FIRST-YEAR OF BACHELOR OF SCIENCE PHYSICS SKILL ENHANCEMENT COURSE REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE-BASIC INSTRUMENTATIUON SKILLS
SEMESTER-II
W.E.F. 2023-2024

RECOMMENDED BY THE BOARD OF STUDIES IN PHYSICS
AND
APPROVED BY THE ACADEMIC COUNCIL

Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and
Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal.Sangmeshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: **<u>03 dated 8 July 2023</u>**

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Physics
Name of the Class	:	First Year
Semester	:	Second
No. of Credits	:	02
Title of the Course	:	Instrumentation Skills
Course Code	:	PHSE101
Name of the Vertical in adherence to NEP 2020	:	Skill Enhancement Course
Eligibility for Admission	:	Any 12^{th} Pass seeking Admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Summative at the end of semester
Level	:	UG
Pattern of Marks Distribution for SEE	:	100%
Status	:	NEP-CBCS
Implemented from Academic Year	:	2023-2024
Ordinances /Regulations (if any)		

Syllabus for First Year of Bachelor of Science in Physics

(With effect from the academic year 2023-2024)

SEMESTER-II

Course Title: Instrumentation Skills **No. of Credits - 02**

Type of Vertical: Skill Enhancement Course **COURSE CODE: PHSE101**

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Recall concepts behind various instruments
CLO-02	Understand	Understand probable errors involved in the result of experiments
CLO-03	Apply	Demonstrate plotting various types of graphs
CLO-04	Apply	Demonstrate measurement and testing of various components
CLO-05	Apply	Demonstrate the use of digital multimeter

Syllabus for First Year of Bachelor of Science in Physics

(With effect from the academic year 2023-2024)

SEMESTER-II

Course Title: Instrumentation Skills **No. of Credits - 02**

Type of Vertical: Skill Enhancement Course **COURSE CODE: PHSE101**

COURSE CONTENT			
Module	**Content**	**Credits**	**No. of Lectures**
1	Basics of Measurement: Instruments, least count, accuracy, precision, sensitivity, resolution, range etc. Units and inter-conversions. Errors in measurements and loading effects. Introduction to scientific calculator and its use – basic calculations, trigonometric, logarithmic, exponential functions etc. Vernier calliper, Micrometer screw gauge, Travelling microscope, Spectrometer, Measuring time period of repetitive motion.	**01**	**15**
2	Various circuit elements and their symbols, finding values of various components (resistors, capacitors, inductors, diodes, transistor terminals), types of power supplies, Concept of earthing. Introduction to breadboard and its use for circuit connections. Multimeter: Principles of measurement of dc voltage and dc current, ac voltage, ac current and resistance. Specifications of a multimeter and their significance. Use of Multimeter.	**01**	**15**
	Total	**02**	**30**

Access to the Course

The course is available for all the students admitted for Bachelor of Science.

Methods of Assessment

Vocational Skill Courses, Skill Enhancement Courses and the courses having laboratory sessions shall be assessed at the end of each semester.