THIRD YEAR BACHLOR OF SCIENCE MAJOR PHYSICS REVISED SYLLABUS ACCORDING TO CBCS NEP 2020

COUERSE TITLE: **Physics Practical I**

SEMESTER: VI

W.E.F. 2025-2026

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: 02/2025

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	:	Third Year
Semester	:	Sixth
Paper	:	I
No. of Credits	:	02
Title of the Course	:	Physics Practical I
Course Code	:	S313PHP
Name of the Vertical in adherence to NEP 2020	:	Major
Eligibility for Admission	:	Any student admitted to Third year of B. Sc, 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	:	5.5
Pattern of Marks Distribution for TE and CIA	:	100%
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2025-2026
Ordinances /Regulations (if any)		

Syllabus for Third Year of Bachelor of Science in Physics

(With effect from the academic year 2025-2026)

Semester -VI **Paper No.– 1**

Course Title: Physics Practical-I **No. of Credits - 02**

Type of Vertical: Major **Course Code: S313PHP**

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

Course Outcome	Course Learning Outcome
CO-01	Students will be able to apply Lagrange's equations, rigid body dynamics, and relativistic kinematics to solve numerical problems
CO-02	Conceptual Understanding of Relativity
CO-03	Mathematical Modeling of Physical Systems
CO-04	Students will develop critical thinking and problem-analysis skills by working through numerical problems and case studies, enabling them to identify key concepts

1. The certified journal must contain a minimum of **12** experiments in semester−VI**.**
2. A separate index and certificate in journal is must for each semester course**.**

Syllabus for Third Year of Bachelor of Science in Physics

(With effect from the academic year 2025-2026)

Semester -VI **Paper No.– 1**

Course Title: Physics Practical-I **No. of Credits - 02**

Type of Vertical: Major **Course Code: S313PHP**

1. Problems on Lagrange's equations –I 2. Problems on Lagrange's equations –II 3. Rigid body finding inertia tensor and angular momentum 4. Central force motion- Numerical Problem 5. Understanding concept of simultaneity length contraction, time dilation using Minkowski space-time diagram 6. Relativistic kinematics problems on length contraction and time dilation 7. Relativistic kinematics problems on relativistic velocity addition and Doppler effect of light 8. M.I of given body 9. Relativistic mechanics-problems on relativistic mass and $E = mc^2$ 10. Relativistic mechanics-problems on energy momentum relationship 11. Rotating coordinate systems numerical problem 12. Problems on α, β, γ radiation 13. Classification of Elementary Particle 14. Particle and anti-particle Properties 15. Case study of various Nuclear Reactor

References:

1. Advanced course in Practical Physics: D. Chattopadhya, PC. Rakshit & B. Saha (8^{th} Edition) Book & Allied Pvt. Ltd.
2. BSc Physics: Harnam Practical Singh. S. Chand & Co. Ltd. – 2001.
3. A Text book of Practical Physics: Samir Kumar Ghosh New Central Book Agency (4^{th} edition).
4. B Sc. Practical Physics: C. L. Arora (1st Edition) – 2001 S. Chand & Co. Ltd.
5. Practical Physics: Gupta Kumar Pragati Publication .

6. University Practical Physics: D C Tayal. Himalaya Publication.
7. Advanced Practical Physics: Worsnop & Flint.
8. Practical Physics: Indu Prakash , Ram Krishna, A.K.Jha Kitab Mahal Publication

Access to the Course

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

Methods of Assessment

The assessment pattern would be 100 %, for Semester End Examination (SEE) and 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.

Pattern of Evaluation

The Examination/Evaluation pattern shall be framed by the Board of Examination with its final approval from the Academic Council of the College.