

**SYLLABI AND SCHEME OF
EXAMINATIONS
FOR
UNDERGRADUATE PROGRAMME
(SINGLE MAJOR IN SPORTS SCIENCE)**

**(Based on Curriculum and Credit Framework and formative assessment guidelines
for UG Programs under NEP 2020)**



**MAHARSHI DAYANAND UNIVERSITY
ROHTAK (HARYANA)**

CCFUGP FOR MAHARSHI DAYANAND UNIVERSITY ROHTAK

Credit Structure for Undergraduate Programmes (Single Major) in B.Sc Sports Science

Semester	Discipline-Specific Courses (DSC) / Major Course	Minor(MIC)/Vocational(VOC)/Skill Enhancement Courses(SEC)/ Internship	Multidisciplinary courses(MDC)	Ability Enhancementcourses (AEC)	Dissertation	Value-AddedCourses(VAC)	TotalCredits
I	Foundation of Physical Education DSC-A1@4 credits	Health, Recreation & Sports MIC1@4 credits	Health Education, First aids & Safety Measure MDC1 @ 3 credits	AEC1@2 credits	-----	VAC1@ 2 credits	22
	Basic of Games: Football, Kabaddi, Kho-Kho DSC-A2 @4credits	Track and Running Skills SEC1@3credits					
II	Officiating and coaching DSC-A3 @4credits	Physical Fitness and ConditioningMIC2@4 credits	Yoga& Stress Managements MDC2 @ 3 credits	AEC2@2 credits	-----	VAC2@ 2 credits	22
	Anatomy and PhysiologyDSC-A4 @4credits	Fundamentals of Jumping SEC2@3credits					
Studentsexitingtheprogrammeaftersecondsemesterandsecuring48creditsincluding4creditsofsummerinternshipwillbe awardedUGCertificateintherelevantDiscipline/Subject							
III	KinesiologyDSC-A5@4 credits	History & Principles of Phy. Edu. MIC3@4 credits	Nutrition &Sports MDC3 @ 3 credits	AEC3@2 credits	-----	VAC3@ 2 credits	22
	Basic of Games: Volleyball, Handball&BaseballDSC-A6 @4 credits	Basics of Throwing SEC3@3credits					
IV	Exercise PhysiologyDSC-A7 @4 credits	Sports Journalism and Mass Media MIC4(VOC)@4credits	-----	AEC4@2 credits	-----	VAC4@ 2 credits	24
	Sports PsychologyDSC-A8 @4 credits						
	Basic of Games: Basketball, Korfbal&NetballDSC-A9 @4 credits						
	Theory of Athletics: Sprints, Relay Race & Long Jump DSC-A10@4credits						
Studentsexitingthe programmeafterfourth semesterandsecuring 94credits including4credits ofsummerinternship willbe awardedUGDiplomainthe relevantDiscipline/Subject							
V	Sports MedicineDSC-A11@4credits	Athletics Care and Rehabilitations	-----	-----	-----	-----	24
	Sports ManagementDSC-A12@4credits	MIC5(VOC)@4credits					
	Basic of Games: Wrestling, Judo & BoxingDSC-A13@4credits	Internship@ 4 credits#					
	Theory of Athletics: High Jump, Triple Jump & Pole vault DSC-A14@4credits						
VI	Organization and Administration DSC-A15@4credits	Basic of Game: Football MIC6(VOC)@4credits	-----	-----	-----	-----	22
	Sports Sociology DSC-A16@4credits	Basics of Combined Events SEC3@2credits					
	Basic of Games: Table Tennis, Lawn Tennis & Badminton DSC-A17@4credits						
	Theory of Athletics: Discus Throw, Shot Put, Javelin Throw DSC-A18@4credits						
Studentswillbe awarded3-yearUGDegree inrelevantmajorDiscipline/Subjectupon securing136 credits.							
VII	Olympic Moments DSC-H1@ 4credits	Basic of Game: HockeyMIC7 (VOC) @ 4 credits	-----	-----	-----	-----	24
	Research Process in Physical EducationDSC-H2@						

	4credits						
	Application of Statics DSC–H3@ 4credits						
	Curriculum Design and Physical Education DSC–H4@ 4credits						
	Theory of Athletics: Hurdles, Middle & Long Distance Races DSC–H5@ 4credits						
VIII (4yr UGHon.)	Education Technology and Methods of Teaching in Physical Education DSC–H6@ 4credits	Basic of Game: CricketMIC8 (VOC) @ 4 credits	-----	-----	-----	-----	24
	Bio-MechanicsDSC–H7@ 4credits						
	Test and MeasurementDSC–H8@ 4credits						
	Environment StudiesDSC–H9@ 4credits						
	Physiotherapy ModalitiesDSC–H10@4 credits						
VIII (4yr UG Hon.withResearch)	Education Technology and Methods of Teaching in Physical Education DSC–H6@ 4credits	Basic of Game: CricketMIC8 (VOC) @ 4 credits	-----	-----	Research project/Dissertation@12 credits	-----	24
	Bio-MechanicsDSC–H7@ 4credits					TOTALCREDITS	184

Four creditsofinternshipearnedbyastudentduringsummerinternshipafter2ndsemesteror4thsemesterwillbecountedin5thsemesterofastudentwhopursue3yearUGProgrammeswithouttakingexitoption

Syllabi and Scheme of Examinations for Discipline-Specific Courses (DSC) of Under Graduate Single Major in B.Sc Sports Science

Discipline-Specific Courses (DSC)	TYPE OF PROGRAM			Credits Distribution			Total Credits	Workload			Total Workload	Marks			
	SINGLE MAJOR PROGRAM SEMESTER	Nomenclature of Course	Course Code	L	T	P		L	T	P		Theory		Practical	Total Marks
												Internal	External		
DSC -A1 @ 4 credits	1	Foundation of Physical Education	24PESS401DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A2 @ 4 credits		Basic of Games: Football, Kabaddi & Kho-Kho	24PESS401DS02	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A3 @ 4 credits	2	Officiating & Coaching	24PESS402DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A4 @ 4 credits		Anatomy & Physiology	24PESS402DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A5 @ 4 credits	3	Kinesiology	25PESS403DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A6 @ 4 credits		Basic of Games: Volleyball, Handball & Baseball	25PESS403DS02	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A7 @ 4 credits	4	Exercise Physiology	25PESS404DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A8 @ 4 credits		Sports Psychology	25PESS404DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A9 @ 4 credits		Basic of Games: Basketball, Korfball, Netball	25PESS404DS03	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A10 @ 4 credits		Theory of Athletics: Sprints, Relay Race & Long Jump	25PESS404DS04	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A11 @ 4 credits	5	Sports Medicine	26PESS405DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A12 @ 4 credits		Sports Management	26PESS405DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A13 @ 4 credits		Basic of Games: Wrestling, Judo & Boxing	26PESS405DS03	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A14 @ 4 credits		Theory of Athletics: High Jump, Triple Jump & Pole Vault	26PESS405DS04	2	0	2	4	2	0	4	6	15	35	50	100
DSC -A15 @ 4 credits	6	Organization and Administration	26PESS406DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A16 @ 4 credits		Sports Sociology	26PESS406DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC -A17 @ 4 credits		Basic of Games: Table Tennis, Lawn	26PESS406DS03	2	0	2	4	2	0	4	6	15	35	50	100

		Tennis & Badminton													
DSC -A18 @ 4 credits		Theory of Athletics: Discus Throw, Shot Put & Javelin Throw	26PESS406DS04	2	0	2	4	2	0	4	6	15	35	50	100
DSC- H1 @ 4 credits	7	Olympic Moments	27PESS407DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H2 @ 4 credits		Research Process in Physical Education	27PESS407DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H3 @ 4 credits		Application of Statics	27PESS407DS03	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H4 @ 4 credits		Curriculum Design and Physical Education	27PESS407DS04	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H5 @ 4 credits		Theory of Athletics: Hurdles, Middle & Long Distance Races	27PESS407DS05	2	0	2	4	2	0	4	6	15	35	50	100
DSC- H6 @ 4 credits	8 (4yr. UG Hon.)	Education Technology and Methods of Teaching in Physical Education	27PESS408DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H7 @ 4 credits		Bio-Mechanics	27PESS408DS02	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H8 @ 4 credits		Test and Measurement	27PESS408DS03	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H9 @ 4 credits		Environment Studies	27PESS408DS04	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H10 @ 4 credits		Physiotherapy Modalities	27PESS408DS05	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H6 @ 4 credits	8 (4yr. UG Hon. With Research)	Education Technology and Methods of Teaching in Physical Education	27PESS408DS01	4	0	0	4	4	0	0	4	30	70	00	100
DSC- H7 @ 4 credits		Bio-Mechanics	27PESS408DS02	4	0	0	4	4	0	0	4	30	70	00	100
Research Project/ Dissertation @ 12 credits	8 (4yr. UG Hon. With Research)	Research Project/ Dissertation	27PES408PD01	0	0	0	12	0	0	0	12	0	0	300	300

L: Lecture; T: Tutorial; P: Practical

Note:

1. Course coding of Minor courses for Single Major Programs will be applicable for Multidisciplinary Programs/ Multidisciplinary Programs after 2nd semester irrespective of their offering in any semester.
2. The student who selects any Minor Course (MIC) of any discipline in first semester should study the Minor courses (MIC) in the same discipline in the subsequent semesters. However, while exercising the option for choosing Minor Vocational Course MIC (VOC), the student may opt the discipline either related to the discipline of Minor Course or the discipline of Major Course or any other discipline as per his/her choice.

