

**DEPARTMENT OF SPORTS SCIENCES**  
**M.Sc. (Sports Biomechanics)**

**19MSBC101: Introduction to Sports Biomechanics**

**Course Outcomes:**

By the end of the course, the student will be able to

CO1: Use mechanical principles to describe simple sport and exercise movements;

CO2: Know the key relationships within kinematics and how they interact in sport and exercise movements;

CO3: Know the different aspects of kinetics in relation to sport and exercise movements.

CO4: Solve basic theoretical problems in mechanics using mathematical skills

CO5: Analyse basic biomechanical data using appropriate techniques

**19MSBC102: Functional Anatomy**

**Course Outcomes:**

By the end of the course, the student will be able to

CO1: Describe the skeletal and muscular anatomy of the body and appreciate the difference between roles of muscles.

CO2: Describe and illustrate the movements possible at selected joints of the skeletal system.

CO3: Demonstrate basic understanding of human movement biomechanics.

CO4: Understand the importance of strength and flexibility of the muscles to perform actions without injury

**19MSBC103: Research Methods and Applied Statistics in Sports Biomechanics**

**Course Outcomes:**

By the end of the course, the student will be able to

CO1: Demonstrate Knowledge of research processes (reading, evaluating, and developing).

CO2: Perform Literature reviews using print and online data base.

CO3: Potential enough to write research proposal, research article and thesis.

CO4: Expert in using Excel & SPSS for statistical calculation

CO5: Demonstrate parametric and non parametric statistics manually

**19MSBP104: Practical I**

**Course Outcomes:**

By the end of the course, the student will be able to

CO1: Show knowledge of kinematics and Kinetic in static condition.

CO2: Provide a hands-on learning experience and understand the basic concepts and applications of mechanics on playfield

**19MSBP105: Practical II**

**Course Outcomes:**

By the end of the course, the student will be able to

CO1: Describe different types of movement in different anatomical planes and range of articular systems within the human body.

CO2: Describe the structural and functional components of articular systems.

CO3: Show an understanding of proportionality, kinetic and kinematic analysis and determine mathematically linear components of movement.

CO4: Determine simple biomechanical parameters relating to human movement.

CO5: Demonstrate a range of competencies including general transferable skills and technical skills associated with functional anatomy and biomechanics in the laboratory setting.

### **19MSBP106: Practical III**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Select from, use and interpret results of, descriptive statistical methods effectively.

CO2: Demonstrate and understanding of the central concepts of modern statistical theory and their probabilistic foundation.

CO3: Select from, use, and interpret results of, the principal methods of statistical inference and design

CO4: Communicate the results of statistical analyses accurately and effectively.

CO5: Make appropriate use of statistical software

### **19MSBP107: Practical IV**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the physical and physiological modifications due to sports participation

CO2: Demonstrate basic skills in selected sports using a mature movement pattern.

CO3: Demonstrate knowledge of history, rules, safety, and performance techniques in selected sports

### **19MSBC201: Fundamentals of Sports Performance Analysis**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the techniques and systems used to observe and analyse the tactical and technical aspects of sporting performance

CO2: Analyse and describe sporting performance using video analysis software

CO3: Understand the statistical methods used to create performance profiles

### **19MSBC202: Instrument for Recording and Analyzing Sports Movements**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Confidence to handle state of art measurement devices for biomechanical testing.

CO2: To plan, prepare, measure and analyse biomechanical experiments.

CO3: To apply theoretical understanding and practical knowledge to specialized case studies

CO4: To evaluate state of the art biomechanical diagnostics in competitive sports as well as in recreation, rehabilitation and health scenarios

CO5: To create reasoned diagnostics / experimental studies for competitive sports and sports products

### **19MSBC203: Kinanthropometry**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Demonstrate greater practical skills in a range of anthropometric measurements of stature, skeletal breadths, girths and skinfolds

CO2: Record, analyse and evaluate anthropometric measurements

CO3: Safely and effectively use instrumentation and equipment to assess and record human anthropometry, physique and somatotype

### **19MSBP204: Practical V**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Show knowledge of kinematics and Kinetic in static conditions.

CO2: Provide a hands-on learning experience and understand the basic concepts and applications of mechanics and electrical activity of skeletal muscle on playfield.

#### **19MSBP205: Practical VI**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Determine ground reaction force and relating to human movement.

CO5: Measures the specific muscle strength of Athletes

#### **19MSBP206: Practical VII**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Safely and effectively use instrumentation and equipment to assess and record human anthropometry, physique and somatotype

CO2: Determine simple biomechanical parameters relating to human movement.

#### **19MSBP207: Practical VIII**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the physical and physiological modifications due to sports participation

CO2: Demonstrate basic skills in selected sports using a mature movement pattern.

CO3: Demonstrate knowledge of history, rules, safety, and performance techniques in selected sports

#### **19MSBC301: Applied Sports Performance Analysis**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Demonstrate an understanding of the process of video notational analysis.

CO2: Identify the various video feedback methods and distinguish the most appropriate method in a variety of contexts. –

CO3: Analyse various team sports technical/tactical skill contexts and provide appropriate feedback to athletes. –

CO4: Examine theoretical concepts in an applied setting and report on the validity of each in situational contexts. –

CO5: Integrate all relevant skills and knowledge already acquired with all new skills and dispositions acquired in this subject area.

CO6: Demonstrate an appreciation of the need for confidentiality with regard to player performance score during the process of team sports technical performance analysis

#### **19MSBC302: MATLAB**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: To understand the use of Matlab in order to analyse signals in the investigation of human movement.

CO2: Enhance the ability to create a Matlab script that can read the data, improve data quality, visualize results and compute relevant signal characteristics of various signals relevant in movement science

#### **19MSBC303: Biomechanical Analysis of Human Movement**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the balance, toppling, slipping, falling and landing mechanism during competitive sports

CO2: Understand the mechanism of walking, running, jumping, throwing, striking, and catching while playing sports and games.

CO3: Understand the applications of Climbing, Swinging, and airborne manoeuvres in sports

#### **19MSBP304: Practical IX**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Learns to control various filters

CO2: Learns temporal processing and amplitude analysis

#### **19MSBP306: Practical XI**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the balance, toppling, slipping, falling and landing mechanism during competitive sports

CO2: Understand the mechanism of walking, running, jumping, throwing, striking, and catching while playing sports and games

#### **19MSBP307: Practical XII**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the physical and physiological modifications due to sports participation

CO2: Demonstrate basic skills in selected sports using a mature movement pattern.

CO3: Demonstrate knowledge of history, rules, safety, and performance techniques in selected sports

#### **19MSBC401: Biomechanical Analysis of Sports Skills**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Explain performance analysis in game, sports and its applications in game sports theory as well as game sports training.

CO2: Explain theoretical innovations in game, sports analysis including the mathematical background.

CO3: Apply technological innovations in game, sports analysis to questions of theoretical as well as practical performance analysis

#### **19MSBC402: Clinical Biomechanics**

##### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Gain the knowledge of Muscle palpation for locating the Joint and Muscular Structure

CO2: Able to differentiate the Injuries along with their treatment

CO3: Describe the Injury due to the possible mechanical error and also able to recommend the exercise on the basis of mechanics

CO4: Critically analyse human movement to be able to identify normal and pathological gait function and the parameters integral to successful movement execution

### **19MSBC403: Application of Biomechanics to Physiological Systems**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Develop a better understanding of how mechanical principles influence physiological systems during everyday life.

CO2: Analyze the forces of various biological systems during static and dynamic human activities; analyze the stresses and strains in biological tissues.

CO3: Understand the principles of mechanics that is used to analyze biological systems.

