hits and its variants, Reaps and its variants, Grape wine and its variants**; Freestyle/ women techniques – standing position** - **From body lock position at the back:** Press- down through thigh, Trip, Hammer spin, Knees block, Reap**; Freestyle/ women techniques – standing position - From head-lock:** Neck throw, Cross-ankle**; Freestyle/women techniques – ground Position - From body-lock at top:** Chest-roll and tilt**,** Gut-wrench and its variants**,** Arm-trap and roll**,** Under-arm-trap and roll**,** Nelson and its variants**,** Arm-bar and its variants; **Freestyle/women techniques – ground position - From top:** Leg ride and its variants**,** Crotch-throw and its variants**,** Crock-roll/ankle-lace, Cradle and its variants**; Greco Roman techniques – standing and ground positions:** Miscellaneous from all set-ups**; Freestyle/women techniques – standing ground position:** Miscellaneous from all set-ups; **Orientation of teaching and training methods:** Lesson plan, Group discussion, Learning by teaching, Circuit training; **Tactics in Wrestling:** Meaning and Importance of tactics, Tactical Actions: meaning - Tactical Actions for Offensive Wrestling, Tactical Actions for Defensive Wrestling, Tactical Applications of Wrestling Rules; **Strategy in Wrestling:** Meaning and Importance, Pre-requisites: principle of SWOT, Different types of strategy; **Test, Measurement and Evaluation in wrestling:** Meaning and Importance, Different Tests used in Wrestling; **Talent selection in Wrestling:** Meaning and Importance, Different Stages, Different Tests of test selection in wrestling; **Long Term Athlete Development (LTAD) Plan of wrestling - Meaning, Importance and Principles - Types of LTAD Plan:** As per the Duration of the plan, As per the Development of the wrestlers; **Periodization:** Meaning, Types and Importance, Different Periods and aims thereof, Graphic Presentation of Periodization Training Schedules; **Wrestling bio- energetics and Nutrition in Wrestling:** Meaning of bio-energetics and nutrition, Balance Diet for a Wrestler, Pre-Bout and Post- Bout Meal; **Weight Control:** Meaning and importance of weight control, Safe methods of weight control; **Rest and Recovery in Wrestling:** Meaning and Importance, Different Methods of Recovery, Over-reaching and overtraining; **Hygiene and disease prevention:** Meaning, Importance, Different types of hygiene; **Promotion of Wrestling Sport:** Different Means and Methods of promotion; **Artificial intelligence (AI) in sports coaching** Meaning and importance of AI, Scope of AI in coaching and evaluation, Common injuries in wrestling, Mechanism of injury, Acute and chronic injuries in wrestling Prevention, Selection Criteria for the National wrestling Team, Different Criteria of selection, Ideal Criteria for Team India; **Greco Roman defence moves –standing positions** Of under hook tie-up - Defence and counter techniques of duck-under & its variants, Defence and counter techniques of bear-hugs and its variants; **Greco Roman defence moves – standing position** Of 2 on 1 tie-up (Defence and counter techniques of arm-drag & its Variants, Defence and counter techniques of arm-throw & its variants, Defence and counter techniques of twist/hip-toss); **Greco Roman defence moves –standing position** Of under-over hook tie- up (Defence and counter techniques of, spiral/twisting, suplex throw, and seat-belt throw.); **Greco Roman defence moves –standing position** Of front head-lock tie-up - Defence and counter techniques of suplex –throw, side-rolls and roll on back; **Greco Roman defence moves – standing position** Of over-hook tie-up - Defence and counter techniques of arm-spin, arm throw, Suplex –throw and hip-toss-throw; **Greco Roman**

