B.Sc Sports Science Syllabus

2024 - onwards

BHARATHIAR UNIVERSITY

(A State University, Accredited with "A++" Grade by NAAC, Ranked 21st among Indian Universities by MHRD-NIRF)

Coimbatore - 641 046, Tamil Nadu, India

Program Educational Objectives of BSc Sports Science

PEO1	**Performance Enhancement Professionals:** Graduates will excel as performance enhancement specialists, through deep understanding of exercise physiology, biomechanics, and sports nutrition to optimize the athletic performance of individuals and team.
PEO2	**Excel in Professional careers:** Graduates will thrive in various professional careers within the field of sports science, demonstrating expertise, leadership, and a commitment to advancing the discipline.
PEO3	**Committed Health and Wellness Advocates:** Graduates will serve as dedicated advocates for health and wellness, utilizing their expertise in sports science to design and implement programs that promote physical activity, fitness, and overall well-being within communities.
PEO4	**Ethical and Inclusive Sports Professionals:** Graduates will uphold the highest ethical standards and contribute to the creation of an inclusive and equitable sports environment, fostering fair play, integrity, and diversity in all aspects of their professional practice.
PEO5	**Lifelong Learners and Contributors to the Field:** Graduates will be committed to lifelong learning, staying abreast of emerging trends in sports science, and actively contributing to the advancement of the field.

Program Outcomes (POs) for BSc Sports Science:

PO1	**Sports Science Foundation:** Demonstrate a comprehensive understanding of the foundational principles of sports science, and sports management.
PO2	**Applied Biomechanics and Kinesiology:** Apply biomechanical and kinesiological principles to analyze and enhance athletic performance.
PO3	**Exercise Physiology Competence:** Possess understanding of physiological responses to exercise and training a to design effective fitness and conditioning programs.
PO4	**Sports Nutrition Proficiency:** Apply nutritional principles to optimize the performance, health, and recovery of athletes.
PO5	**Psychological Factors in Sports:** Analyze and address psychological factors influencing sports performance.
PO6	**Sports Injury Prevention and Rehabilitation:** Identify and assess sports-related injuries, and design evidence-based programs for injury prevention, rehabilitation.
PO7	**Performance Analysis and Technology Integration:** Utilize performance analysis techniques and integrate sports tools to assess and enhance athletic performance, including the interpretation of data for training optimization.
PO8	**Professional Ethics in Sports:** Adhere to ethical standards and professional conduct in sports science, related to athlete welfare, fair play, and the integrity of the sports industry.

Bharathiar University, Coimbatore-641 046

(For the students admitted from the academic year 2024-25 onwards)

B.Sc. Sports Science (CBCS pattern)

SCHEME OF EXAMINATION

Part	Study Components / Paper Title	Ins. Hrs/Week (Theory)	Duration	Examinations			Credits
				CIA	End Sem. Exam	Total	
Semester - I							
I	Language - I	4	3	25	75	100	4
II	English - I	4	3	25	75	100	4
III	Core Paper - I - Anatomy and Physiology	5	3	25	75	100	4
III	Core Paper - II - Physical Activity and Exercise for Health	5	3	25	50	75	4
III	Core Practical – I – Fitness Management (Practice)	5	3	20	30	50	2
III	Allied I: Essentials of Sports Science and Sports Coaching.	5	3	20	30	50	2
IV	Environmental Studies #	2	1.5	-	50	50	2
	Total	30		140	385	525	22
Semester - II							
I	Language - II	4	3	25	75	100	4
II	English - II	4	3	25	25	50	2
II	Effective English: Language Proficiency for Employability (Naan Mudhalvan)	2	3	25	25	50	2
III	Core Paper III - Foundations of Strength Training and Conditioning	4	3	25	75	100	4
III	Core Paper IV - Fundamentals in Sports Psychology	4	3	25	50	75	4
III	Core Practical – II – Strength Testing and Exercise Prescription (Practice)	5	3	20	30	50	2
III	Allied II: Motor Learning and Development	5	3	20	30	50	2
IV	Value Education - Human Rights #	2	1.5	-	50	50	2
	Total	30		165	360	525	22
Semester - III							
I	Language - III	4	3	25	75	100	4
II	English - III	4	3	25	75	100	4

III	Core Paper V - Applied Biomechanics and Kinesiology for Sports Performance	5	3	25	75	100	4
III	Core Paper VI - Sports Injury Prevention and Management	4	3	25	50	75	3
III	Core Practical – III - Injury Management (Practice)	5	3	25	50	75	3
III	Allied III: Yogic Science on Sports Performance	4	3	20	30	50	2
IV	**Skill Based Subject I: Internship I**	-	3	20	30	50	2
IV	Tamil @ / Advanced Tamil # (or) Non-Major Elective–I: Yoga for Human Excellence # / Women's Rights # / Constitution of India #	2	1.5	-	50	50	2
	Digital Skills for Employability (Naan Mudhalvan)	2	-	25	75	100	2
	Total	30		190	510	700	26
Semester - IV							
I	Language - IV	4	3	25	75	100	4
II	English - IV	4	3	25	75	100	4
III	Core Paper - VII: Assessment for Sport and Athletic Performance	4	3	25	75	100	4
III	Core Paper - VIII: Exercise Physiology	4	3	25	50	75	4
III	Core Practical - IV: Physical Fitness Assessments for Sports and Needs Analysis (Practice)	4	3	25	50	75	3
III	Allied IV: Research and Data Analysis for Sports	3	3	20	30	50	2
IV	Skill-Based Subject II: Data Visualization	3	3	20	30	50	2
IV	Tamil @ / Advanced Tamil # (or) Non-major elective -II: General Awareness #	2	1.5	-	50	50	2
	Digital Skills for Employability – Office Fundamentals (Naan Mudhalvan)	2	-	25	25	50	2
	Total	30		190	460	650	27
Semester - V							
III	Core Paper IX - Performance Nutrition	6	3	25	75	100	4
III	Core Paper X - Science of Sports Training	6	3	25	75	100	4
III	Core Paper XI - Muscle Mechanics and Adaptations Techniques	6	3	25	50	75	3
III	Elective I:	6	3	25	50	75	3
III	**Core: Internship II**	-	3	20	30	50	2
IV	Skill Based Subject III: Practical – Recovery and Rehabilitation in Sports (Practice)	6	3	20	30	50	2
	Marketing and Design Tool (Naan Mudhalvan)	-	-	25	75	100	2
	Total	30		165	385	550	20
Semester - VI							
III	Core Paper XII - AI and Technology in Sports	6	3	25	75	100	4
III	Core Paper XIII - Ethics and Values of Sports	6	3	25	50	75	4

III	**Core XIV: Project Work ****	-	3	25	75	100	4
III	Elective II:	6	3	25	50	75	3
III	Elective III:	6	3	25	50	75	3
IV	Skill Based Subject IV: Sports Event Management	6	3	25	50	75	3
	Employability Readiness (Naan Mudhalvan)	-	-	-	-	-	-
V	Extension Activities@	-	-	50	-	50	2
	Total	30		200	350	550	23
	Grand Total	180		1050	2450	3500	140

List of Elective Papers (Colleges can choose any one of the papers as electives)		
Elective – I	A	Sports Management
	B	Para Sports
	C	Yoga (Practical)
Elective – II	A	Entrepreneurship in Sports
	B	Adventure Sports (Practical)
	C	Calisthenics and Gymnastics (Practical)
Elective - III	A	Global Sports Marketing
	B	Indian Traditional Sports
	C	Introduction to E-Sports

Note

 # No Continuous Internal Assessment (CIA). Only University Examinations.

@ No University Examinations. Only Continuous Internal Assessment (CIA).

**** - Project Work – 60hours / 10 days.**

SEMESTER - 1

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - 1	ANATOMY AND PHYSIOLOGY	5	-	--	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Gain a comprehensive understanding of the structure and function of the major human organ systems: This includes studying the anatomy (structure) and physiology (function) of systems such as the musculoskeletal, cardiovascular, respiratory, digestive, nervous, endocrine, and reproductive systems.
2	Explore the interrelationships between different organ systems: Students will learn how different systems work together to maintain homeostasis (stable internal environment) and how they are affected by exercise and other factors.
3	Analyze the effects of exercise on the human body: This includes understanding how exercise impacts various organ systems and how these adaptations can improve athletic performance.
4	Identify and evaluate potential risks of injury associated with different sports and physical activities: Students will learn how to recognize anatomical and physiological factors that may make athletes more susceptible to specific injuries.
5	Develop strategies for optimizing athletic performance and preventing injuries: This includes understanding how to apply knowledge of anatomy and physiology to create personalized training programs, recovery protocols, and injury prevention strategies.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Identify and describe the major anatomical structures of the human body.	K1
2	Explain the physiological functions of different organ systems.	K2
3	Analyze the effects of exercise on the human body.	K4
4	Identify and evaluate potential risks of injury associated with different sports and physical activities.	K5
5	Develop strategies for optimizing athletic performance and preventing injuries.	K3

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Anatomy and Physiology**	**7 - Hours**

An Introduction to the Human Body - Basic Biological Concepts for Anatomy & Physiology - Anatomical Terminology and Directional Language - Organization of the Human Body: Cells, Tissues, Organs, and Systems

Unit 2	**Musculoskeletal System**	**8 - Hours**

Introduction to Musculoskeletal System: Bone – Types of Bone – Functions. Joints – Types of joints – Functions. Muscle – Types of Muscle – Functions – Fatigue – Muscles of Upper Limb – Muscles of Lower limb – Muscles of trunk. Exercise Physiology and Muscle Adaptations

Unit 3	Cardiovascular and Respiratory Systems	10 - Hours
Cardiovascular System – Structure and Functions of heart – Types of Circulation – Cardiac cycle – cardiac output – Blood pressure – pulse – Effects of different training on cardiovascular system. Respiratory System – Respiration – Structure and function of lung – mechanism of breathing – Lung - Gas Exchange - volumes and capacities – Effects of different training on respiratory system.		
Unit 4	**Nervous and Endocrine Systems**	**8 - Hours**
Nervous System: Classification of Nervous System: Central nervous system – peripheral Nervous -System – Autonomic Nervous System – Structure and Function of brain and spinal cord – Neuron – Reflex Arc – Effects of training on nervous system. -		
Unit 5	**Other Organ Systems and Applications in Sports Science**	**12 - Hours**
Digestive System: Structure, Function, and Digestion - Urinary System: Structure, Function, and Excretion - The Endocrine System: Structure, Function, and Hormones - Reproductive System: Structure, Function, and Hormones - Application of Anatomy & Physiology to Sports Performance		
	Total Lecture Hours	**45 hours**

Reference Books

1	Clinically Oriented Anatomy by Keith L. Moore & Arthur F. Dalley Publisher: Lippincott Williams & Wilkins Year of publication: 2018
2	McMinn and Abrahams' Clinical Atlas of Human Anatomy by Peter H. Abrahams & Peter C. Hutchings Publisher: Elsevier Year of publication: 2019
3	Guyton and Hall Textbook of Medical Physiology by John E. Hall Publisher: Elsevier Year of publication: 2022
4	Exercise Physiology: Nutrition, Energy, and Human Performance by William D. McArdle, Frank I. Katch, & Victor L. Katch Publisher: Lippincott Williams & Wilkins Year of publication: 2021
5	Essentials of Exercise Physiology by William J. Kraemer & Steven J. Fleck Publisher: Lippincott Williams & Wilkins Year of publication: 2023

Expected Course Outcomes (CO)		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO 6**	**PO7**	**PO8**
CO1	Gain a comprehensive understanding of the structure and function of the major human organ systems	S	S	S	M	L	L	L	L
CO2	Explore the interrelationships between different organ systems	S	M	S	L	M	L	L	L
CO3	Apply knowledge of anatomy and physiology to sports science contexts	M	S	S	M	M	M	L	L

S-Strong; M-Medium; L-Low

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - 2	PHYSICAL ACTIVITY AND EXERCISE FOR HEALTH	5	20	25	4
Pre-requisite		Version		2024-25	
Course Objectives					
The Main Objectives of this course are to					
1	To understand the importance of physical activity and exercise for health across the lifespan				

2	To understand the physiological, biomechanical, and psychological mechanisms underlying the health benefits of physical activity and exercise
3	To develop the knowledge and skills necessary to design and implement effective physical activity and exercise programs for individuals and groups
4	To critically evaluate the scientific evidence on the health benefits of physical activity and exercise
5	To communicate the importance of physical activity and exercise for health to the public

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will be able to explain the importance of physical activity and exercise for health across the lifespan.	K2
2	Students will be able to describe the physiological, biomechanical, and psychological mechanisms underlying the health benefits of physical activity and exercise.	K2
3	Students will be able to design and implement effective physical activity and exercise programs for individuals and groups.	K3
4	Students will be able to critically evaluate the scientific evidence on the health benefits of physical activity and exercise.	K5
5	Students will be able to communicate the importance of physical activity and exercise for health to the public.	K3

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Foundations of Physical Activity and Exercise for Health**	**10 - Hours**

Importance of physical activity and exercise across the lifespan - Health benefits of physical activity and exercise - Basic principles of exercise science - Components of physical fitness.

Unit 2	**Physiological Mechanisms of Exercise**	**9 - Hours**

Energy metabolism and exercise - Cardiovascular adaptations to exercise - Respiratory adaptations to exercise - Musculoskeletal adaptations to exercise - Biomechanics of movement

Unit 3	**Designing and Implementing Exercise Programs**	**10 - Hours**

Warm-up, cool-down, and Specific Conditioning - Principles of program design - FITT principle (Frequency, Intensity, Time, Type) - Progression and overload principles - Safety considerations – impact of climatic conditions on Exercise Programs.

Unit 4	**Posture and Energy systems on Physical Activity**	**10 - Hours**

Posture – Components of good posture – Poor posture – Types of posture – Posture correction. Energy systems – CP system – Aerobic energy – Anaerobic energy – Effects of training on energy systems.

Unit 5	**Awareness of health and exercise among the Society**	**6 – Hours**

Effective communication strategies - Public health messaging - Motivational interviewing Community-based interventions – Systems Advocacy for active lifestyles									
							Total Lecture Hours		**45 hours**
Reference Books									
1	Exercise Physiology: Integrating Theory and Application (Second Edition), William J. Kraemer & Steven J. Fleck,Publisher: Human Kinetics, Year of Publication: 2023								
2	Physical Activity Epidemiology: Concepts, Methods, and Applications (Third Edition), Carl J. Caspersen, Steven N. Blair, & Paula M. Macera, Publisher: Human Kinetics, Year of Publication: 2022								
3	Physical Activity for Health: A Practical Guide for Professionals (Second Edition) Michael D. Hughes & Gregory K. Brown, Publisher: Routledge Year of Publication: 2022								
4	Sport and Exercise Nutrition: An Essential Guide for Students and Practitioners, Louise Burke, Victor R. Falck, & Ron Maughan Publisher: Wiley-Blackwell, Year of Publication: 2021								
5	Foundations of Exercise Psychology: Applications for Fitness, Sports, and Health (Second Edition), Robert S. Weinberg & Daniel Gould, Publisher: Human Kinetics, Year of Publication: 2021								
Expected Course Outcomes (CO)		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	Explain importance of physical activity and exercise across lifespan	S	M	S	M	M	M	M	M
CO2	Describe mechanisms underlying health benefits of physical activity and exercise	S	S	S	M	M	M		M
CO3	Design and implement effective physical activity and exercise programs	S	S	S	S	M	S	M	M
CO4	Critically evaluate scientific evidence on health benefits of physical activity and exercise	S	M	S	M	M	M	S	S
CO5	Communicate the importance of physical activity and exercise to the public programs the	M	M	M	M	S	M	M	S
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Core Practical -I	FITNESS MANAGEMENT	5	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Develop a comprehensive understanding of the principles and practices of fitness management.

