

Bachelor of Sports Science

Programme Outcomes (POs)

At the end of the programme students will be able to:

PO Number	Description
PO1	Biomechanical principles and their practical application in analyzing and optimizing human movement patterns in various sports activities.
PO2	Motor learning and control, applying these principles to facilitate skill acquisition, motor development, and performance improvement in athletes.
PO3	Proficient in recognizing, assessing, and managing sports injuries, integrating sports medicine principles and rehabilitation strategies to optimize athlete recovery.
PO4	Conducting research in sports science, employing rigorous methodologies, analyzing data, and contributing to the advancement of knowledge within the field.
PO5	Advanced knowledge and skills in strength and conditioning, enabling them to design effective training programs that enhance athletic performance and reduce the risk of injuries.

Programme Specific Outcome

PSO	Description
PSO1	To apply knowledge of Biomechanical analyses, utilizing advanced technologies to assess and optimize movement patterns in sports activities.
PSO2	To apply in-depth knowledge of exercise physiology to design and implement specialized training programs tailored to various athletic disciplines and fitness levels.
PSO3	To develop personalized dietary plans that meet the specific energy and nutrient requirements of athletes for performance enhancement and recovery.

PSO4	To conduct specialized skills in sports injury rehabilitation and evidence-based practices to facilitate the safe and effective return of athletes to competition.
PSO5	To conduct advanced research in sports science, contributing to the development of new knowledge, methodologies, and best practices within the field of sports.
PSO6	To specialize in advanced strength and conditioning techniques, incorporating periodization and advanced training modalities to optimize athletic performance.
PSO7	To specialize in skill acquisition and motor learning, applying advanced theories and methodologies to optimize athletes' acquisition.

Course Outcomes (COs)

FIRST SEMESTER

SUBJECT	COURSE OUTCOMES
Human Anatomy for Exercise and Sports science- 1 Theory TOTAL HOURS: 45 CREDITS : 3	CO1: Understand the structure and function of major body systems to analyze sports techniques. CO2: Identify of biomechanical principles CO3: Develop the strategy to enhance sports performance and reduce the risk of sports injury.
Human Anatomy for Exercise and Sports science - 1 Practical	CO1: Identify the anatomical structures of the human body through hands-on practical sessions. CO2: Explore the clinical relevance for the assessment and management of sports injuries. CO3: Conduct basic orthopedic assessments and recognize common musculoskeletal pathologies.
Human Physiology for Exercise and Sports science- 1 Theory	CO1: Understand the fundamental physiological principles related to exercise and sports science. CO2: Analyze the metabolic pathways involved in energy production during exercise.
Human Physiology for Exercise and Sports science- 1 Practical	CO1: Utilize equipment and technologies for cardiorespiratory monitoring, assessing and tracking physiological responses in real-time. CO2: Perform musculoskeletal assessments to evaluate neuromuscular function, identify movement limitations, and monitor training adaptations.
Basics of Biochemistry	CO1: Understand the fundamental concepts and principles of biochemistry CO2: Comprehend the principles of chemical reactions and enzyme kinetics
Introduction to Exercise, Sports Sciences and Coaching	CO1: Gain knowledge of the interdisciplinary nature of exercise science and sports sciences.

Basics of computer sciences and Introduction to technology	CO1: Ascertain the basic principles of computer hardware and software, including the components of a computer system, input/output devices, and the role of operating systems and application software. CO2: Students will develop a foundation in computer applications and technology that will enable them to effectively use and apply technology in various personal, academic, and professional contexts.
English 1	CO1: Master the language skills in a functional approach/context. CO2: Examine the functions of literary texts in academic and professional situations. CO3: Compare and contrast language components efficiently. CO4: Exhibit project based learning

SECOND SEMESTER

SUBJECT	COURSE OUTCOMES
Human Anatomy for Exercise and Sports science- 2 Theory	CO1: Describe the detailed anatomy of major muscle groups. CO2: Analyze the role of muscles in complex movement patterns and sports-specific activities.
Human Anatomy for Exercise and Sports science - 2 Practical	CO1: Demonstrate proficiency in accurately identifying and naming anatomical structures. CO2: Apply dissection skills to explore the three-dimensional relationships.
Human Physiology for Exercise and Sports science- 2 Theory	CO1: Analyze the regulatory mechanisms. CO2: Analyze the role of respiratory muscles in various exercise intensities and conditions CO3: Analyze the physiological mechanisms involved in thermoregulation during exercise.
Human Physiology for Exercise and Sports science- 2 Practical	CO1: Conduct neuromuscular assessments. CO2: Conduct experiments to assess thermoregulatory responses during exercise and heat exposure.
Pharmacology in Sports	CO1: Demonstrate a comprehensive understanding of basic pharmacological principles. CO2: Identify and classify different categories of performance-enhancing drugs used in sports. CO3: Explore the pharmacology of pain-relieving medications commonly used in sports.

