AC - 28/03/2025 Item No. - 6.2 (N) (6b) Sem. IV

As Per NEP 2020

University of Mumbai



Syllabus for Basket of OE Vertical 3

Vertical 3		
Faculty of Science		
Board of Studies in Physics		
Second Year Programme		
Semester	IV	
Title of Paper	Credits	
Physics in Sports – I	2	
From the Academic Year	2025-26	

Title of Paper - Physics in Sports - I

Sr. No.	Heading	Particulars	
1	Description of the course : Including but Not limited to :	Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.	
2	Vertical :	Open Elective	
3	Type:	Theory / Practical	
4	Credit:	2 credits (1 credit = 15 Hours for Theory or 30 Hours of Practical work in a semester)	
5	Hours Allotted :	30 Hours	
6	Marks Allotted:	50 Marks	
7	Course Objectives: (List some of the course objectives) After successful completion of this course students will be able to: 1) Know the basic physics behind sports and games. 2) Know about the laws that applicable in events. 3) Apply the laws in sports equipment's		
8	 Course Outcomes: (List some of the course outcomes) After successful completion of this course the learner will be able to: 1) Understand and explain the basic Concept of Physics. 2) Understand the importance of the theory behind the preparation of equipment 3) Explain the conservation of angular momentum and torque, laws of floatation, Archimedes principle. 		
9	Modules:- Per credit One module can be created		
	Module 1: Unit-I: Concepts of Physics (15 Lectures) Concept of Velocity, Momentum, Force, Action and Reaction, Damping, Friction. Rotation circular motion, gravitation, projectile -, Catch and Throws, thrust and pressure, Range conservation of angular momentum and torque, laws of floatation, Archimedes principle. Shooting.		
	Module 2: Unit-II: Physics of Instruments (15 Lection		
	Bats, Inflated Balls - Tennis, Table Tennis, Basketball, Football. Hard Balls - Cricker Ball, Bowling Ball, Soft (Woollen Ball), Javelin, discus, Carrom and shot put.		

10	Reference Books:			
	1. The Physic	ne Physics of Sports A Textbook By David R. Heskett		
	2. Concepts in physics by H C Verma			
	3. The physic	3. The physics of sports science Projects, Robert Gardner, Enslow Publishers		
11	Internal Continuous Assessment: 40%		External, Semester End Examination 60% Individual Passing in Internal and External Examination	
12	Continuous Evaluation through:			
	Quizzes, Class Tests, presentation,			
	project, role pl	lay, creative writing,		
	assignment etc	c.(at least 3)		
13		estion Paper: for the final exa		
	Format of Que	estion Paper for OE: Ext	ernal – 30 Marks (2 Credits)	
	Internal — 20 Marks			
	Question Paper Format for 30 Marks			
	Duration: One			
	Unit -I	Q:1 A) Attempt any TWO	10Marks	
	(15Marks)	i) Theory		
		ii) Theory		
		iii) Theory		
		iv) Theory		
		D) Attornations One	05 Marks	
		B) Attempt any One i) Problem	US Marks	
		ii) Problem		
	, , , , , , , , , , , , , , , , , , , ,		10Marks	
		i) Theory	Towarks	
		ii) Theory		
		iii) Theory		
		iv) Theory		
		B) Attempt any One	05 Marks	
		i) Problem		
		ii) Problem		

Sign of the BOS Chairman Prof. Dr. T. N. GHORUDE BOS in PHYSICS Sign of the Offg. Associate Dean Prin M. R. Rajwade Associate Dean Faculty of Science Sign of the Offg. Dean Prof Shivram Garje Faculty of Science

As Per NEP 2020

University of Mumbai



Syllabus for Basket of OE Vertical 3

Faculty of Science and Technology

Board of Studies in Physics

Second Year Programme

Semester	IV
Title of Paper	Credits
Physics in Sports – II	2
From the Academic Year	2025-26

Title of Paper - Physics in Sports - II

Sr. No.	Heading	Particulars	
1	Description of the course :	Introduction, relevance, Usefulness, Application,	
	Description of the course.	interest, connection with other courses, demand in the	
	Including but Not limited to :	industry, job prospects etc.	
2	Vertical :	Open Elective	
3	Type:	Theory / Practical	
4	Credit:	2 credits (1 credit = 15 Hours for Theory or 30	
		Hours of Practical work in a semester)	
5	Hours Allotted :	30 Hours	
6	Marks Allotted:	50 Marks	
7	Course Objectives: (List some of the course objectives)		
	After successful completion of this course students will be able to:		
	1) Understand the Physics behind the Instrument and Non-instrument sports.		
	2) Understand the physics law	s in sports equipments.	
	3) Explain the fitness for particular event.		
8	Course Outcomes: (List some of the course outcomes)		
	After successful completion of this course the learner will be able to:		
	1) Know the Physics behind the impact sports and ice sports.		
	2) Understand the importance of the theory behind the preparation of equipment		
	3) Understand balance of theory and application		
9	Modules:- Per credit One module can be created		
	Module 1: Unit-I: Physics of Instrument Sports (15 Lectures)		
	Impact sports - Cricket & Baseball Batting, Golf putting, Kicking Football, Badminton & Tennis Athletics - Paul Vault, Bowling, Curling-spinning, volley ball, throw ball Ice sports - Skating, Ice Hockey.		
	Module 2: Unit-II: Physics of Non-Instrument Sports (15 Lectures)		
	Throwing, Pulling Pushing and Sliding sports - Cricket Bowling, Baseball throw, Shot put throw. Discus throw and Javelin Throw, carrom game and Ice Skating, Kabaddi. Board games - Carrom, Billiards & Snooker Athletics - Physics of Running, Long jump, high jump, ballet dancer, gymnastics, diving and swimming, cycling track and Boating race, rowing, sailing, water polo, sport climbing and surfing.		

10	Reference Books:			
	 The Physics of Sports A Textbook By David R. Heskett https://www.academia.edu/36062426/fundamentals_of_physics_textbook_period. 			
	3. The physics of sports science Projects, Robert Gardner, Enslow Publishers			
11	Internal Cont	inuous Assessment: 40%	External, Semester End Examination 60% Individual Passing in Internal and External Examination	
12	Continuous Evaluation through:			
	Quizzes, Cla	ass Tests, presentation,		
	project, role p	lay, creative writing,		
	assignment et	c.(at least 3)		
13	Format of Qu	estion Paper: for the final ex	amination	
	Format of Qu	estion Paper for OE: Ex	ternal – 30 Marks (2 Credits)	
		Int	ernal – 20 Marks	
Question Paper Format for 30 Marks				
	Duration: One Hour			
	Unit -I	Q:1 A) Attempt any TWO	10Marks	
	(15Marks)	v) Theory		
		vi) Theory		
		vii) Theory		
		viii) Theory		
		B) Attempt any One	05 Marks	
		iii) Problem	oo mame	
		iv) Problem		
	Unit -II	Q:2 A) Attempt any TWO	10Marks	
	(15Marks)	v) Theory		
		vi) Theory		
		vii) Theory		
		viii) Theory		
		B) Attempt any One	05 Marks	
		ii) Problem		
		ii) Problem		

Sd/- Sd/- Sd/Sign of the BOS Chairman Sign of the Dr. T.N. Ghorude Offg. Associate Dean Offg. Dean

Board of Studies in Dr. Madhav R. Rajwade Prof. Shivram S. Garje Physics Faculty of Science & Faculty of Science & Technology Technology