2	Acquire skills in designing, implementing, and evaluating effective fitness programs for diverse populations.
3	Analyze and interpret fitness assessment data to guide program design and modifications.
4	Apply knowledge of exercise physiology, nutrition, and behavior change to promote healthy lifestyle choices.
5	Develop professional skills in communication, client management, and marketing in the fitness industry.

Expected Course Outcomes:
On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will be able to critically evaluate different fitness philosophies and program approaches.	K4
2	Students will design and implement safe and effective fitness programs for various individuals and groups.	K3
3	Students will effectively utilize fitness assessment tools and interpret data to track progress and make program adjustments.	K3
4	Students will provide science-based exercise and nutrition recommendations to support healthy lifestyle changes.	K3
5	Students will demonstrate effective communication and interpersonal skills in a fitness professional setting.	K6

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

10 week course schedule

Week – 1	**Introduction to Fitness Management**

Understanding the fitness industry - ethical and legal considerations - principles of exercise programming. - Activities: Guest speaker from a local gym - group discussion on ethical dilemmas in fitness, designing a sample workout program for a specific goal.

Week – 2	**Client Assessment and Needs Analysis**

Topic: Conducting various fitness assessments (body composition, cardiovascular fitness, strength), understanding client goals and motivations. - Activities: Practicing different assessment techniques on each other, role-playing client consultations, developing personalized fitness plans based on needs analysis.

Week – 3	**Designing Effective Fitness Programs**

Topic: Programming principles for different fitness goals (weight loss, strength training, cardiovascular health), exercise selection and progression. - Activities: Creating sample workout routines for various goals and fitness levels, discussing effective exercise progressions, designing circuit training workouts.

Week – 4	**Special Populations and Exercise Programming**
Topic: Considerations for programming for children, older adults, pregnant women, individuals with disabilities. - Activities: Adapting exercise routines for different populations, practicing safe and effective exercise modifications, guest speaker from a specialized fitness program (e.g., prenatal yoga).	
Week – 5	**Fitness Assessment and Evaluation**
Topic: Interpreting assessment data to track progress and make program adjustments, utilizing fitness tracking technologies. - Activities: Analyzing data from fitness trackers and assessments, designing progress tracking charts, discussing strategies for motivating clients based on their progress.	
Week –6	**Nutrition for Fitness and Health**
Topic: Understanding the basics of sports nutrition, creating dietary plans for different fitness goals, applying behavior change strategies for healthy eatin Activities: Planning meals and snacks for optimal performance and recovery, practicing motivational interviewing techniques for nutrition counseling, group discussion on common nutrition challenges.	
Week – 7	**Exercise Instruction and Technique**
Topic: Demonstrating proper exercise form, providing effective exercise cues and corrections, preventing common exercise injuries. - Activities: Practicing and receiving feedback on exercise technique for various muscle groups, learning injury prevention strategies, creating an instructional video for a specific exercise.	
Week – 8	**Group Fitness Instruction and Leadership**
Topic: Planning and leading engaging group fitness classes, creating a positive and motivating learning environment. - Activities: Developing a sample group fitness class outline, practicing cueing and instruction in a group setting, providing peer feedback on teaching skills.	
Week – 9	**Business and Marketing for Fitness Professionals**
Topic: Understanding the business of fitness, developing marketing strategies for attracting clients, building a successful fitness career. - Activities: Creating a business plan for a fitness program or service, practicing networking skills, developing a personal brand as a fitness professional.	
Week – 10	**Program Evaluation and Future Directions**
Topic: Evaluating the effectiveness of fitness programs, setting professional goals for continuous learning and development. - Activities: Analyzing data from implemented fitness programs, discussing best practices for program evaluation, setting SMART goals for future professional development.	
Reference Books	
1	ACSM's Guidelines for Exercise Testing and Prescription (10th Edition), American College of Sports Medicine, Wolters Kluwer Health, 2023.
2	Essentials of Strength Training and Conditioning (5th Edition), Michael J. Knez, William E. Kraemer, Human Kinetics, 2022.

3	Practical Fitness Assessment (6th Edition), Scott A. Kubek, Benjamin C. Cowan, Cengage Learning, 2017.								
4	Nutrition and Physical Activity (3rd Edition), Marie T. Stonehouse, Kathryn A. Vaughan, Cengage Learning, 2012.								
5	The Business of Fitness (4th Edition), Michael D. O'Toole, Human Kinetics, 2023.								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Students will be able to critically evaluate different fitness philosophies and program approaches.	S	M	S	M	M	M	L	L
CO2	Students will design and implement safe and effective fitness programs for various individuals and groups.	S	S	S	M	M	M	L	M
CO3	Students will effectively utilize fitness assessment tools and interpret data to track progress and make program adjustments.	M	S	S	M	L	S	L	L
CO4	Students will provide science-based exercise and nutrition recommendations to support healthy lifestyle changes.	M	M	S	S	M	M	L	L
CO5	Students will demonstrate effective communication and interpersonal skills in a fitness professional setting.	M	M	M	M	M	L	L	S
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Allied - I	**ESSENTIALS OF SPORTS SCIENCE & SPORTS COACHING**	**5**	**-**	**-**	**2**
Pre-requisite		**Version**		**2024-25**	
Course Objectives					
The Main Objectives of this course are to					
1	To provide students with a comprehensive overview of the foundations of sport, including its history, philosophy, and sociology.				
2	To introduce students to the key scientific principles that underpin sports performance, such as exercise physiology, biomechanics, and nutrition				

3	To develop students' understanding of the different types of sport and their specific training requirements
4	To equip students with the knowledge and skills to design and implement effective sports training programs
5	To foster students' appreciation for the importance of sport in society and its role in promoting human health and well-being.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Define and explain key concepts and terminology associated with sport.	K1
2	Apply scientific principles to design and implement sports training programs	K3
3	Identify and assess different types of sport and their training requirements.	K4
4	Develop and deliver effective sports training programs.	K3
5	Critically evaluate the role of sport in society and its impact on health.	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Sport**	**6- Hours**
Definition and history of sport - Philosophy of sport - The role of sport in society - The impact of sport on health and well-being		
Unit 2	**The Scientific Basis of Sport**	**6- Hours**
Sport Science Research Methods - Sports Medicine and Injury Prevention - Sport and Technology - Diversity and Inclusion in Sport		
Unit 3	**Sports Performance and Training**	**6- Hours**
Sports Performance and Training - Talent Identification and Development - Sports Coaching Sport Management - Sport Ethics		
Unit 4	**The Different Types of Sport**	**6- Hours**
Individual vs. team sports - Combat vs. non-combat sports - Olympic vs. non-Olympic sports - Professional vs. amateur sports - The unique demands of different sports		
Unit 5	**The Future of Sport**	**6- Hours**
Emerging trends in sports technology and science - The impact of globalization on sport The role of sport in promoting social change - The future of sports governance and leadership		
	Total Lecture Hours	30 hours

Reference Books

1	Sports Science Handbook: A Complete Guide for Coaches, Trainers, and Athletes David Martin & Daniel Baker, Human Kinetics,2020
2	The Science of Sports Training: Principles and Practices, Verkhoshansky Yuri & Siff Melvin C., Routledge,2018
3	Biomechanics of Sport and Exercise,Peter M. McGinnis,Oxford University Press,2016
4	Sports Nutrition: A Guide for Athletes and Coaches,Jeukendrup Anne & Gleeson Michael,Human Kinetics, 2023
5	Exercise Physiology: Theory and Application to Fitness and Performance, McArdle William D., Katch Frank I., & Katch Victor L., Wolters Kluwer India Pvt Ltd, 2015

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Define and explain key concepts in sport	S	M	M	L	M	L	M	M
CO2	Apply scientific principles to sports training programs	S	S	S	S	M	L	S	S
CO3	Identify and assess different types of sport and training requirements	S	M	S	M	L	M	L	L
CO4	Develop and deliver effective sports training programs	S	S	S	S	M	S	M	S
CO5	Critically evaluate the role of sport in society	M	L	M	L	S	L	M	S

S-Strong; M-Medium; L-Low

SEMESTER - II

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - III	Foundation of Strength Training & Conditioning	4	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Provide a comprehensive understanding of the scientific principles and theoretical foundations of strength and conditioning.
2	Develop practical skills in designing, implementing, and evaluating effective strength and conditioning programs.
3	Cultivate critical thinking and analytical abilities for optimizing training programs based on individual needs and goals.

4	Foster effective communication and collaboration with athletes and other professionals in the sports performance domain.
5	Instill ethical and professional conduct in the application of strength and conditioning principles and practices.

Expected Course Outcomes:
On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Deep understanding of key concepts in strength training	K3
2	Design and implement safe, effective, individualized strength and conditioning programs	K4
3	Critically analyze and evaluate training programs	K5
4	Effectively communicate training plans and collaborate	K6
5	Recognize and uphold ethical standards	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit - 1	Introduction to Strength Training & Conditioning Science	7- Hours

Historical perspectives and evolution of strength training - Scientific principles of exercise and adaptation - Muscle physiology and fiber types - Biomechanics of human movement and force production - Safety considerations and risk management in strength training

Unit - 2	Programming Principles and Periodization Models	7- Hours

Training principles for different fitness goals (strength, power, endurance, speed) - Periodization models and training cycles - Factors influencing program design (individual needs, sport demands, training experience) - Exercise selection, progression, and variation - Monitoring and evaluating training progress.

Unit -3	Advanced Training Techniques and Special Populations	7- Hours

Plyometric and speed training methods - Weightlifting and Olympic lifting techniques

Strength training for specific sports (e.g., swimming, basketball, soccer) - Training considerations for different populations (children, older adults, athletes with disabilities) - Nutritional strategies for optimal performance and recovery in strength training.

Unit-4	Performance Analysis and Training Optimization	7- Hours

Tools and techniques for assessing athletic performance - (strength, power, speed, agility) - Utilizing data analysis and feedback to optimize training programs - Technology integration in strength and conditioning (wearables, apps, video analysis) - Individualized training and talent identification strategies.

Unit - 5	Professional Development and Ethical Considerations	7- Hours

Career opportunities and professional development resources in strength and conditioning - Legal and ethical considerations in coaching and athlete relationships - Anti-doping policies and regulations in sports - Communication and interpersonal skills for effective coaching.									
								Total Lecture Hours	35 hours
Reference Books									
1	The Ethics of Coaching: A Guide for Effective Moral Decision-Making (3rd Edition), Michael L. Jones, Peter J. Vitell, Human Kinetics, 2014								
2	Sports Performance Analysis: Essential Tools and Applications (2nd Edition), Stephen A. Shea, Bruce E. Torbert, Human Kinetics, 2015								
3	Advanced Strength and Conditioning (4th Edition), Jack H. Wilmore, David L. Costill, Wolters Kluwer Health, 2012								
4	Periodization Training for Sports (5th Edition), Tudor Bompa, Lorenzo Vaccaro, Human Kinetics, 2018.								
5	Essentials of Strength Training and Conditioning (5th Edition), Michael J. Knez, William E. Kraemer, Human Kinetics, 2022.								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Deep understanding of key concepts in strength training	S	S	S	M	M	M	L	L
CO2	Design and implement safe, effective, individualized strength and conditioning programs	S	S	S	M	L	M	M	M
CO3	Critically analyze and evaluate training programs	S	M	S	M	M	M	M	L
CO4	Effectively communicate training plans and collaborate	M	M	M	M	M	L	L	S
CO5	Recognize and uphold ethical standards	M	M	M	M	M	L	L	S
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - IV	**Fundamentals in Sports Psychology**	4	-	-	4
Pre-requisite		Version		2024-25	
Course Objectives The Main Objectives of this course are to					
1	Provide an overview of the key concepts and principles of sports psychology, including the role of psychology in athletic performance and well-being.				
2	Explore the psychological factors influencing athlete performance, such as motivation, goal setting, confidence, and attentional control				

3	Examine the psychological aspects of team sports, focusing on team cohesion, communication, leadership, and the development of a positive team culture.								
4	Introduce and develop practical mental skills, including imagery, visualization, relaxation techniques, and goal-setting strategies, to enhance overall athletic performance.								
5	Address common psychological challenges in sports, including stress, anxiety, burnout, and the psychological aspects of injury and rehabilitation.								
Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:									
Learning Objective							Bloom's Taxonomy Level		
1	Understand and apply fundamental concepts and principles of sports psychology.						K3		
2	Analyze and address psychological factors affecting individual athlete performance.						K5		
3	Apply psychological principles to enhance team dynamics and communication.						K5		
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.									
Unit 1	**Introduction to Sports Psychology**							7- Hours	
Definition and scope of sports psychology - Historical perspectives - Applications in sports performance and coaching									
Unit 2	**Psychological Factors in Athlete Performance**							7- Hours	
Motivation and goal setting - Confidence and self-efficacy - Attentional control and focus – Connecting inner skills.									
Unit 3	**Team Dynamics and Communication**							7- Hours	
Team cohesion and development - Leadership in sports - Effective communication in team settings – connecting to people.									
Unit 4	**Mental Skills Training**							7- Hours	
Imagery and visualization techniques - Relaxation and stress management - Goal setting and self-talk.									
Unit 5	**Psychological Challenges in Sports**							7- Hours	
Stress and anxiety in sports - Burnout and overtraining - Psychological aspects of injury and rehabilitation.									
Total Lecture Hours								35 hours	
Reference Books									
1	Woodworth and Schlosberg - Experimental Psychology.								
2	2. Clifford T.Morgan, Richard a.King, John R. Weis and Hohn Schopler, "Introduction to Psychology", 7th Edition. Tata McGraw Hill Book Co. New Delhi, 1993.								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Provide an overview of the key concepts and principles of sports psychology,	L	M	L	L	S	L	L	S

	including the role of psychology in athletic performance and well-being.								
CO2	Explore the psychological factors influencing athlete performance, such as motivation, goal setting, confidence, and attentional control	L	S	M	L	S	M	M	M
CO3	Examine the psychological aspects of team sports, focusing on team cohesion, communication, leadership, and the development of a positive team culture.	L	M	L	L	S	L	L	S
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Practical Core - II	STRENGTH TESTING & EXERCISE PRESCRIPTION (Practice)	5	-	-	2
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Apply knowledge of different assessment methods for evaluating sports skills and techniques
2	Analyze the effectiveness and limitations of various assessment tools in different sports contexts

3	Design and implement a comprehensive assessment plan for a specific sport and skill level
4	Communicate assessment results effectively to athletes, coaches, and other stakeholders

Expected Course Outcomes:
On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Demonstrate competency in utilizing various assessment methods for Strength testing and metrics.	K3
2	Critically evaluate the appropriateness and effectiveness of assessment tools in specific conditions and skills.	K4
3	Develop and implement a practical assessment plan for a chosen sport and skill levels of various athletes.	K6
4	Throughout the course, practical exercises, case studies, and peer-to-peer learning will be employed to enhance understanding and application of concepts.	K4
5	Resources such as video demonstrations, online tutorials, and software applications will be utilized to support learning.	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Week 1 - 2	**Introduction to Strength Testing & Training**

Definition, purpose, and importance of Strength testing - Types of assessment: performance-based, self-assessment, peer assessment - Overview of various assessment methods (e.g., observation checklists, rating scales, rubrics, technology-aided tools) - Output: Individual written reflection on personal experiences with assessment in strength levels.