defence moves – ground position Of body-lock at top position (Defence and counter techniques of chest rolls, gut- wrench and tilts, Defence and counter techniques of body lock lift and reverse-body- lock lifts); **Freestyle/women defence moves – standing position** Of double inside – without knee drop, Defence and counter techniques of single-high-leg and its variants Defence and counter techniques of double-high-legs: angled and lifts and variants thereof, Defence and counter techniques of twists/hip toss, Defence and counter techniques of duck-under lifts and arm drags; **Freestyle/women defence moves – standing position** Of double inside – with knee drop **(**Defence and counter techniques of Single & double leg and their variants**,** Defence and counter techniques of fireman's carry & variants**,** Defence and counter techniques of High crotch & variants); **Freestyle/women defence moves – standing position** Of non-contact position (Defence and counter techniques of Knee-spin and its variants, Defence and counter techniques of ankle dives, ankle lifts, blasts, snaps and variants); **Freestyle/women defence moves – standing position** Of over-under hook (Defence and counter techniques of leg hits and its variants, Defence and counter techniques of reaps, grape- wine and its variants); **Freestyle/women defence moves – standing position** Of body lock position at the back - Defence and counter techniques of Press- down through thigh, Trip, Hammer spin, Knees block, Reap; **Freestyle/women defence moves – ground position** Of body-lock at top (Defence and counter techniques of chest-roll, tilt, gut-wrench, arm-rap and roll, and under-arm-trap and roll, nelson, arm-bar and its variants); **Freestyle/women defence moves – ground position** Of top -Defence and counter techniques of leg ride, crotch-throw, crock- roll/ankle-lace, cradle and variants; **Combinations and tactical actions in Greco Roman – standing position:** From under-hook, From over-hook, From body lock, From 2 on 1, From body lock --- back side**; Combinations and tactical actions in Greco Roman – ground position:** From body-lock – top, From body-lock – reverse**; Combinations and tactical actions in freestyle/women – standing position:** From double inside From elbow control**,** From under and over hook**,** From non-contact**; Combinations and tactical actions in freestyle/women – ground position:** From body-lock – top, From leg-hold - top

Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities Development (Specific to Para Players):** Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition

preparation (tapering, travel, acclimatization), In-competition strategy & decision-making, Post-competition review & recovery protocols, Facility & equipment management; **9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development; **10. Media, Policy & Professional Aspects:** Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability; **11. Coaching method:** Training cycle planning (short & long term), Control matches and performance analysis, Talent identification and step-by-step development; **12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training

frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular

velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes

and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching**

Effectiveness: Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

PART -A

SYLLABUS FOR WUSHU SPORTS

The development, Organization and management of Wushu: Formation & Development of Wushu, Content & Classification of Wushu, Current development of Wushu in India; **Management of Taolu and Sanshou competition:** Working out competition regulation, Governing body, Introduction about Taolu Events Organization of officiating personal, Duties of Officials (Taolu), Jury of Appeals and Duties (Sanda), Scoring Criteria in Sanda; **Appraisal and Awards of Demonstrative events:** Appraisal of demonstrative events, Evaluation of individual events, Evaluation of set sparring, Evaluation of group events, Characteristics and methods of appraising and Awarding Demonstrative events, Brief history and origin of Wushu**,** Structure and function of IWUF & WAI (a) Competition in Wushu (Taolu & Sanshou) (b) Age Category, Events and Weight Categories (c) Equipment & Clothing of Taolu & Sanshou (d) lesson Plan Arena, Competition area & Scoring criteria. (all events): Rules and regulations of Taolu, Degree of Difficulty, Over all Performance, Quality of Movements, Rules and regulations of Sanshou; **Theory of Basic techniques of Taolu &Sanshou and their requirements: Taolu -** Hand forms, hand techniques, foot works, Stances, jumps (basic to advance), compulsory movements of all events, Events- sub Junior, Junior, Senior; **Sanshou -** On guard, foot works, Kick, Punch, Throw basics, Shadow, Sparring; **Practical:** Callisthenic exercises of Wushu and introduction & practice of techniques, Basic techniques of Taolu & Sanshou and their requirements. Taolu: Hand forms, hand techniques, foot works, Stances, jumps (basic to advance), compulsory movements of all events and Events- sub Junior, Junior, Senior; Sanshou: On guard, foot works, Kick, Punch, Throw basics, Shadow, Sparring, Basic to advance motor abilities related to Sanshou, Basic to advance motor abilities related to taolu (c) **Lesson Plan:** Use and practice of Competitive & Training Equipment: Taolu mats, Sanshou mats, bench, tera tubes, free weights, gloves, chest guard, teeth guard, groin guard, head guard, skipping rope, spring board,crash mats, balancing balls, kicking bag, punching bag, punching pad; **Planning & Periodization:** Planning: Weekly plan, Daily plan, Individual training schedule; **Periodization:** Single periodization**,** Double periodization**,** Multi periodization, Aims and content of various training periods; **Preparation for Technique & Tactics:** One to one, One to two Kick, Punch, Throw One to three; **Preparation for optional events:** Changquan, Nanquan, Taijiquan, Daoshu, Jianshu, Nandao, Taijijian, Gunshu, Qiangshu, Nangun, Dual; **Chart:** Degree of difficulty, Choreography Compulsory movements; **Talent Identification:** Principle, Sports talent, Weight control management during of season, Fitness test (General & specific test for taolu and sanda)/ Physique, Quality of a Good Coach, Injuries and Management, Anthropometric Measurement for Taolu and Sanda, Terminology (Taolu & Sanda), Practical preparation, implication of planning and periodization, Practical implication of technique and tactics on ground, Preparation and implication of events, Conduction of test and measurement

