

UNDER CHOICE BASED CREDIT SYSTEM

MASTER OF ARTS (MA)/Science (M.Sc.) PROGRAMME IN

Master of Sports Science (M.S.S.)

	Course Code	Course Title	Credit	Marks
SEM-I	MSSCCT101	Anatomy and Physiology in Sports	4	40+10
	MSSCCT102	Kinesiology	4	40+10
	MSSCCT103	Sports Technology	4	40+10
	MSSCCT104	Kinanthropometry	4	40+10
	MSSCCP105	Kinanthropometry (Practical)	4	50
	MSSCCP106	Computer Application in Sports	4	50
SEM-II	MSSCCT201	Sports Biomechanics	4	40+10
	MSSCCT202	Science of Sports Training	4	40+10
	MSSCCT203	Exercise Physiology	4	40+10
	MSSCCT204	Sports Nutrition and Wellness	4	40+10
	MSSCCP205	Coaching Lesson	4	50
	MSSCCP206	Sports Laboratory	4	50
SEM-III	MSSCCT301	Research Methodology	4	40+10
	MSSCCT302	Applied Statistics in Sports	4	40+10
	MSSCCT303	Organization and Administration in Sports	4	40+10
	MSSCCT304	Sports Psychology	4	40+10
	MSSMOP305	Out Reach Programme	4	50
	MSSOET306	Open Elective - Movement Education/ Strength and Conditioning	4	50
SEM-IV	MSSCCT401	Injury Management and Therapeutic Modalities	4	40+10
	MSSCCT402	Test, Measurement and Evaluation in Sports	4	40+10
	MSSCCT403	Sports Journalism and Mass media	4	40+10
	MSSACT404	Value Education	4	40+10
	MSSCCP405	Project/Dissertation	4	50
	MSSCCP406	Test and Measurement and Evaluation	4	50

Details of Syllabus

Semester- I

MSSCCT101	Anatomy and Physiology in Sports	40+10
Module -1	Meaning and difference of anatomy and physiology. Importance of anatomy and physiology in sports science. Concept of cell and tissues.	
Module -2	Human Skeletal system; - structure and function of human skeletal system. Types of bones. Anatomy of human skeletal system. Types of joints and major movements.	
Module -3	Muscular system; - General idea of muscles. Types of muscles. Structure and function of skeletal muscles. Anatomy of different skeletal muscles. Physiology of muscular activity of human body.	

Module -4	Respiratory system; - Structure and function of respiratory system. Type of respiration. Physiology of respiration. Measurement of ventilation.	
Module -5	Circulatory system – Meaning and impotency of circulatory system. Structure and function of human heart. Cardiac cycle. The blood vessels. Composition and function of blood. Blood group. Blood Coagulation. Physiology of blood circulation.	
<b>MSSCCT102</b>	<b>Kinesiology</b>	<b>40+10</b>
Module -1	Meaning and Definition of Kinesiology. Brief history of Kinesiology. Importance of kinesiology for games and sports.	
Module -2	Kinesiological/Functional classification of muscles. The role of muscle in human body. Muscular analysis of motor movement.	
Module -3	Meaning of posture. Idea and importance of a good posture. Poor postures and their causes, prevention and remedial measures. Common postural and foot deformities with their correction – Kyphosis, Lordosis, Scoliosis, Flat foot,Knock-knees and Bow leg.	
Module -4	Planes of Motion and Axes of Rotation. Types of movement of joints in respect of their plains and axes. Movements of major body parts – Shoulder, Elbow, Wrist, Fingers, Hip, Knee, Ankle and Vertebral Column.	
Module -5	Meaning of Kinetics and Kinematics. Types of motion –Linear, Curvilinear and Angular motions. Meaning, Definition and types of Levers. Mechanical advantage of different levers. Levers inside our body.	
<b>MSSCCT103</b>	<b>Sports Technology</b>	<b>40+10</b>
Module – 1	Meaning, purpose and advantages of sports technology. Application of technology in modern sports. Purpose of instrumentation in sports. Business aspects in sports. Technological impacts in sports. Meaning and concept of Nano glue, Nano-molding technology and Nano turf.	
Module – 2	Playfields; - Modern surface of playfields and its advantages. Construction, installation and maintains of different surfaces in sports. Types of materials of different play fields; - Synthetic, Wooden, Polyurethane and Astroturf. Meaning and usage of Artificial turf. Modern technology in the construction of Indoor and Outdoor facilities.	
Module – 3	Modern sports equipment; - Types, Materials and Advantages of modernsports equipment (Ball, Bat, Racquets in different events). Significance of footwear in individual events. Clothing; - Types, Materials and Advantages of clothing in different events. Modern measuring equipment in sports; - Running, Throwing and Jumping. Types, Materials and Advantages of different Protective Equipment in sports.	
Module – 4	Training Gadgets; Concept and use of modern training gadgets (Basketball- Ball Feeder, Cricket - Bowling Machine, Tennis - Serving Machine, Volleyball - Serving Machine, Table Tennis - Serving Machine). Lighting Facilities: Method of erecting Flood Light and measuring luminous. Video Coverage: Types, Capacity, Place and Position of Camera in Live coverage of ongoing sporting events. Use of Computer and Software in Match Analysis and Coaching.	
<b>MSSCCT104</b>	<b>Kinanthropometry</b>	<b>40+10</b>