**Syllabi and Scheme of Examinations for Discipline Specific Courses
(DSC) of
Under Graduate Single Major in B.Sc Sports Science**

Name of Program	B.Sc (Sports Science)	Program Code	USSS4
Name of the Course	Foundation of Physical Education	Course Code	24PESS401DS01
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70} (Internal – 30)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1: Students will be able to explain the meaning, aims, and importance of physical education in the context of modern education. CLO 2: Students will be able to identify and describe major national sports institutions and development programs in India. CLO 3: Students will be able to outline the historical evolution of physical education in India and other major countries. CLO 4: Students will be able to evaluate the cultural, national, and international significance of sports and related policies.			
Unit 1: Foundations and Significance of Physical Education - Meaning & definition of physical education, aim and objective of physical education. Scope of physical education, - Need and importance of physical education in modern society. - Relationship of physical education with general education. - Leisure and physical education. Place of physical in the present system of education.			
Unit 2: National Institutions and Programs in Physical Education National Program of physical education & sports: National institution of physical education & sports - NSNIS Patiala, LNIPE Gwalior, LNCPE Trivendrum (Kerala), sports authority of India (SAI), national sports talent contest scheme, army boys sports company scheme, special area scheme, SAI training centre scheme, national coaching scheme, rural sports and national.			
Unit 3: Historical Development of Physical Education and Sports Movements - History of physical education in India, division of ancient period, British period till 1947 & Physical Education in India after independence. - Physical education in Greece, Rome, Germany, China, USA. - Indian Olympic Association: History, constitution and role of IOA. Organization and State Associations, National Games, Asian Games, SAF Games, Common Wealth Games.			
Unit 4: Olympic Movement, Cultural Impact, and National Sports Policy - Olympic movement and its impact in physical education and sports. - Games and sports as man's cultural heritage. - Role of games and sports in national and international integration. - Sports policy of India and Haryana, - Sports awards — Bhima, Arjun award, Rajiv Gandhi Khel Rattan award, Maulana Abul Kalam Azad Trophy, Dhyanchand life time achievement award and Dronacharya Award.			
References: - Singh, Ajmer, Gill, Jagtar, Bains, Jagdish, & Brar, Rachhpal. (2008). Essentials of Physical Education. New Delhi: Kalyani Publishers. - Kamlesh, M. L. (2006). Physical Education: Facts and Foundations. New Delhi: P.B. Publications. - Uppal, A. K. (2004). Principles of Physical Education and Sports Studies. New Delhi: Friends Publications. - Bucher, C. A. & Krotee, M. L. (2002). Management of Physical Education and Sport. McGraw Hill Education. - Sharma, O. P. (2014). Foundation of Physical Education. New Delhi: Sports Publications.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Basic of Games: Football, Kabaddi, Kho-Kho	Course Code	24PESS401DS02
Hours per Week	02 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50 (External &Internal)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of one mark. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1:Students will explore the history of games and the role of Haryana's people in their development. They will understand the duties of officials, including technical officials, before, during, and after games. CLO 2:Learners will understand the dimensions and markings of play fields, rules and regulations of various games, their interpretation, and the use of protective equipment. CLO 3:Participants will grasp the fundamentals, offensive and defensive strategies, tournament conduct, and types of fixtures used in the mentioned games. They will also learn about trophies and awards. CLO 4:Students will study the biographies of Arjuna and Dronacharya Awardees in the mentioned games, gaining insights into their achievements and contributions to sports.			
Unit 1: Football, Kabaddi, Kho-Kho: - History of games. - Role of Haryana's people for the development of games. - Duties of officials (Pre game, during the game & post-game). - Technical officials & their duties.			
Unit 2:Football, Kabaddi, Kho-Kho: - Dimension & marking of the play field/area. - Rules & regulations of the games mentioned above. - Interpretation of rules & regulations. - Protective equipment's used in games			
Unit 3: Football, Kabaddi, Kho-Kho: - Fundamental of various games. - Offensive & defensive strategy employed in the various games. - Conduct of tournament & types of fixtures used in the games mentioned above. - Trophy and Award of the games.			
Unit 4: Football, Kabaddi, Kho-Kho: - Arjun Awardee in Football: P.K. Banerjee, Jarnail Singh - Arjun Awardee in Kabaddi: Sandeep Narwal, Ramesh Kumar - Arjun Awardee in Kho-Kho: Shobha Narayan, Sudhir B. Parab, Km. Usha Vasant Nagarkar - Dronacharya Awardee in Football: Sh. Bimal Prafulla Ghosh, Syed Naeemudin - Dronacharya Awardee in Kabaddi: Ashan Kumar, Sunil Dabas - Dronacharya Awardee in Kho-Kho: Shri Phadke Gopal Purushottam			
References: - Wado Allen - The F.A. Guide to training and coaching. - Seeton, D.C. Dhyton,.I.A. Leibniz, H.C. and Massumith, I - Basic book of sports, Englewood Cliffs. M.D. Prepfittice Hall. - Essentials of Physical Education, Dr. Ajmer Singh.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Practical of Football, Kabaddi, Kho-Kho)	Course Code	24PESS401DS02
Hours per Week	04 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		
Note: Distribution of Marks will be as follows: Practical file: 20 Demonstration: 10 Viva-Voce: 10 Chart/ Presentation: 05 Attendance: 05 Total: 50			
Course Learning Outcomes (CLO): CLO 1:Students will explore the history of games and the role of Haryana's people in their development. They will understand the duties of officials, including technical officials, before, during, and after games. CLO 2:Learners will understand the dimensions and markings of play fields, rules and regulations of various games, their interpretation, and the use of protective equipment. CLO 3:Participants will grasp the fundamentals, offensive and defensive strategies, tournament conduct, and types of fixtures used in the mentioned games. They will also learn about trophies and awards. CLO 4:Students will study the biographies of Arjuna and Dronacharya Awardees in the mentioned games, gaining insights into their achievements and contributions to sports.			
List of Practical: • Arrangements and Uses of equipment's of Football, Kabaddi & Kho-Kho. • Briefing about objectives of Football, Kabaddi & Kho-Kho. • Warming up with general & specific exercises of Football, Kabaddi & Kho-Kho. • Briefing about Skill drills of Football Game: Dribbling, Passing, Shooting, Ball Control. • Briefing about Skill drills of Kabaddi Game: Raiding Skills (Footwork, Hand Touch, Sudden Attack Drills), Defensive Skills (Chain Formation, Tackling Drill, Dodging Drill). • Briefing about Skill drills of Kho-Kho Game: Running and Chasing Skill (Zigzag Running, Pole Touch, Sudden Change of Direction Drill), Dodging and Evasion Skills (Evading the Chaser, Pole-to-Pole, Running around the Pole Drill). • Cooling down with general & specific exercises of Football, Kabaddi & Kho-Kho.			
References: 1. National Soccer Coaches Association of America. (2004). The football coaching bible. Human Kinetics. 2. National Soccer Coaches Association of America. (2006). Soccer skills & drills. Human Kinetics. 3. Daniel, J. (2004). Soccer coaching manual. Reedswain, Inc. 4. Singh, R. (2010). Kabaddi: Techniques, tactics, training. Khel Sahitya Kendra. 5. Muthu, S. (2007). Kabaddi: A guide to the game. Sports Publications. 6. Chander Shekhar, S. R. (2012). Advanced kabaddi. Friends Publications. 7. Sharma, V. K. (2011). Kho-Kho: Skills and techniques. Sports Publications. 8. Ramesh, S. (2009). Kho-Kho: Rules, skills & techniques. Khel Sahitya Kendra. 9. Srivastava, A. K. (2013). Modern kho-kho. Sports Publications.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSF4
Name of the Course	Officiating and Coaching	Course Code	24PESS402DS01
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70} (Internal – 30)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1: Students will be able to understand and explain the basic principles and importance of officiating and coaching in sports. CLO 2: Students will be able to describe the roles, responsibilities, and ethics of a coach in various phases of the game. CLO 3: Students will be able to analyze the philosophy, duties, and technological advancements in officiating. CLO 4: Students will be able to identify qualification standards and administrative procedures for officials and coaches at school and national levels.			
Unit 1: Foundations of Officiating and Coaching • Meaning, concept and importance of officiating and coaching. • Principles of officiating. • Principles of Coaching. • Relation of official and coach with management, players and spectators. • Measures of improving the standards of officiating and coaching			
Unit 2: Coaching Responsibilities and Ethics • Duties of coach in general, pre, during and post-game. • Philosophy of coaching. • Responsibilities of a coach on and off the field. • Coach as role model for young players. • Ethics of coaching.			
Unit 3: Officiating Roles and Technology Integration • Duties of official in general, pre, during and post-game. • Philosophy of officiating • Mechanics of officiating – position, singles and movement during officiating. • Use of latest technology in the officiating of various games. • Ethics of officiating			
Unit 4: Professional Qualifications and Administrative Protocols • Academic and professional qualification of a coach for various levels. • Academic and professional qualification of an official for various levels. • Eligibility rules of Inter-School and School National. • Traveling and Dearness Allowances rules for Inter-School and School National. • Method of taking sanction and bill preparation for Traveling and Dearness Allowances for various Competitions.			
References: 1. Singh, Ajmer, Bains, Jagdish, Gill, Jagtar, & Brar, Rachhpal. (2012). Essentials of Physical Education. Kalyani Publishers. 2. Kamlesh, M. L. (2011). Principles and History of Physical Education. New Delhi: P.B. Publications. 3. Uppal, A. K. (2014). Sports Training and Coaching Methods. New Delhi: Friends Publications. 4. Sharma, V. M. (2015). Techniques of Officiating and Coaching. New Delhi: Sports Publications. 5. Sathe, G. (2010). Organization, Administration and Officiating in Physical Education. Pune: Soham Publications.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Anatomy and Physiology	Course Code	24PESS402DS02
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100 {External (term-end exam) – 70} (Internal – 30)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1: Students will be able to describe the structure and function of cells, bones, joints, and tissues in relation to sports activities. CLO 2: Students will be able to explain the anatomy and working of muscles, heart, and lungs during physical exertion. CLO 3: Students will be able to outline the roles of digestive, excretory, and endocrine systems in energy regulation and recovery. CLO 4: Students will be able to identify and describe the structure and function of the nervous system and sensory organs relevant to human performance.			
Unit 1: Basics of Anatomy and Skeletal System • Meaning of anatomy, cell, structure, properties of living matter. • Role of anatomy in physical education & sports, • Anatomy and Function of bones & cartilage's • Names and location of bones, • Kinds of bones, joints and their types • Tissues, organs and system of body.			
Unit 2: Muscular, Respiratory and Circulatory Systems • Anatomy of muscular system, structure of muscles and their kinds. Properties of muscles. • Muscle work and, fatigue, anatomy of respiratory organs, tissue and pulmonary respiration, • Anatomy of heart, function of heart, heartbeat, stroke volume, cardiac output.			
Unit 3: Digestive, Excretory and Endocrine Systems • Anatomy of digestive organs (alimentary canal), structure and functions of excretory system, • Meaning of endocrine glands and structure of the following glands - pituitary glands, thyroid, parathyroid, adrenal glands.			
Unit 4: Nervous System and Special Senses • Structure and functions of sympathetic and parasympathetic nervous system. • Origin and functions of spinal and cranial nerves. • Special senses: Structure and functions of eye, ear, nose and tongue and their disorders.			
References: 1. Singh, Ajmer, Bains, Jagdish, Gill, Jagtar, & Brar, Rachhpal. (2012). Essentials of Physical Education. New Delhi: Kalyani Publishers. 2. Sharma, V. M. (2013). Health and Physical Education. New Delhi: Sports Publications. 3. Uppal, A. K. (2014). Anatomy and Physiology for Students of Physical Education. New Delhi: Friends Publications. 4. Mangal, S. K. (2011). Physiology of Exercise and Physical Fitness. Ludhiana: Twenty First Century Publications. 5. Choudhary, S. (2015). Human Anatomy and Physiology in Sports. Meerut: Khel Sahitya Kendra.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Kinesiology	Course Code	25PESS403DS01
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100 {External (term-end exam) – 70} (Internal – 30)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1: Students will be able to define and explain the concept, scope, and objectives of kinesiology in sports and physical education. CLO 2: Students will be able to describe various anatomical axes, planes, and movement terminologies with practical relevance. CLO 3: Students will be able to identify and analyze the structure, ligaments, and muscles acting on the shoulder joint and their functions. CLO 4: Students will be able to interpret and demonstrate the anatomy and kinesiology of hip joint movements and muscle actions involved.			
Unit 1: Introduction to Kinesiology - Meaning & definition of Kinesiology - Need & Importance of Kinesiology - Aim and objectives of Kinesiology in Physical Education and Sports			
Unit 2: Axis, Planes, and Body Movements - Meaning & Types of axis and planes - Terminologies of different Body movements - Flexion, Extension, Abduction, Adduction, Right Lateral Flexion, Left Lateral Flexion, Lateral Rotation, Medial Rotation, Right Rotation, Left Rotation, Elevation, Depression, Protraction, Retraction, Right Lateral Deviation, Left Lateral Deviation, Pronation, Supination, Inversion, Eversion, Dorsiflexion, Plantarflexion, Opposition, Reposition, Upward Rotation, Downward Rotation, Lateral Tilt, Medial Tilt, Upward Tilt, Downward Tilt, Horizontal Flexion, Horizontal Extension, Hyperextension, Circumduction.			
Unit 3: Kinesiology of Shoulder Joint - Shoulder joint: Structure, Ligaments, Muscle reinforcement and Movements. - Origin, Insertion and Actions of Muscles present on shoulder joint: Deltoid, Biceps, Triceps, Latissimus Dorsi and Pectoralis Major.			
Unit 4: Kinesiology of Hip Joint - Hip Joint: Structure, Ligaments, Muscle reinforcement and Movements. - Origin, Insertion and Action of Muscles present on hip joint: Hip flexor muscles, Hip Extensor Muscles, Hip Adductor Muscles, Hip Abductor Muscles and Hip External Rotator Muscles.			
References: - Sharma, A. K. (2014). Kinesiology and Biomechanics. New Delhi: Sports Publications. - Behera, D. (2015). Applied Kinesiology in Sports and Exercise Science. New Delhi: Friends Publications India. - Verma, J. P. (2010). Anatomy, Kinesiology and Physiology for Physical Education Students. New Delhi: Khel Sahitya Kendra. - Mishra, S. (2013). Textbook of Kinesiology. Meerut: Arya Publications. - Bhowmick, S. (2016). Kinesiology: Principles and Applications in Physical Education. Kolkata: Scientific Book Company.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Basic of Games: Volleyball, Handball, Baseball	Course Code	25PESS403DS02
Hours per Week	02 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35} (Internal – 15)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of one mark. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO 1:Student will be able to describe the historical background, development, and officiating duties for volleyball, handball, and baseball. CLO 2:Student will be able to interpret game rules, mark courts/fields, and identify essential protective equipment. CLO 3:Student will be able to demonstrate basic skills, offensive and defensive strategies in all three games. CLO 4:Student will be able to organize tournaments and prepare match fixtures using standard methods.			
Unit 1: History and Development of the Games - History and origin of Volleyball, Handball & Baseball. - Duties of game officials – responsibilities before, during, and after a match. - Technical officials and their roles – referee, umpire, scorer, line judge, timekeeper. - Importance of fair play and ethics – ensuring discipline and sportsmanship in officiating.			
Unit 2:Rules, Markings and Equipment - Court/field dimensions and markings – layout and measurements for each game. - Basic rules and regulations – game duration, scoring methods, team structure. - Safety and protective equipment – uniforms, gloves, shoes, helmets, knee-pads, etc. - Latest changes in game rules – updates by international federations and associations.			
Unit 3: Fundamentals and Strategies - Basic skills in volleyball, handball & baseball – serving, passing, dribbling, pitching, batting. - Offensive strategies – attacking patterns and formations used in gameplay. - Defensive strategies – blocking, marking, zone defense, and field coverage. - Importance of team coordination – role of communication and roles in strategy.			
Unit 4: Tournament Organization and Achievements - Conduct a tournament – steps in planning and managing a competition. - Types of tournaments - Knock-out, league, combination, and round-robin formats. - Fixtures and scheduling – preparing match schedules using different methods. - Famous awards and trophies – national and international recognitions in all three games.			
References: - Narayan, G. (2016). Teaching and Coaching Volleyball. New Delhi: Sports Publications. - Kumar, A. (2018). Fundamentals of Handball and Officiating Techniques. New Delhi: Khel Sahitya Kendra. - Singh, H. (2017). Baseball: Techniques, Rules and Tactics. Meerut: Sports World Publications. - Sharma, R. K. (2019). Rules and Regulations of Major Games. New Delhi: Friends Publications India. - Thakur, D. (2020). Organization of Sports Tournaments and Fixtures. Patiala: National Sports Books.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Practical :(Volleyball, Handball, Baseball: Game Skills and Drills)	Course Code	25PESS403DS02
Hours per Week	04 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		
Note: Distribution of Marks will be as follows: Practical file: 20 Demonstration: 10 Viva-Voce: 10 Chart/ Presentation: 05 Attendance: 05 Total: 50			
Course Learning Outcomes (CLO): CLO 1:Student will be able to identify equipment and explain objectives of Volleyball, Handball, and Baseball. CLO 2:Student will be able to perform basic warming-up and cooling-down drills relevant to each game. CLO 3:Student will be able to demonstrate core techniques and skill drills in all three games. CLO 4:Student will be able to lay out and mark playfields as per game specifications. CLO 5:Student will be able to recognize the roles and signals of officials in match situations..			
List of Practical: • Arrangements and uses of equipment in Volleyball, Handball & Baseball. • Warming up with general and specific exercises related to Volleyball, Handball & Baseball. • Skill drills for Volleyball: Underhand/Overhand Serve, Bumping, Setting, Spiking, and Blocking. • Skill drills for Handball: Passing (bounce & shoulder), Dribbling, Jump Shot, and Blocking techniques. • Skill drills for Baseball: Throwing, Catching, Pitching, Batting, and Base Running. • Marking of courts/fields of Volleyball, Handball & Baseball using chalk/ropes and measuring tape. • Demonstration of officials' signals and duties for all three games with flags, cards, or score sheets. • Cooling down with general and specific relaxation exercises for Volleyball, Handball & Baseball.			
References: 1. Sharma, P. (2017). Volleyball: Skills, Techniques and Rules. New Delhi: Khel Sahitya Kendra. 2. Bhardwaj, R. (2016). Handball for Beginners. Meerut: Sports Publication India. 3. Kapoor, S. (2019). Baseball Simplified: Rules, Skills and Practice. New Delhi: Friends Publications. 4. Singh, Y. (2021). Practical Guide to Physical Education and Games. Patiala: Sports Educational Publishers. 5. Mishra, D. (2018). Teaching and Coaching of Team Games. New Delhi: Sports Publications.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Exercise Physiology	Course Code	25PESS404DS01
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100 { External (term-end exam) – 70 } (Internal – 30)	Time of Examinations	03 Hours
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO1:Students will be able to define and explain the meaning, scope, and significance of exercise physiology in physical education and sports. CLO2: Students will be able to identify and describe the structure, classification, and functional roles of the skeletal and muscular systems. CLO3: Students will be able to analyze the structure and functions of the cardiovascular system and interpret the physiological responses to exercise. CLO4:Students will be able to understand the structure and mechanism of respiration and evaluate the effects of exercise on the respiratory system.			