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Generic Points for Para athletes

1. Introduction & Classification: Classification system (Classes 1–11): explanation of physical & intellectual categories, assessment criteria, and impact on playing style, Case studies of international para champions to illustrate adaptations; **2. Motor Abilities**

Development (Specific to Para Players): Balance and trunk stability training, Reaction time drills adapted to reduced mobility, Coordination and hand–eye exercises for one-handed players, Endurance training with consideration of disability type; **3. Physical Conditioning & Rehabilitation:** Strength and conditioning exercises adapted to various impairments, Flexibility & posture management for wheelchair users, Injury prevention in para athletes (shoulder overuse, spinal posture), Role of physiotherapy and rehabilitation in long-term training; **4. Psychological & Social Aspects:** Motivation and confidence building in para athletes, Coping strategies for disability-related barriers, Inclusive coaching methods—ensuring equal opportunity in mixed environments; **5. Coaching Methodology for Para:** Individualized training plans according to class, Communication skills for athletes with intellectual disability, Use of assistive technology (ball robots, visual cues), Case study assignments for trainee coaches; **6. Competition Preparation:** Rules specific to Para TT (service rules, wheelchair positioning), Tournament formats in Paralympics, World Championships, and Nationals, Strategies for doubles in wheelchair classes (rotation rules), Nutrition and recovery for para athletes; **7. Practical Modules:** On-table demonstrations with para athletes, Coaching internship/observation in para training camps, Match analysis of para players (video sessions).

Generic Points for Athletes

1. Sports Science Foundations: Exercise physiology & energy systems**,** Biomechanics & kinesiology**,** Sports psychology (motivation, resilience, anxiety management)**,** Nutrition & hydration**,** Injury prevention & rehabilitation basics Growth, maturation & LTAD principles**; 2. Pedagogy & Learning Science:** Motor learning & skill acquisition**,** Teaching styles & instructional strategies**,** Athlete-centered coaching approaches**,** Age-appropriate coaching (youth vs. senior athletes)**; 3. Athlete Management & Welfare:** Managing different age groups, Safeguarding & child protection, Child safety and POCSO Act awareness, Gender sensitivity & inclusivity, Athlete lifestyle, dual career & well-being, Mental health & burnout prevention, Post-sport transition support**; 4. Planning & Periodisation:** Micro, meso & macrocycle planning**,** Load management & tapering strategies**,** Competition calendar alignment**,** Recovery & regeneration principles**; 5. Rules, Regulations & Governance:** Rules of the sport & latest updates**,** Anti-doping awareness (WADA/NADA), Ethics in coaching & fair play**,** Institutional structure (SAI, NSFs, IOA, IOC, IPC)**,** Legal aspects: child protection laws, POCSO compliance, contracts, liability, insurance**; 6. Technology & Data in Coaching:** Video analysis & performance software, GPS, wearables & HR monitoring, Data interpretation for training decisions, Athlete management systems & digital profiling, Emerging tech (AI, VR/AR, machine learning in sports)**; 7. Communication & Leadership:** Effective communication with athletes, parents & administrators, Active listening & feedback delivery, Conflict resolution & team management, Leadership styles & team building, Creating positive training environments**; 8. Event & Competition Management:** Pre-competition preparation (tapering, travel, acclimatization)**,** In-competition strategy & decision-making**,** Post-competition review & recovery protocols**,** Facility & equipment management**; 9. General Awareness in Sports:** History of sports (India & global), National & international sports policies (Khelo India, TOPS), Current affairs in sports (Olympics, World Championships), Role of sport in society, culture & development**; 10.**

Media, Policy & Professional Aspects: Handling media & social media communication, Sport governance & policy implementation (SAI, NSFs, WADA), Entrepreneurship & innovation in coaching, Diversity, equity & inclusion in sport, Role model behaviour & accountability**; 11. Coaching method:** Training cycle planning (short & long term)**,** Control matches and performance analysis**,** Talent identification and step-by-step development**; 12. Rules & safety:** Safety measures during training and competitions; 13. Yoga and meditation as warming up practice.

