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NAVI MUMBAI

BACHELOR OF SPORTS AND EXERCISE SCIENCE

Programme Outcomes

No	By the end of the Program, the B.Sc. (Sports & Exercise Science) Graduate will
PO1	Sports & Exercise Science Knowledge & Skill
PO2	Individual & Team Work
PO3	Professionalism & Ethics
PO4	Entrepreneur & Leadership Skill
PO5	Societal Responsibilities
PO6	Lifelong Learner
PO7	Environmental & Sustainability
PO8	Research Abilities
PO9	Communication
PO10	Planning & Problem-Solving abilities

Course Outcomes and Mapping with Programme Outcomes

First Year – Semester 1

Course Code	Course Title
Paper I BSES 101	Anatomical Science I
Paper II BSES102	Human Physiology I
Paper III BSES 103	Basics of Biochemistry
Paper IV BSES 104	Form & Technique I
Paper V BSES 105	Communication & Skills

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
101.1	The student should be able to identify the type of bone asked	PO1, PO9

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101.2	The student should be able to identify muscle types	PO1, PO9
101.3	Should be able to mention the organs where a particular type of tissue is likely to be found	PO1, PO9
101.4	Should be able to identify major organs and give a short description of their structure.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
102.1	To understand homeostasis and channel behavior	PO1, PO6
102.2	To understand hematology, blood and its principles	PO1, PO6
102.3	Clinical Physiology Introduction	PO1, PO6, PO9

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
103.1	Understand and grasp the structure and functions of enzymes, protein, carbohydrate, fats and their metabolic aspect along with integration.	PO1, PO6
103.2	Explain the molecular basis of DNA and RNA and their role.	PO1, PO6
103.3	Co-relate the role of various biomolecules in muscle and bone metabolism.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
104.1	Understand and demonstrate a safe and effective methods of performing an exercise using traditional equipment	PO1, PO2, PO3, PO5, PO6, PO9, PO10
104.2	Perform of exercise anatomical analysis and exercise delivery.	PO1, PO2, PO3, PO5, PO6, PO9, PO10
Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes

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105.1	Understand the importance of Self-awareness	PO2, PO6
105.2	Understand the importance of being an effective business communicator in today's changing workplace	PO3, PO9
105.3	Communicate effectively with colleagues in meetings/official interaction by employing individual strengths	PO3, PO9
105.4	Deliver professional oral presentations & Demonstrate confidence in acing interviews	PO3, PO9
105.5	Write a polished resume and cover letter and effectively prepare for and participate in interviews	PO2, PO4
105.6	Recognize the need for and demonstrate professional grooming and body language as a part of effective nonverbal communication	PO2, PO4, PO5

First Year – Semester 2

Course Code	Course Title
Paper I BSES 106	Anatomical Science II
Paper II BSES107	Human Physiology II
Paper III BSES 108	Basics of Biochemistry of Biological System
Paper IV BSES 109	Form & Technique II
Paper V BSES 110	Fundamentals of Nutrition

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
106.1	The student should be able to identify the type of bone	PO1, PO6
106.2	The student should be able to identify muscle types	PO1, PO6
106.3	Should be able to demonstrate the action of a muscle on a living subject	PO1, PO6

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106.4	Should be able to explain the anatomical basis of commonly occurring sports injuries.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
107.1	Understand process of Digestive System	PO1, PO6
107.2	Understanding Cardiovascular System	PO1, PO6
107.3	Understanding Respiratory System	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
108.1	Understand and grasp the structure and functions of enzymes, protein, carbohydrate, fats and their metabolic aspect along with integration.	PO1, PO6
108.2	Explain the molecular basis of DNA and RNA and their role.	PO1, PO6
108.3	Describe inborn errors of metabolisms	PO1, PO6
108.4	Develop critical thinking skills in relation to metabolic disorders.	PO1, PO6, PO10
108.5	Gain insights of clinical assessment and specific treatments in various genetic and metabolic disorders.	PO1, PO4, PO6
108.6	Co-relate the role of various biomolecules in muscle and bone metabolism.	PO1, PO6