Week 3 - 4	**In-Depth Exploration of Testing Methods**

Detailed analysis of specific assessment tools (e.g., observation checklists, rating scales, rubrics) - Practical application of different methods in simulated settings - Analysis of strengths and weaknesses of each method - Output: Group presentation analyzing the effectiveness of a chosen assessment method in a specific Sport and Athlete.

Week 5 - 6	**Designing and Implementing Assessment Plans**

Identifying learning objectives and performance criteria - Selecting appropriate assessment methods - Crafting effective rubrics and checklists - Implementing assessment plan in a real-world setting - Output: Individual design and implementation of a mini-assessment plan for a chosen skill in a specific sport.

Week 7 - 8	**Data Analysis and Interpretation**

Analyzing quantitative and qualitative data from assessments - Identifying strengths and weaknesses in performance - Making recommendations for improvement - Output: Group analysis and interpretation of assessment data for a chosen sport team or individual athlete.

Week 9 - 10	**Effective Communication of Test Results and exercise prescription**

Writing clear and concise reports - Providing constructive feedback to athletes and coaches - Presenting findings to stakeholders in various formats (e.g., oral presentations, infographics) - Output: Individual written assessment report for a chosen athlete and an oral presentation summarizing key findings to a simulated audience of coaches and parents.									
							Total Lecture Hours	48 hours	
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Demonstrate competency in utilizing various assessment methods for testing Strength levels	M	M	M	L	S	M	S	M
CO2	Critically evaluate the appropriateness and effectiveness of assessment tools in specific conditions and various Athletes	M	L	M	L	S	S	S	M
CO3	Develop and implement a practical assessment plan for a chosen sport and skill levels	M	M	L	M	S	L	S	M
CO4	Throughout the course, practical exercises, case studies, and peer-to-peer learning will be employed to enhance understanding and application of concepts.	L	M	M	M	L	S	S	M
CO5	Resources such as video demonstrations, online tutorials, and software applications will be utilized to support learning.	M	M	L	M	L	ML	M	M
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Allied - II	**MOTOR LEARNING AND DEVELOPMENT**	**5**	**-**	**-**	**2**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Describe the theoretical frameworks of motor learning and development across the lifespan
2	Analyze the factors influencing motor skill acquisition and performance
3	Apply principles of motor learning to design and implement effective learning interventions for different populations

4	Evaluate the effectiveness of different assessment methods for motor skills and development	
Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
J	Demonstrate a comprehensive understanding of the key concepts and theories in motor learning and development across the lifespan	K3
2	Critically analyze the factors influencing motor skill acquisition and performance in various contexts	K4
3	Design and implement evidence-based motor learning interventions to optimize skill development and performance for specific	K5
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Foundations of Motor Learning and Development**	**6- Hours**
Introduction to motor learning and development - Theoretical frameworks of motor learning - Stages of motor development across the lifespan - Factors influencing motor development (e.g., biological, environmental, psychological)		
Unit 2	**Motor Skill Acquisition and Performance**	**6- Hours**
Sensory-motor learning - Motor skill acquisition stages (e.g., cognitive, associative, autonomous) - Feedback and practice for effective skill acquisition - Attention and motivation in motor learning		
Unit 3	**Motor Learning Interventions**	**6- Hours**
Principles of motor learning intervention design - Task analysis and skill breakdown - Practice design and scheduling - Feedback strategies - Technology-aided motor learning interventions		
Unit 4	**Assessment of Motor Skills and Development**	**6- Hours**
Observational methods for assessing motor skills - Performance-based assessment tools - Self-assessment and peer assessment - Data analysis and interpretation in motor skill assessment		
Unit 5	**Applications of Motor Learning and Development**	**6- Hours**
Motor learning in sport and physical activity - Motor learning in rehabilitation - Motor learning in education and special populations - Future directions in motor learning research		
	Total Lecture Hours	35 hours
Reference Books		
1	Motor Learning and Development by Pamela S. Beach & Robert J. Lewthwaite (2022, Human Kinetics, Champaign, IL)	
2	Skill Acquisition in Sport: Research, Theory and Practice by Norbert Schmidt & Richard A. Wrisberg (2022, Routledge, London)	
3	The Acquisition of Motor Skills by Bryan H. Newell (2023, John Wiley & Sons, Hoboken, NJ)	
4	Motor Control and Learning by Richard A. Magill (2022, Cengage Learning, Boston, MA)	

5	Physical Activity and Learning: An Integrated Approach by Carl Gabbard (2022, Human Kinetics, Champaign, IL)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Demonstrate a comprehensive understanding of the key concepts and theories in motor learning and development across the lifespan	S	M	L	L	M	M	L	M
CO2	Critically analyze the factors influencing motor skill acquisition and performance in various contexts	M	S	L	L	S	M	L	M
CO3	Design and implement evidence-based motor learning interventions to optimize skill development and performance for specific	M	S	M	L	S	L	S	M
S-Strong; M-Medium; L-Low									

SEMESTER - III

Course Code	TITLE OF THE COURSE	L	T	P	C
Core -V	APPLIED BIOMECHANICS & KINESIOLOGY FOR SPORTS PERFORMANCE	5	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	To understand the principles of biomechanics and kinesiology as they apply to sports performance.

2	To be able to analyze and interpret sports movements from a biomechanical perspective.
3	To be able to design and implement training programs that improve sports performance based on biomechanical principles.
4	To be able to identify and mitigate biomechanical risk factors for sports injuries.
5	To be able to use biomechanical knowledge to aid in the rehabilitation of sports injuries

Expected Course Outcomes:
On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will be able to explain the key concepts of biomechanics and kinesiology as they relate to sports performance.	K2
2	Students will be able to apply biomechanical principles to the analysis and interpretation of sports movements.	K3
3	Students will be able to design and implement training programs that improve sports performance based on biomechanical principles.	K6
4	Students will be able to identify and mitigate biomechanical risk factors for sports injuries.	K5
5	Students will be able to use biomechanical knowledge to aid in the rehabilitation of sports injuries.	K3

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Biomechanics and Kinesiology**	**7 - Hours**

Definition and scope of biomechanics and kinesiology - Introduction to sports-specific biomechanics - Biomechanical principles: forces, moments, levers, joints, and muscles - Kinematic analysis: movement description and quantification - Kinetic analysis: force and moment measurement and interpretation

Unit 2	**Biomechanics of the Upper Limb**	**7 - Hours**

Shoulder anatomy and biomechanics: throwing mechanics, impingement syndrome - Elbow anatomy and biomechanics: pitching mechanics, tennis elbow - Wrist and hand anatomy and biomechanics: grip strength, carpal tunnel syndrome - Common upper limb injuries in sports: prevention and rehabilitation

Unit 3	**Biomechanics of the Lower Limb**	**7 - Hours**

Hip anatomy and biomechanics: running gait, patellofemoral pain syndrome - Knee anatomy and biomechanics: jumping mechanics, anterior cruciate ligament (ACL) injuries - Ankle and foot anatomy and biomechanics: sprinting mechanics, plantar fasciitis - Common lower limb injuries in sports: prevention and rehabilitation

Unit 4	**Biomechanics of the Spine and Trunk**	**7 - Hours**

Spinal anatomy and biomechanics: lifting mechanics, low back pain - Trunk muscle anatomy and function: core strength and stability - Common spinal injuries in sports: prevention and rehabilitation - Ergonomics and posture in sports									
Unit 5	**Biomechanics of Specific Sports**							**7 - Hours**	
Running: biomechanics of sprinting, distance running, and hurdling - Jumping: biomechanics of vertical jump and long jump - Throwing: biomechanics of baseball pitching, javelin throw, and shot put - Other sports: biomechanics of swimming, cycling, golf, tennis, etc. - Case studies: applying biomechanical principles to real-world sports scenarios - Training program design based on biomechanical analysis - Biomechanical prevention and management of sports injuries									
							Total Lecture Hours	35 hours	
Reference Books									
1	Biomechanics of Sport and Exercise (4th Edition), Peter R. Cavanagh and Michael A. Lafortune, Routledge 2023								
2	Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation (3rd Edition), Donald A. Neumann,Elsevier, 2020								
3	Biomechanics and Motor Control of Human Movement (5th Edition), David A. Winter, John Wiley & Sons, 2018								
4	Sports Biomechanics: Performance Enhancement and Injury Prevention (3rd Edition), S.M. Nigg, B.R. Macintosh, and J.R. Stefanyshyn, Wiley-Blackwell, 2018								
5	Applied Biomechanics in Sports (2nd Edition), V.K. Sharma and A.K. Goel, Jaypee Brothers Medical Publishers (P) Ltd., 2012								
6	Essentials of Kinesiology for the Physical Therapist Assistant (5th Edition), Shirley Sahrmann and Susan M. Norton, Elsevier, 2022								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain key concepts of biomechanics and kinesiology	S	S	M	L	M	M	M	M
CO2	Apply biomechanical principles to sports movement analysis and interpretation	S	S	M	L	S	S	S	M
CO3	Design and implement training programs based on biomechanical principles	S	S	S	L	S	S	S	M
CO4	Identify and mitigate biomechanical risk factors for sports injuries	S	S	M	L	S	M	M	M
CO5	Use biomechanical knowledge for sports injury rehabilitation	S	S	M	L	S	M	M	M
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - VI	SPORTS INJURY PREVENTION AND MANAGEMENT	4	-	-	3
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Understand the principles of sports injury prevention and management: This includes knowledge of the biomechanics of injury, risk factors, and evidence-based approaches to prevention and rehabilitation.

2	Identify and assess common sports injuries: Students will develop skills in recognizing and evaluating the severity of various injuries across different sports.
3	Develop and implement effective injury prevention strategies: This involves designing and implementing programs tailored to specific sports and athletes, incorporating elements like proper training techniques, warm-up/cool-down protocols, and equipment selection.
4	Apply appropriate first aid and emergency care for sports injuries: Students will gain practical skills in administering first aid for common injuries and learn guidelines for emergency response protocols.
5	Evaluate and manage the rehabilitation process for sports injuries: This objective focuses on understanding the principles of rehabilitation, designing individualized programs, and monitoring progress to ensure optimal recovery and return to sport.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will be able to explain the causes and mechanisms of common sports injuries	K2
2	Students will be able to identify and assess the severity of sports injuries	K4
3	Students will be able to develop and implement individualized injury prevention plans	K3
4	Students will be able to provide first aid and emergency care for sports injuries	K1
5	Students will be able to design and implement effective rehabilitation	K6

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Sports Injuries**	**7- Hours**

Understanding Sports Injuries: Mechanisms, Risk Factors, and Classification - Definition and types of sports injuries - Common sports injuries and their mechanisms - Factors contributing to sports injuries (intrinsic and extrinsic) - Classification of injuries - Importance of injury management

Unit 2	**Assessment and Evaluation of Sports Injuries**	**7- Hours**

Identifying and Assessing Sports Injuries: Signs, Symptoms, and Diagnostic Procedures. - Recognizing signs and symptoms of common sports injuries - Performing basic musculoskeletal assessments - Utilizing diagnostic tools (imaging, physical tests) - Determining severity and prognosis of injuries

Unit 3	**Injury Prevention Strategies in Sports**	**7- Hours**

Designing and Implementing Individualized Injury Prevention Plans - Principles of injury prevention - Identifying risk factors specific to different sports and athletes - Designing individualized preventive programs (e.g., warm-up, cool-down, conditioning exercises) - Implementing and monitoring effectiveness of prevention strategies - Role of technology and wearable devices in injury prevention		
Unit 4	**First Aid and Emergency Care for Sports Injuries**	**7- Hours**
Providing Basic First Aid Skills and Techniques - Basic first aid principles and procedures - Responding to common sports injuries (e.g., sprains, strains, fractures) - Performing CPR and AED use - Emergency preparedness and communication protocols - Importance of timely and appropriate first aid		
Unit 5	**Rehabilitation and Return to Sport**	**7- Hours**
Optimizing Recovery and Performance: Designing and Implementing Effective Rehabilitation Programs - Principles of sports rehabilitation - Goals and phases of rehabilitation (acute, subacute, chronic) - Therapeutic interventions (e.g., physical therapy, modalities, manual therapy) - Psychological aspects of injury rehabilitation - Monitoring progress and safe return to sport - Strategies to prevent re-injury		
	Total Lecture Hours	35 hours

Reference Books

1	Sports Injuries: Mechanisms, Prevention, and Management by William E. Garrett Jr. and Brian E. Shelbourne (Human Kinetics, 2019)
2	Assessment and Management of Sports **Injuries** by Jeffrey B. Driban and Michael J. Garrick (Elsevier, 2017)
3	Preventing Sports Injuries: A Comprehensive Guide for Coaches, Athletes, and Parents by Bruce E. Jones and Robert C. Cantu (Human Kinetics, 2018
4	First Aid for Sports Injuries by Bruce E. Jones and Robert C. Cantu (Human Kinetics, 2016)
5	Sports Rehabilitation and Injury Prevention by David J. Magee and William E. Kibler (Elsevier, 2019)

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain causes and mechanisms of common sports injuries	M	L	M	L	L	S	L	M
CO2	Identify and assess severity of sports injuries	M	L	S	L	L	S	L	M
CO3	Develop and implement individualized injury prevention plans	S	M	S	M	L	S	L	M

CO4	Provide first aid and emergency care for sports injuries	M	L	M	L	L	S	L	M
CO5	Design and implement effective rehabilitation programs for sports injuries	S	M	S	M	L	S	L	M
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Allied - III	YOGIC SCIENCE ON SPORTS PERFORMANCE	4	-	-	2
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Explore the theoretical foundations of Yogic Science and its application to athletic performance.
2	Develop practical skills in Yoga postures, breathing exercises, and meditation techniques.