### **19MSBD404: Project (Dissertation)**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Handle the practical problems to enhance the sports performance

### **19MSBP405: Practical XIII**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Learns to assess the sports skills

CO2: Learns to identify the mistakes and correct biomechanically

### **19MSBP406: Practical XIV**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand the biomechanical role on physiological variables

CO2: Learns to measure physiological variables

### **19MSBV407: Project Field Visit**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Demonstrate skills in monitoring of the elite athletes and oriented to provide remedies to overcome their weakness associated with their sports

### **19MSBE207. 1: Motor Control in Sports**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Differentiate various Motor Learning Process

CO2: Describe the Mechanism responsible for the movement

CO3: Develop an Understanding of how the body controls posture and the factors of inefficiency

### **19MSBE207. 2: Methods in Neuromechanics**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Understand theories of motor control and neuromechanics, principles of motor learning and their practical implications, and how these relate to both the neuromuscular physiology and biomechanics

CO2: Apply the obtained knowledge to creatively solve problems relating to sport, exercise, human movement and rehabilitation

### **19MSBE308. 1: Biomechanics of Sports Injuries**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Acquire knowledge to overcome and prevent different types of injury on various structures due to sports equipment and technique on injury

### **19MSBE308. 2: Biomechanics of Asanas**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Develop a better understanding of how mechanical principles influence yogic movements with health perspective

### **19MSBX205. 1: Physics in Sports**

#### **Course Outcomes:**

By the end of the course, the student will be able to

CO1: Learn how speed and acceleration relate to sprinting

CO2: Understand how Newton's laws of motion determine the path of a football

CO3: Applying the principles of rotational motion to gymnastics, figure skating and diving

CO4: Learn what the optimum launch angle are for long jump and other sports projectiles

CO5: Apply basic aerodynamic principles to the javelin, ski jumping and swimming

CO6: Estimate the effect of wind speed, altitude, temperature, and equipment on various sports

## **DEPARTMENT OF SPORTS SCIENCES**

### **M.Sc. (Exercise Physiology)**

### **19MEPC101: Fundamentals of Exercise Physiology**

#### **Course Outcomes:**

CO1: Demonstrate an understanding of the structure, function, mechanics, control, limitations, and fatigue of the cardiorespiratory system to include ventilation, gas transport and exchange, hemodynamics, and cardiac output during rest and exercise;

CO2: Understand the concepts involved in measuring energy, work, and power and describe/demonstrate the means by which the energy cost of exercise can be estimated and measured (including metabolic calculations).

CO3: Demonstrate an understanding of homeostasis, the physiological and metabolic processes that facilitate exercise, recovery, and the adaptations that occur with acute and chronic exercise.

CO4: Describe the various regulatory mechanisms (endocrine, immune, and nervous systems) and their interactions with respect to exercise, fatigue, and adaptation.

CO5: Predict homeostatic, exercise, and adaptive responses to various environmental perturbations, i.e., temperature, barometric pressure, etc., and identify strategies to optimize adaptation, reduce performance compromises, and limit injury

### **19MEPC102: Kinesiology&Biomechanics**

#### **Course Outcomes:**

CO1: Understand the anatomical and biomechanical bases of human movement;

CO2: Understand the physiological bases of human movement.

CO3: Apply the knowledge related to mechanicsofmusculoskeletalsystem to think critically and ethically in examining issues and solving problems associated with their chosen discipline of study.

CO4: Describe the various natureandimportanceofbiomechanics.

CO5: Identify to posture, gait and movementanalysisvarious complex.

**19MEPC103: Research & Educational Methodology****Course Outcomes:**

- CO1: Search for, select and critically analyse research articles and papers
- CO2: Prepare a literature review; and formulate research questions for evaluation
- CO3: Develop a research proposal
- CO4: Gain experience with instrument development and data collection methods.
- CO5: Know the principles and methods of effective teaching.

**19MEPP104: Core 4: Laboratory and Field Practical-I****Course Outcomes:**

- CO1: Identify the components of cardiorespiratory functions and explain the principles of diffusion.
- CO2: Describe the mechanism of breathing, transport of gases, and process of gas exchange.
- CO3: Trace the flow of blood, and identify the heart chambers, valves and major vessels of the heart.
- CO4: Assess the morphology, hemodynamic activities, and cardiorespiratory fitness
- CO5: Monitor electrophysiology of abnormal heart

**19MEPC202: Exercise and Environmental Physiology****Course Outcomes:**

- CO1: Enrich the knowledge on the basic principles of physiology and its connection within the frame of biology and other natural sciences, understand the role of water, structure and function of cell membranes and transport depends functioning of the basic life processes as maintaining the ionic and osmotic balance, circulation and respiration, providing of energy etc.
- CO2: Gain a broader view on specificity of single processes and their mutual connection.
- CO3: Understand the human behaviour in connection with environment at the basis of synthesis of the knowledge on the function of processes that enable the organism to survive in specific environment.
- CO4: Understand processes at higher level including control and connection of these processes by the nervous and hormonal systems.
- CO5: Describe and discuss the stresses placed on the human body during exercise performed under different environmental conditions and the adaptations made by the body with extended or repeated exposure to those conditions.

**19MEPC203: Kinanthropometry and Exercise physiology****Course Outcomes:**

- CO1: Competently use and understand the principles of anthropometric procedures for assessing human body composition
- CO2: Accurately use anatomical and physiological terminology
- CO3: Explain the function, structure and components of the musculoskeletal and cardiopulmonary systems in relation to exercise and sport
- CO4: Assess body composition and perform Somatotyping
- CO5: Understand the changes in body composition with growth, maturation and physical training

**19MEPP204: Core 8: Laboratory and Field Practical-II****Course Outcomes:**

- CO1: Eliminate outdated practices in favor of more effective evidence based learning;
- CO2: Implement evidence based assessment;
- CO3: Apply evidence based management.
- CO4: Enforce evidence based professional ethics
- CO5: Conduct evidence based research and policy making

### **19MEPC207.2: Women Health and Exercise (Elective)**

#### **Course Outcomes:**

CO1: Demonstrate an understanding of the structure, function, mechanics, control, limitations, and fatigue of the cardiorespiratory system to include ventilation, gas transport and exchange, hemodynamics, and cardiac output during rest and exercise.

CO2: Understand the concepts involved in measuring energy, work, and power and describe/demonstrate the means by which the energy cost of exercise can be estimated and measured.

CO3: Recognize the differences in the physiological response to exercise because of sex and as one progresses through the lifespan.

CO4: Demonstrate an understanding of the methods of body composition assessment and recognize healthy values for body fat and what impact body composition has on athletic performance and health of women.

CO5: Demonstrate knowledge regarding the effects of exercise training on women bone density across the lifespan.

### **19MEPC301: Exercise and Fitness-Health and Skill-Related Components**

#### **Course Outcomes:**

CO1: Become competent, independent, and critical thinkers by developing into allied health professionals that are proficient in the care of the physically active, and demonstrating quality injury prevention, identification, care and rehabilitation.

CO2: Accept the role of the athletic and fitness training professional and demonstrate a positive attitude regarding the athletic training profession.

CO3: Adhere to the Code of Ethics and the Professional Practice, and maintain high moral standards when performing professional duties.

CO4: Enhance the athletic and fitness training profession by sharing that knowledge and expertise.

CO5: Become involved with society outside of their professional requirements as demonstrated by assisting those in need and working to make their own piece of the world a better place by contributing to the community in which he/she lives, works and learns.

### **19MEPC302: Exercise and Sportsnutrition**

#### **Course Outcomes:**

CO1: Describe contemporary dietary guidelines and demonstrate an ability to use these guidelines to provide general nutrition advice for achieving or maintaining a healthy body weight

CO2: Describe how nutrition influences human development, exercise performance, recovery and physiological adaptations

CO3: Discuss macronutrient metabolism during and after exercise and outline the requirements of these nutrients for athletes

CO4: Describe the physiological functions of vitamins, minerals and major nutrients and explain how and why micronutrient requirements might be altered in athletes compared with non-exercising individuals.