Unit 1: Introduction to Exercise Physiology • Meaning and definition of exercise physiology. • Importance of exercise physiology. • Scope of exercise physiology in physical education and sports. • Need for studying physiology in physical education.
Unit 2: Musculoskeletal Structure and Function • Structure and functions of the human skeletal system. • Classification of bones and types of joints. • Sex-based anatomical differences in bones and joints. • Structure of skeletal muscles: gross and microscopic anatomy. • Properties and functions of muscles: contractility, extensibility, elasticity, excitability.
Unit 3: Cardiovascular System and Exercise • Structure and function of the heart – chambers, valves, and conduction system. • Blood circulation – pulmonary and systemic circulation. • Cardiac output and blood pressure – definitions, regulation, and response to exercise. • Effect of exercise on the cardiovascular system – adaptations, athletic heart syndrome.
Unit 4: Respiratory System and Exercise Response • Anatomy of the respiratory system: nasal passage, lungs, diaphragm. • Structure and mechanism of respiration – inspiration and expiration. • Gas exchange and oxygen transport. • Effects of exercise on respiration – oxygen uptake, oxygen debt, and second wind.
References: 1. Kumar, A. (2018). Essentials of Exercise Physiology. New Delhi: Sports Publications. 2. Sinha, R. (2016). Applied Physiology in Physical Education. Meerut: Khel Sahitya Kendra. 3. Mishra, S. (2017). Exercise Physiology and Sports Science. New Delhi: Sports & Allied Publishers. 4. Choudhary, M. (2019). Basics of Exercise Physiology. New Delhi: Friends Publications India. 5. Verma, R. K. (2015). Human Physiology and Sports Performance. New Delhi: Khel Sahitya Kendra

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Sports Psychology	Course Code	25PESS404DS02
Hours per Week	04 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100 {External (term-end exam) – 70}	Time of	03 Hours
	(Internal – 30)	Examinations	
Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of two marks. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.			
Course Learning Outcomes (CLO): CLO1: Student will be able to understand basic human body systems and their structure. CLO2: Student will be able to learn how exercise affects major physiological systems. CLO3: Student will be able to identify responses and adaptations of the body to exercise. CLO4: Student will be able to apply physiological knowledge to improve sports performance.			
Unit 1: Basics of Sports Psychology • Meaning and definition of psychology & sports psychology • Importance and scope of sports psychology – its role in athlete performance, coaching, and training. • Relation between psychology & sports psychology. • Role of the sports psychologist – helping athletes manage emotions, focus, and pressure.			
Unit 2: Motivation in Sports • Meaning, importance and types of motivation (intrinsic and extrinsic). • Theories of motivation – attribution theory, cognitive dissonance theory, Maslow's hierarchy of needs. • Techniques for enhancing motivation – reinforcement, feedback, self-talk, visualization. • Relationship with motivation and performance– how motivation affects achievement and focus.			

Unit 3: Stress and Anxiety in Sports • Meaning and definition of stress and anxiety. • Causes of stress and anxiety (Cognitive Techniques: Thought Stopping, Cognitive Restructuring, Imagery, Self-Talk Modification. Somatic Techniques: Progressive Relaxation, Deep Breathing, Biofeedback. Behavioral Techniques: Goal Setting, Management of time.) • Coping and management strategies – relaxation, breathing, visualization, and mental rehearsal. • Relationship between stress and anxiety
Unit 4: Personality and Sports • Meaning, Definition and Characteristics of Personality. • Dimensions of Personality – physical, mental, social and emotional dimensions. • Types of Personality – Extrovert, introvert, stable, neurotic, etc. • Theories of Personality – Sheldon's constitutional theory, Bandura's social learning theory. • Role of physical activities in the development of personality.
References: 1. Dhayal, P. (2024). Sports Psychology. New Delhi: Manisha Publications. 2. Dey, S. (2018). Sports Psychology: The Indian Perspective. Kolkata: Academic Sports Publishers. 3. Thakur, D. (2020). Mental Training in Sports. Meerut: Khel Sahitya Kendra. 4. Verma, S. (2017). Understanding Psychology in Physical Education. New Delhi: Friends Publications India. 5. Sharma, R. K. (2021). Applied Sports Psychology: Concepts and Cases. New Delhi: Sports World Publishers.