Co No.	At **the end of the course, the learner should be able to**	Mapped Program Outcomes
109.1	Demonstrating correct powerlifting forms.	PO1, PO2, PO3, PO5, PO6, PO9, PO10
109.2	Debugging Power Lifts exercise using Science limited to Anatomy.	PO1, PO2, PO3, PO5, PO6, PO9, PO10
109.3	Exercise Delivery in one-to-one setting.	PO1, PO2, PO3, PO5, PO6, PO9, PO10

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Co No.	At **the end of the course, the learner should be able to**	Mapped Program Outcomes
110.1	Develop the skills to read nutritional information on Food labels & comments	PO1, PO5, PO9
110.2	Sound knowledge of digestion, absorption & metabolism of Macro & Micro nutrients	PO1, PO6
110.3	Describe the various sources, functions, deficiency, toxicity of Water soluble & Fat-soluble Vitamins, Minerals & Trace Elements	PO1, PO6
110.4	Understand the Fluid Balance, Energy Balance & Mechanism. Will be able to calculate the energy expenditure & requirement of human being.	PO1, PO6

Second Year – Semester 3

Course Code	Course Title
Paper I BSES 111	Anatomical Science III
Paper II BSES 112	Human Physiology III
Paper III BSES 113	Biochemistry of Exercise
Paper IV BSES 114	Exercise Programming I
Paper V BSES 115	Basics of Sports & Exercise Biomechanics
Paper VI BSES 116	Nutrition for Sports & Fitness

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
111.1	The student should be able to identify the type of bone	PO1, PO6
111.2	The student should be able to identify muscle types	PO1, PO6
111.3	Should be able to demonstrate the action of a muscle on a living subject	PO1, PO6

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111.4	Should be able to explain the anatomical basis of commonly occurring sports injuries.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
112.1	Understanding of muscle movement by central nervous system	PO1, PO6
112.2	Understanding the hormonal balance including steroids in body	PO1, PO6
112.3	Understanding the Renal System	PO1, PO6
112.4	Understanding the Electrical Activity of Heart, Principles of Fatigue, CNS examination	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
113.1	Understanding of muscle movement by central nervous system	PO1, PO6
113.2	Understanding the hormonal balance including steroids in body	PO1, PO6
113.3	Understanding the Renal System	PO1, PO6
113.4	Understanding the Electrical Activity of Heart, Principles of Fatigue, CNS examination	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
114.1	To conduct a Fitness Consultation.	PO1, PO2, PO3, PO4, PO5, PO9, PO10
114.2	To design a Fitness Consultation Template.	PO1, PO10
114.3	To conduct Health Specific Fitness test, interpret the finding and design fitness profile.	PO1, PO2, PO3, PO6 PO9, PO10
114.4	To design Health Specific Fitness Test templates	PO1, PO10

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Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
115.1	To be competent in understanding biomechanics of joints involved while performing any exercise or movement.	PO1, PO6
115.2	To be competent to understand the biomechanical factors for apparently healthy individuals	PO1, PO5, PO6
115.3	To be competent in application of biomechanics for any sports and tailor exercise program as per need.	PO1, PO6, PO10
115.4	To do biomechanical analysis of any movement and Exercise.	PO1, PO3, PO 6, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
116.1	Relate key theories of nutrition to typical factors of health, exercise and sport.	PO1, PO6
116.2	Relate roles of nutrition in physical performance, recovery and adaptations to exercise.	PO1, PO6, PO9, PO10
116.3	Undertake a basic dietary assessment, and relate to the needs of the individual.	PO6, PO9, PO10
116.4	Investigate issues in sports nutrition.	PO6, PO9, PO10
116.5	Provide sound nutritional advice to athletes and healthy individuals, and know when to refer to a dietitian.	PO6, PO9, PO10