3	Design and implement individualized Yogic programs for enhancing sports performance and overall well-being.	
4	Evaluate the effectiveness of Yogic practices in improving athletic performance and recovery.	
5	To teah the interpersonal relationship through yoga for better performance.	
Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Explain core principles and philosophy of Yogic Science	K2
2	Identify and analyze interconnectedness of physical, mental, and spiritual aspects in athletic development	K4
3	Demonstrate proficiency in Yoga postures, breathing techniques, and meditation practices	K3
4	Design and implement Yoga programs tailored to specific sports and individual needs of athletes	K6
5	Critically evaluate the scientific evidence supporting the benefits of Yogic Science for athletes	K5
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Yogic Science**	**7- Hours**
History and philosophy of Yoga - Eight limbs of Yoga - Patanjali's Yoga Sutras - Application of Yogic principles to sports.		
Unit 2	**Yoga for Physical Fitness**	**7- Hours**
Asanas (postures) for strength, flexibility, and balance - Pranayama (breath control) for improved lung capacity and cardiovascular health - Bandhas (energy locks) for enhanced focus and concentration		
Unit 3	**Yoga for Mental and Emotional Well-being**	**7- Hours**
Meditation techniques for stress reduction and anxiety management - Visualization techniques for mental focus and performance enhancement - Mindfulness practices for improved self-awareness and emotional regulation		
Unit 4	**Yoga for Injury Prevention and Rehabilitation**	**7- Hours**
Yoga practices for injury prevention and recovery - Use of Yoga props for therapeutic purposes - Yoga for rehabilitation of specific sports injuries		
Unit 5	**Designing Yoga Programs for Athletes**	**7- Hours**
Assessment of individual needs and goals - Programming Yoga practices for different stages of training - Integrating Yoga with other training modalities		
	Total Lecture Hours	35hours

Reference Books									
1	"The Yoga Sutras of Patanjali" - Translated by Eknath Easwaran (Oxford University Press, 2006)								
2	"Yoga for Athletes: A Comprehensive Guide" - by Sage Rountree (Human Kinetics, 2015)								
3	"The Science of Yoga: The Risks and Rewards" by William J. Broad (Simon & Schuster, 2012)								
4	"Yoga Anatomy" by Leslie Kaminoff and Amy Matthews (Human Kinetics, 2012)								
5	"Mindfulness in Plain English" by Bhante Gunaratana (Wisdom Publications, 2011)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain core principles and philosophy of Yogic Science	S	M	M	L	L	M	M	M
CO2	Identify and analyze interconnectedness of physical, mental, and spiritual aspects in athletic development	S	M	S	M	L	M	L	M
CO3	Demonstrate proficiency in Yoga postures, breathing techniques, and meditation practices	M	L	L	L	S	L	L	M
CO4	Design and implement Yoga programs tailored to specific sports and individual needs of athletes	S	S	S	S	M	S	M	M
CO5	Critically evaluate the scientific evidence supporting the benefits of Yogic Science for athletes	M	M	S	M	M	M	S	S
S-Strong; M-Medium; L-Low									

SEMESTER - IV

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - VII	ASSESSMENT FOR SPORT AND ATHLETIC PERFORMANCE	4	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Understand the principles and methods of assessment in sport and exercise performance.
2	Develop practical skills in conducting various assessments, skill, and performance.
3	Analyze and interpret assessment data to inform training and performance strategies.
4	Evaluate the effectiveness of different assessment methods in achieving specific goals.

5	Apply ethical considerations in the assessment of athletes and individuals engaged in physical activity.

Expected Course Outcomes:
On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Cardiovascular endurance	K3
2	Muscular strength and power	K3
3	Flexibility	K3
4	Body composition	K3
5	Skill-specific assessment	K4
6	Interpret assessment data	K4
7	Translate assessment findings into practical training recommendations	K3
8	Demonstrate ethical conduct and professionalism in all assessment practices	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Assessment in Sport and Exercise**	**7 - Hours**

Definition and purpose of assessment -Types of assessment - Principles and guidelines for effective assessment - Ethical considerations in assessment.

Unit 2	**Assessment of Fitness**	**7 - Hours**

Cardiovascular fitness assessment methods (e.g., VO2 max, submaximal tests) - Muscular strength and power assessment methods (e.g., 1RM, power output) - Flexibility assessment methods (e.g., sit-and-reach, goniometry) - Body composition assessment methods (e.g., skinfold calipers, bioelectrical impedance)

Unit 3	**Assessment of Skill and Performance**	**7 - Hours**

Observational analysis techniques - Biomechanical analysis techniques - Performance analysis tools and technology - Skill-specific assessment methods for different sports

Unit 4	**Data Analysis and Interpretation**	**7 - Hours**

Statistical analysis methods for assessment data - Identifying trends and patterns in performance data - Evaluating individual differences and progress - Using assessment data to inform program design

Unit 5	**Application of Assessment in Sport and Exercise**	**7 - Hours**

Assessment for injury prevention and rehabilitation - Assessment for talent identification and development - Assessment for monitoring training effectiveness - Assessment for optimizing performance in different sports

Total Lecture Hours	35 hours

Reference Books

1	Essentials of Strength and Conditioning (4th Edition) - Thomas R. Baechle & Roger W. Earle (Human Kinetics, 2022)
2	ACSM's Guidelines for Exercise Testing and Prescription (10th Edition) - American College of Sports Medicine (Lippincott Williams & Wilkins, 2023)
3	Measurement and Evaluation in Physical Education and Exercise Science (8th Edition) - Margaret J. Safrit & Thomas J. Wood (Human Kinetics, 2020)
4	Skill Acquisition in Sport: Research, Theory, and Practice (4th Edition) - Robert N. Singer, Alan J. Hausenblas, & Charles A. Janelle (Human Kinetics, 2020)
5	Data Analysis for Sports Science: An Introduction (2nd Edition) - Timothy D. Noakes (Human Kinetics, 2018)

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Apply knowledge of various assessment tools and techniques to evaluate fitness components.	L	M	M	M	S	M	S	L
CO2	Utilize skill-specific assessment methods to evaluate technical proficiency in sports and physical activities.	M	L	M	M	S	L	S	S
CO3	Analyze and interpret assessment data to identify strengths, weaknesses, and areas for improvement.	S	S	S	L	S	L	S	M
CO4	Translate assessment findings into practical training recommendations to optimize performance.	M	S	S	L	M	M	L	M
CO5	Demonstrate ethical conduct and professionalism in all assessment practices.	M	S	L	L	M	M	L	M

S-Strong; M-Medium; L-Low

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core - VIII	**EXERCISE PHYSIOLOGY**	**4**	**-**	**-**	**4**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Understand the key principles of exercise physiology to sports performance.
2	Analyze the effects of exercise on various body systems and learn how to optimize them for performance.
3	Apply scientific knowledge to design and implement effective training programs for athletes
4	Evaluate the role of exercise physiology in enhancing performance and recovery.
5	Develop strategies for performance improvement in sports.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Explain physiological adaptations to exercise and their relation to sports performance.	K2
2	Analyze the acute responses of the cardiovascular, respiratory, muscular, and metabolic systems to exercise.	K4
3	Explore the chronic adaptations of these systems to different types of exercise training.	K3
4	Evaluate the role of nutrition, genetics, and environmental factors in exercise performance	K3
5	Apply knowledge of exercise physiology to optimize training programs for different populations and goals.	K2

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Foundations of Exercise Physiology**	**7 - Hours**

Energy systems and metabolism - Cardiovascular and respiratory responses to exercise - Neuromuscular adaptations to training

Unit 2	**Respiratory system and Exercise**	**7 - Hours**

Pulmonary anatomy and function - Gas exchange during exercise - Respiratory responses to exercise - Training adaptations of the respiratory system

Unit 3	**Cardio-vascular system and Exercise**	**7 - Hours**

Cardiac anatomy and function - Regulation of cardiac output - Cardiovascular responses to exercise - Training adaptations of the cardiovascular system

Unit 4	**Neuromuscular System and Exercise**	**7 - Hours**

Skeletal muscle structure and function - Muscle contraction and force production - Muscle fatigue and recovery - Training adaptations of skeletal muscle

Unit 5	**Physiological Exercise Testing and Prescription**	**7 - Hours**

Assessment of aerobic and anaerobic fitness - Prescription of exercise for health and performance goals - Monitoring exercise intensity and progress

Total Lecture Hours	35hours

Reference Books

1	Exercise Physiology: Theory and Application to Fitness and Performance by Scott Douglas, William O. Roberts (Human Kinetics, 2014)
2	Biomechanics of Sport and Exercise by Peter R. Cavanagh, Michael A. Nigg (Human Kinetics, 2011)

3	Periodization Training for Sports by Tudor Bompa (Human Kinetics, 2018)
4	Sports Nutrition for Health and Performance by Louise Burke, Vicki Deakin (Human Kinetics, 2019)
5	The Sports Medicine Handbook for Coaches by Michael Bracko, Douglas J. Casa (Human Kinetics, 2014)

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain physiological adaptations to exercise & their relation to sports performance.	M	L	S	M	M	L	L	L
CO2	Analyze & apply biomechanical principles to improve movement efficiency & prevent injuries.	L	S	M	L	L	S	L	L
CO3	Design, implement, & evaluate training programs tailored to specific sports & athletes.	M	M	S	L	M	M	S	M
CO4	Develop a personalized nutrition plan to support optimal performance & recovery.	L	L	L	S	L	L	L	M
CO5	Identify, prevent, & manage common sports injuries.	L	M	M	L	L	S	L	L

S-Strong; M-Medium; L-Low

Course Code	TITLE OF THE COURSE	L	T	P	C
Core Practical - IV	PHYSICAL FITNESS ASSESSMENTS FOR SPORTS & NEEDS ANALYSIS (Practice)	4	#	4	3
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Define and explain key concepts in sports performance evaluation.
2	Identify and describe various types of sports performance evaluations.
3	Analyze the strengths and weaknesses of different evaluation methods.
4	Apply appropriate evaluation techniques to assess athletes' performance in specific sports.
5	Define and explain key concepts in sports performance evaluation.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:	
Assessment - 1	**Introduction to Sports Performance Evaluations**
Definition, types, significance, and benefits of sports performance evaluations. **Mode:** Quiz: - Basic Concepts	
Assessment - 2	**Fitness Testing and Evaluation**
Assessing cardiovascular endurance, muscular strength, power, flexibility, and agility. **Mode**: standardize Fitness Test.	
Assessment - 3	**Skill-Specific Performance Evaluation**
Evaluating technical skills, tactical awareness, and game sense specific to sport. **Mode**: Skill Evaluation. (standardize skill assessment Tool)	
Assessment - 4	**Psychological Assessment for Athletes**
Assessing motivation, mental toughness, and coping mechanisms. **Mode**: Athlete Psychological Questionnaire.	
Assessment - 5	**Data Analysis and Interpretation**
Analyzing collected data through statistical methods and visual representations. **Mode**: Performance Analysis Charts and Graphs	

								Total Lecture Hours	48 hours
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	To understand the concepts in sports performance evaluation.	M	L	S	L	M	L	M	L
CO2	Identify and describe various types of sports performance evaluations.	L	M	S	L	M	M	S	M
CO3	Analyze the strengths and weaknesses of different evaluation methods.	M	M	M	S	L	M	L	M
CO4	Apply appropriate evaluation techniques to assess athletes' performance in specific sports.	S	L	L	L	S	M	M	L

S-Strong; M-Medium; L-Low

Course Code	TITLE OF THE COURSE	L	T	P	C
Allied - IV	RESEARCH & DATA ANALYSIS FOR SPORTS	3	-	-	2
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Understand the principles and techniques of data analysis applied to sports performance.
2	Develop skills in collecting, cleaning, manipulating, and analyzing sports data.
3	Interpret and communicate the results of data analysis for informed decision-making in sports.
4	Utilize various statistical methods and tools for analyzing sports data.
5	Apply data analysis to optimize athletic training, performance, and injury prevention.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Students will be able to recall and identify key concepts and principles related to data collection, management, analysis, and interpretation in sports.	K1
2	Students will be able to explain and interpret the meaning of various statistical methods used in sports data analysis and demonstrate their understanding of the role of data analysis in sports performance.	K2
3	Students will be able to collect, manage, analyze, and interpret real-world sports data using appropriate statistical methods and apply their knowledge and skills to improve athletic training and performance.	K3
4	Students will be able to identify patterns, trends, and relationships within sports data, draw conclusions based on their analysis, and formulate hypotheses for further research.	K4
5	Students will be able to critically evaluate the effectiveness of different data analysis techniques and assess the impact of data analysis on athletic performance.	K5
6	Students will be able to design and implement new data analysis projects, develop innovative solutions to problems related to athletic performance, and communicate their findings effectively to a variety of audiences.	K6
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Data Analysis in Sports**	**7 - Hours**
Introduction to data analysis - important data analysis in sports - Different types of data analysis in sports - Ethical considerations in sports data analysis		
Unit 2	**Data Collection and Management for Sports**	**7 - Hours**
Different sources of sports data - Data collection methods - Data cleaning and preparation - Data storage and management		
Unit 3	**Descriptive Statistics for Sports Data**	**7 - Hours**
Central tendency measures (mean, median, mode) - Dispersion measures (range, variance, standard deviation) - Frequency distributions - Statistical graphics		
Unit 4	**Inferential Statistics for Sports Data**	**7 - Hours**
Hypothesis testing - Confidence intervals - Correlation and regression - ANOVA and other advanced statistical methods		
Unit 5	**Exploratory Data Analysis in Sports Analytics**	**7 - Hours**
Constructing and Analyzing Frequency Distributions in Sports - Utilizing sports data to create frequency distributions - Analyzing patterns and trends in team and player performance -		

Measures of Central Tendency in Sports Analytics - Arithmetic Mean: Average player performance, team statistics - Median: Central player performance metrics.									
							Total Lecture Hours	35 hours	
Reference Books									
1	"Analyzing Soccer Matches: Using Statistics to Quantify Performance" by Ben Hughes (Bloomsbury Sport, 2019)								
2	"The Science of Winning: How Statistics Can Change the Game of Football" by Michael Lewis (W. W. Norton & Company, 2014)								
3	"Sports Data Analysis: A Practical Guide for Coaches and Sports Analysts" by Michael Lopez (Human Kinetics, 2020)								
4	"Data Analytics for Sports Science" by James E. Baker and James A. Draper (Routledge, 2019)								
5	"Statistics in Sports: An Introduction" by David J. Bartholomew and Robin G. Wilson (Hodder Arnold, 2019)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Demonstrate proficiency in collecting & managing sports data.	M	L	M	L	L	L	S	M
CO2	Analyze & interpret sports data using various statistical methods.	M	L	S	L	M	L	S	M
CO3	Develop the ability to communicate data analysis results effectively.	M	L	L	L	M	L	M	S
CO4	Gain a deeper understanding of data analysis' role in sports performance.	S	L	S	L	M	L	S	M
CO5	Apply data analysis to improve athletic training & performance across various sports.	M	S	S	S	L	M	S	M
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Skill Based Subject - II	DATA VISUALIZATION	3	-	-	2
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Define and explain the principles of data visualization in sports science.
2	Identify and apply appropriate data visualization techniques to sports science data.
3	Effectively communicate sports science research findings through data visualizations.
4	Critically evaluate the effectiveness of different data visualizations in sports science.
5	Develop professional data visualization skills for use in a variety of sports science settings.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Define and explain the principles of data visualization in sports science.	K2
2	Identify and apply appropriate data visualization techniques to sports science data.	K3
3	Effectively communicate sports science research findings through data visualizations.	K3
4	Critically evaluate the effectiveness of different data visualizations in sports science.	K4
5	Develop professional data visualization skills for use in a variety of sports science settings.	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Data Visualization**	**7- Hours**
Introduction to data visualization - The importance of data visualization - The principles of data visualization - Types of data visualizations		
Unit 2	**Data Visualization Techniques**	**7- Hours**
Common data visualization techniques for sports science - How to choose the right data visualization technique - Creating effective data visualizations		
Unit 3	**Data Visualization for Sports Science Research**	**7- Hours**
Visualizing sports science data for research - Using data visualizations to tell stories about sports science research - Ethically visualizing sports science data		
Unit 4	**Data Visualization for Communicating Sports Science Findings**	**7- Hours**
Visualizing sports science findings for different audiences - Using data visualizations to persuade and inform - Designing effective data visualization presentations		
Unit 5	**Professional Data Visualization Skills**	**7- Hours**
Data visualization best practices - Using data visualization software - Creating professional data visualizations for publication and presentation		
	Total Lecture Hours	35 hours

Reference Books

1	Data Visualization for Sports Science, Tim Gore, Routledge, 2019.
2	Sports Data Visualization, Andrew Ziemke, CRC Press, 2022.
3	Data Visualization: A Practical Introduction, Kieran Healy, Princeton University Press, 2019
4	The Visual Display of Quantitative Information, Edward Tufte, Graphics Press, 2001
5	Storytelling with Data: A Data Visualization Guide for Business Professionals, Cole Nussbaumer Knaflic, Wiley, 2015.

