



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

COURSE TITLE: Electronics

SEMESTER: V

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	:	Electronics
Course Code	:	S315PHT
Name of the Vertical in adherence to NEP 2020	:	Elective I
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	:	60:40
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: Electronics

No. of Credits - 02

Type of Vertical: Elective I

Course Code: S315PHT

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

Course Outcome	Course Learning Outcome
CO-01	Understanding of Semiconductor Devices and Their Applications
CO-02	Ability to Analyze and Design Electronic Circuits Using Semiconductor Devices
CO-03	Design and Analysis of Electronic Circuits
CO-04	Application of Electronic Circuits in Signal Processing and Power Systems

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: Electronics

No. of Credits - 02

Type of Vertical: Elective I

Course Code: S315PHT

	COURSE CONTENT		
Module.	Content	Credits	Lectures
I	1. Field effect transistors: JFET: Basic ideas, Drain curve, The transconductance curve, Biasing in the ohmic region and the active region, Transconductance, JFET analog switch, multiplexer, 2. SCR – construction, static characteristics, Analysis of the operation of SCR, Gate Triggering Characteristics, Variable half wave rectifier and Variable full wave rectifier, Current ratings of SCR. 4. UJT: Construction, Operation, characteristics and application as a relaxation oscillator. 1. MB: 13.1 to 13.9 2. MB: 14.1, 14.2, 14.4, 14.6. 3. AM: 28.1, 28.5	01	15
II	1. Transistor Multivibrators: Astable, Monostable and Bistable Multivibrators, Schmitt trigger. AM: 18.11 2. 555 Timer: Review Block diagram, Monostable and Astable operation Voltage Controlled Oscillator, Triggered linear ramp generator KVR: 14.5.2.1, 14.5.2.5, 14.5.2.6, 14.5.4.1 3. Regulated DC power supply: Supply characteristics, series voltage regulator, Short circuit protection MB: 23.8, 23.9 4. Waveform generation and Instrumentation of amplifier using Op-Amp MB: 17.1 to 17.5	01	15

References:

1.	MB: Electronic Principles, Malvino & Bates -7th Ed TMH Publication.
2.	AM: Electronic Devices and Circuits, Allen Mottershead -PHI Publication.
3.	KVR: Functional Electronics, K.V. Ramanan-TMH 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 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.

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.