Second Year – Semester 4

Course Code	Course Title
Paper I BSES 117	Sports & Exercise Biomechanics I
Paper II BSES 118	Introduction to Sports & Exercise Pharmacology
Paper III BSES 119	Sports & Exercise Psychology
Paper IV BSES 120	Exercise Programming II
Paper V BSES 121	Research Methodology

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Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
117.1	To be competent in understanding biomechanics of lower extremity joints involved while performing any lower extremity exercise or movement.	PO1, PO6
117.2	To do biomechanical analysis of lower extremity joints, spine and identifying underlying abnormal joint mechanics and prescribe exercise accordingly.	PO1, PO5, PO6
117.3	To be competent in prescribing Exercise as per requirement by considering the biomechanical factors involved in lower extremity joints for apparently healthy individuals	PO1, PO6, PO8, PO9, PO10
117.4	To be competent in application of biomechanics of the sports involving lower extremity, spine and tailor exercise program as per need analysis.	PO1, PO6, PO10
117.5	To understand the mechanism of common injuries (sports or clinical), underlying causes of it and prevention strategies.	PO1, PO3, PO 6, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
118.1	To explain the components of pharmacokinetics and factors affecting it	PO1, PO6
118.2	To explain difference in mechanisms of actions of drugs	PO1, PO5, PO6,
118.3	To define and explain different adverse drug reactions (ADR)	PO1, PO5, PO6,
118.4	To explain the mechanisms of adverse drug reaction reporting	PO1, PO5, PO6,
118.5	To write uses, important pharmacokinetic features, mechanism of action and adverse events of drugs useful in sports and exercise medicine	PO1, PO5, PO6,PO9

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118.6	To enumerate drugs prohibited by "World Anti-Doping Agency"	

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
119.1	To explain the components of pharmacokinetics and factors affecting it	PO1, PO6
119.2	To explain difference in mechanisms of actions of drugs	PO1, PO5, PO6,
119.3	To define and explain different adverse drug reactions (ADR)	PO1, PO5, PO6,
119.4	To explain the mechanisms of adverse drug reaction reporting	PO1, PO5, PO6,
119.5	To write uses, important pharmacokinetic features, mechanism of action and adverse events of drugs useful in sports and exercise medicine	PO1, PO5, PO6,PO9
119.6	To enumerate drugs prohibited by "World Anti-Doping Agency"	

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
119.1	To improve each student's awareness of psychological performance skill training	PO1, PO9
119.2	To improve the ability to develop a customized approach to psyching for sport, to improve performance and leadership skills	PO1, PO4, PO9, PO10

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119.3	To apply the psychological techniques in this course to their lives and to their respective chosen careers	PO1, PO4, PO9, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
120.1	To design individualized, Periodized, safe and effective Health Specific Fitness Programs	PO1, PO2.PO4, PO9, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
121.1	Understand various methods used for research, reviewing research literature	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10
121.2	Basics of Statistical Analysis	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10
121.3	Conduct a small research Project	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10

Third Year – Semester 5

Course Code	Course Title
Paper I BSES 122	Sports & Exercise Biomechanics II
Paper II BSES 123	Exercise Physiology
Paper III BSES 124	Exercise Testing
Paper IV BSES 125	Sports Coaching & Training
Paper V BSES 126	Strength & Conditioning I

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes

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122.1	To be competent to do detailed Static assessment (Posture) and underlying abnormal joint alignments and based on the evaluation how to design a correction programme for the same	PO1, PO6, PO9, PO10
122.2	To be competent to do detailed Gait analysis (observational) as well as practical and identifying abnormal gait and its causes. Prescribing exercise as per the evaluation of gait.	PO1, PO6, PO9, PO10
122.3	Integration and understanding of how all major joints work together to produce normal movement patterns and accordingly prescribing exercise if any underlying movement patterns dysfunction.	PO1, PO6
122.4	To be competent to do biomechanical analysis (observational) of all exercise.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
123.1	To do Sport & Health Specific need analysis w.r.t Energy System.	PO1, PO6
123.2	To apply the principle of specificity in designing an exercise program by using Exercise Physiology of CVS, RS, MSK, ES.	PO1, PO6