Module - 1	Measurement of following variables of human body by using the particular Anthropometric tools; - o Height o Weight o Body Mass Index (BMI) o Body Circumference; - Chest, Waist, Hip, Thigh, Calf, Bicep, Forearm. o Skinfold Thickness - Biceps, Triceps, Iliac Crest, Thigh, Calf, Subscapular, Abdomen and Chest.	
Module - 2	Preparation of Practical Copy; -Draw the picture of following Anthropometric tools and describe them on following context; Purpose of use, Procedure of Measurement, Reading, Complications, Clinical Significance	
Module - 3	Name of the Devices; - Standiometer, Sliding Calipers, Spreading Caliper, Skin fold Caliper, Measuring Tape, Weighing Machine etc	
MSSCCP105	Kinanthropometry (Practical)	50
MSSCCP106	Computer Application in Sports	50

#### Semester- II

MSPSCCT201	Sports Biomechanics	40+10
Module -1	Introduction; - Meaning, Nature and Role of SportsBiomechanics. Historical development of Sports Biomechanics. Concept of Statics and Dynamics Stability, Equilibrium and its principles, Work, Power and Energy.	
Module -2	Law of Motion; - Meaning, Definition and principlesrelated to Newton's 1st, 2nd and 3rd law of motion. Meaning, Definition and types of Force. Principles of force. Center of Gravityand its influences in sports field.	
Module -3	Mechanical properties; - Meaning, Types and principlesof Projectile. Factors influencing Projectile Motion. Meaning and Definition of Spin. Types of Spin. Meaning and Definition of Elasticity. Principle of Elasticity.	
Module -4	Movement analysis; - Concept and types of analysis; Biomechanical, Kinesiological and Cinematographic. Mechanical analysis of fundamental movements of human being – Walking, Running and Jumping. Mechanical analysis of different sports technique; Throwing and Jumping.	
MSPSCCT202	Science of Sports Training	40+10
Module -1	Introduction of Sports Training; meaning and definition of Sports Training and Coaching. Aim and objectives of Sports Training. Concept and importance of Warm-up and Cooling-down.	
Module -2	Training Load; Classification and components of Training Load. Concept of Intensity, Density, Duration and Frequency of Exercise. Principle of Intensity and Volume of Stimulus. Relationship between Load and Adaptation. Overload; - Concept, Cause, Judgment and Remedies.	
Module -3	Components of Physical Fitness and Training Methods. Concept of Health Related Fitness and Performance Related Fitness (HRF & PRF). Methods of Training; - Continuous Method, Interval Method, Repetition Method, Fartlek Training, Circuit Training, Plyometric Training and Weight Training.	
Module -4	Meaning, Classification, Determining Factors and Method of Development of different Fitness Components; - Endurance, Speed, Strength, Flexibility, Agility and Coordinative ability.	
Module -5	Training Programme and Planning: - Meaning and Types of Periodization. Aim and Concept of Periodization; - Preparatory Phase, Competitional Phase and Transitional Phase. Training Cycle; - Micro, Meso and Macro. Concept and Application of Technique, Tactic and Strategy.	