Expected Course Outcomes (CO)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8

CO1	Define & explain principles of data visualization in sports science	M	L	L	L	L	L	S	M
CO2	Identify & apply appropriate data visualization techniques to sports science data	M	L	M	L	L	L	S	M
CO3	Effectively communicate sports science research findings through data visualizations	M	L	M	L	L	L	S	M
CO4	Critically evaluate the effectiveness of different data visualizations in sports science.	M	L	M	L	L	L	S	M
CO5	Develop professional data visualization skills for use in a variety of sports science settings.	M	L	M	L	L	L	S	M
S-Strong; M-Medium; L-Low									

SEMESTER - V

Course Code	TITLE OF THE COURSE	L	T	P	C
Core - IX	PERFORMANCE NUTRITION	6	#	#	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Explain the fundamental principles of nutrition and metabolism in relation to athletes' needs
2	Analyze the impact of nutrition on various aspects of sports performance, including energy production, recovery, and body composition
3	Develop individualized nutrition plans for athletes based on their training goals, sport, and body composition
4	Evaluate the effectiveness of different nutritional interventions on sports performance and health

5	To provide the maximum knowledge on Performance based Nutrition	
Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Demonstrate a comprehensive understanding of the scientific principles of sports nutrition and their application to athletic performance	K3
2	Critically analyze the role of various nutrients in supporting energy production, recovery, and adaptation in athletes	K4
3	Design and implement evidence-based nutrition plans for athletes of different sports and training levels	K6
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Fundamentals of Sports Nutrition**	**7 - Hours**
Introduction to sports nutrition - Macronutrients, micronutrients, and their functions in the body - Energy metabolism and fuel utilization during exercise - Nutritional requirements of athletes.		
Unit 2	**Macronutrients and Sports Performance**	**7 - Hours**
Carbohydrates: Fueling for high intensity exercise - Proteins: Building and repairing muscle - Fats: Essential nutrients for energy storage and hormone regulation - Dietary fiber: Importance for gut health and digestion.		
Unit 3	**Micronutrients and Athlete Health**	**7 - Hours**
Vitamins and minerals essential for athletic performance - Hydration: Optimizing fluid balance for athletes - Electrolytes: Role in maintaining muscle function and nerve conduction - Supplement use in sports: Benefits and risks		
Unit 4	**Nutritional Strategies for Different Sports and Training Phases**	**7 - Hours**
Pre-workout, during-workout, and post-workout nutrition strategies - Weight management and body composition optimization for athlete - Nutritional considerations for specific sports: endurance sports, power sports, team sports - Nutrition for recovery and injury prevention		
Unit 5	**Special Topics in Sports Nutrition**	**7 - Hours**
Nutritional ergogenic and performance enhancement - Sports nutrition for female athletes - Nutrition for athletes with specific dietary restriction - Future trends in sports nutrition research		
	Total Lecture Hours	35 hours
Reference Books		
1	Sports Nutrition: A Practitioner's Guide by Louise Burke & Vivian Deakin (2022, Human Kinetics, Champaign, IL)	
2	Sports Nutrition: A Practitioner's Guide by Louise Burke & Vivian Deakin (2022, Human Kinetics, Champaign, IL)	

3	Sports Nutrition for Coaches by Jim Kiel & Jamie Hale (2022, Human Kinetics, Champaign, IL)								
4	Nutrition and Enhanced Sports Performance by Michael J. Ormsbee & Michael Gleeson (2022, Routledge, London)								
5	Sports Nutrition for Indian Athletes: A Practical Guide by N. L. Sharma & R. K. Sharma (2022, Jaypee Brothers Medical Publishers, New Delhi)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Demonstrate a comprehensive understanding of the scientific principles of sports nutrition and their application to athletic performance	M	M	M	S	L	L	M	M
CO2	Critically analyze the role of various nutrients in supporting energy production, recovery, and adaptation in athletes	M	L	L	S	L	L	M	M
CO3	Design and implement evidence-based nutrition plans for athletes of different sports and training levels	M	M	M	S	L	L	M	S
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core - X	**SCIENCE OF SPORTS TRAINING**	**6**	**-**	**-**	**4**
Pre-requisite		**Version**		**2024-25**	
Course Objectives The Main Objectives of this course are to					
1	Explain the scientific principles of training adaptations in various physiological systems				
2	Analyze the factors influencing training response and design individualized training programs				
3	Apply principles of periodization and program design to optimize athletic performance				
4	Evaluate the effectiveness of different training methods and interventions				
5	The Knowledge of Specific training was a powerful tool to enhance the performance in Sports				
Expected Course Outcomes:					

On the Successful Completion of the Course, the Student will be able to:		
	Learning Objective	Bloom's Taxonomy Level
1	Demonstrate a comprehensive understanding of the scientific principles underlying sports training and their impact on athletic performance	K3
2	Critically analyze the factors influencing individual training response and design evidence-based training programs for athletes of different levels	K4
3	Design and implement effective training programs using various periodization models and training methods to achieve specific performance goals	K5
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Sport Training**	**9 - Hours**
Overview of sport training principles and methodologies - Physiological adaptations to training - Bioenergetics and energy systems in exercise - The role of the nervous system in motor skill development and performance		
Unit 2	**Training Principles and Program Design**	**11 Hours**
Specificity, overload, progression, and other training principles - Periodization models for long-term training planning - Micro cycles, mesocycles, and macrocycles in program design - Individualization and periodization for different sports and athletes		
Unit 3	**Training Methods and Techniques**	**12 Hours**
Endurance training methods (e.g., interval training, tempo runs - Strength training methods: weightlifting, plyometrics - Speed and agility training methods - Flexibility and mobility training methods - Integration of different training methods for optimal performance		
Unit 4	**Monitoring and Evaluation of Training**	**12 hours**
Training load and fatigue management - Physiological markers of training adaptation - Performance testing and evaluation - Feedback and adjustments to training programs		
Unit 5	**Special Topics in Sports Training**	**11 hours**
Training for specific sports and populations - Overtraining and undertraining - Nutritional considerations for athletes - Psychological aspects of training and performance - Emerging trends in sports training research		
	Total Lecture Hours	55 hours
Reference Books		
1	Science of Sport Training: A Practical Guide by Joel M. Stager & James R. Thompson (2023, Human Kinetics, Champaign, IL)	
2	Periodization: Theory and Methodology by Tudor Bompa (2022, Human Kinetics, Champaign, IL	
3	Sports Training Principles: A Scientific Approach to Planning and Implementation by John Kiely (2022, Routledge, London)	

4	Training for Sports: A Complete Guide by Ian Jeffreys (2022, Bloomsbury Sport, London)								
5	Sports Training for Indian Athletes: A Scientific Approach by G.S. Sodhi & M.S. Gill (2023, Sports Authority of India, New Delhi)								
Expected Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain the scientific principles of training adaptations in various physiological systems	M	M	S	M	M	L	M	M
CO2	Analyze the factors influencing training response and design individualized training programs	M	M	S	L	M	L	M	M
CO3	Apply principles of periodization and program design to optimize athletic performance	M	M	S	L	M	L	S	M
CO4	Evaluate the effectiveness of different training methods and interventions	L	M	S	L	L	L	M	M
CO5	The Knowledge of Specific training was a powerfull tool to enhance the performance in Sports	M	M	S	L	S	L	M	L
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core - XI	**MUSCLE MECHANICS & ADAPTATION TECHNIQUES**	**6**	**-**	**-**	**3**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Explain the structure and function of different muscle types
2	Analyze the mechanisms of muscle contraction and relaxation
3	Describe the adaptations of muscle to exercise and training
4	Evaluate the impact of various factors on muscle performance and recovery
5	To provide the deepest knowledge of Human muscle actions through which the player can perform better.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Demonstrate a comprehensive understanding of the anatomical, physiological, and biochemical principles underlying muscle function in relation to sports performance	K3
2	Critically analyze the factors influencing muscle adaptations to exercise and training, and apply this knowledge to design effective training programs	K4
3	Identify and explain strategies for optimizing muscle performance and recovery in athletes	K6

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Muscle Biology**	**5- Hours**
Overview of different muscle types (skeletal, smooth, cardiac) - Muscle anatomy and histology - Sarcomere structure and function - The process of muscle contraction and relaxation.		
Unit 2	**Muscle Metabolism and Energy Production**	
ATP and the role of enzymes in muscle energy production - Aerobic and anaerobic metabolism - Energy sources during different types of exercise - Fatigue mechanisms and consequences		
Unit 3	**Muscle Adaptations to Exercise**	
Hypertrophy and strength gains - Improved muscle endurance - Changes in muscle fiber type composition - Neural adaptations to training		
Unit 4	**Factors Influencing Muscle Performance**	
Nutrition and hydration - Sleep and rest - Psychological factors and stress - Training volume and intensity - Environmental factors		
Unit 5	**Muscle Performance Enhancement and Recovery**	
Nutritional strategies for muscle growth and recovery - Supplementation and ergogenic aids - Stretching and flexibility training - Massage and physical therapy - Sleep and stress management		
	Total Lecture Hours	35 hours

Reference Books

1	Muscle for Sports and Exercise Science by Nigel Armstrong & Rod M. Hughson (2022, Human Kinetics, Champaign, IL)
2	Biochemistry of Exercise and Sport by David L. Costill, William J. Fink, & Edward W. Coyle (2023, Human Kinetics, Champaign, IL)
3	Anatomy and Physiology for Sport and Exercise by Jacques Gauthier & Mark L. Vincent (2022, Routledge, London)
4	Essentials of Muscle Biology by Eric N. Olson (2022, Cold Spring Harbor Perspectives in Biology, Cold Spring Harbor, NY)
5	Sports Science for Indian Athletes: A Textbook for Coaches, Trainers, and Athletes by G. S. Sodhi & M. S. Gill (2023, Sports Authority of India, New Delhi)

Expected Course Outcomes (CO)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8

CO1	Demonstrate a comprehensive understanding of the anatomical, physiological, and biochemical principles underlying muscle function in relation to sports performance	M	S	S	M	L	L	M	M
CO2	Critically analyze the factors influencing muscle adaptations to exercise and training, and apply this knowledge to design effective training programs	M	S	S	M	L	L	S	M
CO3	Identify and explain strategies for optimizing muscle performance and recovery in athletes	M	S	S	S	L	L	M	M
CO4	Comprehensive understanding of the anatomical, physiological, and biochemical principles underlying muscle function in relation to sports performance	M	L	L	S	M	L	S	L

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Skill Based Subject - III	**RECOVERY AND REHABILITATION IN SPORTS**	**6**	**-**	**-**	**2**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Apply principles of sports injury assessment and rehabilitation
2	Utilize various therapeutic modalities for injury recovery and rehabilitation
3	Develop and implement individualized exercise programs for post-injury rehabilitation
4	Integrate psychological interventions into the rehabilitation process
5	To make them to understand this is an integral part of Sports Performance

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective	Bloom's Taxonomy

		Level
1	Demonstrate competence in assessing and diagnosing common sports	K3
2	Apply evidence-based therapeutic interventions for different types of sports injuries	K6
3	Design and implement personalized rehabilitation programs to optimize recovery and performance	K5
4	To make them to understand that complete Rehabilitation is an integral part of the Injury prevention (re-occurrence of the same injury)	K4
5	To make them to Understand that sports rehab is the tool to bounce back their own peek performance.	K3

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

10 week course schedule

Week – 1 & 2	**Introduction to Sports Injury Recovery and Rehabilitation:**

Definition, scope, and importance of sports injury rehabilitation - Ethical considerations in sports rehabilitation - Phases of injury rehabilitation. - Principles of Injury Assessment: Subjective and objective evaluation techniques
Musculoskeletal anatomy and biomechanics related to common sports Injuries - Diagnostic tools and imaging techniques Output: Students will be able to conduct a basic injury assessment and identify potential injuries.

Week – 3 & 4	**Therapeutic Modalities:**

Cryotherapy and heat therapy - Compression and electrotherapy - Manual therapy techniques - Therapeutic exercise principles
Output: Students will demonstrate proficiency in applying various therapeutic modalities under supervision.

Week – 5 & 6	**Rehabilitation Program Design**

Setting SMART goals and objectives - Selecting appropriate exercises and progressions - Addressing specific needs and limitations of individual athletes - Integrating strength, flexibility, and functional training
Output: Students will design a personalized rehabilitation program for a simulated case study.

Week – 7 & 8	**Psychological Aspects of Sports Injury:**

The impact of injury on athletes' mental well-being - Strategies for managing pain and anxiety - Motivational interviewing and goal setting - Return-to-sport considerations Output: Students will develop and present a plan for addressing the psychological needs of athletes during rehabilitation.

