

# Yashwantrao Chavan College of Science, Karad



## Department of Physics PHYSICS COURSE OUTCOMES Academic Year 2024-2025

**BSc. (PHYSICS)-III**

**Annexure-c**

**BSc. III Paper IX DSC- E1 MATHEMATICAL PHYSICS & CLASSICAL  
ELECTRODYNAMIS**

**By the end of this Course student should be able to know about:**

<b>CO1:</b>	Understand the orthogonal curvilinear co-ordinate system.
<b>CO2:</b>	Understand the different ways of solving first and second order differential equations.
<b>CO3:</b>	Understand charge dynamic particles and solve the Laplace and Poisson's equations.
<b>CO4:</b>	Understand the Ampares circuit law, displacement current and Biot-Savarats law.
<b>CO:5</b>	Understand and solve different medium Maxwells equations.

**BSc. III Paper X DSC- E2 QUANTUM MECHANICS**

**By the end of this Course student should be able to know about:**

<b>CO1:</b>	Understand different types of operators used in quantum mechanics and are able to use them to solve different problems.
<b>CO2:</b>	Understand and solve problems related to different types of potential like, Square-well, Bloch wave, Kroning-Penney square periodic potential.
<b>CO3:</b>	Understand and solve hydrogen atom problem
<b>CO4:</b>	Understand the angular momentum operators & their Eigen values

**BSc. III Paper XI DSC- E3 CLASSICAL MECHANICS & CLASSICAL  
ELECTRODYNAMICS**

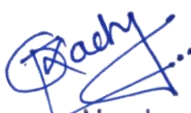
**By the end of this Course student should be able to know about:**

<b>CO1:</b>	Students are able to understand and solve central force problems and understands the conservation of energy, linear momentum and angular Momentum in system
<b>CO2:</b>	Students are able to understand how to impose constraints on a system in order to simplify the methods used in solving physics problems.
<b>CO3:</b>	Students are able to understand the concept of special theory of relativity.

<b>CO4:</b>	Students are able to understand the concept of lagrangian and Hamiltonian transformations and are able to solve problems on lagrangian and Hamiltonian transformations.
<b>BSc. III Paper XII DSC- E4 DIGITAL &amp; ANALOG CIRCUITS &amp; INSTRUMENTATION</b>	
<b>By the end of this Course student should be able to know about:</b>	
	CO1: Students are able to understand basic logic gates
	CO2: Students are able to understand transistor amplifier and CRO
	CO3: Students are able to understand timer and Operational amplifier
<b>BSc. III Paper XIII DSC- F1 NUCLEAR &amp; PARTICLE PHYSICS</b>	
<b>By the end of this Course student should be able to know about:</b>	
<b>CO1:</b>	Students are able to understand the nuclear properties
<b>CO2:</b>	Students are able to analyse the single particle nuclear shell model and related phenomena
<b>CO3:</b>	Students are able to understand and apply selection rule of elementary particles and fission, fusion reactions
<b>CO4:</b>	Students are able to understand and apply the particle accelerators and nuclear detector to solve numerical problems.
<b>BSc. III Paper XIV DSC- F2 SOLID STATE PHYSICS</b>	
<b>By the end of this Course student should be able to know about:</b>	
<b>CO1:</b>	Understand different crystal structures, interaction with X-ray and also understands various properties about crystals
<b>CO2:</b>	Understand different types of crystal defects.
<b>CO3:</b>	Understand different properties of semiconducting and superconducting properties
<b>CO4:</b>	Understand theoretical background of dielectric and magnetic properties of material
<b>BSc. III Paper XIV DSC- F3 ATOMIC &amp; MOLECULAR PHYSICS &amp; ASTROPHYSICS</b>	
<b>By the end of this Course student should be able to know about:</b>	
<b>CO1:</b>	Understand and apply ll-coupling, ss-coupling, LS coupling in atomic spectra and able to calculate and their selection rules.
<b>CO2:</b>	Understand Zeeman effect and Paschen-Back of two electrons, Stark effect of hydrogen and Compton effect.
<b>CO3:</b>	Understand the concepts related to various types of astronomy along with various instruments to apply it for practical purposes.

<b>CO4:</b>	Students are able to understand structure of universe, Raman spectra and of stars and stellar evaluation
<b>BSc. III Paper XIV DSC- F4 ENERGY STUDIES &amp; MATERIAL SCIENCE</b>	
<b>By the end of this Course student should be able to know about:</b>	
<b>CO1:</b>	Understand Study of Solar Wind and Interaction with Magnetized Planets
<b>CO2:</b>	Understand Magnetosphere in the solar system and Effects of Solar activities on Technological Earth Systems
<b>CO3:</b>	To understand bio energy and bio mass conversion
<b>CO4:</b>	Students are able to understand structure of universe, Raman spectra and of stars and stellar evaluation
<b>CO5:</b>	To understand nanotechnology



  
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