THIRD SEMESTER

SUBJECT	COURSE OUTCOMES
Sports Biomechanics - Theory	CO1: Define and explain fundamental biomechanical concepts. CO2: Apply Newton's laws of motion to sports scenarios. CO3: Analyze and describe the kinematics of human movement
Motor control, Learning and Skill acquisition , Sports Neuroscience	CO1: Define and explain key concepts in motor control during movement. CO2: Understand the neuroanatomy of the motor system. CO3: Explain the role of each component in the control of voluntary movement.
Exercise Programming Theory	CO1: Define and explain the principles of exercise prescription. CO2: Apply the principles to different populations and health conditions. CO3: Explore the physiological responses to exercise and how they influence the design of exercise programs. CO4: Analyze the acute and chronic adaptations to various modes of exercise.
Exercise Programming Practical	CO1: Conduct thorough assessments of individuals. CO2: Design, implement and adjust exercise programs based on individual responses and goals.
Exercise and Sports Medicine	CO1: Understand contraindications and precautions for different exercise modalities. CO2: Design safe and effective exercise programs for individuals with chronic medical conditions. CO3: Integrate medical guidelines into exercise prescriptions.
Basics of Microbiology and Pathology	CO1: Understand microbiology and its scope and the study of microorganisms. CO2: Explore the relationship between normal and abnormal cellular and tissue structures.
Technology in Exercise and Sports	CO1: Define sports technology and its evolving role in exercise, fitness, and sports. CO2: Understand the historical development and significance of technology in sports. CO3: Evaluate wearable devices and fitness trackers for monitoring physical activity and health. CO4: Demonstrate proficiency in using and interpreting data from wearable technology.

FOURTH SEMESTER

Subject	Course Outcomes
Cognitive & Sports Psychology	<p>CO1: Define cognitive and sports psychology and understand their roles in sports performance.</p> <p>CO2: Appreciate the historical development and significance of cognitive and sports psychology.</p> <p>CO3: Explore cognitive processes such as perception, attention, memory, and decision-making in the context of sports.</p>
Exercise Physiology	<p>CO1: Understand meaning and scope in the context of human movement.</p> <p>CO2: Elaborate the three energy systems and their role in exercise.</p> <p>CO3: Understand the metabolic pathways involved in energy production during exercise.</p>
Fundamentals of Sports Coaching & Athletic Training Theory	<p>CO1: Explore the psychological aspects of athlete development.</p> <p>CO2: Understand the stages of athlete development and psychological considerations for coaching.</p> <p>CO3: Introduce the basic principles of athletic training.</p> <p>CO4: Understand the role of athletic trainers in injury prevention and management.</p>
Fundamentals of Sports Coaching & Athletic Training Practical	<p>CO1: Apply coaching techniques for skill development and performance improvement.</p> <p>CO2: Provide constructive feedback to athletes.</p>
Emergency Care Management in Sports	<p>CO1: Develop and implement effective Emergency Action Plans for sports facilities and events.</p> <p>CO2: Demonstrate proficiency in performing CPR for adults, children, and infants.</p> <p>CO3: Understand the importance of early CPR in cardiac arrest situations.</p>
Ergonomics And Doping In Sports	<p>CO1: Relate to the circumstances under which prescription and non-prescription performance-enhancing drugs may be taken.</p> <p>CO2: Describe results management process for an athlete after an Adverse Analytical Finding</p> <p>CO3: Advise on the prevention of inadvertent doping</p>

FIFTH SEMESTER

SUBJECT	COURSE OUTCOMES
Exercise Testing, Exercise Prescription Theory	<p>CO1: Learn about various exercise testing protocols used to assess physiological responses to exercise.</p> <p>CO2: Gain knowledge about the principles of exercise prescription.</p>
Exercise Testing, Exercise Prescription Practical	<p>CO1: Demonstrate proficiency in conducting various exercise testing protocols while ensuring accurate and standardized data collection.</p> <p>CO2: Assess data and results.</p>

Essentials of strength and conditioning Theory	CO1: Develop a comprehensive understanding of strength and conditioning principles. CO2: Understand the principles of program design and periodization.
Essentials of strength and conditioning Practical	CO1: Demonstrate proficiency in performing and coaching a variety of resistance training exercises. CO2: Design and implement individualized strength and conditioning programs to optimize training adaptations and performance outcomes.
Adaptive Physical Education	CO1: Understand the benefits of inclusive physical education for individuals with diverse abilities. CO2: Recognize and understand various disabilities and exceptionalities. CO3: Conduct assessments to determine the unique needs and abilities of individuals with disabilities.
Leadership and Management in sports	CO1: Develop an understanding of leadership and management theories, concepts, and practices. CO2: Acquire theoretical knowledge and practical skills in leadership and management in sports.
Sports – Law ,Ethics and Policies	CO1: Develop an understanding of the legal principles, regulations, and statutes governing the sports industry. CO2: Students will acquire theoretical knowledge and practical skills in sports law, ethics, and policies.