<b>MSPSCCT203</b>	<b>Exercise Physiology</b>	<b>40+10</b>
Module -1	Energy source; concept, anaerobic and aerobic energy, Metabolism. Recovery from exercise; - Recovery of oxygen, rapid and slow recovery, concept of work, power and energy. Measurement of energy expenditure. Direct and indirect calorimetry.	
Module -2	Physiological effect of exercise and training. Effect of exercise on muscular system. Effect of exercise on respiratory system. Effect of exercise on cardiovascular system. Athletic performance in hot, humid, cold condition and at altitude.	
Module -3	Neuro-muscular concept; - Microscopic structure of skeletal muscle. Mechanism of muscular construction and relaxation. Muscle fibers; - classification, distribution and functional differences. Muscular fatigue. Transmission of nerve impulses; - nerve to nerve and nerve to muscle.	
Module -4	Exercise and acid base balance, Acid and Base, Buffers, PH, Alkaline reserve, Acid bale balance following exercise.	
Module -5	Ergogenic aids and Doping; - meaning and concept. Drugs and its effects on sports performance and health. Types of drugs in sports field their use, health risks and testing procedure; - Stimulants, Anabolic steroid, Bite Blockers, Duretics. Human growth hormone, Blood doping, Erythropoietin (EPO), their use, health risks and mode of testing.	
<b>MSPSCCT204</b>	<b>Sports Nutrition and Wellness</b>	<b>40+10</b>
Module -1	Nutrition; - Meaning and Definition of Nutrition. Need and Importance of Sports Nutrition. Role of Macro and Micro Nutrition on Exercise. Daily Energy requirement and Energy Fuel. Obesity; - Meaning and Causes.	
Module -2	Diet: Meaning and Definition of Diet. Concept of Balanced Diet and Athletic Diet. Factors Affecting Diet. Role of Diet and Exercise on Weight Management. Competition and Eating patterns.	
Module -3	Nutrients: - Meaning of Nutrients. Role of Nutrientson health. Macro and Micro Nutrients. Types, Source and Function of different Nutrients. Nutritional intake for an Athlete. Meaning and Concept of BMI.	
Module -4	Health; - Meaning and Definition of Health. Dimensions of Health; - Physical, Mental, Social, Spiritual, Emotional, Vocational and Environmental Dimension. Meaning and Definition of Health Education. Needs and Objectives of Health Education. Principles of Health Education. School Health Programme; - Need and Dimensions.	
Module -5	Personal Hygiene; - Meaning and Concept of Personal Hygiene. Importance of Personal Hygiene. Meaning, Needs and Dimensions of Personal Cleanliness. Communicable Disease; - Meaning and Definition of Communicable Disease. Mode of transmission of Communicable Disease. Mode of Transmission, Symptoms and Prevention of Communicable Diseases; - HIV/AIDS, Malaria, Tuberculosis, Influenza, Measles, STD, Rabies.	
<b>MSPSCCP205</b>	<b>Coaching Lesson</b>	<b>50</b>
<b>MSPSCCP206</b>	<b>Sports Labratory</b>	<b>50</b>

