04

PROPOSED SYLLABUS FOR SKILL DEVELOPMENT COURSE

Title of the course	SPORTS ENGINEERING
Nodal Department of HEI to run the course	SMPGGPGC, MEERUT
Broad area/ sector	Sports
Sub- Sector	Sports Engineering
Nature of Course(Independent/ Progressive)	Independent
Name of suggestive sector skill	Manufacturing and maintenance of sports equipment and facilities
Aliened NSQF Level	4
Expected fees of the course(Free/Paid)	As per University /NEP 2020 Norms
Stipend to students expected from Industry	---------
Number of seats	As per University /NEP 2020 Norms
Course code	Credits 03(01 Theory, 02 Practical)
Max. Marks....100...Min. Marks....	100/40
Name of Proposed Skill Partner(Please specify name of the industry, company etc. for practical /training/internship/OJT	VAIBHAV SPORTS, MANUFACTURERS AND SUPPLIERS, SURAJ KUND ROAD, MEERUT
Job prospects- expected fields of occupation where students will be able to get job after completing this course(Please specify name , type of industry, company etc.)	Students after completing this course may get jobs in sports equipment manufacturing units, sports stadiums , gymnasiums, grounds and at sports wholesaler and retail outlets.

SYLLABUS

UNIT	TOPICS	GENERAL/SKILL COMPONENT	T/ P/ I/ TRNG./ OJT	NO. OF THEORY HOURS(TOTAL 15 HRS= 01 CREDIT)	NO. OF SKILL HOURS(TOTAL 60 HOURS=02 CREDITS)
1	Introduction to sports engineering:Meaning, definition, Human Motion, Human Performance, Assessment, Equipment and Facility designing. Sports Dynamics : Newton's laws of motion, work , energy, impulse and momentum.	General	THEORY	02	-
2	Mechanics of Engineering Materials: Concept of internal force, Axial force, shear force, displacement. Biomechanics of daily activities: Gait, Posture, Body Levers, lifting, walking, running, throwing, jumping, pulling, pushing etc. ergonomics	General & Skill	Theory & Practical	04	04
3	Sports Dynamics: Kinematics of motion: Rectilinear and curvilinear motion system, Mechanical principles of sports dynamics. Dynamic Correspondence : Factors, Importance and Training	General	Theory	03	-
4	Facility Life Cycle Costing: Basics of costing , Total life cost concepy, maintenance cost, energy cost, capital cost and taxation.Maintenance policy, preventive maintenance, corrective maintenance , record and register for maintenance.	General & Skill	Theory & Internship	02	10
5	Building and maintenance: Sports Infrastructure, gymnasium, pavilion, swimming pool, indoor and outdoor stadium, play park, sports hostel etc. Requirements: Air ventilation, Daylight, lighting arrangements, galleries, storerooms, wastewater disposal system, changing rooms(f/m), sound system, corridoors and gates, emergency provisions,fire and	General &Skill	Theory & Internship	02	20

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	exits,finamcial considerations etc.				
6	Sports Engineering module: Basics of Production technology, mechanical methods of testing, fluid mechanics, instrumentation, winter sports and summer sports equipment. PROJECT REPORT	Skill	Theory, Practical & Internship	02	26

Suggested Readings:

1. Steve Hake, editor,The engineering of sports, CRC Press,1996
2. Franz K.F.et. al., Editor, Routledge handbook of sports technologyand engineering, 2013
3. Colin white, Projectile dynamics in sports: Principles and Applications, 2019

Suggested Digital Platforms/ web links: https://www.sportsengineering.org
https://www.sportstechnology.com
https://mme.wsu.edu

Suggested continuous evaluation method: Test, Project, Practical

Course pre-requisite: Class XII with any stream.

Suggested equivalent online course: Various foreign and Indian Universities(Institute of sports science & technology, Pune.

Notes:No. Of units, theory, Practical may vary as per need.

Department of Physical Education

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3/09/24