PART-B

SYLLABUS FOR SPORTS SCIENCE

SPORTS PHYSIOLOGY

An overview of the system of organization in the human body, Functional Anatomy of Cardiovascular system Respiratory System & Neuromuscular system, Physiological adaptations of Cardiovascular system , Respiratory System & Neuromuscular system ATP-CP, Aerobic & Anaerobic Metabolic process of Exercise, Pulse Reading Methods on the field, Physical fitness Index in Sports, VO2max Applications in Sports, Fiber typing (Field Based Assessment), Anaerobic Power Applications in Sports, Lactate Monitoring on Field (Basic understanding), Training Load calculation via HR, Overview of Altitude Physiology

Basic understanding of different systems of human body: An overview of the system of organization in the human body, Cardiovascular system- structure of heart and blood circulation through human heart, functions of blood, Respiratory system- respiratory pathways, mechanism of breathing, lung volumes and lung capacities, Neuromuscular system- structure of skeletal muscle and motor unit. Mechanism of muscular contraction, types of muscle fibres. Physiological basis of fatigue and recovery; **Physiology of training and performance:** Cardiovascular control during exercise- acute response and long-term adaptations in cardiovascular system, Determination of target heart rate, Bioenergetics- aerobic and anaerobic energy metabolism during exercise, contributions of different energy systems to various sports and games. Lactic acid and its relevance in sports, Physiology of training- effect of VO2 max performance homeostasis and strength, Physiology of strength training; **Environment, age, gender and sports performance**: High altitude training- Immediate physiological changes in high altitude, long term adaptations, importance of high-altitude training, Body temperature regulations in hot and cold environments, Physiological basis of selection and training of young children, Physiological differences between men and women, differences in athletic abilities, female athletes' triad, Hormonal responses to exercise; **PRACTICAL PAPER**: Measurement of heart rate by different methods and heart rate monitoring during training, Dynamometry- measurement of back strength and grip strength, Assessment of maximum aerobic capacity (VO2 Max)-Direct and indirect method, Assessment of anaerobic power- Direct and indirect method, Determination of anaerobic threshold

SPORTS MEDICINE

Introduction to Sports Medicine, Basic Anatomy of Musculo skeletal system, Prevention of sports injuries (Risk factors, Preventive measures, Sports hygiene), Sports injuries and classification, Sports Emergencies and first aid, Sports Rehabilitation, Doping in sports, First aid and CPR, Massage, Dope Sampling

STRENGTH & CONDITIONING

Introduction to strength and conditioning, Roles and Responsibility, Certifications, Training teaching and Coaching principles of S&C, Periodization, General concepts related to periodization, definition, types, training periods, periodization models, Sports Training Principles, Training load and its management, Training modalities: Various Motor abilities, types, benefits of training, General guidelines, Various training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages, Exercise techniques for alternative modes and non- traditional implement training, Programme design for resistance training, Needs analysis, Exercise selection, Training

frequency, Exercise order, Training load and repetitions Volume, Rest Periods, Strength training for different population (children, females), Program design for aerobic endurance training, Factors related to AE Performance Designing an AE Program; Types of AETP Applications: Program design & Technique for plyometric training, for speed, agility, Speed and agility Mechanics, Methods of developing agility, Program design, speed and agility development strategies, drills

Introduction to strength training and conditioning: Meaning/ Definition of conditioning, physical fitness, health related fitness and performance related fitness, components of physical fitness**,** Warm up, definition, types and importance of warm up; **Concept of training load, factors of load, functions of load, load monitoring, recovery and overtraining, Training principles (overload, individualization, progression, specificity, variations, diminishing return and reversibility), Periodization:** General concepts related to periodization, definition, types, training periods, periodization models**; Strength Training modalities:** Definition of strength, types of strength, benefits of strength training, strength training modalities (body weight, partner, machines, free weights etc), its advantages and disadvantages**,** Exercise techniques for alternative modes and non-traditional implement training**; Programme design for resistance training:** Exercise prescription, steps (needs analysis, exercise selection, exercise order, number of repetitions and sets, rest periods), Periodization of strength training**,** Programme design for plyometric training, speed and agility training and balance**,** Strength training for different population (children, females and senior citizens)**, Programme design for aerobic endurance training:** Endurance Definition, types and importance, factors related to aerobic endurance performance, Modalities for aerobic endurance, designing aerobic training programme, Periodization of aerobic endurance; **Programme design for speed, agility, quickness and balance:** Speed definition, importance, factors affecting speed. Programme designing for speed, Periodization of speed**,** Meaning and definition of Agility, quickness and balance, importance and programme designing**; Programme design and techniques for flexibility training:** Flexibility definition, importance, types and factors related to flexibility**,** Programme designing and methods of flexibility training**; Evaluation of physical fitness components:** Tests, measurements and evaluation (types of tests, evaluation and interpretation of the data), different test protocols for the evaluation of motor abilities; **PRACTICAL PAPER:** Body weight exercises, Partner exercises, Medicine ball exercises, Dumbbell exercises, Machine based exercises, Free weight strengthening exercises, Non-traditional strengthening exercises (tyres, ropes etc.), Endurance training protocols (continuous, interval methods etc.), Speed, agility drills, exercises for quickness, balance and coordination, Flexibility training (different methods of stretching, Motor ability tests