### Semester- III

MSPSCCT301	Research Methodology	40+10
Module – 1	Introduction to research: meaning and definition of research. Need and importance of research in physical education & sports. Nature and scope of research in sports field. Types of research: - Basic, Action and Applied research. Area of research problem in sports. Criteria for selecting of a research problem. Collection of data and its method.	
	Primary Data and Secondary Data.	
Module – 2	Descriptive methods of research - Survey study and Case study. Historical research – meaning, sources and criticism of historical research. Experimental research: Meaning, Nature and application of experimental research. Steps of experimental research. Meaning of variable, types of variables. Experimental design and its types.	
Module – 3	Sampling; - Meaning and Definition of Sample and Population, Statistic and parameter. Meaning of Sampling and its importance. Types of sampling: - Random sampling, Systematic sampling, Cluster sampling and Stratified sampling. Area and Multistage sampling. Non- Probability Sampling: Purposive, Judgment, Quota sampling	
Module – 4	Research Proposal: - Meaning and Definition of Research proposal. Significance of Research Proposal. Method of Writing Research proposal. Hypothesis: - Meaning and Types hypothesis and its Characteristics. Testing of hypothesis. Method of writing Thesis / Dissertation. Significance of review of related literature in research. Research report: Format, Common faults and Characteristics of Research report. Writing of Foot notes and Bibliography.	
MSPSCCT302	Applied Statistics in Sports	40+10
Module – 1	Introduction; - Meaning, definition, need and importance of applied statistics in physical education and sports. Concept of Bio-statistics. Meaning of the terms; - Raw score and Single score, Variable and attributes, data-types, variables-types. Population and sample. Frequency distribution. Measures of central tendency; Mean, Median and Mode - meaning, calculation and advantages. Measures of variability; Range, Standard deviation, Quartile deviation, and Mean deviation - meaning, calculation and advantages.	
Module – 2	Graphical Representation; - Definition of graph. Needs of graphical representation, its advantages and limitations. Guideline for constructing a graph. Meaning and preparation of the terms; - Histogram, Frequency Polygon, Frequency Curve, Cumulative Frequency Polygon, Ogive and Pie Diagram.	
Module – 3	Probability Distributions and Standard Scale; - Meaning and definition of probability, Normal curve. Principle of Normal Curve Properties of normal Curve. Divergence from normality – Skewness and Kurtosis. Calculation and advantage of Scale: Sigma scale, Z-Scale, Hull Scale and T- scale. Level of Significance and Degree of Freedom.	
Module – 4	Comparative Statistics; Correlation: - Meaning, types and magnitude of correlation. Concept and use of Correlation Co-efficient. Calculation of correlation: - Rank difference and Product moment correlation separately for grouped data and ungrouped data. Meaning and significance of Norms. Meaning and calculation of Regression and Prediction, Biserial, Partial and Multiple correlation.	
Module – 5	Inferential Statistics; - Standard error, type-I & type II error, One tailed and two tailed test. Dependent and independent “t”- test with interpretation of the results. Nonparametric test: Chi Square test. Concept and use of ANOVA and ANCOVA.	
MSPSCCT303	Organization and Administration in Sports	40+10
Module -1	Introduction - Meaning and definition of organization and administration. Structure of organization. Concept of management and sports management. Early and modern concept of sports management. Principles of sports management. Meaning of personnel management. Role of personnel manager in an organization. Programme development; - factors of programme development. Steps in programme development.	
Module -2	Sports Sponsorship and Sports Economics; - Definition of Sponsorship. Process and objectives of sponsorship. Structure of Sponsorship. Categories of Sponsorship. Role of	

	Intermediaries. Sponsorship Proposal. Basic Understanding of Sports Economics; - Micro & Macro Economic analysis of Sports. Basic Understanding of Sports Finance.	
	Preparation of Budget.	
Module -3	Competitive sports and Public relationship; - Concept of competitive sports. Management and guidelines for school, college and university nsports program. Management of equipment; - Guidelines for checking, storing, issuing and care of equipment. Maintenance of equipment. Concept and Principles of public relation programme. Public relation in school and communities. Role of media in public relation.	
Module -4	Curriculum; - Meaning and definition of curriculum. Principles of curriculum construction; Students centered, Activity centered and Community centered. Theories of curriculum development. Factors affecting curriculum. Evaluation of curriculum.	
<b>MSPSCCT304</b>	<b>Sports Psychology</b>	<b>40+10</b>
Module -1	Meaning and Importance of Sports Psychology. Psychological Characteristics of physical activity. The Roles of Sports Psychology. Motor Learning and Factors affecting Motor learning.	
Module -2	Basic concepts of Instincts and Emotion. Motivation; Meaning, Types and Theories of Motivation. Influence of Motivation on Sports Performance. Motivation and Sports performances.	
Module -3	Personality; - Meaning and Definition. Personality Traits. Relation of Personality on Sports Performances. Personality tool in Sports.	
Module -4	Meaning and Concept of Anxiety. Anxiety and Sports Performances. Signs and Causes of Sports Anxiety. Role of Coaches to overcome from Sports Anxiety of Athletes. Stress; - Meaning and Concept. Stress in Sports field. Causes, Signs and Symptoms of Stress and its management in Sports.	
Module -5	Psychological Characteristics of Competition during Pre-competition, Competition and Post-competition situation. Psychological Skills Training (PST) in Sports. Meaning, Concept and types of Relaxation techniques in Sports.	
<b>MSPSMOP305</b>	<b>Out Reach Programme</b>	<b>50</b>
<b>MSPSOET306</b>	<b>Open Elective - Movement Education/ Strength and Conditioning</b>	<b>50</b>