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Basic of Games: Basketball, Korfball & Netball	Course Code	25PESS404DS03
Hours per Week	02 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35} (Internal – 15)	Time of Examinations	03 Hours

Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of one mark. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.

Course Learning Outcomes (CLO):

CLO 1: Student will be able to describe the historical development, governing bodies, and structure of Basketball, Korfball, and Netball.
CLO 2: Student will be able to apply knowledge of rules, court markings, equipment, and officiating in gameplay.
CLO 3: Student will be able to demonstrate essential playing techniques and formations used in each of the three games.
CLO 4: Student will be able to organize tournaments and develop strategies using various fixture formats.

Unit 1: History and Development of the Games

- Historical origin and development of Basketball, Korfball & Netball
- International and Indian governing bodies: (FIBA, IKF, INF & BFI)
- Major tournaments, awards and Famous Players associated with each game.
- Technical officials and their roles – referee, umpire, scorer, line judge, timekeeper.

Unit 2: Rules, Dimensions, and Equipment

- Court dimensions and markings – layouts of basketball, korfball, and netball courts.
- Rules and scoring system – game duration, number of players, fouls, player positions and scoring system.
- Essential equipment used – balls, poles, boards, hoops, uniforms, shoes, and safety gear.
- Role and responsibilities of officials: referees, umpires, and scorers.

Unit 3: Basic Skills and Techniques

- Basic techniques in Basketball – dribbling, passing, shooting, rebounding
- Fundamental skills in Korfball - passing, rebounding, shooting, defending.
- Fundamental skills in Netball - footwork, passing, receiving, shooting
- Offensive and defensive formations – attacking patterns and zone/man-to-man defenses.

Unit 4: Strategy, Training & Tournament Organization

- Team formations and positions – role of each player and strategic placement.
- Importance of communication and coordination in team games
- Conduct a match or tournament – steps in organizing school/college-level events.
- Types of fixtures – knockout, league, round-robin, and combination methods.

References:

1. Mehta, N. (2018). Basketball: Teaching and Coaching Manual. New Delhi: Discovery Publishing House.
2. Bhatt, R. (2020). Team Games and Officiating. Meerut: Arya Publications.
3. Chauhan, M. (2019). Fundamentals of Physical Education and Sports. New Delhi: Sports Publications.
4. Rathi, N. K. (2021). Teaching of Physical Education. Patiala: National College Publishing House.
5. Yadav, R. S. (2022). Sports and Games Rules Explained. New Delhi: Khel Sahitya Kendra.

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Practical : (Basketball–Korfball–Netball Basics)	Course Code	25PESS404DS03
Hours per Week	04 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		
Note: Distribution of Marks will be as follows: Practical file: 20 Demonstration: 10 Viva-Voce: 10 Chart/ Presentation: 05 Attendance: 05 Total: 50			
Course Learning Outcomes (CLO): CLO 1: Student will be able to demonstrate the basic skills and techniques of Basketball, Korfball, and Netball. CLO 2: Student will be able to identify and apply the official rules, court markings, and equipment in all three games. CLO 3: Student will be able to perform and analyze offensive and defensive formations used in team games. CLO 4: Student will be able to participate in and organize matches or tournaments with appropriate officiating.			
List of Practical: • Demonstration of court marking for Basketball, Korfball & Netball using cones and chalk. • Warming up with general and specific exercises related to Basketball, Korfball & Netball. • Dribbling, passing, and shooting drills in Basketball. • Passing, rebounding, and defending techniques in Korfball. • Footwork, receiving, and shooting drills in Netball. • Practice of offensive formations like 3-2 or 2-1-2 in Basketball and similar patterns in other games. • Practice of man-to-man and zone defense strategies in each game. • Mock demonstration of referee/umpire signals and scoring procedures. • Mini-matches for skill application and teamwork development. • Organizing a small intra-class round-robin or knockout tournament. • Cooling down with general and specific relaxation exercises for Basketball, Korfball & Netball.			
References: 1. Bedi, Y. (2021). Modern Team Games Techniques. New Delhi: Sports & Allied Publishers. 2. Dey, S. (2018). Netball: Rules, Techniques and Practice Plans. Kolkata: Academic Publications India. 3. Verma, R. (2020). Teaching Physical Education Through Games. New Delhi: Wisdom Press. 4. Sehgal, R. (2019). Fundamentals of Team Sports. Meerut: Surjeet Publications. 5. Khan, A. (2022). Comprehensive Guide to Sports Rules and Officiating. Patiala: Sports Educational Books.			

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Theory of Athletics: Sprints, Relay Race & Long Jump	Course Code	25PESS404DS04
Hours per Week	02 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50 {External (term-end exam) – 35} (Internal – 15)	Time of Examinations	03 Hours

Note: The question paper shall contain nine questions in all. Candidate will attempt five questions. Question No. 1 shall be compulsory, comprising of seven short answer type questions covering the entire syllabus. Each short answer type question shall be of one mark. There shall be eight long answer type questions, two from each unit. Out of these the candidate must attempt four questions, selecting only one question from each unit. All questions carry equal marks.

Course Learning Outcomes (CLO):

CLO 1: Student will be able to explain the basic rules, history, and international achievements in sprints, relays, and long jump.

CLO 2: Student will be able to demonstrate techniques of sprint phases, including start, acceleration, and finish.

CLO 3: Student will be able to execute proper baton exchange and lane discipline in different relay formats.

CLO 4: Student will be able to apply correct techniques and identify phases of long jump for better performance.

CLO 5: Student will be able to interpret roles of coaches and officials, and follow safety measures during athletic events.

Unit 1: Introduction to Sprints, Relay Race & Long Jump

- Brief history of sprints, relay race & long jump
- Role of coaches and officials in athletics
- Representation of India at international level in sprints, relay race & long jump
- Awards & records of sprints, relay race & long jump.

Unit 2: Introduction to Track Events – Sprints

- Definition and types of sprints – 100m, 200m, and 400m sprint events.
- Phases of sprinting – starting, acceleration, maximum velocity, and finish.
- Starting techniques – standing start and block start; commands and positions.
- Rules and regulations of sprints – lane discipline, false starts, finish line rules.

Unit 3: Relay Race – Basics and Techniques

- Types of relay races – 4x100m, 4x400m, and medley relay.
- Baton exchange techniques – visual and non-visual methods.
- Relay zones and lane rules – 20m exchange zone and positioning of runners.
- Team composition and strategy – placing the fastest runner, coordination, and teamwork.
- Disqualifications and safety in relays – common mistakes and how to avoid them.

Unit 4: Long Jump – Technique and Performance

- Phases of long jump – approach run, take-off, flight, and landing.
- Take-off board and landing pit – dimensions, markings, and safety standards.
- Measurement of performance – legal jump, foul jump, and scoring.
- Rules and judging in long jump – roles of officials and conduct of the event.
- Common errors and corrections – technical improvement drills.

References:

1. Mishra, S. (2020). Track and Field: Techniques and Teaching. New Delhi: Sports Publications.
2. Bhatia, A. (2018). Fundamentals of Athletics and Officiating. Meerut: Khel Sahitya Kendra.
3. Sharma, R. K. (2021). Athletics: A Complete Manual for Students. New Delhi: Friends Publications India.
4. Singh, J. (2019). Scientific Approach to Track and Field Events. Patiala: National Sports Books.
5. Yadav, P. (2022). Practical Guide to Athletics. New Delhi: Sports Educational Publishers.

Name of Program	B.Sc. (Sports Science)	Program Code	USSS4
Name of the Course	Practical : (Theory of Athletics: Sprints, Relay Race & Long Jump)	Course Code	25PESS404DS04
Hours per Week	04 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		

Note: Distribution of Marks will be as follows:

Practical file:	20
Demonstration:	10
Viva-Voce:	10

Chart/ Presentation:	05
Attendance:	05
Total:	50
Course Learning Outcomes (CLO):	
CLO 1:Student will be able to demonstrate correct techniques for sprint starts, relay baton exchange, and long jump phases.	
CLO 2:Student will be able to identify and apply the rules, safety standards, and measurements used in track and field events.	
CLO 3:Student will be able to analyze performance through practice drills and correct common technical errors.	
CLO 4:Student will be able to participate in planning and execution of sprint, relay, and long jump events with officiating roles.	
List of Practical:	
• Warming-up drills specific to sprints, relay, and long jump (e.g., dynamic stretching, strides). • Practice of standing and block starts with "On your marks" command techniques. • Sprint drills for acceleration, high-knee running, and stride length improvement. • Timed runs for 100m, 200m, and 400m sprint events with proper lane usage. • Relay baton exchange drills using visual and non-visual methods. • Conducting a 4x100m or 4x400m relay with team strategies and zone marking. • Approach run and take-off practice for long jump with measurement of distance. • Landing techniques and posture drills in sand pit for long jump safety. • Mock judging and officiating of sprint, relay, and long jump events. • Cool-down exercises and athlete recovery routines post-practice.	
References:	
1. Arora, K. (2022). Basics of Athletics: Techniques and Rules. New Delhi: Sports & Fitness Books. 2. Chandel, S. (2020). Athletics Training and Officiating Manual. Meerut: Bharati Sports Publication. 3. Rana, V. (2021). Sprint and Field Events in Athletics. New Delhi: Lakshay Publishers. 4. Dev, R. (2019). Teaching of Track and Field for Physical Education. Patiala: National Coaching Press. 5. Tiwari, R. (2023). Track and Field Performance Training. New Delhi: Friends India Educational Books.	