KINESIOLOGY & BIOMECHANICS

Definitions of kinesiology and biomechanics, Importance of biomechanics in sports coaching, Basic principles of biomechanics, Concept of reference system and its significance, Anatomical and fundamental standing position, Types of axes and planes, Definition and explanation of various fundamental and auxiliary movements, Overview of musculoskeletal system, Types of joints, Types of muscles and muscle action, Linear Kinematics: definition of position, displacement, distance, speed, velocity, acceleration, and projectile motion, Angular Kinematics: definition angular displacement, angular

velocity, angular acceleration, Linear Kinetics: Newton's laws of motion, Angular Kinetics: Torque and moment of force, torque as the rotational equivalent of force, moment of inertia, Introduction to levers and their importance, different types of levers and their characteristics, Definition of biomechanical analysis, types of biomechanical analysis: qualitative, quantitative, and predictive; **Practical:** Analysis of fundamental and auxiliary movements, Introduction to 2D motion analysis. Linear kinematic analysis of a 30 m sprint using timing gates/ stop watch, Angular kinematics of a squat using video analysis software. (hip, knee and ankle), To demonstrate and understand the concept of levers through series of exercises, Introduction to force plate and its applications, Introduction to isokinetic dynamometry and its applications.

Basics of Kinesiology: Introduction to Kinesiology and its importance in coaching Concept of reference system and its significance, various references, Centre of gravity Mechanical axis, anatomical and standard standing position**,** Types of planes and axes**,** Definition and explanation of various fundamental and auxiliary movements**; Major muscles, joint and their actions:** Overview of Skeletal system, Type of joints, Types of muscle actions, Major muscles acting at hip, knee, shoulder, elbow joint, shoulder girdle and trunk region**; Posture:** Definition of posture**,** Importance of good posture**,** Characteristics of good posture**,** Factors affecting posture/causes of poor posture**; Structure of motor action:** Definition of motor action**,** Classification: types of movements i.e. acyclic, cyclic and movement combination**,** Phases of movements and their importance, Functional relationship among various phases of movement, Structure of acyclic, cyclic and movement combination with example and functions of various phases**; Kinesiological analysis of basic movements:** Walking, running (differences between walking and running) jumping, throwing**; Introduction to sports Biomechanics:** Definition of Sports Biomechanics**,** Role of Sports Biomechanics and its contribution in the field of sports**; Forms of Motion: Linear motion (**Definition, units and explanation of different values in linear motion viz. Distance, displacement, speed,velocity, acceleration, acceleration due to gravity, inertia, mass, force, weight, momentum, impulse, pressure and relationship between pressure and area implication between their relationship)**, Angular motion** (Definition, units and explanation of different values in angular motion like angular distance, angular displacement, angular velocity, angular acceleration, relationship between angular and linear motion; eccentric force, couple, torque, moment of inertia and interrelationship between moment of inertia, angular momentum and angular velocity)**; Newton's laws and Projectile motion:** Law of inertia, Law of acceleration, Law of action and reaction**,** Fundamental definition of projectile, trajectory, range, angle of release, point of release, velocity of release, point of landing height of projectile, time of descent, time of flight, relative height of release, Various situations of projectile motion and their characteristics and implications in sports**; Levers, Equilibrium and stability:** Types of levers, Anatomical levers of body, Principles of leverage, Definition of equilibrium and stability**,** Centre of gravity and its importance**,** Factors affecting stability and equilibrium and their implication**; Types of Forces:** Internal and external forces, Effect of characteristics of force**,** Summation of force**,** Centripetal and centrifugal force, Friction –its cause, types and factors affecting different types**,** Gravitational force**; PRACTICAL PAPER:** Analysis of fundamental and auxiliary movements, Introduction to kinovea software (2D motion analysis). How to use kinovea for 2 D skill analysis, Linear kinematic analysis of a 15 m sprint using timing gates/ stop watch, Muscular analysis of fundamental movements by palpation method, Demonstration of Newton's law of motion, Spin on ball –its causes

and effects

SPORTS ANTHROPOMETRY

Kinanthropometry: Introduction and application in sports**; Human Growth and Development:** Understanding stages of human growth, Growth curves and their significance in sports, Adolescent growth spurt: its effect on training**; Body composition:** Introduction, body composition as a health and fitness indicator in sports**,** Methods to estimate human body composition**; Physique & Somatotype:** Physique and its role in different sports and games**,** Somatotype and its importance in sports**,** Sports Anthropometry perspective on Talent Identification in sports**,** Important Body Landmark and measurements**,** Anthropometric Instrument**,** Anthropometric measurements in sports, Hands-on- training and report insight