#### Semester IV

<b>MSPSCCT401</b>	<b>Injury Management and Therapeutic Modalities</b>	<b>40+10</b>
Module -1	Meaning of physiotherapy, History of physiotherapy and the role of physiotherapy in sports.	
Module -2	Concept and application of Cryotherapy, Thermotherapy, Hydrotherapy and Electrotherapy in sports.	
Module -3	Massage therapy – Meaning and importance of massage therapy in sports. Principles of massage therapy. Different massage techniques.	
Module -4	Type of sports injuries. Soft tissue injuries and their management. Hard tissue injuries and their management. Overuse injuries and their management. Head injuries and their management. Injury prevention.	
Module -5	Rehabilitation in sports; Meaning and importance of sports rehabilitation. Principles of sports rehabilitation. Phases of rehabilitation.	
<b>MSPSCCT402</b>	<b>Test, Measurement and Evaluation in Sports</b>	<b>40+10</b>
Module – 1	Meaning and definition of test, measurement and evaluation. Need and importance of Test, measurement and evaluation in sports. Principles of	

	evaluation. Criteria of a good test. Define norms. Meaning and definition of validity, reliability and objectivity. Grading in physical education: kinds and basis of grading.	
Module – 2	Meaning, definition and importance of fitness. Classification and components of fitness. Tests for motor fitness: Indiana motor fitness test, JCR test, Oregon motor fitness test. Canadian motor fitness test. Muscular fitness: Kraus weber minimum muscular fitness test. Motor ability test: Marrow motor ability test. Health related fitness test: AAHPERD, Rogers’s physical fitness index. Cardiovascular test: Harvard step test, Cooper 12 minutes run and walk test.	
Module – 3	Physiological test: - Aerobic capacity: Bruce treadmill test protocol. Anaerobic capacity: Margaria-Kalamen test, Wingate anaerobic test. Anthropometric measurements: - Technique of measuring standing height and sitting height. Technique of measuring circumference: arm, waist, hip, and thigh and skin folds: biceps, triceps, sub scapular, suprailiac. Assessment of body composition. Concept of somatotyping.	
Module – 4	Need of skill test in sports. Few skill tests for different discipline: Badminton: Miller wall volley test. Basketball: Johnson basketball test, Harrison basketball ability test. Tennis: Dyer tennis test. Football: Mc.- Donald soccer test. Volleyball: Russel Lange volleyball test, Brady volleyball test. Hockey: Friendel field hockey test, Harban’s hockey test.	
Module – 5	Need of Psychological test in sports. Psychological test: Kinesthetic Perception, Reaction Ability Test, SCAT, Achievement Motivation.	
<b>MSPSCCT403</b>	<b>Sports Journalism and Mass media</b>	<b>40+10</b>
Module – 1	Introduction - Meaning and Definition of sports Journalism, History of sports journalism. Objectives and obligations of sports journalism. Role of Journalism in the Field of Physical Education. Reporting of Sports Events; - Traditional and open source reporting. Concept of Sports Bulletin: - Structure of sports bulletin, compiling a bulletin. Types of bulletin. General NEWS reporting and sports reporting.	
Module – 2	Mass Media; – Concept, Characteristics and function of Mass Media. Commentary – Running commentary on the radio. Significance of Sports expert’s comments. Role of Advertisement in Journalism. Sports Photography: – Equipment, Editing and Publishing. Concept of sports ethics and sponsorship. Role of sponsorship in sports.	
Module – 3	Report Writing on Sports; - Procedure of making a Brief review of Olympic games, Asian games, Commonwealth games, World cup, National games and Indian traditional games. Preparing report of an Annual Sports Meet for Publication in Newspaper. Methods of editing a Sports report. Critical appraisal of reported news.	
Module – 4	Journalism; - Sports organization and sports journalism. Procedure of organizing a Press Meet, Press Release. Technique of interviewing an eliteplayer and coach. Practical assignments to observe matches and prepare report and news of the same.	
<b>MSPSACT404</b>	<b>Value Education</b>	<b>40+10</b>
Module – 1	Vedic Vidhi Nishedh, Sadharana Dharma	

Module - 2	Karmavada, BouddhaAstangikMarga, Pancasila, Jaina Ahimsa	
Module - 3	Indian environmental Ethics, Indian Feminism	
Module - 4	What is Ethics? Concept of Good in moral sense	
Module - 5	Moral theory of Mill and Bentham, Kant on morality Environmental Ethics of Peter Singer, Western concept of Feminism	
MSPSCCP405	Project/Dissertation	50
	Design of the Study (Writing Of The Problem) Selection of Problem Selection of Variables Selection of Subjects Criterion Measure Statistical Calculation Discussion of Findings Conclusion	
	Viva-Voice Test	
MSPSCCP406	Test and Measurement and Evaluation	50