CO5: Describe the composition of common sports drinks and ergogenic aids and discuss how these can be used appropriately and safely before, during and after exercise

### **19MEPC303: Neuro Musculo Skeletal System in Exercise & Training**

#### **Course Outcomes:**

CO1: Synthesise knowledge of the effects of exercise, immobilisation, aging and injury on the neuro-musculoskeletal system.



CO2: Analyse biomechanical and musculoskeletal modelling techniques to estimate internal and external forces.

CO3: Critically analyse and apply advanced biomechanical evaluation methods and techniques in the collection of biomechanical data.

CO4: Analyse intrinsic and extrinsic factors associated with sports-related injury to integrate into practice; and critically review biomechanical principles related to the cause and treatment of sports-related injury.

CO5: Evaluate and integrate the scope of practice of exercise scientists in the modification of exercise prescriptions for injured populations to design and implement return-to-sport plans.

### **19MEPP304: Core 12: Laboratory and Field Practical-III**

#### **Course Outcomes:**

CO1: Discuss and describe the structures, regions, and functions of the human brain and associated sensory systems

CO2: Compare and contrast the data and hypotheses about the effects of exercise and mental activity, and sleep disorders

CO3: Evaluate the research on the importance of the brain areas in eating and drinking and the differences between obesity, anorexia nervosa, and bulimia.

CO4: Compare and contrast the components of emotion and describe the main theories that have been used to explain emotion and the functions, structures, and main regions of the brain essential to emotion expression, as well as any cultural differences in expression.

CO5: Analyze research on etiological and psychopharmacological findings related to Autistic spectrum disorders, Anxiety Disorders, PTSD, OCD, Schizophrenia, Alzheimer's disorder, ADHD, Major Depressive Disorder, Bipolar Disorder, and addictions. Analyze one neurological or psychological disorder in a research paper using scholarly sources to test a hypothesis related to a physiological aspect of that disorder

### **19MEPC402: Applied Exercise Physiology**

#### **Course Outcomes:**

CO1: Demonstrate knowledge in the exercise sciences including: anatomy and physiology, exercise physiology, Kinesiology and biomechanics, ECG interpretation, exercise testing and prescription, motor learning and nutrition.

CO2: Demonstrate knowledge of and clinical proficiency in the following content areas for both apparently healthy and chronic disease populations: a) pre-participation screening/ health risk appraisal and stratification, b) fitness assessment and evaluation c) the design of individually tailored exercise prescription, d) appropriate exercise techniques

CO3: Recognize the importance of interprofessional collaboration in the delivery of safe, high quality care within the health care system/exercise science field.

CO4: Demonstrate the ability to communicate effectively in both oral and written formats.

CO5: Recognize the importance of ethically-grounded care for diverse clients, patients and/or athletes.

### **19MEPC403: Methods of Exercise Prescription**

#### **Course Outcomes:**

CO1: use a variety of methods to identify individual needs and screen for movement dysfunction;

CO2: evaluate physiological capacities, interpret data obtained and communicate findings to athletes and coaches

CO3: design and implement periodised training programs to enhance physical conditioning and performance and reduce injury risk;

CO4: monitor, evaluate and modify exercise training programs to maximise physiological adaptation and performance; and implement effective recovery strategies within physical conditioning programs;

CO5: prescribe exercise to maintain physical conditioning and support rehabilitation following injury and develop criteria for safe return to activity

**DEPARTMENT OF SPORTS SCIENCES**  
**M.Sc. Sports Nutrition**

**19MSNC101- Fundamentals of Human Nutrition**

**Course Outcomes:**

CO1: Understand what is carbohydrates and dietary fibers

CO2: Understand what is protein and fats.

CO3: Understand what is Micronutrients.

CO4: Understand the features of Energy intake and Energy expenditure

CO5: Understand the Methods to assess energy cost

CO6: Improved understanding of the role of different nutrients in the overall health and wellness of an individual.

**19MSNC102- Basic Anatomy and Physiology**

**Course Outcomes:**

CO1: Understand the Basic Concepts of Anatomy and Physiology

CO2: Understand the structure and functions of the skeletal and muscular systems

CO3: Understand the structure and functions of the blood and circulatory system

CO4: Understand the structure and functions of the respiratory system and digestive system

CO5: Understand the effect of physical exercise training on different systems of the body.

CO6: Understand the role of physiological systems in maintenance of overall health and sports performances

**19MSNC103: Assessment of Health and Fitness of Athletes**

**Course Outcomes:**

CO1: Understand the components of kinanthropometry and methods of assessing them.

CO2: Understand the different methods of dietary assessment (food and fluid intake)

CO3: Understand the different methods of estimation of dietary intakes

CO4: Understand the different methods of assessment of different components of physical fitness.

CO5: Understand the different methods of biochemical and clinical assessment in sports

CO6: Students would be better equipped in handling and carrying out health and fitness assessments

**19MSNP104: Practical-I**

**Course Outcomes:**

CO1: Estimate carbohydrate, moisture and dietary fiber.

CO2: Estimate selected minerals

CO3: Estimate selected vitamins and micronutrients

CO4: Well versed with techniques of estimation of different food items.

**19MSNP105: Practical-II**

**Course Outcomes:**

- CO1: Measure selected physiological parameters.
- CO2: Assess basic fitness abilities.
- CO3: Assess body surface area and Resting Metabolic Rate (RMR) from fat-free mass
- CO4: Experienced in handling the various equipment to measure cardio respiratory functional parameters and fuel utilization

#### **19MSNC201- Exercise Nutrition and Metabolism**

##### **Course Outcomes:**

- CO1: Understand the Type and Quantity of Macronutrient intake and its impact on sports performance
- CO2: Understand Macronutrients and Energy balance
- CO3: Understand the role of Vitamins and Minerals in exercise performance.
- CO4: Understand what is Nutrient periodisation, meal timing and hydration among athletes.
- CO5: Understand the Hydration strategies.
- CO6: Understand the role of different nutrients in sports performance and wellness of an individual athlete.

#### **19MSNC202: Sports Specific Nutrition**

##### **Course Outcomes:**

- CO1: Understand the Nutrition requirements for Hockey, Football, Volleyball, Kabaddi and Cricket.
- CO2: Understand the Nutrition requirements for Athletics, Racket Sports and Cyclic sports
- CO3: Understand the Nutrition requirements for Weight-dependent and balance sports
- CO4: Understand the Nutrition requirements for water sport and coordination sport
- CO5: Understand the Nutrition requirements for Coordination sport
- CO6: Capable of handling and providing event-specific nutritional guidance

#### **19MSNC203: Nutritional Biochemistry and Exercise**

##### **Course Outcomes:**

- CO1: Understand Enzyme chemistry and hormones in macronutrient metabolism and energy production
- CO2: Understand what is Nucleic Acids and Gene Expression
- CO3: Understand Free Radicals, Immune Response and Aging
- CO4: Understand the Inter Relationship between Nutrients & Drug-nutrient interaction
- CO5: Understand Drug Metabolism
- CO6: Students are able to understand the role of different nutrients in the overall health and wellness of an individual.

#### **19MSNC204: Research Methodology & Biostatistics**

##### **Course Outcomes:**

- CO1: Understand the different types of research.
- CO2: Understand the different methods of research.
- CO3: Understand the different types of experimental designs.
- CO4: Understand the measures of central tendency and other statistical measures.
- CO5: Understand the use of computers in research and the components of a thesis.
- CO6: Enables Students to Learn Scientific Methods, Statistical Analysis Techniques Using Software Programmes and Manually.