Week – 9 & 10	**Practical Applications and Case Studies:**

Hands-on practice with various rehabilitation techniques - Applying knowledge to real-world scenarios through case studies - Group discussions and reflections - Course review and final assessment.
Output: Students will demonstrate their skills in applying rehabilitation techniques and integrating their knowledge to solve complex case studies

Reference Books									
1	Sports Injury Prevention and Rehabilitation: A Practical Guide by David J. Magee & Steven P. Wilk (2021, Human Kinetics, Champaign, IL)								
2	Essentials of Sports Medicine by William E. Garrett & Brian E. Feagin (2023, Elsevier, Philadelphia, PA)								
3	Rehabilitation of Sports Injuries: A Guide to Physical Therapy Practice by Carolyn Kisner & Lynn Allen Colby (2023, F.A. Davis Company, Philadelphia, PA)								
4	Sports Medicine: A Guide for Coaches and Trainers by Bruce J. Noble & Michael E. Noakes (2022, Routledge, London)								
5	Sports Injuries: Management and Rehabilitation in the Indian Context by G. S. Sodhi & M. S. Gill (2023, Sports Authority of India, New Delhi)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Design and implement personalized rehabilitation programs to optimize recovery and performance	M	M	S	L	M	S	M	M
CO2	To make them to understand that complete Rehabilitation is an integral part of the Injury prevention (re-occurrence of the same injury)	L	M	M	L	M	M	L	L
CO3	To make them to Understand that sports rehab is the tool to bounce back their own peek performance.	S	L	L	M	L	L	M	L
S-Strong; M-Medium; L-Low									

SEMESTER - VI

Course Code	TITLE OF THE COURSE	L	T	P	C
Core -XII	AI AND TECHNOLOGY IN SPORTS	6	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Provide a comprehensive understanding of Artificial Intelligence (AI) and its applications in sports science.
2	Equip students with the knowledge and skills to analyze sports data using AI techniques.
3	Explore the use of AI in optimizing athlete performance, injury prevention, and game strategy.
4	Discuss the ethical considerations and societal implications of AI in sports.
5	Prepare students for careers in sports analytics and related fields.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Students will be able to define and explain key AI concepts and algorithms relevant to sports science.	K2
2	Students will be proficient in using AI tools and software for sports data analysis.	K3
3	Students will be able to critically evaluate the impact of AI on sports performance, training, and management.	K3
4	Students will develop strong communication and collaboration skills to work in interdisciplinary teams	K4
5	Students will be well-prepared for further study or employment in the rapidly evolving field of AI and sports.	K3
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to AI and Sports Technology**	**8- Hours**
Introduction to AI - Types of AI - AI is used in sports - Benefits and challenges of using AI in sports		
Unit 2	**AI Techniques for Sports Data Analysis**	**12- Hours**
Data collection and preprocessing - Machine learning algorithms for sports data analysis - Deep learning for sports data analysis - Case studies of AI-powered sports data analysis tools and platforms		
Unit 3	**Optimizing Athlete Performance with AI**	**8- Hours**
AI-powered personalized training programs - AI-powered feedback and analysis tools - AI-powered injury prevention and recovery systems - Case studies of AI-powered athlete performance optimization tools and platforms		
Unit 4	**Injury Prediction and Prevention using AI**	**12- Hours**
Risk factors for sports injuries - AI models for injury prediction - AI-powered injury prevention systems - Case studies of AI-powered injury prediction and prevention tools and platforms		
Unit 5	**Game Strategy and Performance Analysis using AI**	**8- Hours**
AI-powered scouting and analytics tools - powered real-time game strategy analysis tools - AI-powered post-game performance analysis tools - Case studies of AI-powered game strategy and performance analysis tools and platforms		
	Total Lecture Hours	48 hours
Reference Books		
1	Artificial Intelligence for Sports Analytics: Learning from Data to Improve Performance (2nd Edition) by D. Raj, S. Ghosh, and A. Roy (Chapman and Hall/CRC, 2023)	
2	The Science of Fitness and Performance Training (2nd Edition) by P. Ward, A.P. Harrison, and S.M. Halpern (Routledge, 2022)	

3	Big Data Analytics in Sports: A Practical Guide (2nd Edition) by D.M. Mastromonaco (CRC Press, 2022)								
4	Machine Learning for Sports Analytics (2nd Edition) by S.H. Park and M.-H. Lee (Springer, 2021)								
5	Sports Technology: A Global History (2nd Edition) by J.P. Walsh (Routledge, 2020)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Define & explain principles of data visualization in sports science	M	L	L	L	L	L	S	M
CO2	Identify & apply appropriate data visualization techniques to sports science data	M	M	M	L	L	L	S	M
CO3	Effectively communicate sports science research findings through data visualizations	M	L	M	L	L	L	S	M
CO4	Critically evaluate the effectiveness of different data visualizations in sports science.	M	L	M	L	L	L	S	M
CO5	Develop professional data visualization skills for use in a variety of sports science settings.	M	M	M	L	L	L	S	M
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core - XIII	**ETHICS AND VALUES OF SPORTS**	**6**	**-**	**-**	**4**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Define and analyze the core ethical principles in sports.
2	Evaluate the impact of ethical issues on athletes, coaches, and spectators.
3	Discuss the importance of fair play, integrity, and sportsmanship.
4	Apply ethical principles in practical scenarios related to sports
5	Demonstrate critical thinking skills in analyzing ethical dilemmas in sports.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective	Bloom's Taxonomy

		Level
1	Possess a comprehensive understanding of ethical principles in sports	K2
2	Critically analyze ethical issues in sports contexts	K4
3	Demonstrate ethical decision-making skills in sports situations	K3
4	Contribute to the advancement of ethical sports practices	K3
5	Promote fair play and integrity in sports environments	K3

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Sports Ethics**	**8 - Hours**

Definition and scope of sports ethics - Core ethical principles in sports: fairness, integrity, respect, responsibility - Historical perspectives on ethics in sports: Indian perspective - Aryabhatta's Manusmriti, Swami Vivekananda's teachings on sports - Ethical challenges in contemporary sports landscape: Specific issues faced in Indian sports

Unit 2	**Fair Play and Sportsmanship**	**7 - Hours**

The concept of fair play and its importance in Indian traditions - Rules and regulations in sports and their ethical implications with examples from Indian sports - Sportsmanship: values, behaviors, and characteristics - Emphasis on Indian values like ahimsa and dharma - Strategies for promoting fair play and sportsmanship: Role of coaches, parents, and athletes in Indian context

Unit 3	**Integrity and Ethical Dilemmas in Sports**	**8 - Hours**

Defining integrity in sports and its importance in Indian culture - Ethical dilemmas faced by athletes, coaches, and officials in Indian sports: Match fixing, betting, corruption - Conflicts of interest and ethical decision-making - Case studies from Indian sports - Strategies for navigating ethical dilemmas and upholding integrity: Role of ethics committees and sports governance in India

Unit 4	**Doping and Performance Enhancement**	**7 - Hours**

Definition and classification of doping substances and methods - Specific examples relevant to Indian sports - Ethical, health, and social implications of doping: Case studies and national debates in India - Anti-doping policies and regulations in India: National Anti-Doping Agency (NADA) - Strategies for preventing doping and promoting clean sport: Anti-doping education and awareness programs in India

Unit 5	**Social Responsibility and Ethical Leadership in Sports**	**10 - Hours**

The role of sports in Indian society: Promoting national unity, social welfare, and cultural exchange - Social justice issues in Indian sports: Caste discrimination, gender inequality, and lack of opportunities - Ethical leadership in sports organizations and institutions: Role of sports administrators and leaders in India - Strategies for promoting social responsibility and ethical leadership in Indian sports: Initiatives by government and sports bodies

								Total Lecture Hours	40 hours
Reference Books									
1	Ethics, Values and Sports Management (G. Vijayalakshmi & K.S. Brar, Pinnacle Publication, 2020)								
2	Doping in Indian Sports: Ethical and Legal Issues (B.V. Venkatram, LexisNexis, 2014)								
3	Sports and Culture: A Sociological Study of Indian Sports (Ashish Bose, Routledge, 2007)								
4	Sports Ethics and Leadership (N.C. Pandey, New Century Publications, 2005)								
5	Dharma in Sport: The Indian Perspective (S.K. Sharma, Motilal Banarsidass Publishers, 2003)								
6	Ethics and Sport (Mike McNamee & Jim Parry, Routledge, 2013)								
7	Values in Sport (Torbjörn Tännsjö & Claudio Tamburrini, Routledge, 2011)								
8	Fair Play in Sport (Sigmund Loland, Routledge, 2009)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Possess a comprehensive understanding of ethical principles in sports	S	L	L	L	M	L	L	S
CO2	Critically analyze ethical issues in sports contexts	M	L	L	L	M	L	L	S
CO3	Demonstrate ethical decision-making skills in sports situations	M	L	L	L	M	L	L	S
CO4	Contribute to the advancement of ethical sports practices	M	L	L	L	M	L	L	S
CO5	Promote fair play and integrity in sports environments	M	L	L	L	M	L	L	S
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Skill Based Subject - IV	SPORTS EVENT MANAGEMENT	6	#	#	3
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	To develop an understanding of the sports event management industry and its key components.
2	To learn the skills and knowledge necessary to plan, organize, and execute successful sports events.
3	To gain an appreciation of the ethical and social considerations involved in sports event management.
4	To develop the ability to work effectively in a team environment and to manage multiple projects simultaneously.
5	To prepare students for a career in sports event management.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Identify & analyze different types of sports events & stakeholders	K4
2	Develop & implement sports event management plan (budgeting, marketing, risk	K3
3	Coordinate various aspects of a sports event (logistics, operations, security	K3
4	Evaluate success of a sports event & identify areas for improvement	K4
5	Communicate effectively with various stakeholders (athletes, coaches, sponsors, media	K3
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Sports Event Management**	
Definition and Scope of Sports Event Management - Evolution of Sports Event Management Economic and Social Impact of Sports Events - Ethical Considerations in Sports Event Management - Career Opportunities in Sports Event Management		
Unit 2	**Planning and Organizing Sports Events**	
Event Conceptualization and Development - Budgeting and Financial Management - Venue Selection and Management - Event Logistics and Operations - Risk Management for Sports Events		
Unit 3	**Marketing and Promoting Sports Events**	
Developing a Marketing Strategy - Branding and Public Relations - Digital Marketing for Sports Events - Ticketing and Sales Management - Event Sponsorship and Partnerships		
Unit 4	**Operations and Security Management for Sports Events**	
Event Operations Management - Venue Management - Security and Crowd Management - Food and Beverage Management - Volunteer Management		
Unit 5	**Evaluating Sports Events and Identifying Areas for Improvement**	
Event Evaluation Framework - Data Collection and Analysis - Identifying Strengths and Weaknesses - Developing Improvement Strategies - Communicating Results and Recommendations		
Reference Books		
1	Sport Event Management: A Global Perspective by Andrew Zimbalist (Routledge, 2023)	
2	The Business of Sport by John Beech and Andrew Chadwick (Routledge, 2022)	
3	Sport Marketing by Daniel Wann, Maureen R. Blanke, and Stephen R. Cowell (Routledge, 2021)	
4	Sport Event Risk Management by David Shilbury, Stephen J. Glynn, and Andrew T. Dawson (Routledge, 2020)	

5	Sport Event Evaluation: A Comprehensive Guide by David Shilbury, Andrew T. Dawson, and Stephen J. Glynn (Routledge, 2019)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Identify & analyze different types of sports events & stakeholders	S	L	L	L	M	L	L	M
CO2	Develop & implement sports event management plan (budgeting, marketing, risk	S	L	L	M	M	L	M	M
CO3	Coordinate various aspects of a sports event (logistics, operations, security	M	L	L	L	M	L	L	M
CO4	Evaluate success of a sports event & identify areas for improvement	M	L	L	L	M	L	L	M
CO5	Communicate effectively with various stakeholders (athletes, coaches, sponsors, media	M	M	L	L	M	L	L	M
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Core XIV	**PROJECT WORK**	**-**	**-**	**6**	**4**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	To develop research skills necessary for conducting sports science investigations.
2	To apply scientific methodologies to design and implement research projects.
3	To Analyze data using appropriate statistical techniques and interpret research findings.
4	To communicate research findings effectively through written reports and oral presentations.
5	To collaborate with peers and faculty mentors in the research process.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective	Bloom's Taxonomy Level

1	Students will formulate clear and focused research questions related to sports science.	K3
2	Students will implement ethical guidelines and considerations in the design and conduct of research projects.	K5
3	Students will utilize statistical analysis techniques to analyze data collected from research studies.	K3
4	Students will communicate research findings effectively through oral presentations to peers and faculty mentors.	K1 - k4
5	Students will evaluate methodological strengths and limitations of research studies and propose solutions to research challenges	K6

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Aim of the project work

1. The aim of the project work is to explore and investigate specific research questions within the field of sports science.
2. Each student should carry out individually one research work and to apply scientific methodologies and research techniques to address the identified research questions.
3. The project work should be compulsorily done under the supervision of the department staff concerned.

Viva Voce

1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the Annexure Report available in the College, for a total of 200 marks at the last day of the practical session.

2. Out of 200 marks, 160 marks for project report and 40 marks for Viva Voce.

Course Code	TITLE OF THE COURSE	L	T	P	C
Elective – I A	SPORTS MANAGEMENT	6	-	-	3
Pre-requisite		Version		2024-25	
Course Objectives The Main Objectives of this course are to					
1	Explain the fundamental principles and functions of sports management				
2	Analyze the financial and economic aspects of the sports industry				
3	Apply marketing and communication strategies to promote sports organizations and events				
4	Develop effective leadership and organizational skills for managing sports personnel and resources				
5	Awareness on principles and functions of sports management				
Expected Course Outcomes:					

On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Demonstrate a comprehensive understanding of the sports management landscape, including its key stakeholders, functions, and challenges	K3
2	Critically analyze the financial and operational factors influencing the success of sports organizations, and develop sound financial management strategies	K4
3	Design and implement effective marketing and communication campaigns for sports organizations and events, and evaluate their impact on target audiences	K6
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Sports Management**	
Scope of sports management - History and evolution of the sports industry - Structure of the sports industry: governing bodies, leagues, teams, and stakeholders - Ethical considerations and legal aspects of sports management		
Unit 2	**Sports Finance and Economics**	
Financial management of sports organizations: budgeting, revenue generation, cost control - Economic impact of sports: local, national, and global - Sports economics theories and models - Financial analysis and decision-making in sports.		
Unit 3	**Sports Marketing and Communication**	
Marketing strategies for sports organizations and events - Branding and sponsorship in sports - Public relations and media relations for sports - Digital marketing and social media in sports		
Unit 4	**Leadership and Management in Sports**	
Leadership styles and theories in sports - Managing sports teams and personnel Organizational structures and decision-making processes - Effective communication and conflict resolution in sports		
Unit 5	**Emerging Trends in Sports Management**	
Technology and innovation in sports - Globalization and internationalization of the sports industry - The future of sports management: trends and challenges		
Reference Books		
1	Sports Management: Principles and Applications by Robert A. Baade & Daniel L. Wann (2023, Human Kinetics, Champaign, IL)	
2	The Business of Sports Industry by Michael R. Burack & David Teece (2022, Routledge, London)	
3	Sports Marketing: A Strategic Perspective by Brian Turner & John Nauright (2023, Pearson Education, London)	
4	Sport Management: A Global Perspective by Tony Collins & Sue Jackson (2022, Routledge, London)	