Name of Program	B.Sc. Sports Science	Program Code	
Name of the Course	Sports Medicine	Course Code	26PESS405DS01
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO):			
After completing this course, the learner will be able to:			
CLO1: Define the core concepts and the expanding scope of sports medicine within the sports industry.			
CLO2: Identify different types of ergogenic aids and evaluate their impact on athletic performance and health.			
CLO3: Recognize injuries specific to combative and ball games and apply standard immediate management protocols.			
CLO4: Understand the application of various therapeutic modalities and exercise-based rehabilitation to aid athlete recovery.			
Unit–I: Introduction to Sports Medicine			
• Meaning and Definition of Sports Medicine • Scope and Importance in Physical Education • Role of Sports Medicine in Performance Enhancement			
Unit–II: Ergogenic Aids			
• Meaning and Classification of Ergogenic Aids			

- Nutritional Aids (Creatine, Caffeine, Bicarbonate)
- Pharmacological Aids (Anabolic Steroids, Stimulants)
- Physiological Aids (Blood Doping, Oxygen Supplementation)
- Psychological and Mechanical Aids (Imagery, Advanced Footwear)

Unit–III: Injuries and Management (Combative and Ball Games)

- Common Combative Injuries (Boxing, Wrestling): Concussions and Lacerations
- Common Ball Game Injuries (Football, Basketball): Sprains and ACL Tears
- Immediate Management (P.R.I.C.E.R. Principle)

Unit–IV: Therapeutic Modalities and Rehabilitation

- Meaning and Principles of Rehabilitation
- Hydrotherapy and Cryotherapy (Cold Application)
- Thermotherapy (Heat Application) and its Benefits
- Therapeutic Exercises for Restoring Range of Motion

References:

1. Pande, P.K. – Know How Sports Medicine
2. Khanna, G.L. – Exercise Physiology & Sports Medicine
3. Jain, R.K. – Sports Medicine
4. Armstrong & Tucker – Injuries in Sport
5. Williams, J.G.P. – Atlas of Injury in Sport
6. Houglum, P.A. – Therapeutic Exercise for Musculoskeletal Injuries

Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	B.Sc. Sports Science	Program Code	
Name of the Course	Sports Management	Course Code	26PESS405DS02
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Define the core principles and functions of management specifically applied to physical education and sports settings. CLO2: Organize and execute various types of sports tournaments and events using systematic planning and coordination. CLO3: Implement effective strategies for the procurement, maintenance, and safety of sports facilities and equipment. CLO4: Develop basic sports budgets and manage human resources to ensure the smooth financial and administrative operation of sports programs.			
Unit–I: Introduction to Sports Management • Meaning and Definition • Importance of Management in Physical Education • Principles of Sports Management • Functions of Management (Planning, Organizing, Staffing, Directing, and Controlling)			
Unit–II: Program and Event Management • Meaning and Importance of Intramural Competitions • Meaning and Importance of Extramural Competitions • Methods of Organizing Sports Tournaments (Knock-out, League, and Combination) • Management of Sports Festivals and Annual Athletic Meets			
Unit–III: Facility and Equipment Management • Principles of Planning Sports Facilities (Playgrounds and Gymnasiums) • Care and Maintenance of Sports Equipment • Procedure for Purchasing Sports Goods • Stock Entry and Physical Verification of Sports Stores			
Unit–IV: Financial and Human Resource Management • Sources of Income for Sports Organizations • Preparation and Importance of a Sports Budget • Accounting and Auditing in Sports Clubs • Recruitment and Role of Volunteers in Sports Events • Office Management and Record Keeping (Attendance and Performance Records)			
References: 1. Bucher, C.A. – Administration of Physical Education and Athletic Programs			

2. <i>Kamlesh, M.L. – Management Concepts in Physical Education and Sport</i> 3. <i>Voltmer, E.F. & Esslinger, A.A. – The Organization and Administration of Physical Education</i> 4. <i>Pillai, S.S. – Sports Management</i> 5. <i>Parkhouse, B.L. – The Management of Sport: Its Curricular Context and Profession</i> 6. <i>Zeigler, E.F. – Management Theory and Practice in Physical Education and Athletics</i>		
Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Basic of games: Wrestling, Judo & Boxing	Course Code	26PESS405DS03
Hours per Week	03 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35}, (Internal – 15)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 7 short-answer questions covering the entire syllabus, each carrying one mark. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 7 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Identify the historical roots and philosophical differences between grappling and striking combat sports. CLO2: Demonstrate a technical understanding of fundamental movements, including stances, throws, and punches. CLO3: Interpret the official rules, scoring systems, and officiating signals for Olympic-style combat events. CLO4: Apply safety protocols and ethical standards (sportsmanship) essential for high-intensity physical contact.			
Unit–I: Foundations of Combat Sports • Historical Evolution: Origin of Wrestling (Ancient Olympics), Judo (Jigoro Kano's influence), and Boxing (Marquess of Queensberry Rules). • Philosophy and Ethics: The concept of "Maximum Efficiency with Minimum Effort" in Judo and "The Sweet Science" in Boxing. • Classification: Distinguishing between grappling-based (Wrestling, Judo) and striking-based (Boxing) combat. • Safety and Medical: Importance of weight categories, medical check-ups, and protective equipment.			
Unit–II: Wrestling (Freestyle and Greco-Roman) • Technical Basics: Understanding the wrestling stance, tie-ups, and the concept of "Center of Gravity." • Offensive Maneuvers: Takedowns (Single/Double Leg), Throws (Hip Toss), and Exposure techniques. • Defensive Maneuvers: Sprawling, bridge-out, and escapes from par-terre (ground) position. • Rules and Scoring: Understanding "Falls," "Technical Superiority," and the 9-meter circular mat layout.			
Unit–III: Judo (The Way of Gentleness) • Fundamental Skills: Mastery of Ukemi (Breakfalling) to ensure safety during throws. • Technique Categories: * Nage-waza: Standing throws like Seoi-Nage (Shoulder Throw). • Katame-waza: Ground techniques including pins (Osaekomi) and basic joint locks. • Etiquette (Reiho): The importance of the bow (Rei) and the code of the Judogi. • Scoring System: Defining Ippon (Full Point) and Waza-ari (Half Point).			
Unit–IV: Boxing (Amateur/AIBA Standards) • The Four Basic Punches: Technical execution of the Jab, Cross, Hook, and Uppercut. • Defensive Drills: Slipping, ducking, parrying, and the "High Guard" position. • Footwork and Movement: Lateral movement, pivoting, and maintaining distance (range). • Ring Mechanics and Rules: Scoring based on clean hits, fouls (hitting below the belt/clinch), and the role of the referee.			
References: 1. <i>Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022)</i>			

2. <i>Wrestling for Beginners</i> by Tom Jarman (2018) 3. <i>Kodokan Judo: The Essential Guide to Judo</i> by Jigoro Kano (Reprint 2020) 4. <i>Boxing: Steps to Success</i> by Mike Silver (2019) 5. <i>Combat Sports Medicine</i> by Kordi, R. et al. (2017) 6. <i>UWW (United World Wrestling) Rule Book (Latest Edition 2026)</i> 7. <i>IJF (International Judo Federation) Academy Manual</i> (2021)		
Suggested Evaluation Methods	End Term Exam: 35 Marks Time = 3 hours	Internal Assessment: 15 Marks
	Five questions from entire syllabus = 7x1 marks = 7 marks One question from each Units (I to IV) = 4x7 marks = 28 marks	Class Presentation = 5 marks Mid Term Test = 5 marks Whole Syllabus Test = 5 marks

Practical

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Practical(Basic of games: Wrestling, Judo & Boxing)	Course Code	26PESS405DS03
Hours per Week	2 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		

Course Learning Outcomes(CLO):

CLO1: Execute core technical skills in wrestling, judo, and boxing with high mechanical efficiency and safety.
 CLO2: Demonstrate essential defensive responses, such as breakfalling and sprawling, to minimize injury risk during combat.
 CLO3: Apply the official rules and officiating signals correctly within a simulated competitive environment.
 CLO4: Analyze the technical requirements of different combat stances and movement patterns to improve tactical positioning.

- **Wrestling Stance and Movement:** To demonstrate and maintain the offensive and defensive wrestling stance while practicing the "penetration step" for effective shots.
- **Double Leg Takedown Execution:** To perform a technically correct "Double Leg Takedown" on a mat, focusing on the lift, drive, and control phases.
- **Sprawl and Counter-Attack:** To demonstrate the "Sprawl" technique as a defensive reaction to a leg attack to prevent being taken down.
- **Ukemi (Breakfalling) Practice:** To demonstrate Mae-ukemi (forward) and Ushiro-ukemi (rear) breakfalls to ensure safe landings during Judo throws.
- **Major Hip Throw (O-Goshi):** To execute the O-Goshi throw with a partner, focusing on the pull (Kuzushi), entry (Tsukuri), and execution (Kake).
- **Boxing Punch Mechanics:** To demonstrate the technical execution of the Jab, Cross, Hook, and Uppercut while maintaining a balanced guard and proper weight transfer.
- **Defensive Slipping and Weaving:** To practice "Slipping" the head and "Bobbing and Weaving" to avoid simulated punches while remaining in a position to counter.
- **Boxing Footwork and Pivoting:** To execute lateral movement and "Pivoting" to create angles of attack while staying out of the opponent's line of fire.

References:	
1. Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022) 2. Wrestling for Beginners by Tom Jarman (2018) 3. Kodokan Judo: The Essential Guide to Judo by Jigoro Kano (Reprint 2020) 4. Boxing: Steps to Success by Mike Silver (2019)	
Suggested Evaluation Methods	Practical:50marks
	Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File = 40 marks
	Attendance=10marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Theory of athletics high jump, triple jump and pole vault	Course Code	26PESS405DS04
Hours per Week	03 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35}, (Internal – 15)	Time of Examinations	03 Hours

Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 7 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 7 marks.

Course Learning Outcomes (CLO):

After completing this course, the learner will be able to:

CLO1: Explain the technical phases and historical evolution of High Jump, Triple Jump, and Pole Vault.

CLO2: Identify the biomechanical requirements for maximizing vertical and horizontal displacement in jumping events.

CLO3: Demonstrate knowledge of the official World Athletics rules, including foul criteria and measurement techniques.

CLO4: Design event-specific training sessions focusing on explosive power, technique, and safety.

Unit–I: High Jump

- Fundamental Phases:
- Approach Run: The J-shaped run-up to generate horizontal velocity and centrifugal force.
- Take-off: Conversion of horizontal speed into vertical lift using the lead leg and arm drive.
- Flight/Bar Clearance: Arching the back and hip elevation to clear the bar.
- Landing: Safe landing on the shoulders and back on the high jump pit.
- Rules and Equipment: Dimensions of the uprights, crossbar specifications, and rules regarding the one-foot take-off.

Unit–II: Triple Jump

- The "Hop, Step, and Jump" Sequence: Understanding the three distinct phases of the event.
- Technical Phases:
- Approach: High-speed sprint to the take-off board.
- The Hop: Landing on the same foot used for take-off.
- The Step: A long, bounding stride landing on the opposite foot.
- The Jump: The final leap into the sandpit.

Unit–III: Pole Vault

- The Carry and Approach: Efficient sprinting while carrying the pole at a specific angle.
- Plant and Take-off: Inserting the pole into the "box" and driving upward.

- The Swing and Rock-back: Using the pole's recoil to swing the body into an inverted position.
- The Turn and Release: Rotating the body to face the bar and pushing off the pole.
- Landing: Controlled fall onto the deep foam landing mat.

Unit–IV: Training and Officiating

- Specific Conditioning: Plyometrics for explosive power, core stability, and sprint training.
- Technical Drills: Use of short-run jumps, gymnastic drills for pole vaulting, and bounding drills for triple jump.
- Duties of Officials: Recording jumps, checking bar heights, determining fouls (red/white flags), and managing the jump clock.
- Scorekeeping: Determining winners based on best height/distance and the "count-back" rule for ties.

