AC/27.06.2023/RS1

SIES COLLEGE OF ARTS, SCIENCE AND COMMERCE

(Autonomous)

Affiliated to

UNIVERSITY OF MUMBAI

Syllabus under NEP effective from June 2023

Offered By: Department of Physics

Program Name: BSc

Class: FYBSc

Syllabus for SEM I and SEM II

Course: FYBSc Skill Enhancement Course (SEC)

Choice Based Credit System (CBCS), with effect from the academic year 2023–2024, under NEP

Syllabus for B.Sc. Skill Enhancement Course

As per credit-based system

First Year B.Sc. 2023–2024

The syllabus of Skill Enhancement Course in Physics as per credit-based system for the First Year BSc. The course will be implemented from the academic year 2023–2024.

Preamble:

The systematic and planned curricula from this course shall motivate and encourage learners to develop the basic skills in measurement of instruments and electrical parameters.

Course code	Title	Credits
SIUPYSE111	**Measurement and Electrical Network Skills**	2

Scheme of examination For Skill Enhancement Course:

Only internal examination of the course will be conducted as per the following scheme:

Sr. No.	Particulars of SEC Examination	Marks
1.	**Continuous Evaluation:** Continuous evaluation based on attendance/following lab ethics/completion of lab work in the allotted time duration.	10
2.	**Internal Examination:**	
	Laboratory Work	25
	Course File	10
	Viva	05
Total		**50**

The candidate should submit a certified course file of Skill Enhancement Course with the certificate from the Head of the Department at the time of examination to obtain the course file marks.

PSO No.	DETAILS
PSO1	Understand the basic concepts and the fundamentals of mechanics, properties of matter, current electricity, and electrodynamics
PSO2	Understand the basics of quantum mechanics, relativistic physics, nuclear physics, optics, Atomic Physics, solid state physics, statistical physics and thermodynamics, mathematical physics & biophysics
PSO3	Understand and apply the concepts of electronics in the designing of different analog & digital circuits and in instrumentation
PSO4	Understand the basics of computer programming, assembly language & numerical analysis
PSO5	Apply and verify theoretical concepts through laboratory experiment
PSO6	Applications of theoretical concepts
PSO7	To familiarize with current and recent scientific and technological developments
PSO8	To enrich knowledge through problem-solving, hands-on activities, study visits & projects.

PO- Program Outcome, PSO-Program Specific outcome; CO-Course Outcome;
Cognitive Level: R-Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create

Semester I

Course Code	**Credits**	**Lectures/week**	**Course Name**	
SIUPYSE111	**2**	**2**	**Measurement and Electrical Network Skills**	
CO. No.	**DETAILS**		**Cognitive Level**	**Affinity with PO/ PSO**
CO1	Learn measuring devices like Vernier calipers, Screw gauge, travelling microscope and Sextant for measuring various length scales.		U, Ap	PSO5, PSO6, PSO8
CO2	Understand how to represent the measured data graphically and use of graphs in analysis of the data.		U, Ap, An	PSO5, PSO6, PSO8
CO3	Learn electrical network theorems to analyze simple circuits.		U, Ap, An	PSO1, PSO3, PSO5, PSO6

List of experiments:

1. Comparison of thickness and breadth using vernier caliper and screw gauge.
2. Diameter of a thin wire using screw gauge and travelling microscope.
3. Plotting of line and curved graph and their interpretation.
4. Use of sextant to measure height of buildings.
5. To verify superposition theorem
6. Potential divider
7. Passive low pass filter
8. Series-parallel combination
9. Verification of Kirchhoff's laws

A minimum of 8 experiments from the list should be completed in the semester. All these experiments are to be reported in the course file to be eligible for internal examination.

References:

1. Performance and design of AC machines – M.G. Say, ELBS Edn.
2. Mechanical workshop practice, K.C. John, 2010, PHI Learning Pvt. Ltd.
3. Workshop Processes, Practices and Materials, Bruce J Black 2005, 3rd Edn., Editor Newnes [ISBN: 0750660732] New Engineering Technology, Lawrence Smyth/Liam Hennessy.