SPORTS PSYCHOLOGY

Definition and Overview of Sports Psychology, Theories of Arousal-performance relationship and their application in sports, Techniques of arousal regulation, Types of Motivation, Techniques of Motivational enhancement, Types of Goals and Advantages of effective goal setting, Principles of Effective Goal setting, Psychological Preparation for sports competition; **Concept, Processes and** Applications in Sports: Definition and Overview of Sports Psychology, Predominant models of sports psychology and scope of sports psychology, Cognitive Processes in sports: Meaning and types of cognitive processes (Attentional Styles in Sports, Techniques for building concentration, Role of Thinking in Sports), Emotional Processes in Sports (Definition of emotions, Stress, Anxiety and Aggression in Sports, Emotional regulation in Sports, Arousal-performance relationship in sports (Theories of Arousal- performance relationship and their application in sports, Techniques of arousal regulation; **Psychological factors for performance enhancement**: Motivation (Types of Motivation, Techniques of Motivational enhancement), Goal setting – Reena (Types of Goals, Principles of Effective Goal setting, Advantages of goal setting), Psychological Preparation for sports competitions, Stages and psychological skills training for sports competitions (PST) – Mugdha; **Optimizing Team Behaviour and Performance**: Difference between (Team and Group, Stages of Team Formation), Building team cohesiveness :Types of team cohesion, Measurement of team cohesion, Enhancing team cohesion, Application of Positive, Psychology for Excellence in Sports, Concept of Positive Psychology; Maslow's Need Hierarchy - Theory and its application in Sports, Flow State Concept - Characteristics and application of Flow State in sports, Optimizing psychological mindset of athletes: Mental ToughnessTraining - Ideal Performance state; Progressive Muscular Relaxation, Autogenic Training, Systematic Desensitization, Biofeedback and HRV Breathing, Imagery Training, Performance Profiling of athletes, Vision Board Construction, Essentials of Psychological Counselling, Field Work (Learning Test Administration, Scoring, Interpretation and collecting data on field), Practicum (Designing and preparing Project Report), DYNAMICS: **Foundation of Sports Coaching -** Coaching Definitions Motivation to become a Professional Coach, Approaches to Sports Coaching, Qualities of a Good Coach Roles of a Coach; **Coaching Philosophy**: Developing your Coaching Philosophy, Determining your Coaching Objective; **Principles of Coaching**: **Foundations of Skill Instruction -** Basics of Good Teaching/Coaching, Differences between Learning and Performing, Three Basic Ingredients of Skill Instruction, Process-Focused, Approach to Providing, Sport Skill Instruction, Learning Aids, **Technical & Tactical Skills**, **Traditional Approach** - Overemphasis on technical skills and direct instruction, **The Games Approach** - How it works, **Fundamentals of** C**oaching process skills**: Safety, risk assessment, organisation, explanation, demonstration, observation, analysis and feedback; **Behaviour & Relationships: Managing your Athletes behaviour** - Positive Discipline, Preventive Discipline, Corrective Discipline; **Coaching Relationships**: Coach-Parent Relationship, Coach-Athlete Relationship, Coach relationship with Education Providers; **Coaching**

Effectiveness: Definition and meaning of Coaching Effectiveness, Coaching effectiveness comparisons, Approaches to Coaching effectiveness; **Planning Coaching Sessions: Steps to Planning (**Step 1 - Identify the skills, Step 2 - Know your athletes, Step 3 - Analyze your situation, Step 4 - Establish priorities, Step 5 - Select the methods Step 6 - Plan practices), **Working with the Sports Science Team**

SPORTS NUTRITION

Overview of energy requirement in Sports and basic classification. Introduction to Factors affecting energy expenditure, Role of Carbohydrates in Sports, Need for Carbohydrate food for training and Competition, Carbohydrate foods for pre, during and post training and competition, Role of proteins in Sports, Use of High-Quality Protein rich food for Training and competition, Requirement of proteins for recovery post training/ competition, General protein recommendations, Role of Fats in Sports, Introduction to fatty acids of importance in Sports - choosing healthy fat options, Practical tips to include fats and oils in the diet, Major Vitamins of importance in Sports (Vitamin D and B Complex), Functions in sports and food Sources, General guidelines for use of Vitamin Supplements, Major minerals of importance in Sports (Iron, Calcium), Functions in sports and food Sources, General Guidelines for use of Mineral Supplements, Antioxidants & probiotics - Definition, food sources and role in sports, Practical ways to include these in daily diet, Importance of hydration, Symptoms of dehydration, Practical ways to assess hydration status, Guidelines for fluid intake to maintain hydration status (including Na & K), Overview of fad diets and their health effects. Guidelines for healthy weight reduction, Understanding the need for supplements, Various Supplements for Performance, recovery and immunity, Supplement safety concerns, General Nutritive Value of different Food Groups, Athlete food plate: Uses and practical applications, Assessment of hydration status, Percent dehydration calculation, Preparation of sports drink, Weight loss Competition meal, Reading food labels for selection of packed food/Supplements, Searching relevant scientific information on internet, Myths and Fallacies in Sports Nutrition