References:

1. *World Athletics – Competition and Technical Rules*
2. *Sharma, O.P. – Athletics: A Textbook*
3. *Jacoby, E. – Applied Anthropology of Jumping*
4. *Singh, Ajmer et al. – Modern Text Book of Physical Education, Health and Sports*
5. *Ganslen, R.V. – Mechanics of the Pole Vault*
6. *Anand, R.L. – Play and Learn Athletics*

Suggested Evaluation Methods	End Term Exam: 35 Marks Time = 3 hours	Internal Assessment: 15 Marks
	Five questions from entire syllabus = 7x1 marks = 7 marks One question from each Units (I to IV) = 4x7 marks = 28 marks	Class Presentation = 5 marks Mid Term Test = 5 marks Whole Syllabus Test = 5 marks

Practical

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Practical (Theory of athletics high jump, triple jump and pole vault)	Course Code	26PESS405DS04
Hours per Week	2 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50		

Course Learning Outcomes(CLO):

CLO1: Execute the fundamental phases of High Jump, Triple Jump, and Pole Vault with technical precision and safety.

CLO2: Demonstrate specific plyometric and gymnastic drills designed to enhance explosive power and aerial body control.

CLO3: Apply the official rules of World Athletics to determine fouls, record measurements, and manage the jump clock.

CLO4: Analyze the biomechanical principles of centrifugal force and elastic energy used in various jumping events.

- **High Jump – Fosbury Flop Technique:** To demonstrate the J-shaped approach run, focusing on the conversion of horizontal velocity into vertical lift during the one-foot take-off.
- **High Jump Clearance and Landing:** To practice arching the back and elevating the hips for bar clearance, followed by a safe landing on the shoulders and upper back.
- **Triple Jump Sequence (Hop-Step-Jump):** To execute the "Hop" (landing on the take-off foot), the "Step" (a long bounding stride to the opposite foot), and the "Jump" (final leap into the sandpit).
- **Triple Jump Landing Technique:** To demonstrate the "Telemark" or "Sail" landing in the sandpit, ensuring that the body falls forward to maximize the measured distance.
- **Pole Vault Inversion and Turn:** To practice the "Swing and Rock-back" using the pole's recoil to achieve

an inverted position, followed by the body turn to face the crossbar. ➤ Vertical Jump Scorekeeping: To practice applying the "Count-back" rule to determine a winner in the event of a tie in High Jump or Pole Vault. ➤ Field Marking and Layout: To prepare a technical diagram of the High Jump pit and Triple Jump runway, including the correct dimensions of the take-off board and landing areas.	
References: 1. Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022) 2. Track and Field Athletics: Coaching Manual by Wright, S. (2019) 3. High Jump: Steps to Success by Schmolinsky, G. (2017) 4. World Athletics (IAAF) Competition Rules (Latest Edition 2026) 5. The Throws and Jumps: Encyclopedia of Athletics by Quercetani, R.L. (2020) 6. Biomechanical Analysis of Jumping Events by Hay, J.G. (2018) 7. Plyometrics for Explosive Power by Chu, D.A. (2019)	
Suggested Evaluation Methods	Practical:50marks Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File = 40 marks Attendance=10marks

Name of Program	Bsc Sports Science	Program Code	
Name of the Course	Organization and Administration	Course Code	26PESS406DS01
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one mark. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Analyze the organizational hierarchy of state-level sports and the roles of various governing bodies. CLO2: Design and draw complex tournament fixtures using various methods like Knock-out and League. CLO3: Implement systematic procedures for the procurement, maintenance, and recording of sports equipment and facilities. CLO4: Manage administrative office tasks, including budgeting and record-keeping, while adhering to professional ethics.			
Unit–I: Organization and Structures of State Sports • Meaning and Definition of Organization • Administrative Structure of Sports in Haryana (Sports Department) • Role and Functions of State Sports Associations			
Unit–II: Tournament and Type of Tournament • Meaning and Importance of Tournaments • Knock-out (Elimination) Tournament: Advantages and Disadvantages • League (Round Robin) Tournament: Cyclic and Staircase Methods • Combination Tournaments (League-cum-Knock-out, etc.) • Challenge Tournaments (Ladder and Pyramid)			
Unit–III: Facility and Equipment Management • Principles of Planning Sports Facilities (Playgrounds and Gymnasiums) • Care and Maintenance of Outdoor and Indoor Play Surfaces • Procedure for Purchasing Sports Equipment • Stock Entry, Issuing, and Dead-stock Register Management			
Unit–IV: Office Management and Professional Ethics • Maintaining Essential Records (Attendance, Finance, and Achievement) • Preparation of Annual Sports Budget • Qualities and Qualifications of a Sports Administrator • Professional Ethics and Accountability in Sports Administration			
References: 1. Kamlesh, M.L. – <i>Management Concepts in Physical Education and Sport</i> 2. Bucher, C.A. – <i>Administration of Physical Education and Athletic Programmes</i> 3. Voltmer, E.F. & Esslinger, A.A. – <i>The Organization and Administration of Physical Education</i>			

4. Singh, Ajmer et al. – <i>Essentials of Physical Education</i> 5. Sharma, O.P. – <i>School Administration and Organization</i> 6. Ziegler, E.F. & Bowie, G.W. – <i>Management System in Sport and Physical Education</i>		
Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Sports Sociology	Course Code	26PESS406DS02
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Analyze the role of sports as a powerful tool for individual socialization and character development. CLO2: Evaluate the capacity of sports to foster national and international integration and social unity. CLO3: Identify strategies for promoting diversity and ensuring inclusive participation across all social groups. CLO4: Understand the complex interaction between sports and major social institutions like media, family, and politics.			
Unit–I: Sports as a Social Tool • Meaning and Definition of Sports Sociology • Sports as a Tool for Character Building • Sports and Socialization Process • Impact of Sports on Community Leadership			
Unit–II: Social Integration • Meaning and Definition of Social Integration • Role of Sports in National Integration • Sports as a Medium for International Understanding • Sports and Regional Identity			
Unit–III: Inclusion and Diversity in Sports • Meaning and Importance of Inclusion in Sports • Gender Diversity and Women in Sports • Inclusion of Persons with Disabilities (Para-Sports) • Overcoming Racial and Ethnic Barriers through Sports			
Unit–IV: Social Institutions and Sports • Relationship between Sports and Educational Institutions • Influence of Mass Media on Sports Culture • Sports and Political Systems • Commercialization and its Social Impact on Sports			
References: 1. Coakley, J.J. – <i>Sports in Society: Issues and Controversies</i> 2. Loy, J.W., Kenyon, G.S. & McPherson, B.D. – <i>Sport and Social Systems</i> 3. Edwards, H. – <i>Sociology of Sport</i> 4. Kanwal, J.S. – <i>Sociology of Sport</i>			

5. Eitzen, D.S. & Sage, G.H. – *Sociology of North American Sport*

6. Sharma, R.N. – *Urban Sociology*

Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Basic of games: Table Tennis, Lawn Tennis & Badminton	Course Code	26PESS406DS03
Hours per Week	03 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35}, (Internal – 15)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 7 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 7 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Compare the historical backgrounds and governing structures of major global racket sports. CLO2: Demonstrate proficiency in the fundamental grips, strokes, and footwork required for Table Tennis, Tennis, and Badminton. CLO3: Apply the specific scoring systems and rules for officiating tournament matches in each sport. CLO4: Develop tactical awareness for both individual and team (doubles) play while maintaining safety standards.			
Unit–I: History and Organizational Structure • Origin and Evolution of Table Tennis, Lawn Tennis, and Badminton • Role of International Federations: ITTF (Table Tennis), ITF (Tennis), and BWF (Badminton) • Role of National Federations in India (TTFI, AITA, and BAI) • Major Grand Slams in Tennis and BWF World Championships • History of India’s Performance in the Olympics and Commonwealth Games for Racket Sports			
Unit–II: Fundamental Skills and Techniques • Table Tennis: The Grip (Shakehand and Penhold), Service (Backspin, Topspin), Forehand and Backhand Counter/Drive. • Lawn Tennis: The Grip (Eastern, Continental, Western), Forehand and Backhand Groundstrokes, Service, Volley, and Smash. • Badminton: Grip (Forehand and Backhand), Footwork, Service (High and Low), Clear, Drop, and Smash. • Footwork and Agility Drills specific to Racket Sports.			
Unit–III: Rules, Regulations, and Court Dimensions • Table Tennis: Dimensions of the Table, Net, and Racket; Scoring (Sets of 11 points). • Lawn Tennis: Court Dimensions (Singles vs. Doubles); Scoring System (15, 30, 40, Deuce, Advantage). • Badminton: Court Dimensions and Net Height; Scoring System (Best of 3 games of 21 points). • Common Fouls: Service faults, Let, and Net touches. • Equipment Specifications: Racket weights, Ball types, and Shuttlecock (Feather vs. Synthetic).			
Unit–IV: Tactics and Officiating • Offensive and Defensive Strategies in Singles and Doubles Play • Importance of Court Positioning and Anticipation • Duties and Responsibilities of Officials (Referees, Umpires, and Line Judges) • Hand Signals and Scorecard Maintenance • Common Sports Injuries (Tennis Elbow, Ankle Sprains) and Prevention			
References:			

1. *Hodge, K. – Badminton: Steps to Success*
2. *Douglas, J. – Tennis: Steps to Success*
3. *McAfee, R. – Table Tennis: Steps to Success*
4. *BWF Official Statutes and Laws of Badminton*
5. *ITF Rules of Tennis*
6. *Singh, Ajmer et al. – Modern Text Book of Physical Education, Health and Sports*

Suggested Evaluation Methods	End Term Exam: 35 Marks Time = 3 hours	Internal Assessment: 15 Marks
	Five questions from entire syllabus = 7x1 marks = 7 marks One question from each Units (I to IV) = 4x7 marks = 28 marks	Class Presentation = 5 marks Mid Term Test = 5 marks Whole Syllabus Test = 5 marks

Practical

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Practical (Basic of games: Table Tennis, Lawn Tennis & Badminton)	Course Code	26PESS406DS03
Hours per Week	2 Hours	Credits	02(L:2,T:0,P:2)
Maximum Marks	50		
Course Learning Outcomes(CLO): CLO1: Execute fundamental techniques and specialized grips for Table Tennis, Lawn Tennis, and Badminton with technical proficiency. CLO2: Design and implement agility-based footwork drills tailored to the high-speed requirements of racket sports. CLO3: Apply the official rules and scoring mechanics correctly during competitive match simulations. CLO4: Analyze court dimensions and equipment specifications to ensure standardized play and safety..			
➤ Grip Mastery and Hand-Eye Coordination: To demonstrate the specific grips for each sport—Shakehand and Penhold (Table Tennis), Eastern and Continental (Lawn Tennis), and Forehand/Backhand (Badminton). ➤ Service Techniques and Variations: To perform and record the accuracy of various serves: Backspin/Topspin in Table Tennis, High/Low/Flick in Badminton, and the Flat/Slice serve in Lawn Tennis. ➤ Fundamental Stroke Execution: To execute a sequence of core strokes—Forehand and Backhand Counters (TT), Groundstrokes and Volleys (Tennis), and the Clear, Drop, and Smash (Badminton). ➤ Footwork and Agility Drills: To demonstrate sport-specific footwork, including the "Side-to-Side" shuffle for Table Tennis and the "Six-Corner" lunging drill for Badminton court coverage. ➤ Court Dimensions and Equipment Audit: To prepare a technical layout diagram for a Table Tennis table, a Lawn Tennis court (Singles/Doubles), and a Badminton court, including net heights. ➤ Scoring System Simulation: To conduct a mock match in each sport, demonstrating the distinct scoring methods: 11-point sets (TT), the 15-30-40-Deuce system (Tennis), and 21-point games (Badminton). ➤ Officiating and Hand Signals: To simulate the duties of an Umpire and Line Judge, using official hand signals for "Service Fault," "Let," "In/Out," and maintaining a scorecard. ➤ Injury Prevention and First Aid: To demonstrate specific warm-up routines to prevent "Tennis Elbow" and practice the RICE (Rest, Ice, Compression, Elevation) protocol for common ankle sprains.			
References: 1. Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022) 2. Table Tennis: Steps to Success by Richard McAfee (2017) 3. Tennis: Steps to Success by Jim Brown (2019) 4. Badminton: Steps to Success by Tony Grice (2018) 5. Official Rule Books: ITTF (Table Tennis), ITF (Tennis), and BWF (Badminton) - Latest Editions 2026 6. Sports Injuries: Prevention and Management by Christopher Norris (2020)			
Suggested Evaluation Methods	Practical:50marks		
	Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File = 40 marks Attendance=10marks		