#### **19MSNP205: Practical-III**

##### **Course Outcomes:**

- CO1: Plan menus for football, Hockey and Cricket players during training and competition..
- CO2: Plan menus for endurance and power athletes during training and competition..
- CO3: Plan menus for different categories of sports during training and competition..

CO4: Equipped to carry out estimation of energy expenditure across phases of training based on personalized training charts and preparation of diet charts for specific sports.

#### **19MSNP206:Practical-IV**

##### **Course Outcomes:**

CO1: Estimate different hematological variables.

CO2: Estimate different minerals and vitamins variables

CO3: Interpret the estimated values in assessing nutritional status

CO4: Well-versed in the protocol of determining nutritional status using blood samples.

#### **19MSNE207.1: Obesity and Weight Management**

##### **Course Outcomes:**

CO1: Understand what is obesity and effect of exercise training on weight reduction.

CO2: Understand the physiology of adiposity and weight gain.

CO3: Understand the reasons for weight gain.

CO4: Understand the ways and means of avoiding/reducing obesity

CO5: A critical awareness of the of physical training on regulation of body weight , adipose tissue and its endocrine function.

CO6: An in depth knowledge of the health benefits of exercise and its applicability in weight related conditions.

#### **19MSNE207.2- Exercise Considerations for Special Populations**

##### **Course Outcomes:**

CO1: Understands the different hypo kinetic disease and the prescription of exercises for people suffering from those diseases.

CO2: Understands the exercise issues related to Adolescence and Older adults.

CO3: Understands the exercise issues related to Back pain and cervical spondylosis.

CO4: Understands the exercise issues related to Females.

CO5: Understands the exercise issues related to other health complications.

CO6: Understanding the factors to be considered while designing and implementing a fitness program for special population with special needs.

#### **SSPO24-M.Sc. Sports Nutrition**

##### **Course Outcomes:**

CO1: Understand the nutrition related disorders of athletes

CO2: Understand the nutritional requirements for Special groups and Sports injuries

CO3: Understand the nutritional requirements for athletes with special dietary needs

CO4: Understand the nutritional requirements at Altitude, Cold and Heat conditions

CO5: Understand the Medical and Nutritional Issues faced by Travelling Athlete

CO6: Gaining knowledge about the various clinical conditions of sports persons and providing suitable dietary modifications and guidelines

#### **19MSNC302: Dietary Supplements and Ergogenic Aids**

##### **Course Outcomes:**

CO1: Understand the evolution of ergogenic aids or drugs among athletes and government regulations

CO2: Understand the different types of macronutrient Supplements

CO3: Understand the different types of micronutrient Supplements

CO4: Understand the different types of metabolite and botanical ergogenic supplements

CO5: Understand the different types of metabolite ergogenic supplements

CO6: Guiding the athlete on supplements and drugs, including doping control practices

### **19MSNC303: Exercise Physiology & Metabolism**

#### **Course Outcomes:**

- CO1: Understand the basics of Exercise Physiology
- CO2: Understand the adaptation of Respiratory and Cardiovascular Systems due to exercise
- CO3: Understand the metabolic adaptation to exercise, Fluid balance and Thermoregulation
- CO4: Understand the adaptation of skeletal muscle, endocrine and immune system due to training
- CO5: Understand the Skeletal muscle and neuromuscular system
- CO6: Enables the students to gain an overall understanding of human body functioning during exercise and thus provide appropriate nutrition/fuel.

### **MSNP305: Practical-V**

#### **Course Outcomes:**

- CO1: Prepare diet pans for athletes with specific health issues
- CO2: Prepare diet pans for athletes undergoing injury rehabilitation.
- CO3: Prepare nutrition strategies and menu planning for athletes in different climatic conditions.
- CO4: Equipped to prepare dietary charts specific to athletes' conditions or special needs

### **MSNP306: Practical-VI**

#### **Course Outcomes:**

- CO1: Understand the composition and brand names of supplements that improve Muscle mass
- CO2: Understand the Composition and brand names of supplements micronutrients commonly available
- CO3: Able to Plan a diet for strength athletes and endurance athletes
- CO4: Well versed with dietary supplements available in the market, their benefits and disadvantage

### **19MSNE307.1: Biochemistry in Health and Disease**

#### **Course Outcomes:**

- CO1: Understand the use of automation in the clinical biochemistry
- CO2: Understand the Kidney, liver and gastric function tests
- CO3: Understand the Metabolic Disorders
- CO4: Understand the Inherited Metabolic Disorders
- CO5: Understand the Molecular diagnosis of genetic defects
- CO6: Enables Students to learn the normal values of all biochemical parameters

### **19MSNE307.2: Fundamentals of Sports Sciences**

#### **Course Outcomes:**

- CO1: Understand the effect of sports training on different systems of the body
- CO2: Understand the different energy systems and metabolism.
- CO3: Understand the different types of sports injuries and how to treat them
- CO4: Understand the basic principles and concepts of sports training.
- CO5: Understand the different biomechanical principles involved in basic movements
- CO6: Understand the basic components of sports science

### **19MSNC401: Sports Psychology and Nutrition Counselling**

#### **Course Outcomes:**

- CO1: Understand the important concepts in Sports Psychology
- CO2: Understand the important concepts in Food psychology
- CO3: Understand the concepts of Health Behavior change psychology
- CO4: Understand the behavioral modification strategies which influence eating habits and health outcomes:
- CO5: Understand the features of nutrition counselling and education

CO6: Gaining a better understanding of client's psychology and then providing nutrition guidance

#### **19MSNC402: Food Service Management and Entrepreneurship**

##### **Course Outcomes:**

CO1: Understand the fundamentals of institutional Food Service Management

CO2: Understand the essentials of Food service management

CO3: Understand the essentials of Quality of Food Service

CO4: Understand the essentials of Sanitation and Hygiene

CO5: Understand the features of Entrepreneurship, Sports Facility & Event Management

CO6: Imparts skills in establishing and operating a food service industry.

#### **MSNP403: Practical-VII**

##### **Course Outcomes:**

CO1: Estimate different psychological parameters

CO2: Understand the techniques of using questionnaire and inventories.

CO3: Estimate anticipation time and reaction time

CO4: Enable students to provide effective nutrition education by understanding of psychology of individual athlete

#### **19MSNP404: Practical-VIII**

##### **Course Outcomes:**

CO1: Understand the basic requirements of the food service industry.

CO2: Understand the techniques of production, handling and storage of foods

CO3: Understand the techniques of Planning a menu including nutrition labelling

CO4: Enable students to identify and solve issues relating to hygiene and sanitation. Further, to understand the qualities of an entrepreneur.

### **DEPARTMENT OF SPORTS SCIENCES**

#### **M.Sc. Strength and Conditioning**

#### **19MSCC101- Fundamental Of Sports Training**

##### **Course Outcomes:**

CO1: Understand the history and basic concepts of sports training

CO2: Understand the principles of sports Training

CO3: Understand the basic components of fitness and methods of improving it.

CO4: Understand the concept of performance enhancement and the factors influencing it.

CO5: Understand the role of tactics in sports and training

CO6: Apply the comprehensive knowledge of science of sports training in planning and preparation of training periods.

#### **19MSCC102-Methods Of Sports Training**

##### **Course Outcomes:**

CO1: Understand the principles and means of sports training.

CO2: Have an in-depth knowledge on plyometrics and its features

CO3: Understand the components and method of improving speed

CO4: Understand the different types of muscle contraction and its mechanism.

