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College of Arts, Science & Commerce (Autonomous)

SIES

RISE WITH EDUCATION

NAAC REACCREDITED - 'A' GRADE

SIES COLLEGE OF ARTS, SCIENCE ANDCOMMERCE

(Autonomous)

Affiliated to

UNIVERSITY OF MUMBAI

Syllabus for SEM I and SEM II (Under NEP)

Program Name: BSc

Class: FYBSc

Course: FYBSc Vocational Skill Enhancement Course (VSC)

Offered By: Department of Physics

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

Syllabus for F.Y.B.Sc. Vocational Skill Enhancement Course

As per credit-based system

First Year B.Sc. 2023–2024

The syllabus of Vocational 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 knowledge and skill of electronic instrumentation.

Course code	Title	Credits
SIUPYVS111	**Basic instrumentation 1**	**2**

Scheme of examination For Vocational Skill Enhancement Course:

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

Sr. No.	Particulars of VSC 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 Vocational 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
SIUPYVS111	**2**	**2**	**Basic Instrumentation-1**

CO. No.	DETAILS	Cognitive Level	Affinity with PO/ PSO
CO1	Use of CRO and DMM as measuring instruments	U, Ap	PSO5, PSO6
CO2	Various applications of logic gates.	U, Ap	PSO5, PSO6
CO3	Use of transformers and semiconductor devices like diodes	U, Ap	PSO5, PSO6

List of experiments:

1 Introduction to circuit components; resistors, capacitors, inductors.

2 Use of oscilloscope.

3 Circuit tracing.

4 Step-up and step-down transformers.

5 Diode characteristics.

6 Applications of Logic gates 1.

7 Applications of Logic gates-2.

8 P.O. Box/ Wheatstone's bridge.

9 Use of DMM.

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. Electrical Circuits, K.A. Smith and R.E. Alley, 2014, Cambridge University Press
2. A text book in Electrical Technology - B L Theraja - S Chand & Co.
3. Performance and design of AC machines - M G Say ELBS Edn.
4. Electronic Devices and Circuits, A. Mottershead,1998, PHI Learning Pvt. Ltd.
5. Network, Lines and Fields, John D. Ryder, Pearson Ed. II, 2015.
6. Electrical Circuit Analysis, K. Mahadevan and C. Chitran, 2nd Edition, 2018, PHI learning Pvt. Ltd