FIRST-YEAR OF BACHELOR OF SCIENCE PHYSICS OPEN ELECTIVE COURSE REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: E-WASTE MANAGEMENT
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: **03 dated 8 July 2023**

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	:	E-Waste Management
Course Code	:	PHOE102
Name of the Vertical in adherence to NEP 2020	:	Generic/ Open Elective Courses (OE) (For Basket)
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	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for SEE and CIA	:	60:40
Status	:	NEP-CBCS
To be 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-I

Course Title: E-Waste Management **No. of Credits - 02**

Type of Vertical: Open Elective Courses **COURSE CODE: PHOE101**

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	Understand	Understand the meaning and types of E-wastes
CLO-02	Understand	Understand health hazards & economic impact of e-waste
CLO-03	Understand	Understand estimation of e-waste generation
CLO-04	Analyze	Explain contaminants associated with E-waste
CLO-05	Analyze	Explain public health issues related to E-waste

Syllabus for First Year of Bachelor of Science in Physics
(With effect from the academic year 2023-2024)
SEMESTER-I

Course Title: E-Waste Management **No. of Credits - 02**
Type of Vertical: Open Elective Courses **COURSE CODE: PHOE101**

COURSE CONTENT			
Module	**Content**	**Credits**	**No. of Lectures**
1	E-Waste Overview: What is E-waste? ,Composition and Classification, E-waste in India, Facts and Figures, Environmental and Human Health Hazards, Quantification Methods of E-waste, E-Waste Management Overview, Estimate E-waste generation with example, Economic Assessment of Resources in E-waste Stream, Environmental and public Health issue, Global Generation, Transfers of E-waste from developed to developing country, Health Hazards of Contaminants.	**01**	**15**
2	**Environmental and Public Health Issues –** Contaminants – Lead, Chromium and Beryllium, Case Studies **E-waste Health Risk Assessment** Risk Assessment and Characterization, **Environmental and Public Health Issues-** Determination of Concentration of E-waste contaminants, How to get representative samples **Environmental and Public Health Issues-** Bio-concentration concepts, Example problems, Intro to Recovery of Metals from E-waste, E-waste management in India, Rules and Service Providers **E-waste Management** E-waste Management and Handling Rules – India, LCA and sustainable engineering and electrical and electronics industry, Projected future projections for E-waste in India	**01**	**15**
	Total	**02**	**30**

Books and references
1. Electronic Waste Management Rules 2016, Govt. of India, available online at CPCB website.
2. MSW Management Rules 2016, Govt. of India, available online at CPCB website.
3. Scientific literature uploaded by TA

Access to the Course

The course is available for all the students admitted for Bachelor of Arts and Commerce faculties.

Methods of Assessment

The assessment pattern would be 60:40, 60% for Semester End Examination (SEE) and 40% for Continuous Internal Assessment (CIA). The structure of the SEE and CIA would be as recommended by the Board of Studies and approved by the Board of Examination and the Academic Council of the college.