CO5: Compare and contrast the mechanisms of various factors and their applications and make recommendations for enhancing the training effect after analyzing sports training plans

#### **19MSCC103:Physiology of Exercise and Adaptation**

**Course Outcomes:**

- CO1: Understand the physiology of exercise performance and energy system.
- CO2: Understand the different environmental factors on performance.
- CO3: Understand the effect of systematic physical activity on different systems of the body
- CO4: Understand what is fatigue and its effect on performance.
- CO5: Understand the effect of drugs on performance its abuse
- CO6: Understands the physiological changes influenced by systematic physical activity and its mechanism as well as the process of positive physiological adaptation and how it can be achieved

**19MSCP104: General Conditioning and Flexibility (Practical)****Course Outcomes:**

- CO1: Understand the types of exercises for various joints and muscles
- CO2: Understand the different types of Stretching exercises.
- CO3: Gain knowledge on the most effective types of flexibility training and prescribe stretches for each major muscle group.
- CO4: Design and execute structured conditioning program based on scientific sports training principles to develop flexibility and mobility for effective functioning as well as improved performance

**19MSSP105: Sports and Games (Practical)****Course Outcomes:**

- CO1: Understands the Rules and their interpretations, of major Olympic games and events
- CO2: Understands the Measurement and methodology of play of major Olympic games and events
- CO3: Understands the different surfaces on which sporting events are conducted.
- CO4: Understands the Advantages of different surface of play field for the above games – Clay court, Natural grass, Cinder, Synthetic, Turf and wooden surfaces.

**SSPO25: M.Sc. Strength and Conditioning (Semester II)****Course Outcomes:**

- CO1: Understands the basics of test and measurement
- CO2: Understands the methods of measuring the various components of body composition,
- CO3: Understands the methods of measuring physical/motor fitness components
- CO4: Understands the methods of recording the progress of training.
- CO5: Understands the method of assessing various skills of sport and games.
- CO6: Use baseline measures, pre screening tools and scholarly evidence (i.e., normative data) to design and implement training programs

**19MSCC202: Functional Anatomical Kinesiology****Course Outcomes:**

- CO1: Understand the anatomical components of the body.
- CO2: Understand the structure of the muscular system.
- CO3: Understand the composition and functions of the bones
- CO4: Understand the types and functions of the muscle
- CO5: Understand the effect of physical activity on different systems of the body.
- CO6: Develop the knowledge and appreciation of the importance of the study of kinesiology as a foundation for further studies. Describe organization of the human body and its regulation. Understand the support and movement of systems of the body.

**19MSCC203: Sports and Fitness Administration.****Course Outcomes:**

- CO1: Understand the scope and concept of sports management.

CO2: Understand the organizational principles, nature and purpose.  
CO3: Understand the role of motivation in sports management.  
CO4: Understand the means and ways of administering a fitness facility.  
CO5: Understand the methods of budgeting and accounting  
CO6: Understand the importance of organization, administration and leadership and their importance in the development of a safe (ethical) and effective training program.

### **19MSCX-206- Fundamentals of Sports Sciences**

#### **Course Outcomes:**

CO1: Understand the effect of exercise training on different systems of the body.  
CO2: Understand the metabolic changes happens due to physical training.  
CO3: Understand the fundamentals of nutrition.  
CO4: Understand the fundamental concepts of sports training  
CO5: Understand the fundamentals of weight management and injury rehabilitation.  
CO6: Have an understanding of the necessity and benefits of habitual Physical activity and understand the composition of a training schedule and how to design one.

### **19MSCE207.1: Sports Nutrition and Energy Metabolism**

#### **Course Outcomes:**

CO1: Understand the elements of good nutrition.  
CO2: Understand the classification of nutrients.  
CO3: Understand the nutritional strategies for training and higher performance.  
CO4: Understand the metabolic process of exercise training  
CO5: Understand the role of drugs and ergogenic aids.  
CO6: Gains insight in to nutritional and energy demands for individuals for training, higher performance, rehabilitation as well as for special population, Learn how to provide guidance regarding nutrition.

### **19MSCE207.2: Obesity and Weight Management**

#### **Course Outcomes:**

CO1: Understand what is obesity and effect of exercise training on weight reduction.  
CO2: Understand the physiology of adiposity and weight gain.  
CO3: Understand the reasons for weight gain.  
CO4: Understand the ways and means of avoiding/reducing obesity  
CO5: A critical awareness of the of physical training on regulation of body weight , adipose tissue and its endocrine function.  
CO6: An in depth knowledge of the health benefits of exercise and its applicability in weight related

### **19MSCCP204 - Fitness Assessment and Recording Progress (Practical)**

#### **Course Outcomes:**

CO1: Understand the different strength capacities and methods of improving them.  
CO2: Understand the methods of assessing motor ability  
CO3: Understand the methods of using instruments to measure body composition.  
CO4: Able to assess and record the progress and outcome of the training program specifically designed for fitness and performance component or for any other specific purpose.

### **19MSCP205- Weight Training Program based on Sport and Fitness Goal (Practical)**

#### **Course Outcomes:**

CO1: To gain a basic knowledge of weight room equipment, various lifts/grips/technique and components of a workout  
CO2: To understand what muscles are being used, their basic motor patterns and training techniques



CO3: To learn terminology, training theory and basic strength training programming and to design and implement various workouts

CO4: Learn how to design and implement safe and effective strength training and conditioning and personal training programs.

### **19MSCC301: Science of Sports Training -I**

#### **Course Outcomes:**

CO1: Understands the movement structure and coordinative abilities.

CO2: Understands the different components of flexibility and ways of improving it.

CO3: Understands the components of endurance and factors which affects it.

CO4: Understands the components of speed and methods of improving speed.

CO5: Understands the concepts of skill, tactics and skill learning.

CO6: Use the resources in planning and designing a training program for populations of different needs.

### **19MSCC302 - Research Methods and Statistics**

#### **Course Outcomes:**

CO1: Understand the different types of research.

CO2: Understand the different methods of research.

CO3: Understand the different types of experimental designs.

CO4: Understand the measures of central tendency and other statistical measures.

CO5: Understand the use of computers in research and the components of a thesis.

CO6: Able to design, administer, interpret and report/publish quality scientific research.

### **19MSCC303: Program Design and Periodization**

#### **Course Outcomes:**

CO1: Understand the principles to be considered while planning a training.

CO2: Understands what is periodization and its components

CO3: Understand training load and its components.

CO4: Understand the features of a training plan.

CO5: Design a fitness program to meet the individual needs of a client/patient based on the results of standard fitness assessments and wellness screening.

CO6: Design of preparatory, competitive and transition training programmes, practical application of programme design for specific sports, application of macro, meso and micro cycles, preparation for competition, peaking and tapering

### **19MSCE308.1- Exercise Considerations for Special Populations**

#### **Course Outcomes:**

CO1: Understands the different hypo kinetic disease and the prescription of exercises for people suffering from those diseases.

CO2: Understands the exercise issues related to Adolescence and Older adults.

CO3: Understands the exercise issues related to Back pain and cervical spondylosis.

CO4: Understands the exercise issues related to Females.

CO5: Understands the exercise issues related to other health complications.

CO6: Understanding the factors to be considered while designing and implementing a fitness program for special population with special needs.

### **19MSCE308.2- Sports and game specific Drills**

#### **Course Outcomes:**

CO1: Understand the nature of different types of sports and games.

- CO2: Understand the factors affecting movement skills.
- CO3: Understand the range of movement skills
- CO4: Understand the different types of game specific and event specific drills.
- CO5: Understand how to choose and conduct specific drills.
- CO6: Effectively plan, design and execute sports and game specific drills to address specific needs

### **19MSSP305:Endurance and Agility Training**

#### **Course Outcomes:**

- CO1: Understand the different means of endurance development.
- CO2: Experience the different types of endurance training and means of conducting it
- CO3: Review and conduct training methods for aerobic and anaerobic endurance training and agility training.
- CO4: Design and implement effective training methods to develop endurance and agility with emphasis on specific sporting needs.