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Theory of athletics: Discuss Throw, Shot Put, Javelin Throw	Course Code	26PESS406DS04
Hours per Week	03 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{External (term-end exam) – 35}, (Internal – 15)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 7 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 7 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Describe the technical phases and historical development of the three major throwing events. CLO2: Identify the biomechanical factors, such as release speed, height, and angle, that determine a successful throw. CLO3: Apply World Athletics rules regarding implement specifications and valid throwing attempts. CLO4: Organize safe and efficient throwing practices and competitions, ensuring correct officiating and measurement.			
Unit–I: Shot Put - Historical Development: Evolution from "Stone Putting" to the modern "Shot Put" with transitions from the Standing throw to the O'Brien (Glide) technique and the Rotational (Spin) technique. - Fundamental Phases: - The Grip and Stance: Positioning the shot at the base of the fingers and tucking it against the neck. - The Glide/Rotation: Moving across the circle to generate linear or rotational momentum. - The Power Position: The "arch" or "C" position of the body ready for delivery. - The Delivery/Release: Extension of the arm and flick of the wrist at an optimum angle (approximately 35°–40°).			
Unit–II: Discus Throw - Historical Background: One of the original events of the Ancient Olympic Pentathlon. - Fundamental Phases: - The Grip: Holding the discus with the first joints of the fingers. - The Preliminary Swings: Establishing rhythm and balance at the back of the circle. - The Turn (Rotation): Executing a 1.5-turn movement to build maximum centrifugal force. - The Power Position: Transitioning from the turn to a wide, grounded stance. - The Release: Squeezing the discus out over the index finger with a clockwise spin.			
Unit–III: Javelin Throw - Historical Evolution: Derived from ancient hunting and warfare; transition from the "held" grip to modern aerodynamic spear designs. - Fundamental Phases: - The Grip: Types of grips (Finnish, American, and Fork/V-grip). - The Approach Run: A smooth, controlled sprint while carrying the javelin. - The Withdrawal and Cross-steps (Impulse step): Shifting the javelin back while maintaining speed through "crossover" steps.			

The Delivery: The "whip-like" action of the arm and the firm "block" with the lead leg.		
Unit–IV: Training and Officiating - Specific Conditioning: Weight training for explosive power, medicine ball drills, and flexibility exercises for the torso and shoulders. - Technical Drills: Standing throws, short-approach throws, and "release" drills into a net. - Duties of Officials: Checking the legality of the implement, determining fouls (stepping on the rim/line), and measuring from the nearest mark made by the implement. - Field Management: Safety protocols to ensure no one is in the landing sector during throws.		
References: - World Athletics – Competition and Technical Rules - Sharma, O.P. – Athletics: A Textbook - Zatsiorsky, V.M. – Biomechanics in Sport: Performance Enhancement and Injury Prevention - Singh, Ajmer et al. – Modern Text Book of Physical Education, Health and Sports - Anand, R.L. – Play and Learn Athletics - Hubbard, M. – The Physics of Throwing Events		
Suggested Evaluation Methods	End Term Exam: 35 Marks Time = 3 hours	Internal Assessment: 15 Marks
	Five questions from entire syllabus = 7x1 marks = 7 marks One question from each Units (I to IV) = 4x7 marks = 28 marks	Class Presentation = 5 marks Mid Term Test = 5 marks Whole Syllabus Test = 5 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Practical Theory of athletics: (Discuss Throw, Shot Put, Javelin Throw)	Course Code	26PESS406DS04
Hours per Week	2 Hours	Credits	02(L:2,T:0,P:2)
Maximum Marks	50		
Course Learning Outcomes(CLO): CLO1: Execute the technical phases of Shot Put, Discus, and Javelin throw with mechanical precision and safety. CLO2: Demonstrate specialized explosive power drills and flexibility routines tailored for throwing athletes. CLO3: Apply the official rules of World Athletics to judge the validity of throws and manage the competition sector. CLO4: Analyze the biomechanical factors, such as the angle of release and centrifugal force, that influence throwing distance.			
➤ Shot Put – The Glide (O’Brien) Technique: To demonstrate the sequence of the "Glide," focusing on the back-to-target start, the explosive linear shift across the circle, and the "C" power position.			
➤ Shot Put – Release and Recovery: To practice the delivery at an optimum angle (35° – 40°) followed by a balanced "reverse" or recovery step to avoid stepping out of the circle.			
➤ Discus Throw – Grip and Preliminary Swings: To demonstrate the correct finger-joint grip and the rhythm-building preliminary swings at the back of the throwing circle.			

➤ Discus Throw – Rotational Movement: To execute the 1.5-turn rotation, focusing on maintaining a wide base and generating maximum centrifugal force before the clockwise release over the index finger. ➤ Javelin Throw – Grip Variations: To identify and demonstrate the three standard grips: the Finnish grip, the American grip, and the Fork/V-grip. ➤ Javelin Throw – Cross-steps and Block: To perform the transition from the approach run to the "Cross-steps" (impulse step) and execute the firm "left-side block" (for right-handed throwers) during delivery. ➤ Explosive Power Conditioning: To conduct specific training drills using medicine balls (overhead throws) and resistance bands to enhance the "whip-like" action required for throwing.	
References: 1. Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022) 2. Track and Field Athletics: Coaching Manual by Wright, S. (2019) 3. The Throws: Encyclopedia of Athletics by Quercetani, R.L. (2020) 4. World Athletics (IAAF) Competition Rules (Latest Edition 2026) 5. Biomechanical Analysis of Throwing Events by Hay, J.G. (2018) 6. Strength and Conditioning for Athletics by Gamble, P. (2021)	
Suggested Evaluation Methods	Practical:50marks
	Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File = 40 marks Attendance=10marks

Practical

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Olympic Movement	Course Code	27PESS407DS01
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Define the historical roots and the philosophical transition from ancient to modern Olympic Games. CLO2: Identify and explain the symbolism, mottos, and ethical values that drive the Olympic Movement. CLO3: Analyze the administrative hierarchy and functions of the IOC, NOCs, and various sports federations. CLO4: Evaluate modern challenges and the expansion of the movement through the Paralympics and Youth Games.			
Unit–I: Historical Foundation of the Olympic Movement • Meaning and Definition of the Olympic Movement • The Ancient Olympic Games: Origin, Rules, and Decline			

The Modern Olympic Games: Revival and the Role of Baron Pierre de Coubertin		
Unit–II: Olympic Symbols and Ideals - The Olympic Motto: Citius, Altius, Fortius – Communiter - Meaning and Significance of the Olympic Rings and Flag - The Olympic Oath, Anthem, and the Olympic Flame/Torch Relay		
Unit–III: Organizational Structure of the Olympics - International Olympic Committee (IOC): Constitution, Powers, and Functions - National Olympic Committees (NOCs): Role and the Indian Olympic Association (IOA) - The Host City Selection Process and Bidding Procedures		
Unit–IV: Modern Developments and Ethics - Paralympic Games and Special Olympics: Origin and Importance - Youth Olympic Games (YOG) and Winter Olympics - Women’s Participation and Gender Equality in the Olympics		
References: - Lucas, J. – <i>The Modern Olympic Games</i> - Young, D.C. – <i>A Brief History of the Olympic Games</i> - Coubertin, P. – <i>Olympic Memoirs</i> - Osada, K. – <i>The Olympic Movement</i> - International Olympic Committee – <i>Olympic Charter</i> - Kamlesh, M.L. – <i>Principles and History of Physical Education</i> - Olympic.org		
Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Research Process in Physical Education	Course Code	27PESS407DS02
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Define the core characteristics of research and understand the ethical framework required for sports studies. CLO2: Distinguish between different types of research to select the appropriate methodology for a given sports problem. CLO3: Analyze how scientific research directly contributes to injury prevention, technical innovation, and sports policy. CLO4: Draft a structured research proposal or synopsis including a clearly defined problem and methodology.			
Unit–I: Introduction to Research			

• Meaning and Definition of Research: Systematic inquiry into sports sciences. • Characteristics of Good Research: Objectivity, reliability, validity, and replicability.		
Unit–II: Types of Research • Basic (Fundamental) Research: Theory building in exercise physiology and biomechanics. • Applied Research: Solving practical problems in sports performance and coaching. • Action Research: Immediate problem-solving for coaches and PE teachers in the field. • Qualitative vs. Quantitative: Comparing numerical data analysis with narrative/observational approaches. • Descriptive and Experimental Research: Overview of "what is" vs. "cause-and-effect" studies.		
Unit–III: Sampling Techniques in Research • Meaning and Definition: Concept of Population, Sample, and Sampling Frame. • Need for Sampling: Efficiency, cost-effectiveness, and feasibility in sports studies. • Probability Sampling: Simple Random, Stratified, Systematic, and Cluster sampling. • Non-Probability Sampling: Convenience, Purposive (Judgmental), and Quota sampling. • Sampling Errors: Understanding and minimizing bias in athlete selection.		
Unit–IV: Research Proposal, Synopsis, and Applications • Formulating the Problem: Identification and selection of a viable research topic. • Writing a Synopsis: Structural components (Introduction, Statement of Problem, Methodology). • Referencing Styles: Basic introduction to Bibliography and Citations (APA/MLA).		
References: 1. Best, J.W. & Kahn, J.V. – <i>Research in Education</i> 2. Kamlesh, M.L. – <i>Research Methodology in Physical Education and Sports</i> 3. Thomas, J.R., Nelson, J.K. & Silverman, S.J. – <i>Research Methods in Physical Activity</i> 4. Rothstein, A.L. – <i>Research Design and Statistics for Physical Education</i> 5. Clarke, D.H. & Clarke, H.H. – <i>Research Processes in Physical Education</i> 6. Kothari, C.R. – <i>Research Methodology: Methods and Techniques</i>		
Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Application of Statistics	Course Code	27PESS407DS03
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Define the fundamental concepts of statistics and their specific utility in the field of sports science. CLO2: Create and interpret various graphical representations to communicate sports data effectively. CLO3: Calculate and apply measures of central tendency and variability to evaluate athletic performance. CLO4: Identify the correct scale of measurement to ensure the accuracy and validity of sports data analysis.			
Unit–I: Introduction to Statistics • Meaning and Definition of Statistics • Importance of Statistics in Physical Education and Sports • Frequency Distribution and Data Organization			
Unit–II: Graphical Representation of Data • Meaning and Importance of Graphical Representation • Construction and Use of Bar Diagrams • Construction and Use of Histograms • Construction and Use of Pie Charts • Frequency Polygons and Cumulative Frequency Curves			
Unit–III: Measures of Central Tendency and Variability • Calculation of Mean, Median, and Mode • Meaning and Calculation of Quartile Deviation • Meaning and Calculation of Standard Deviation • Application of Variability Measures in Performance Analysis			
Unit–IV: Scales of Measurement • Nominal Scale (Classification and Labeling) • Ordinal Scale (Ranking and Order) • Interval Scale (Equal Units of Measurement) • Ratio Scale (Absolute Zero and Comparisons) • Selection of Statistical Tests based on Measurement Scales			
References: 1. <i>Srivastava, A.K. – Statistics in Physical Education and Sports</i> 2. <i>Verma, J.P. – Statistical Methods for Sports and Physical Education</i> 3. <i>Garrett, H.E. – Statistics in Psychology and Education</i> 4. <i>Kansal, D.K. – Test and Measurement in Sports and Physical Education</i>			