SPORTS BIOCHEMISTRY

Introduction to Exercise Biochemistry: Biochemistry & Exercise Biochemistry. Aim and Importance, Exercise Metabolism (Anabolism and Catabolism); Fuel Storage: Storage of fuels in the body (Carbohydrates, Fats, and Protein, Triglycerides, Glycogen, Free Amino acid pool; Replaced with Energy Currency: Energy currency ATP, ATP-ADP Cycle; Proteins that transport/store oxygen: Introduction, structure and functions of Haemoglobin, Introduction, structure, and functions of Myoglobin; Anaemia: Definition, types, and symptoms; Biochemical evaluation of athletes: Nutritional markers, Muscle damage markers, Bone health markers, Metabolic markers, Inflammatory markers, Overtraining Markers

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PART- C

General Awareness, Reasoning & Aptitude

ANNEXURE III

COACHING ABILITY TEST

a. The assessment parameters serve as a foundational blueprint for developing competence, character, confidence, and connection, the four critical athlete-centered outcomes recognized by leading sports organizations.

b. The proposed 40 assessment parameters and the reasoning behind the cruciality of keeping these parameters is as follows:

i. Domain A: Teaching & Communication Skills (6 Parameters): This domain evaluates a coach's ability to effectively transfer knowledge and build a positive, motivating relationship with an athlete. The parameters align with core competencies recognized by professional bodies.

- **Clarity in skills/drills demonstration:** Assesses the coach's ability to visually model techniques, which is the first and most critical step in skill acquisition for an athlete.
- **Accuracy and correctness of technique shown:** Evaluates the coach's foundational knowledge and technical mastery of the sport's skills, ensuring they can provide a correct example for imitation.
- **Ability to simplify complex skills for athletes:** Measures a coach's pedagogical skill in breaking down intricate movements or concepts into manageable, digestible steps appropriate for the athlete's learning level.
- **Quality of verbal communication (clarity, pace, tone):** A core competency that assesses a coach's ability to articulate concepts and feedback in a clear, compelling manner. It measures active listening and the ability to hear nuances in athlete communication.
- **Motivation and encouragement of athletes:** This is a crucial parameter, as a coach's motivational competency is a significant predictor of an athlete's sport achievement motivation. This assesses the ability to inspire and build self-belief.
- **Ability to build athlete confidence:** Evaluates the coach's capacity to empower the athlete, build their self-efficacy, and encourage them to take ownership of their development.

ii. Domain B: Organisation & Session Management (5 Parameters): This domain focuses on the coach's administrative and logistical competence, which is essential for maximizing efficiency, ensuring safety, and providing a structured learning experience.

- **Session planning and structuring:** Assesses the coach's ability to design a practice plan with a clear objective and a logical flow.

- **Efficient use of equipment/resources:** Measures the coach's ability to manage and utilize available resources, which is a key responsibility of a coach.
- **Time management within session:** Assesses the coach's ability to adhere to a schedule, ensuring all planned activities are completed effectively and without unnecessary downtime.
- **Maintaining discipline and control:** Evaluates the coach's capacity to enforce rules and expectations in a fair and consistent manner, which is crucial for a productive and safe environment.
- **Safety measures and risk minimization:** Measures a coach's adherence to safety protocols and their proactive approach to injury prevention and athlete well-being.

iii. **Domain C: Observation, Fault Correction & Adaptability (5 Parameters):** This domain measures the coach's ability to observe an athlete's performance in real time, accurately identify errors, provide timely and actionable feedback, and adapt their approach as needed.