### **19MSCP307 - Fitness Drills**

#### **Course Outcomes:**

- CO1: Understand the fundamental basic skills.
- CO2: Understand the types of drills to develop specific skills.
- CO3: Understand the methods of execution of combination of drills to develop specific action
- CO4: Design and execute specific drills for the development of physical fitness components for fitness and fictional improvement

### **19MSCC401- Science of Sports Training -I**

#### **Course Outcomes:**

- CO1: Understand the process of adaptation through exercise training.
- CO2: Understand the components of strength and strength abilities
- CO3: Identify the major anatomical components of the muscle cell and motor neuron.
- CO4: Understand the adaptations taking place due to strength training
- CO5: Describe the variety of training systems used to increase power and strength.
- CO6: Demonstrate and teach the proper exercise techniques using both free weights and machines.

### **19MSCC402 - Alternative Methods of Training**

#### **Course Outcomes:**

- CO1: Understand the features of alternative mode of training.
- CO2: Understand the different types of minor games and warmup techniques.
- CO3: Understand the different ways of training with available resources.
- CO4: Understand the different techniques of yoga.
- CO5: Understand the effect of various environmental conditions on physical performance.
- CO6: Determine appropriate physical training strategies and attempt to challenge the traditional methods of training and incorporate new and creative ideas to enhance your ability to design physical fitness training regimens; and utilize scientific principles involving periodization to develop daily training sessions and programs.

### **19MSSC403 - Sport Injuries**

#### **Course Outcomes:**

- CO1:Understand the different types of sports injuries.
- CO2: Understand how to manage sports injuries.
- CO3: Understand bone related injuries.
- CO4: Understand the different injuries related to training
- CO5: Understand the different techniques of first aid

CO6: Demonstrate proficiency with selection, application and modification of various functional exercise techniques used during rehabilitation and return to sport/activity.

**19MSCX307:Basics of Strength and Conditioning  
(Inter Department Elective -Semester-IV)**

CO1: Understand the components of fitness

CO2: Understand the strength abilities

CO3: Have an understanding of the importance of flexibility and mobility.

CO4: Understand the role of strength and conditioning in obesity reduction

CO5: Understand the features of endurance and methods of improving it

CO6: Acquire basic knowledge and applications of different types of conditioning techniques.

**19MSCP404 Speed and Power Training (Practical)**

**Course Outcomes:**

CO1: Understand how to improve speed and its components.

CO2: Understand the method of improving power/Explosive strength.

CO3: Understand the methods of improving specific components separately or in combination.

CO4: Design and execute training programs to develop speed and power with special emphasis on specific sports needs.

**MSCP405- Rehabilitation and Relaxation techniques (Practical)**

**Course Outcomes:**

CO1: Understand how to perform Assisted and Resisted Exercises.

CO2: Understand the different rehabilitation techniques.

CO3: Understand the different types of relaxation techniques and to perform it.

CO4: Perform muscle relaxation and injury rehabilitation technique with special emphasis on specific sports needs.

### **19MSPC101 Core 1: Applied Basic Medical Sciences**

#### **Course Outcomes:**

CO1: Understand the basic concepts of Anatomy & Physiology

CO2: Understand the principles of Anatomy & Physiology

CO3: Understand the basic components of Anatomy and Physiology and its application

CO4: Understand the concept and the factors influencing it.

CO5: Understand the role of tactics in physiotherapy application

CO6: : To Enhance and Refresh knowledge about Anatomy and Physiology

### **19MSPC102 Core 2: Kinesiology & Biomechanics**

#### **Course Outcomes:**

CO1: Understand the history and basic concepts of sports training and Biomechanics

CO2: Understand the principles of sports Training and Biomechanics

CO3: Understand the basic components of fitness and Biomechanics methods of applying it.

CO4: Understand the concept of Injury Prevention and Treatment and related factors influencing it.

CO5: Understand the role of tactics in sports training and Biomechanics

CO6: Enhance knowledge about Various Training Method in sports and biomechanics.

Outcome: To utilize acquired Knowledge in clinical Decision Making and further learning process

### **19MSPC103 Core 3: Assessment & Evaluation in Sports Physiotherapy**

#### **Course Outcomes:**

CO1: Understand the basic concepts of General evaluation

CO2: Understand the principles of evaluation procedures

CO3: Understand the basic components of evaluation and methods of Assessing it it.

CO4: Understand the concept of sports evaluation and the essential component .

CO5: Understand the role of Evaluation and utilization for proper Diagnosis and Management

CO6: To utilize acquired Knowledge in clinical Decision Making and further learning process

### **19MSPC104 Core 4: Research & Educational Methodology**

#### **Course Outcomes:**

CO1: Understand the basic concepts of bio-statistics and research methodology

CO2: Understand the principles of bio –statistics and research methodology

CO3: Understand the basic components for appropriate clinical result and in the field Research .

CO4: Understand the concept of application and interpretation for enumerating better result .

CO5: Understand the role of statistics and Research methodology in the field of study

CO6: T to utilize acquired Knowledge in the field of Research, Guidance and projects

### **19MSPC201: Applied Para Clinical Sciences**

#### **Course Outcomes:**

CO1: Understand the basic concepts of pathology, radiology ,biochemistry and pharmacology

CO2: Understand the principles of pathology, radiology ,biochemistry and pharmacology

CO3: Understand the basic components of Anatomy and Physiology and its implication on diagnosis and narrow down the management

CO4: Understand the concept and the factors influencing it.

CO5: Understand the role of tactics in physiotherapy application

CO6: : To Enhance and Refresh knowledge about pathology, radiology ,biochemistry and pharmacology.

### **19MSPC202: Sports Biomechanics & Kinanthropometry**

#### **Course Outcomes:**

CO1: Understand the history and basic concepts of Biomechanics and Kinanthropometry

CO2: Understand the principles of Biomechanics and Kinanthropometry

CO3: Understand the basic components of Biomechanics and Kinanthropometry methods of applying it.

CO4: Understand the concept of Injury Prevention and Treatment and Assessing factors influencing it.

CO5: Understand the role of tactics in Biomechanics and Kinanthropometry

CO6: Enhance knowledge about Various Training Method in sports and biomechanics. Outcome: To utilize acquired Knowledge in clinical Decision Making and further learning process

### **19MSPC203: Physiotherapy Methods**

#### **Course Outcomes:**

CO1: Understand the types of exercises used for therapy.

CO2: Understand the different types of modalities used in intervention.

CO3: Understand the effect of systematic therapy intervention on different condition.

CO4: Understand about recent advancement and its beneficial effects.

CO5: Understand the sports massage sequence and its application in various sports injuries

CO6: To utilize acquired Knowledge in clinical Decision Making and further Treatment process

### **19MSPC204: Sports Traumatology**

#### **Course Outcomes:**

CO1: Understand the basic knowledge about various injuries.

CO2: Understand the different types of injuries in young athlete for prevention and therapy.

CO3: Understand the different types of injuries in upper quadrant in players for prevention and therapy

CO4: Understand the different injuries around lower quadrant of upper extremity for effective therapy intervention .

CO5: Understand the injuries in smaller regions for effective intervention

CO6: Enhance knowledge about Sports Injury and Rehabilitation

### **19MSPE207.1: Evidence Based Practice in Allied Health Sciences**

#### **Course Outcomes:**

CO1: Understand the recent advancement .

CO2: Understand the exercise effect on different age process for betterment of therapy.

CO3: Understand the concept of advance equipment in Rehabilitation

CO4: Understand. The concept involved in muscle stabilization of torso

CO5: Understand the evidence based practice in rehabilitation

CO6: upgrade the knowledge and Utilizing the service for betterment of Sports Society

### **19MSPE207.2: Women Health and Exercise**

#### **Course Outcomes:**

CO1: Understand the basic concept of exercise and female athlete.