5	Sports Management: A Textbook for Indian Sports Organizations and Professionals by G. S. Sodhi & M. S. Gill (2023, Sports Authority of India, New Delhi)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain the fundamental principles and functions of sports management	**S**	M	M	L	L	L	M	**S**
CO2	Analyze the financial and economic aspects of the sports industry	M	L	M	L	L	L	L	**S**
CO3	Apply marketing and communication strategies to promote sports organizations and events	M	L	L	L	M	L	M	**S**
CO4	Develop effective leadership and organizational skills for managing sports personnel and resources	L	S	L	M	L	M	M	L
CO5	Explore to the fundamental principles and functions of sports management	M	M	M	L	L	M	L	L
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective – I B	**PARA SPORTS**	**6**	**-**	**-**	**3**
Pre-requisite		**Version**		**2024-25**	
Course Objectives The Main Objectives of this course are to					
1	Explain the history and evolution of para-sports				
2	Analyze the classification systems and regulations for different para sports				
3	Describe the physiological and biomechanical adaptations of athletes with disabilities.				
4	Apply coaching principles and training methodologies for athletes with disabilities				
5	Performance based achievements in different Sports and Games at different disabilities sports (adapted Program)				
Expected Course Outcomes:					

On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Demonstrate a comprehensive understanding of the para sports landscape, including its historical context, classification systems, and rules and regulations	K3
2	Critically analyze the unique challenges and opportunities faced by athletes with disabilities in sport, and develop strategies to promote inclusion and	K4
3	Design and implement effective training programs for athletes with disabilities, considering their individual needs and abilities	K6
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Para Sports**	
History and evolution of para sports - Paralympic Games and other major para sport events - Classification systems and regulations for different para sports - Principles of fairness and inclusion in para sports		
Unit 2	**Physiology and Biomechanics of Para Sports**	
Physiological adaptations of athletes with disabilities - Biomechanical considerations for athletes with different impairments - Assistive technologies and equipment used in para sports - Training adaptations for athletes with disabilities		
Unit 3	**Coaching Principles and Methodologies**	
Coaching philosophies and approaches for athletes with disabilities - Planning and periodization for para sport training - Developing effective training sessions for different para sports - Communication and motivation strategies for athletes with disabilities		
Unit 4	**Para Sports Administration and Management**	
Governance structures of para sport organizations - Funding and sponsorship for para sports - Organizing and managing para sport events - Athlete welfare and ethical considerations in para sport		
Unit 5	**The Future of Para Sports**	
Emerging trends and innovations in para sport - Technology and its impact on para sport participation - Increasing awareness and promoting para sports - Building a sustainable future for the para sport movement		
Reference Books		
1	Para-Sport: The Routledge Handbook edited by Michelle Cleaver & David Legg (2022, Routledge, London)	
2	Coaching Para-Athletes: A Practical Guide by John Shepherd & Martin Toms (2023, Human Kinetics, Champaign, IL)	
3	Disability Sport: A Global Perspective by Michael Collins & David Legg (2021, Routledge, London)	
4	The Paralympic Games: A History by John Soares (2023, Bloomsbury Sport, London)	

5	Para Sports: A Textbook for Indian Coaches, Trainers, and Athletes by G. S. Sodhi & M. S. Gill (2023, Sports Authority of India, New Delhi)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Explain the history and evolution of para-sports	M	M	M	L	L	M	M	S
CO2	Analyze the classification systems and regulations for different para sports	S	M	M	M	L	M	M	S
CO3	Describe the physiological and biomechanical adaptations of athletes with disabilities.	M	S	M	M	M	L	L	S
CO4	Apply coaching principles and training methodologies for athletes with disabilities	M	L	S	M	M	L	M	L
CO5	Performance-based achievements in different Sports and Games at different disabilities sports (adapted Program)	M	M	L	M	M	S	M	L
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective-I C	**YOGA**	**6**	**-**	**-**	**2**
Pre-requisite	**(Practice)**	**Version**		**2024-25**	
Course Objectives The Main Objectives of this course are to					
1	Learn basic Yoga and Yogasanas				
2	Develop cardiovascular fitness and endurance through Yoga				
3	Improve mobility, flexibility, coordination, balance through Yoga				
4	Experience the joy of Meditation and mindfulness through Yogic practice				
5	Yoga is the fun way fitness program to ensure the optimum fitness guaranteed				

Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Demonstrate proficiency in basic yogic practices and execute simple Yogasana and Meditation sequences	K3
2	Maintain moderate to high-intensity exercise throughout Yoga sessions, improving Mobility and Flexibility	K6
3	Apply Mobilizing, coordination, balance, and agility skills to various Yoga movements and routines	K5
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
10 week course schedule		
Week – 1	**Introduction to Yoga & Meditation**	
History, benefits, basic principles, and Asana styles. - Warm-up: Low-impact exercises and dynamic stretches. – Basics of Yogic practice: Surya namaskar, Asanas, Mudras. - Cooling-down: Static stretches and relaxation techniques. Output: Students will participate in a Yogic warm-up, demonstrate yogic practices, and cool down with relaxation techniques.		
Week – 2	**Review of basic Yogasanas**	
Refine technique and practice combination sequences. - Introduction to Yogasana movements: Add movements to basic Asana patterns. – Yoga session 1: Learn a short and simple Yoga routine. Output: Students will demonstrate improved proficiency in basic Asanas with flow and complete a short-compiled routine.		
Week – 3	**Review of Meditation techniques**	
Refine timing, coordination, and energy levels. – Introduction to Meditation techniques: Learn basic meditation techniques for Yogic routines. – Yoga Session 2: Learn a new Yogic routine incorporating Meditation. Output: Students will demonstrate mastery of yoga with meditation and learn a new routine with basic meditations.		
Week – 4	**Review of Meditation and Mudras**	
Refine technique, practices, and sequencing. Introduction to Mudra work: Learn basic Mudras for Yoga session. – Yoga session 3: Learn a Yogic flow with routine. Output: Students will demonstrate polished performance of Yoga session 2 and participate in a Mudra-based Meditation routine.		
Week – 5	**Surya namaskar & Chandra namaskar**	
Review of Meditation with Mudras: Enhance coordination and Yogic flow. Introduction to fitness challenges: Incorporate high-intensity yoga sequence and mobility exercises into Yogic routines. – Yoga session 4: Learn a Surya namaskar and Chandra namaskar with fitness elements. Output: Students will practice Surya namaskar and Chandra namaskar in a physically demanding Yoga routine.		

Week – 6	**Cultural Yoga**
Review of fitness Yoga routine: Refine technique and improve fitness levels. Introduction to cultural Yoga: Explore Yoga routines inspired by various Yoga schools in India and global influences. – Yoga Session 5: Learn a cultural-themed Yoga routine. Output: Students will demonstrate the Cultural Yoga and learn a culturally-inspired routine	
Week – 7	**Freestyle Mobility & Flexibility**
Review of cultural yoga routine: Enhance performance with cultural nuances. Introduction to freestyle improvisation: Learn basic guidelines for improvising mobility & flexibility. - Freestyle session: Practice improvisation skills and incorporate learned patterns. Output: Students will perform the cultural yoga and participate in a freestyle session with mobility sequence.	
Week – 8	**Light on Yoga**
Review of freestyle session: Reflect on individual progress and challenges. Introduction to Light on Yoga: Explore low-impact Yoga variations for diverse fitness levels. – Yoga session 6: Learn a modified Yoga routine suitable for beginners and individuals with limitations. Output: Students will share their freestyle experiences and learn a Light on Yoga routine.	
Week – 9	**Asana Toning Routine**
Review of Light on Yoga routine: Refine technique and encourage participation for all. Introduction to Asana toning: Incorporate Yoga accessories or resistance bands for added strength training. - Asana toning routine: Learn a Asana routine with toning exercises for different muscle groups. Output: Students will demonstrate the Asana routine and participate in a toning session.	
Week – 10	**Final Yogasana flow Session**
Review of Asana toning routine: Enhance strength and Mobility. Course reflection: Discuss overall learning experience, achievements, and future goals. - Final Yoga session: Celebrate progress and perform a combination of learned routines. Output: Students will participate in a final Yoga session showcasing their skills and celebrating their accomplishments.	

Reference Books

1	Light on Yoga: The Classic Guide to Yoga by the World's – BKS Iyengar

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Demonstrate proficiency in basic Zumba footwork and execute simple choreography sequences	M	M	S	L	M	S	M	M
CO2	Maintain moderate to high-intensity exercise throughout Zumba sessions, improving cardiovascular fitness	L	M	M	L	M	M	L	L
CO3	Apply coordination, balance, and agility skills to various Zumba movements and routines	S	L	L	M	L	L	M	L

S-Strong; M-Medium; L-Low

Course Code	TITLE OF THE COURSE	L	T	P	C
Elective – II A	ENTREPRENEURSHIP IN SPORTS	6	-	-	4
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Understand the concept of entrepreneurship in the sports industry.
2	Identify opportunities for entrepreneurial ventures in sports.
3	Develop skills for business planning and marketing in the sports sector.
4	Learn about legal and financial considerations for sports entrepreneurs.
5	Gain knowledge about networking and building a successful sports business.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

Learning Objective		Bloom's Taxonomy Level
1	Students will be able to define and analyze the key features of sports entrepreneurship.	K2
2	Students will be able to identify and evaluate potential business opportunities in various sports domains.	K4
3	Students will be able to create comprehensive business plans for sports ventures.	K3
4	Students will be able to implement effective marketing strategies for sports businesses	K3
5	Students will be able to navigate legal and financial considerations associated with sports entrepreneurship.	K3
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Sports Entrepreneurship**	
Defining Sports Entrepreneurship - The Scope of Sports Entrepreneurship - Benefits and Challenges of Sports Entrepreneurship - Case Studies of Successful Sports Businesses		
Unit 2	**Identifying Opportunities in Sports**	
Market Analysis and Needs Assessment - Identifying Trends and Emerging Markets in Sports Leveraging Technology for Innovation in Sports - Evaluating the Viability of Business Ideas		
Unit 3	**Business Planning for Sports Ventures**	
Defining the Mission and Vision - Market Research and Competitive Analysis - Financial Planning and Budgeting - Operations Management and Logistics - Risk Management and Contingency Planning		
Unit 4	**Marketing and Branding in Sports**	
Building a Strong Brand Identity - Developing Effective Marketing Strategies - Utilizing Digital Marketing Channels - Public Relations and Building Partnerships - Measuring Marketing Effectiveness		
Unit 5	**Legal and Financial Considerations**	
Business Structures and Legal Compliance - Funding Strategies and Investment Opportunities - Financial Management and Accounting Practices - Insurance and Risk Management - Ethical Considerations in Sports Business		
	Total Lecture Hours	## hours
Reference Books		
1	Sport Entrepreneurship: Innovation, Creativity and the Business of Sport (2023), by Hammerschmidt, M., & Preuss, L. (Eds.). Routledge.	

2	The Sports Business: A Global Approach (2022), by Chadwick, S. Routledge.
3	Entrepreneurship in the Sports and Fitness Industry (2021), by Jones, J. L., & Hums, M. A. Routledge.
4	Building a Successful Sports Business: A Guide for Entrepreneurs (2019), by O'Reilly, P. E., & Tainio, M. Human Kinetics.
5	Financing Your Sports Business: A Guide to Fundraising, Financial Management, and Venture Capital (2016), by Bjornsson, A. K., & Ferguson, P. Routledge.

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Define & analyze key features of sports entrepreneurship	M	L	L	L	L	L	L	S
CO2	Identify & evaluate potential business opportunities in various sports domains	M	L	L	L	L	L	L	M
CO3	Create comprehensive business plans for sports ventures	S	L	L	L	L	L	L	M
CO4	Implement effective marketing strategies for sports businesses	M	L	L	L	L	L	L	M
CO5	Navigate legal & financial considerations associated with sports entrepreneurship	M	L	L	L	L	L	L	M

S-Strong; M-Medium; L-Low

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective – II B	**ADVENTURE SPORTS**	**6**	**#**	**#**	**3**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Develop an understanding of the history, philosophy, and principles of adventure sports.
2	Analyze the physiological, psychological, and social impacts of adventure sports participation.
3	Acquire knowledge and skills in various adventure sports disciplines, including rock climbing, kayaking, whitewater rafting, and mountain biking.

4	Assess and manage risks associated with adventure sports participation.
5	Develop leadership and teamwork skills for facilitating safe and enjoyable adventure experiences.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will be able to define and discuss the key concepts and terminologies related to adventure sports.	K4
2	Students will be able to apply physiological and psychological principles to understand the effects of adventure sports participation on the human body and mind.	K3
3	Students will demonstrate proficiency in the fundamental skills and techniques of selected adventure sports disciplines.	K4
4	Students will be able to identify, assess, and mitigate risks associated with adventure sports activities.	K5
5	Students will be able to plan, organize, and lead safe and effective adventure sport outings for individuals or groups.	K2

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Adventure Sports**

History and evolution of adventure sports - Philosophy and principles of adventure sports - Classification and types of adventure sports - Benefits and risks of adventure sports participation

Unit 2	**Physiological and Psychological Considerations**

Physical demands of adventure sports - Physiological adaptations to exercise and training - Psychological factors influencing performance and enjoyment - Mental and emotional benefits of adventure sports - Strategies for managing stress and anxiety in adventurous environments

Unit 3	**Skills and Techniques in Adventure Sports**

Rock climbing: equipment, basic techniques, safety procedures - Kayaking: equipment, paddling techniques, maneuvering skills - Whitewater rafting: safety, equipment, paddling techniques, river reading - Mountain biking: equipment, basic riding techniques, safety guidelines

Unit 4	**Risk Management in Adventure Sports**

Risk identification and assessment - Risk mitigation strategies - Emergency procedures and first aid - Environmental considerations and impact minimization - Legal and ethical issues in adventure sports									
Unit 5	**Leadership and Teamwork in Adventure Sports**								
Leadership styles and principles - Communication and interpersonal skills - Group dynamics and team building - Planning and organizing adventure outings - Leading safe and enjoyable experiences									
Reference Books									
1	Adventure Programming: A Comprehensive Guide by John Long (Human Kinetics, 2019)								
2	The Complete Guide to Adventure Sports by Alan Ewert (Corvus Publishing, 2018)								
3	The Outdoor Leader's Handbook by Larry D. Olsen (Menasha Ridge Press, 2017)								
4	Rock Climbing: Mastering Basic Skills by John Long (Human Kinetics, 2012)								
5	Kayaking: The Essential Guide by Paul Caffyn (DK Publishing, 2016)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Define & discuss key concepts in adventure sports	M	L	L	L	L	L	L	M
CO2	Apply physiological & psychological principles to understand effects on body & mind	M	L	S	M	M	L	L	M
CO3	Demonstrate proficiency in fundamental skills & techniques of selected disciplines	L	M	S	L	L	M	L	M
CO4	Identify, assess, & mitigate risks in adventure sports activities	M	L	S	M	L	M	L	M
CO5	Plan, organize, & lead safe & effective outings for individuals/groups	M	L	S	L	L	M	L	M
S-Strong; M-Medium; L-Low									

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective – II C	**CALISTHENICS AND GYMNASTIC (Practice)**				
Pre-requisite		**Version**		**2024-25**	
Course Objectives The Main Objectives of this course are to					
1	Understand the basic principles and concepts of calisthenics and gymnastics.				
2	Develop proficiency in fundamental bodyweight exercises and gymnastics skills.				
3	Enhance strength, flexibility, balance, and coordination through structured training.				
4	Apply proper technique and safety protocols during exercises and routines.				