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
124.1	To be competent to design and implement fitness battery of test for Healthy individuals, individuals with medical conditions and Athletes.	PO1, PO2, PO3, PO9, PO10

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Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
125.1	Students should be competent to apply knowledge of sports training and coaching	PO1, PO2, PO3, PO9
125.2	Students should be able to understand and play recreationally rules, regulations, techniques of various sports	PO1, PO2, PO3, PO9

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
126.1	Demonstrating sports specific exercise/drills.	PO1, PO2, PO3, PO9, PO10
126.2	Demonstrating correct Olympic lifts forms	PO1, PO2, PO3, PO9, PO10
126.3	Performing Sport Specific Exercise Delivery in group setting and individual settings.	PO1, PO2, PO3, PO9, PO10
126.4	Designing sport specific exercise programs.	PO1, PO2, PO3, PO9, PO10
126.5	Optimal communication in a multidisciplinary team of Sport Coaches, Sport Nutritionist, Sport Physiotherapist, Sport Medicine.	PO1, PO2, PO3, PO9, PO10

Third Year – Semester 6

Course Code	Course Title
Paper I BSES 127	Strength & Conditioning II
Paper II BSES 128	Exercise Prescription & Practice
Paper III BSES 129	Injury Risk Minimization
Paper IV BSES 130	Fitness Entrepreneurship Management

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Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
127.1	Demonstrating sports specific exercise/drills.	PO1, PO2, PO3, PO9, PO10
127.2	Demonstrating correct Olympic lifts forms	PO1, PO2, PO3, PO9, PO10
127.3	Performing Sport Specific Exercise Delivery in group setting and individual settings.	PO1, PO2, PO3, PO9, PO10
127.4	Designing sport specific exercise programs.	PO1, PO2, PO3, PO9, PO10
127.5	Optimal communication in a multidisciplinary team of Sport Coaches, Sport Nutritionist, Sport Physiotherapist, Sport Medicine.	PO1, PO2, PO3, PO9, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
128.1	To be competent to work as Exercise Specialist in hospital setting by designing a safe and effect Exercise Programs for Apparently Healthy individual with Musculoskeletal, Neuromuscular, Immunologic - Hematologic, Cardiovascular, Metabolic, Pulmonary, Cognitive disorders along with Special Population Cancer individuals.	PO1, PO2, PO3, PO5, PO6, PO8, PO9, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
129.1	The student will be able to design effective programs and/or take clinical decisions based on the understanding of physiology of injury.	PO1, PO2, PO3, PO9, PO10
129.2	The student will get a deeper understanding of the mechanisms of common injuries which will ensure	PO1, PO6, PO10

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	planning the long term and short-term goals while managing such injuries in a rehabilitative and/or sport setting.	
129.3	The student will get a deeper understanding of training errors and other risks involved that can possibly lead to injuries and will also understand the basics of sports injury risk minimization.	PO1, PO6, PO10
129.4	The student will understand the process of program design and effective implementation of rehabilitation programs using principles of strength	PO1, PO2, PO9, PO10

Co No.	At the end of the course, the learner should be able to	Mapped Program Outcomes
130.1	Students become familiar with the terms understand the concept	PO4, PO6
130.2	Students become familiar with idea generation techniques and can creatively look at the feasibility of their ideas and start-ups.	PO4, PO6, PO10
130.3	The students can have an understanding of the financial support which is available in the Indian context.	PO6, PO10
130.4	The students can learn the entrepreneurial environment among women and can be inspirational for the students.	PO6
130.5	Students can learn the positives and negatives of each business model and have the in depth understanding and importance of business canvas.	PO6, PO10

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