CO2: Understand the influence of different factors on performance.

CO3: Understand the effect of systematic physical activity on different systems of the body

CO4: Understand what is athletic triad and its effects on performance.

CO5: Understand the different Approaches minimize injury and improve performance

CO6: To utilize acquired Knowledge in clinical Decision Making and further Treatment process

### **19MSPC301: Sports Physiotherapy Methods**

#### **Course Outcomes:**

CO1: Understand the types of exercises used for therapy.

CO2: Understand the different types of modalities used in intervention.

CO3: Understand the effect of systematic therapy intervention on different condition.

CO4: Understand about recent advancement and its beneficial effects.

CO5: Understand the sports massage sequence and its application in various sports injuries

CO6: To utilize acquired Knowledge in clinical Decision Making and further Treatment process

### **19MSPC302: Medical Aspects of Sports Medicine**

#### **Course Outcomes:**

CO1: Understand the environmental related medical illness for effective Diaganosis.

CO2: Understand the different system illness for narrow down diaganosis.

CO3: Understand the different doping technique for narrow down side effects

CO4: . Understand the different infective disease for gaining insight of contraindication

CO5: Understand the various exercise for better therapy intervention implementation

CO6: Enhance knowledge about Various Medical Condition Sports Rehabilitation and Management

### **19MSPC303: Exercise Physiology & Nutrition**

#### **Course Outcomes:**

CO1: Understand the physiology of exercise performance and energy system.

CO2: Understand the different energy system and its influence.

CO3: Understand the Different physical Exercise and its benifits

CO4: Understand the various physiological changes during work load.

CO5: Understand the effect of drugs on performance its abuse

CO6: Enhance and Refresh knowledge about Physiological Changes During Exercise and Nutrient Requirement for a sports Person.

### **19MSPC304: Non–Traumatic Medical Conditions of Athletes**

#### **Course Outcomes:**

CO1: Understand the non traumatic medical conditionsfor effective Diaganosis.

CO2: Understand the different system illness for narrow down diaganosis.

CO3: Understand the different Gender related illness for narrow down diaganosis

CO4: . Understand the different infective disease for gaining insight of contraindication

CO5: Understand the various arthritic conditions for better therapy intervention implementation

CO6: Enhance knowledge about Various non traumatic Medical Condition Sports Rehabilitation and Management.

### **19 MSPC401: Sports Psychology**

#### **Course Outcomes:**

CO1: Understand the basic concept of sports psychology..

CO2: Understand the principles of sports psychology.

CO3: Understand the various psychological condition for designing protocol

CO4: Understand about various assessment procedure for optimal Diagnosis.

CO5: Understand the various intervention procedure for optimizing results

CO6: Enhance knowledge about Psychological attitude of sports person for different situation and management of same.

#### **19 MSPC402: Applied Exercise Physiology**

##### **Course Outcomes:**

CO1: Understand the physiology of exercise performance and energy system.

CO2: Understand the different energy system and its influence.

CO3: Understand the Different physical Exercise and its benefits

CO4: Understand the various physiological changes during work load.

CO5: Understand the effect of drugs on performance its abuse

CO6: Enhance and Refresh knowledge about Physiological Changes During Exercise and Nutrient Requirement for a sports Person

#### **19 MSPC403: Life Style Medicine**

##### **Course Outcomes:**

CO1: Understand the basic concept of life style and requirement for healthy life style.

CO2: Understand the effect of physical activity on healthy life style.

CO3: Understand the concept of promoting different healthy life style.

CO4: Understand different factors influencing life style

CO5: Understand the various adjunctive therapy for betterment of life style

CO6: Enhance knowledge about healthy life style and implement in appropriate way.

#### **19 MSPP405: Current Concepts in Sports Medicine**

##### **Course Outcomes:**

CO1: Understand the current concept in sports Rehabilitation.

CO2: Understand the exercise effect on different age process for betterment of therapy.

CO3: Understand the concept of advance equipment in Rehabilitation

CO4: Understand. The concept involved in obesity, vital signs monitoring

CO5: Understand the current practice in rehabilitation including coverage of policy

CO6: upgrade the knowledge and Utilizing the service for betterment of Sports Society

#### **19MSPE107: Sports Injury & Rehabilitation**

##### **Course Outcomes:**

CO1: Understand the basic concepts of Anatomy & Physiology

CO2: Understand the principles of Anatomy & Physiology

CO3: Understand the effect of systematic therapy intervention on different condition.

CO4: Understand about recent advancement and its beneficial effects.

CO5: Understand the sports massage sequence and its application in various sports injuries

CO6: To utilize acquired Knowledge in clinical Decision Making and further Treatment process

#### **19MSPE407: Exercise and Elderly Population**

##### **Course Outcomes:**

CO1: Understand the basic concept of physical and physiological changes in body.

CO2: Understand the different factors influencing

CO3: Understand the effect of systematic physical activity on different systems of the body

CO4: Understand different diagnosis tool for establish accuracy

CO5: Understand the various Exercise protocol for different cardio respiratory conditions

CO6: Enhance knowledge about Various problems and proper management of age related ailments

**DEPARTMENT OF SPORTS SCIENCES**  
**M.Sc. (Sports Psychology)**

**19MPSC101 Research Methodology**

**Course Outcomes:**

- CO1: Search for, select and critically analyse research articles and papers
- CO2: Prepare a literature review; and formulate research questions for evaluation
- CO3: Develop a research proposal
- CO4: Gain experience with instrument development and data collection methods.
- CO5: Demonstrate enhanced data analysis and research report writing skills

**19MPSC102 Cognitive Psychology**

**Course Outcomes:**

- CO1: Demonstrate the basic knowledge of cognitive psychology
- CO2: Display knowledge of how human cognition works from attention, sensation, and perception.
- CO3: Exhibit knowledge of how human cognition works from action and language processes,
- CO4: Solve problems, think to learn and reconstruct memory.
- CO5: Demonstrate knowledge of the key methods used in modern cognitive psychology research.

**19MPSC103 Personality and Personal Development**

**Course Outcomes:**

- CO1: Develop an in-depth awareness of self, strengths and weaknesses and how to work on the improvement areas for transforming self in to an effective Human Capital.
- CO2: Understand the ever dynamic environment and convert the same for a better self performance and also for an effective team synergy.
- CO3: Exhibit a greater understanding of others and the effects each of us have on the people around us.
- CO4: Demonstrate an expanded understanding of all forms of effective communication for the ideas to reach the environment as they want them to be imbibed by them.
- CO5: Demonstrate over the course of the key stage in the perspective of humanistic and trait

**19MPSE104 Department Elective (Select any one)**

**a. Health Psychology**

**Course Outcomes:**

- CO1: Discuss the extent to which biological, cognitive, and sociocultural factors influence health-related behavior.
- CO2: Understand the causes of Psychosomatic disorders and Stress Coping strategies in the management of illness.
- CO3: Exhibit to differentiate Psychological control and management of discomfort
- CO4: Demonstrate general management of chronic and terminal illness related psychological issues
- CO5: Explain the scope of physical activity and sports training in enhancing physical fitness and minimize the complication of disorder.

**b. Fitness and wellness**

**Course Outcomes:**

- CO1: Discuss the extent to which biological, cognitive, and sociocultural factors influence health-related behavior.
- CO2: Understand the benefits of physical activity on health wellness and self-esteem
- CO3: Exhibit knowledge to assess and evaluate level of fitness



CO4: Demonstrate Role of Physical Activity and life style activities that prevents diseases  
CO5: Designing a program in enhancing physical fitness and minimize the complication of disorder.