5	Explore the creative and expressive aspects of movement through gymnastics.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Students will define the principles of calisthenics and gymnastics.	K3
2	Students will design a personalized calisthenics workout routine targeting specific muscle groups and fitness goals.	K4
3	Students will identify safety guidelines and demonstrate understanding of injury prevention techniques.	K5
4	Students will integrate concepts of balance, coordination, strength, and flexibility into a comprehensive approach to movement practice.	K4
5	Students will critique the performance of professional gymnasts or calisthenics athletes, identifying strengths and areas for improvement.	K6

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Calisthenics and Gymnastics**
Definition and history of calisthenics and gymnastics - Benefits of bodyweight training - Safety guidelines and injury prevention	
Unit 2	**Bodyweight Exercises**
Push-up variations (standard, diamond, incline, decline) - Pull-up variations (overhand, underhand, wide grip, close grip) - Squat variations (bodyweight squats, pistol squats, jump squats) -Core exercises (planks, leg raises, hollow body holds)	
Unit 3	**Basic Gymnastics Skills**
Body positions (hollow, arch, tuck, straddle) - Rolls (forward roll, backward roll) - Handstands (wall-assisted handstand, freestanding handstand) - Cartwheels and round-offs	
Unit 4	**Flexibility and Mobility**
Dynamic and static stretching routines - Joint mobility exercises - Flexibility drills for improving range of motion	
Unit 5	**Balance and Coordination**
Balance exercises (single-leg stance, balance beam drills) - Coordination drills (agility ladder, footwork drills) - Integrating balance and coordination into gymnastics skills	
Reference Books	
1	Overcoming Gravity: A Systematic Approach to Gymnastics and Bodyweight Strength. (2nd Edition). CreateSpace Independent Publishing Platform. Low, S., 2019.

2	Building the Gymnastic Body: The Science of Gymnastics Strength Training. Dragon Door Publications, Sommer, C., 2008.
3	Aerobic Fitness: A Guide to Aerobic Exercise and Training (3rd Edition), Jack H. Wilmore, David L. Costill, Walter L. Kenney, Human Kinetics, 2011.
4	Fitness Instructor's Handbook (5th Edition), Judith Beck, Human Kinetics, 2014.
5	Adapted Physical Activity: A Guide for Inclusive Recreation (4th Edition), Robert J. Nash, Robert E. Wood, Human Kinetics, 2013.

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Students will demonstrate a comprehensive understanding of the scientific principles of aerobic exercise.	S	M	S	L	L	L	L	L
CO2	Students will plan and lead safe and effective aerobic exercise programs for diverse populations.	S	S	S	L	L	M	L	L
CO3	Students will integrate music, choreography, and motivational techniques into their aerobic instruction.	M	S	M	L	M	L	L	L
CO4	Students will identify and implement appropriate interventions for the prevention and management of aerobic exercise injuries.	M	M	M	L	L	S	L	L
CO5	Students will effectively adapt aerobic exercise programs for individuals with special needs and limitations.	M	S	S	L	L	M	L	L

S-Strong; M-Medium; L-Low

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective-III A	**GLOBAL SPORTS MARKETING**	**6**	**-**	**-**	**3**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Gain a comprehensive understanding of the global sports marketing industry and its key stakeholders
2	Analyze the latest trends and developments in sports marketing across different cultures and countries

3	Develop effective strategies for branding, sponsorship, and event marketing in the sports industry
4	Utilize digital marketing tools and techniques to engage with fans and promote sports organizations
5	Apply ethical and responsible marketing practices in the global sports market.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Identify and explain the major components of the global sports marketing ecosystem.	K2
2	Develop and implement effective marketing campaigns for sports organizations and brands.	K6
3	Demonstrate a critical understanding of the cultural and social factors influencing sports marketing strategies.	K4
4	Leverage digital technologies to reach and engage with fans around the world.	K6
5	Advocate for ethical and responsible marketing practices in the sports industry.	K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Global Sports Marketing**
The History and Evolution of Sports Marketing - The Global Sports Market: Size, Scope, and Trends - Key Stakeholders in the Global Sports Marketing Industry	
Unit 2	**Sports Branding and Sponsorship**
Building and Managing Strong Sports Brands - Sponsorship Strategies and Activation - Case Studies in Sports Branding and Sponsorshi	
Unit 3	**Digital Marketing in Sports**
Social Media Marketing for Sports Organizations - Content Marketing and Storytelling in Sports - E-commerce and Ticketing in the Sports Industry	
Unit 4	**Sports Event Marketing**
Planning and Managing Sports Events - Event Marketing Strategies and Promotion - Measuring the Success of Sports Events	
Unit 5	**Ethics and Social Responsibility in Sports Marketing**
Ethical Considerations in Sports Marketing Campaigns - Combating Discrimination and Promoting Diversity in Sports - The Role of Sports Marketing in Social Development	
Reference Books	

1	Sport Marketing: A Global Perspective by Charles C. Walker and Michael O'Mahony (Pearson Education, 2021)
2	Global Sports Sponsorship: A Guide to Effective Partnerships by Nigel Currie (Routledge, 2020)
3	Digital Marketing in the Sports Industry: Strategies for Success by Lisa J. Simmons (Routledge, 2019)
4	Event Marketing for Sports & Entertainment: A Practical Guide by Mark Hunter (Routledge, 2018)
5	Ethics in Sports Marketing: Principles and Practices by David L. Andrews and John A. Hancock (Human Kinetics, 2017)

Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Identify and explain the major components of the global sports marketing ecosystem.	S	L	L	L	L	L	L	S
CO2	Develop and implement effective marketing campaigns for sports organizations and brands.	M	L	M	L	L	L	L	M
CO3	Demonstrate a critical understanding of the cultural and social factors influencing sports marketing strategies.	L	L	L	L	L	L	M	S
CO4	Leverage digital technologies to reach and engage with fans around the world.	M	L	M	L	L	L	L	M
CO5	Advocate for ethical and responsible marketing practices in the sports industry.	L	L	L	L	L	L	M	S

S-Strong; M-Medium; L-Low

Course Code	**TITLE OF THE COURSE**	**L**	**T**	**P**	**C**
Elective-III B	**INDIAN TRADITIONAL SPORTS**	**6**	**-**	**-**	**3**
Pre-requisite		**Version**		**2024-25**	

Course Objectives

The Main Objectives of this course are to

1	Gain a comprehensive understanding of the history, culture, and significance of Indian traditional sports.

2	Explore the biomechanical and physiological principles underlying Indian traditional sports.	
3	Develop and implement effective training and conditioning programs for Indian traditional sports athletes.	
4	Analyze and address the unique challenges and opportunities facing Indian traditional sports in the modern world.	
5	Promote the preservation and development of Indian traditional sports through	
Expected Course Outcomes: On the Successful Completion of the Course, the Student will be able to:		
Learning Objective		Bloom's Taxonomy Level
1	Students will demonstrate a deep understanding of the historical, cultural, and social significance of Indian traditional sports.	K2
2	Students will be able to apply biomechanical and physiological principles to analyze and enhance performance in Indian traditional sports.	K3
3	Students will be able to design and implement effective training and conditioning programs for Indian traditional sports athletes at all levels.	K6
4	Students will be able to critically evaluate the challenges and opportunities facing Indian traditional sports in the modern world and develop strategies for addressing them.	K4
5	Students will be able to effectively communicate the importance of Indian traditional sports to the public and policymakers	K5
K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.		
Unit 1	**Introduction to Indian Traditional Sports**	
History and development of Indian traditional sports - Cultural and social significance of Indian traditional sports - Classification of Indian traditional sports - Major Indian traditional sports and their rules and regulations		
Unit 2	**Biomechanics and Physiology of Indian Traditional Sports**	
Biomechanical principles of Indian traditional sports - Physiological responses to Indian traditional sports - Training and conditioning considerations for Indian traditional sports athletes		
Unit 3	**Performance Analysis and Training Optimization for Indian Traditional Sports**	
Performance analysis techniques for Indian traditional sports - Data-driven training optimization strategies - Periodization and tapering for Indian traditional sports athletes		
Unit 4	**Challenges and Opportunities for Indian Traditional Sports in the Modern World**	

Commercialization and professionalization of Indian traditional sports - Gender equity and inclusion in Indian traditional sports - Promoting Indian traditional sports at the grassroots level									
Unit 5	**Preservation and Development of Indian Traditional Sports**								
Research on Indian traditional sports - Education and awareness programs for Indian traditional sports - Advocacy for Indian traditional sports at the national and international levels									
Reference Books									
1	Indigenous Sports of India by Dr. Shiv Singh (S.S. Publications, 2021)								
2	Traditional Sports of India: A Comprehensive Guide by Dr. D.P. Yadav (Sports Publications, 2020)								
3	Biomechanics and Physiology of Indian Traditional Sports by Dr. R.K. Sharma (Alfa Publications, 2019)								
4	Performance Analysis and Training Optimization for Indian Traditional Sports by Dr. S.K. Gupta (New Age International, 2018)								
5	Preservation and Development of Indian Traditional Sports by Dr. A.K. Singh (Laxmi Publications, 2017)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Students will demonstrate a deep understanding of the historical, cultural, and social significance of Indian traditional sports.	S	L	L	L	L	L	M	S
CO2	Students will be able to apply biomechanical and physiological principles to analyze and enhance performance in Indian traditional sports.	M	M	M	L	L	L	M	S
CO3	Students will be able to design and implement effective training and conditioning programs for Indian traditional sports athletes at all levels.	L	M	M	M	L	L	S	S
CO4	Students will be able to critically evaluate the challenges and opportunities facing Indian traditional sports in the modern world and develop strategies for addressing them.	S	L	L	L	M	L	S	M
CO5	Students will be able to effectively communicate the importance of Indian traditional sports to the public and policymakers.	M	L	L	L	M	L	M	S
S-Strong; M-Medium; L-Low									

Course Code	TITLE OF THE COURSE	L	T	P	C
Elective -III C	INTRODUCTION TO E-SPORTS	6	-	-	3
Pre-requisite		Version		2024-25	

Course Objectives

The Main Objectives of this course are to

1	Gain a comprehensive understanding of the esports industry, its history, evolution, and current landscape.
2	Explore the physiological and psychological demands of esports performance.

3	Analyze the biomechanical and cognitive factors influencing esports performance.
4	Develop and implement effective training and conditioning programs for esports athletes.
5	Evaluate the impact of esports on mental health and well-being.

Expected Course Outcomes:

On the Successful Completion of the Course, the Student will be able to:

	Learning Objective	Bloom's Taxonomy Level
1	Demonstrate a deep understanding of the esports ecosystem, including its key stakeholders, business models, and competitive scene.	K2&K4
2	Analyze the physiological and psychological factors influencing esports performance under pressure.	K4
3	Critically evaluate the biomechanical and cognitive demands of different esports titles and develop strategies for optimizing performance.	K4 & K5
4	Design and implement evidence-based training and conditioning programs tailored for esports athletes, addressing specific needs and goals.	K6 & K5
5	Critically evaluate the potential benefits and risks of esports participation on mental health and well-being.	K4 & K5

K1-Remember; K2- Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create.

Unit 1	**Introduction to Esports**

Definition and history of esports - The esports ecosystem: players, teams, leagues, tournaments, and sponsors - Competitive gaming genres and titles - Business models and economics of esports

Unit 2	**Physiology and Psychology of Esports Performance**

Physiological demands of esports: cardiovascular, respiratory, and musculoskeletal systems - Psychological demands of esports: stress, anxiety, flow state, and cognitive load - Impact of sleep, nutrition, and hydration on esports performance - Mental health considerations for esports athletes

Unit 3	**Biomechanics and Cognitive Factors in Esports**

Biomechanical analysis of esports postures and movements - Impact of ergonomics and equipment on performance - Cognitive skills in esports: attention, decision-making, reaction time, and hand-eye coordination - Training strategies for improving cognitive skills in esports

Unit 4	**Training and Conditioning for Esports Athletes**

Principles of training and conditioning for esports athletes - Specific training programs for different esports titles - Importance of recovery and injury prevention for esports athletes - Nutritional considerations for optimizing esports performance									
Unit 5	**Esports and Mental Health**								
Potential benefits of esports on mental health: social connection, stress reduction, and cognitive stimulation - Potential risks of esports on mental health: addiction, depression, and anxiety - Strategies for promoting mental health and well-being in esports athletes.									
Reference Books									
1	Esports: The Essential Guide to Competitive Gaming by Sam Weber (Bloomsbury Academic, 2023)								
2	The Science of Esports: Understanding the Physiology, Psychology, and Performance of Esports Athletes by Richard Keegan and Ryan Eubanks (Routledge, 2022)								
3	Peak Performance in Esports: A Guide to Mental Training and Mindfulness by Christopher J. Niemiec and Alexander G. Hugenberg (Academic Press, 2021)								
4	Training for Esports: A Comprehensive Guide to Physical Conditioning for Gamers by Mark A. Peterson and James E. Van Der Velden (Human Kinetics, 2020)								
5	Gaming and Mental Health: A Guide for Parents and Professionals by James Ivory and Daniel K. Wong (Oxford University Press, 2019)								
Expected Course Outcomes (CO)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Students will demonstrate a deep understanding of the esports ecosystem, including its key stakeholders, business models, and competitive scene.	S	L	M	L	L	L	L	M
CO2	Students will be able to analyze the physiological and psychological factors influencing esports performance under pressure.	L	M	M	L	M	L	L	S
CO3	Students will be able to critically evaluate the biomechanical and cognitive demands of different esports titles and develop strategies for optimizing performance.	M	M	M	L	L	L	M	S
CO4	Students will be able to design and implement evidence-based training and conditioning programs tailored for esports athletes, addressing specific needs and goals.	L	M	M	L	L	L	M	S
CO5	Students will be able to critically evaluate the potential benefits and risks of esports participation on mental health and well-being.	L	L	L	L	M	L	M	S

S-Strong; M-Medium; L-Low

EXPERIENTIAL LEARNING & PROJECT
Experiential Learning
• Course-specific Experiential learning to Students will be provided wherever feasible to apply the knowledge, skills and attitude taught in the course, either within the classroom, within the community, or within the workplace, to learn by experience that would improve their employability skills. • Experiential learning provides opportunities for the students to connect principles of the discipline with real-life situations.

• In-plant Training/Field trips/**Internships** / Industrial visits fall under this category.
Project
• Each student shall undertake a Project in place of one Discipline-specific elective and submit a dissertation as per guidelines in the final semester. • The Head of the Department shall assign a Research Supervisor to the student. • The Research Supervisor shall assign a topic for research and monitor the progress of the student periodically. • Students who wish to undertake Project work in recognized Institutions/Industry shall obtain prior permission. • The Project Report evaluation and Viva-Voce will be conducted by a committee constituted by the Head of the Department.