SIXTH SEMESTER

SUBJECT	COURSE OUTCOMES
Athletic injuries and Management Theory	CO1: Acquire knowledge of common athletic injuries involving different sports and physical activities. CO2: Understand the principles and techniques of injury assessment and evaluation.
Athletic injuries and Management Practical	CO1: Conduct injury assessments to accurately diagnose athletic injuries. CO2: Demonstrate competence in providing initial emergency care for athletic injuries.
Physiological Principles of Rehabilitation Theory	CO1: Understand the physiological processes involved in tissue healing for designing effective rehabilitation programs. CO2: Explore the biomechanical principles relevant to rehabilitation to optimize recovery and prevent re-injury.
Physiological Principles of Rehabilitation Practical	CO1: Conduct physical assessments and functional movement screenings. CO2: Demonstrate hands-on experience in the application of therapeutic modalities.
Performance Analysis and Performance Enhancement	CO1: Understand the performance metrics and measures used in sports and physical activities CO2: Analyze and evaluate athletic performance using systematic observation
Fundamentals of Nutrition	CO1: Understand about the macronutrients and micronutrients. CO2: Explore the impact of nutrition on exercise performance. CO3: Gain knowledge of sports nutrition principles and practices for athletes engaged in different sports and activities.

SEVENTH SEMESTER

CAPSTONE Project Part 1 - Mentored Research 1	<p>CO1: Understand the research process</p> <p>CO2: Develop skills in conducting primary and secondary research.</p> <p>CO3: Demonstrate proficiency in data collection, analysis, and interpretation techniques.</p> <p>CO4: Communicate research findings effectively through written reports and presentations.</p>
Facility design, Layout and Organization	<p>CO1: Analyze the principles and theories of facility design and layout.</p> <p>CO2: Evaluate different layout options and their impact on workflow, productivity, and resource utilization.</p> <p>CO3: Critically assess case studies and real-world examples of successful facility design projects</p>
Sports Entrepreneurship	<p>CO1: Understand the fundamentals of entrepreneurship and their application in the sports industry.</p> <p>CO2: Develop business plans and strategies</p> <p>CO3: Demonstrate proficiency in financial management, marketing, and operations specific to sports-related ventures.</p>
Athletic Training, Coaching, Sports Psychology -Theory	<p>CO1: Understand the theoretical foundations of athletic training, coaching techniques, and sports psychology principles.</p> <p>CO2: Apply coaching and psychological strategies to enhance athlete development, performance, and well-being.</p>
Exercise Physiology, Kinesiology and Movement sciences Theory	<p>CO1: Understand the principles of exercise physiology</p> <p>CO2: Analyze biomechanical principles and their application to human movement in sports and exercise.</p> <p>CO3: Explore the physiological adaptations to exercise training</p>
Strength and Conditioning, Sports Nutrition and Theory	<p>CO1: Understand the principles of strength and conditioning</p> <p>CO2: Analyze nutritional requirements for athletes</p> <p>CO3: Critically evaluate scientific evidence and guidelines related to strength and conditioning and sports nutrition.</p>
Athletic Training, Coaching, Sports Psychology - Practical	<p>CO1: Apply coaching techniques and psychological strategies in practical settings</p> <p>CO2: Implement mental skills training programs to enhance performance</p> <p>CO3: Utilize observation, assessment, and feedback techniques</p>
Exercise Physiology, Kinesiology and Movement sciences - Practical	<p>CO1: Apply biomechanical principles to analyze and improve movement patterns in sports and exercise activities.</p> <p>CO2: Demonstrate proficiency in exercise testing and assessment techniques</p> <p>CO3: Design and implement exercise programs tailored to individual needs and goals</p>
Strength and Conditioning, Sports Nutrition - Practical	<p>CO1: Design and implement strength and conditioning programs</p> <p>CO2: Apply principles of sports nutrition to develop personalized dietary plans for athletes</p> <p>CO3: Demonstrate proficiency in coaching techniques, exercise supervision, and injury prevention strategies</p>

EIGHTH SEMESTER

<p>CAPSTONE Project Part 2 Mentored Research 2</p>	<p>CO1: Demonstrate advanced research skills in the chosen field of study, building upon the foundation established in Part 1 CO2: Develop and execute a comprehensive research plan under the guidance of a mentor or advisor. CO3: Collect, analyze, and interpret data effectively, drawing meaningful conclusions and implications from the research findings.</p>
<p>Integrated seminars and Journal Club</p>	<p>CO1: Engage in critical analysis and discussion of current research literature CO2: Demonstrate proficiency in evaluating research methodologies, experimental designs, and statistical analyses. CO3: Apply knowledge gained from seminars and journal club discussions to inform research projects and academic endeavors.</p>
<p>Latest advancements in Sports and Exercise Sciences</p>	<p>CO1: Explore cutting-edge research, technologies, and methodologies in sports and exercise sciences CO2: Analyze the implications of recent advancements for athlete performance CO3: Critically evaluate the validity and reliability of new techniques, tools</p>
<p>Academic writing.</p>	<p>CO1: Demonstrate mastery of citation styles, referencing conventions, and formatting guidelines CO2: Write research papers, literature reviews, and other academic documents</p>