#### **19MPSP106 Practical – I: Psychological Assessment**

##### **Course Outcomes:**

CO1: Apply knowledge and skills in the practice of psychological assessment for a variety of assessment tasks.

CO2: Demonstrate competence in the selection, administration, and scoring of assessment measures

CO3: Demonstrate competence in drawing inferences from the results within a hypothesis generating and hypothesis testing framework

CO4: Demonstrate competence in writing a report of a professional standard

#### **19MPSP107 Practical – II: Personality and Personal Development**

##### **Course Outcomes:**

CO1: Apply knowledge and skills in the practice of psychological assessment for a variety of assessment tasks.

CO2: Demonstrate competence in the selection, administration, and scoring of assessment measures

CO3: Demonstrate competence in drawing inferences from the results within a hypothesis generating and hypothesis testing framework

CO4: Demonstrate competence in writing a report of a professional standard

#### **19MPSC201 Advanced Statistics and Scientific Data Processing**

##### **Course Outcomes:**

CO1: Learning basic techniques of descriptive statistics.

CO2: Developing an understanding of the nature of data.

CO3: Exhibit knowledge on the concept of correlation & regression analysis

CO4: Demonstrate the uses of large and small sample tests

CO5: Carry out data analysis/statistical analysis & effectively visualize the data

#### **19MPSC202 Positive Psychology**

##### **Course Outcomes:**

CO1: Demonstrate an understanding of the aim and scope of positive psychology and implications to well-being and flourishing

CO2: Integrate and apply core concepts of positive psychology and resiliency factors into their own lives and professional practice

CO3: Exhibit knowledge on the concept of personal control in adaptive functioning

CO4: Demonstrate the uses of interpersonal relationship

CO5: Visualize the effective application of positive psychology

#### **19MPSC203 Psychology of Intelligence, Learning and Motivation**

##### **Course Outcomes:**

CO1: Describe intelligence theories and intelligence testing

CO2: Portray latent learning and observational learning

CO3: Demonstrate the information processing of social and cognitive learning

CO4: Explain Psychophysiology of emotion

CO5: Envisage the usefulness of motivation

#### **19MPSC204 Testing and Measurement in Sports Psychology**

##### **Course Outcomes:**

CO1: Analyze, critically assess the reality phenomena and facts and make conclusions based on scientific data

- CO2: Assess interdisciplinary knowledge of the methodology of sports science and motor control psychophysiology  
CO3: Demonstrate the possibilities of interdisciplinary knowledge application in the area of sports psychology on the expert level  
CO4: Explain the methods and methodology of psychological data collection  
CO5: Envisage the procedures of standardization of psychological testing tools

### **19MPSP206 Practical –III: Psychological Assessment of Personality**

#### **Course Outcomes:**

- CO1: Apply knowledge and skills in the practice of psychological assessment for a variety of assessment tasks.  
CO2: Demonstrate competence in the selection, administration, and scoring of assessment measures  
CO3: Demonstrate competence in drawing inferences from the results within a hypothesis generating and hypothesis testing framework  
CO4: Demonstrate competence in writing a report of a professional standard

### **19MPSP207 Practical –IV: Psychology of Intelligence, Learning and Motivation**

#### **Course Outcomes:**

- CO1: Apply knowledge and skills in the practice of psychological assessment for a variety of assessment tasks.  
CO2: Demonstrate competence in the selection, administration, and scoring of assessment measures  
CO3: Demonstrate competence in drawing inferences from the results within a hypothesis generating and hypothesis testing framework  
CO4: Demonstrate competence in writing a report of a professional standard

### **19MPSC301 Principles of Neuropsychology**

#### **Course Outcomes:**

- CO1: Demonstrate knowledge of the anatomy and processes of a healthy brain and the central nervous system.  
CO2: Demonstrate knowledge of the neuropsychological assessment of neurological deficits  
CO3: Demonstrate the functional aspects of frontal lobe on personality  
CO4: Explain the functional aspects of temporal lobe on behavioural and cognitive changes  
CO5: Envisage the functional aspect of parietal lobe and occipital lobe on disorders

### **19MPSC302 Fundamentals of Sport and Exercise Psychology**

#### **Course Outcomes:**

- CO1: demonstrate thorough understanding about the role of participation in sport, exercise, and physical activity on psychological development, health, and well-being.  
CO2: show awareness of, and describe a wide range of topics covered by Exercise and Sport Psychology  
CO3: identify and describe a range of major psychological issues linked to optimal sport performance  
CO4: demonstrate the capacity to describe and justify components of a mental training package to aid sports performance  
CO5: envisage the applications of theories related to behaviour, belief & attitude on sports & exercise

### **19MPSC303 Psychology of Sports Coaching**

#### **Course Outcomes:**

- CO1: demonstrate knowledge and understanding of the principles and practices of sports coaching  
CO2: demonstrate knowledge and understanding of advanced motor skill acquisition  
CO3: demonstrate sports coaching skills which are responsive to the characteristics of individuals

CO4: become familiar with recent research regarding coaching principles and sports psychology, in team and individual sports

CO5: envisage the applications of theories related to behavioural modification on sports performance

### **19MPSE305: Principles of Sport Psychology**

#### **Course Outcomes:**

CO1: Discuss the focus and scope of sport and exercise psychology within the context of kinesiology.

CO2: Identify principles of sport psychology in sporting events, athletes, and various personalities

CO3: Demonstrate competency in relating course concepts to peer-reviewed, empirical literature.

CO4: Demonstrate an understanding of the use of psychological methods in enhancing personal development and human performance in sport and physical activity

CO5: Discuss the development and implementation of a psychological skills training program within a variety of sport and physical activity settings

### **19MPSP306 Practical – V: Neuropsychological Assessment**

#### **Course Outcomes:**

CO1: verify and choose the best way of approach and examine neuropsychological patients,

CO2: to suggest diagnosis and directions for rehabilitation

CO3: the practical part of the neuropsychological assessment is emphasized: choosing and tailoring the tool or method the best possible way according to the patient's requirements and capabilities

### **19MPSP307 Practical – VI : Fundamentals of Sports and Exercise Psychology**

#### **Course Outcomes:**

CO1: Observe possibility of the application of theory in a group setting

CO2: Demonstrate the understanding of instructions in coaching behaviour of group physical activity

CO3: Apply theoretical knowledge of sports and exercise psychology on the field

### **19MPSC401 Mind, Motion and Performance**

#### **Course Outcomes:**

CO1: demonstrate knowledge and understanding of motor learning perspective in sport settings

CO2: demonstrate knowledge and understanding of mind, motion and performance embodiment perspective in sport settings

CO3: demonstrate knowledge and understanding of intervention in sports settings.

CO4: demonstrate knowledge and understanding of diagnostics in sports settings.

CO5: demonstrate knowledge and understanding of evaluation in sports settings

### **19MPSC402 Motivation, Emotion and Group Dynamics**

#### **Course Outcomes:**

CO1: demonstrate knowledge and understanding on the role of motivation on behaviour

CO2: display knowledge and understanding on the role of motivation on emotional state

CO3: exhibit knowledge and understanding on the role of social relationships on sports and exercise performance

CO4: developing interventions for goal settings in group dynamics in sports performance

CO5: individual differences on physiological marker indexing of emotions and stress on cognition

### **19MPSC403 Introduction to Social Psychology**

#### **Course Outcomes:**

CO1: demonstrate knowledge and understanding on the nature, scope research in social psychology

CO2: display knowledge and understanding of social cognition on perception & behaviour

CO3: demonstrate knowledge and understanding of group dynamics on crowd behaviour

CO4: exhibit knowledge and understanding of the concepts and theories of social influence on aggression and violence

CO5: Envisage the scope and applications of social psychology in the perspective of cognitive and multicultural