- **Keen observation of athlete performance:** Assesses the coach's ability to notice subtle and key aspects of an athlete's technique or behavior, a foundational skill for providing accurate feedback.
- **Ability to identify technical errors:** Measures the coach's analytical skill in diagnosing specific flaws in a technique or skill. This is a core part of technical assessment.
- **Timeliness of corrective interventions:** Evaluates the coach's ability to provide feedback and corrections promptly, as immediate intervention is often more effective than delayed feedback.
- **Individualisation of feedback:** Measures the coach's ability to tailor their feedback to the specific needs, learning style, and personality of the individual athlete being coached.
- **Adaptability to different skill levels and learning styles:** Evaluates the coach's flexibility in adjusting their methods to suit the athlete, a critical skill for working with diverse individuals.

iv. **Domain D: Technical & Tactical Application (5 Parameters):** This domain assesses the coach's mastery of the sport itself, including the ability to apply technical skills and tactical strategies in a competitive context.

- **Logical progression of drills and exercises:** Evaluates the coach's knowledge of skill development, ensuring drills build upon one another in a structured and effective manner.
- **Linking drills to tactical/game situations in competition context:** Measures the coach's ability to connect isolated drills to the real-world application of the sport, helping athletes understand the purpose of each exercise.

- **Ability to teach tactical strategies effectively:** Evaluates the coach's capacity to convey complex game-time decisions and strategies, preparing players to read the situation and make effective choices.
- **Integration of technical and tactical skills in sessions:** Measures the coach's ability to blend technical skill development with tactical decision-making, as the two are inextricably linked.
- **Decision-making under simulated match conditions:** Assesses the coach's capacity to make fast, strategic decisions in a high-pressure environment, a key indicator of on-field competence.

v. **Domain E: Sports Science Application (5 Parameters):** This domain assesses the coach's ability to apply scientific knowledge from various disciplines to improve an athlete's performance. The application of sports science is a critical competency for modern, elite coaches.

- **Knowledge of biomechanics in correcting techniques:** Measures a coach's understanding of human movement and mechanics to identify and correct technical flaws.
- **Awareness of physiology and energy systems in training:** Evaluates the coach's knowledge of how the body responds to training, allowing for the design of more effective, scientifically-based programs.
- **Integration of sports psychology concepts (focus, motivation, stress):** Assesses the coach's ability to use psychological principles to enhance an athlete's mental toughness, goal-setting, and emotional regulation.
- **Knowledge of anti-doping, ethics, and clean sport practices:** Evaluates the coach's commitment to ethical conduct and integrity in sport, ensuring they are a responsible and professional role model for their athletes.
- **Incorporation of nutrition and hydration guidelines:** Measures a coach's knowledge of the role of diet and hydration in performance and recovery.

vi. **Domain F: Professionalism & Role Model Qualities (3 Parameters):** This final domain assesses the coach's personal conduct, character, and professional demeanor, qualities that are crucial for setting a positive example and building a strong team culture.

- **Professional appearance and conduct:** Measures the coach's demeanor and presentation, ensuring they project a professional image that befits a leader.
- **Enthusiasm, energy, and positive attitude:** Evaluates the coach's ability to create a positive and energetic training environment, which can be contagious and significantly impact team morale and athlete engagement.
- **Fairness, ethics, and role-model behavior and safeguarding athletes:** Assesses the coach's integrity, their ability to treat all athletes equitably, and their

capacity to serve as an ethical leader, which is a foundational competency for all coaches.

vii. **Domain G: Mico cycle Planning Competence (11 Parameters):** This domain evaluates the coach's ability to design and implement a structured training calendar to guide an athlete's long-term development and ensure peak performance at key times.

- **Goal Alignment:** Are microcycle goals aligned with long-term objectives, seasonal plan, and LTAD stage?
- **Periodization Strategy:** Is the microcycle integrated with meso/macrocycle, reflecting the correct phase and progression?
- **Load Management: I**s training load (intensity, volume, density) appropriate and progressive?
- **Recovery & Regeneration:** Are recovery strategies (rest, sleep, nutrition, regeneration) built into the cycle?
- **Session Structure & Sequencing:** Are sessions logically sequenced to maximize adaptation and minimize interference?
- **Individualization:** Is the plan tailored to athlete's age, training age, performance level, and needs?
- **Monitoring & Feedback:** Are performance, wellness, and recovery tracked, with timely feedback?
- **Technical & Tactical Integration:** Are sport-specific technical and tactical elements included with physical work?
- **Specificity of Training:** Is training event-specific, competition-relevant, and biomotor aligned?
- **Variety & Creativity:** Is training diverse enough to maintain motivation and avoid monotony?
- **Bio-Motor Integration:** Are speed, strength, endurance, flexibility, coordination, and psychology balanced?

c. **Scoring & Conversion**

i. **Raw Marks per assessor:** 40 parameters × 5 = **200**.

ii. With at least **10 assessors**, average raw score calculated.

iii. Final conversion:

1. Final CAT Score (out of 60) = (Average Raw Marks/200) ×60.