5. *Best, J.W. & Kahn, J.V. – Research in Education*

6. *Rothstein, A.L. – Research Design and Statistics for Physical Education*

Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Curriculum Design & Physical Education	Course Code	27PESS407DS04
Hours per Week	03 Hours	Credits	04 (L:4,T:0,P:0)
Maximum Marks	100{External (term-end exam) – 70}, (Internal – 30)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 10 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 15 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Define and contrast the various dimensions of curriculum design within the context of physical education. CLO2: Differentiate between subject-oriented and learner-oriented instructional models. CLO3: Apply scientific principles to construct a balanced, integrated, and socially relevant sports syllabus. CLO4: Critically analyze existing curricula and propose evidence-based revisions to meet contemporary health and professional challenges..			
Unit–I: Foundations of Curriculum Design - Meaning and Definition: Concept of curriculum vs. syllabus; the "hidden" curriculum in sports. - Need and Importance: Why a structured curriculum is vital for standardizing physical literacy and motor development. - Scope in Modern Education: The shift from traditional "drill-based" models to holistic "wellness and life-skills" models. - Historical Perspective: Evolution of PE curricula from gymnastic systems to modern sports-integrated frameworks.			
Unit–II: Types of Curriculum Models - Subject-Centered Curriculum: Focus on mastery of specific disciplines (e.g., specific rules and skills of Football or Athletics). - Learner-Centered Curriculum: Tailoring activities to the individual's physical ability, interest, and developmental stage. - Activity-Centered Curriculum: Emphasis on learning through doing, focusing on motor skills, play, and physical experience.			
Unit–III: Principles of Curriculum Construction - Child-Centeredness: Prioritizing the psychological and physical readiness of the student. - Community Needs and Social Relevance: Aligning sports education with cultural values and local community health requirements. - Utility and Practicality: Ensuring the activities taught are applicable to lifelong fitness and professional career paths.			
Unit–IV: Evaluation, Revision, and Trends - Curriculum Evaluation: Systematic processes to measure the effectiveness of the PE program (Summative and Formative). - Tools for Evaluation: Using rubrics, standardized fitness tests, and student feedback to assess curriculum impact. - Factors Influencing Change: Advancements in sports technology, changes in government policies (e.g., NEP 2020), and global health trends. - Future Challenges: Addressing sedentary lifestyles, digital integration (e-sports), and inclusivity for differently-abled students.			
References: 1. <i>Curriculum Development in Physical Education</i> by Cassidy, R. (2019)			

2. <i>Standards-Based Physical Education Curriculum Development</i> by Lund, J. and Tannehill, D. (2020) 3. <i>Modern Text Book of Physical Education, Health and Sports</i> by Singh, Ajmer et al. (2022) 4. <i>Foundations of Physical Education</i> by Bucher, C.A. (2017) 5. <i>Curriculum Theory: Conflicting Visions and Enduring Concerns</i> by Schiro, M.S. (2021) 6. <i>Instructional Models for Physical Education</i> by Metzler, M. (2017) 7. <i>Curriculum Planning for Better Teaching and Learning</i> by Saylor, J.G. et al. (2018)		
Suggested Evaluation Methods	End Term Exam: 70 Marks Time = 3 hours	Internal Assessment: 30 Marks
	Five questions from entire syllabus = 10x1 marks = 10 marks One question from each Units (I to IV) = 4x15 marks = 60 marks	Class Presentation = 5 marks 2 Assignment/ Quiz = 10 marks Mid Term Test = 5 marks Whole Syllabus Test = 10 marks

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Theory of Athletics: Hurdles, Middle & Long Distance Races	Course Code	27PESS407DS05
Hours per Week	03 Hours	Credits	02 (L:2,T:0,P:2)
Maximum Marks	50{ External (term-end exam) – 35}, (Internal – 15)	Time of Examinations	03 Hours
Note: The candidate will attempt five questions out of nine in total. Question No. 1, which is compulsory, will consist of 7 short-answer questions covering the entire syllabus, each carrying one marks. There will be four units, with each unit having two long questions. The candidate must attempt four questions, selecting one question from each unit, with each question carrying 7 marks.			
Course Learning Outcomes (CLO): After completing this course, the learner will be able to: CLO1: Explain the biomechanical phases of hurdle clearance and the technical differences between distance disciplines. CLO2: Identify the physiological energy systems required for middle and long-distance running. CLO3: Apply tactical awareness regarding pacing and positioning during competitive racing. CLO4: Execute officiating duties and interpret World Athletics rules for track events accurately.			
Unit–I: Hurdle Races - Historical Development: Evolution from high wooden hurdles to the modern L-shaped hurdles designed to collapse when hit. - Technical Phases: - The Start and Approach: Reaching maximum controlled speed before the first hurdle. - Hurdle Clearance: - Lead Leg Action: The rapid lift and extension of the leading leg over the hurdle. - Trail Leg Action: The sideways "hook" movement of the trailing leg to clear the crossbar. - The Landing and "Cut-down": Bringing the lead leg down quickly to resume sprinting immediately.			
Unit–II: Middle Distance Races (800m & 1500m) - Nature of the Event: A blend of aerobic capacity and anaerobic power; often called "extended sprints." - Fundamental Techniques: - The Start: Standing start (crouch start is not used); importance of "breaking" from lanes in the 800m. - Running Economy: Maintaining a relaxed upper body and efficient stride length. - Tactical Positioning: Drafting, box avoidance, and the timing of the "kick" (final sprint).			

Unit–III: Long Distance Races (3000m to 10,000m) - Nature of the Event: Primarily aerobic endurance events requiring mental toughness and pace judgment. - Fundamental Techniques: - Foot Strike: Transition from mid-foot to forefoot strike for efficiency over long durations. - Pacing: Maintaining a steady "split time" for each lap to avoid premature fatigue. - Hydration and Cooling: Techniques for taking water during longer track events (5000m and 10,000m). - Steeplechase: Mastery of hurdle clearance and the specific technique for the water jump.		
Unit–IV: Training and Officiating - Specific Conditioning: - Interval Training: For middle-distance speed endurance. - Fartlek and Continuous Training: For building the aerobic base in long-distance runners. - Hurdle Drills: Lead/trail leg isolation drills and flexibility exercises. - Duties of Officials:		
References: - World Athletics – Competition and Technical Rules - Sharma, O.P. – Athletics: A Textbook - Thompson, P.J.L. – Introduction to Coaching Theory - Singh, Ajmer et al. – Modern Text Book of Physical Education, Health and Sports - Cozier, C. – The Art of Hurdling - Noakes, T. – Lore of Running		
Suggested Evaluation Methods	End Term Exam: 35 Marks Time = 3 hours	Internal Assessment: 15 Marks
	Five questions from entire syllabus = 7x1 marks = 7 marks One question from each Units (I to IV) = 4x7 marks = 28 marks	Class Presentation = 5 marks Mid Term Test = 5 marks Whole Syllabus Test = 5 marks

Practical

Name of Program	BSc Sports Science	Program Code	
Name of the Course	Practical Theory of athletics: (Theory of Athletics: Hurdles, Middle & Long Distance Races)	Course Code	27PESS407DS05
Hours per Week	2 Hours	Credits	02(L:2,T:0,P:2)
Maximum Marks	50		
Course Learning Outcomes(CLO): CLO1: Execute the technical phases of hurdle clearance and the specific starting protocols for various track events. CLO2: Demonstrate a variety of conditioning methods, including interval and continuous training, tailored for specific race distances. CLO3: Apply the official World Athletics rules for lap scoring, lane violations, and hurdle height specifications. CLO4: Analyze running economy and tactical positioning (drafting and kicking) to optimize performance in middle and long-distance races.			

- **Hurdle Clearance – Lead Leg Action:** To demonstrate the rapid lift and extension of the lead leg over the hurdle, focusing on the "attack" movement and avoiding the tendency to "jump
- **"Hurdle Clearance – Trail Leg Action:** To perform the sideways "hook" or "hip-rotation" movement of the trailing leg to clear the crossbar while maintaining forward momentum.
- **The "Cut-down" and Rhythm Drill:** To practice the rapid grounding of the lead leg immediately after clearance to resume sprinting without loss of speed.
- **Hurdle Isolation Drills:** To conduct wall-based or side-of-hurdle drills to isolate and perfect the mechanics of the lead leg and trail leg independently.
- **Middle Distance Starting and Breaking:** To demonstrate the Standing Start for 800m and practice the "break" from lanes into the inner curve after the first bend.
- **Running Economy and Stride Analysis:** To observe and adjust running form (relaxed upper body and efficient foot strike) during a 1500m steady-state run.
- **Pacing and Split-Time Management:** To practice maintaining a steady "split time" for each 400m lap during a 3000m or 5000m run, using a stopwatch for feedback.
- **Steeplechase Water Jump Technique:** To simulate or demonstrate the technique of stepping on the hurdle and launching into the water jump to maximize distance and maintain speed.

References:

1. Modern Text Book of Physical Education, Health and Sports by Singh, Ajmer et al. (2022)
2. Track and Field Athletics: Coaching Manual by Wright, S. (2019)
3. The Science of Running by Magness, S. (2018)
4. World Athletics (IAAF) Competition Rules (Latest Edition 2026)
5. Winning Jumps and Hurdles by Freeman, W.H. (2020)
6. Middle and Long Distance Training by Martin, D.E. and Coe, P.N. (2021)
7. Training for Speed, Agility, and Quickness by Brown, L.E. and Ferrigno, V.A. (2017)

Suggested Evaluation Methods

Practical:50marks

Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File = 40 marks

Attendance=10marks