

**DEPARTMENT OF PHYSICS**  
**COURSE OUTCOMES**

**SEMESTER-I**

**Core-1**

- Students will have a sound knowledge of mathematical physics ((Calculus, Vector Calculus, orthogonal curvilinear co-ordinates, vector differentiation and vector integration) and be able to apply this knowledge to analyze a variety of physical phenomena.
- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

**Core-2**

- Students will have a thorough knowledge of rotational dynamics, non-inertial systems, elasticity, fluid motion, gravitation and central force motion, special theory of relativity and enable them to apply the above knowledge to analyze a variety of physical phenomena.
- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

**PHYSICS LAB C-I**

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

- Students will learn the use of operating system Linux or Microsoft windows to solve problems relating to physics.

### **LAB C-II**

- Students will have a thorough laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

## **SEMESTER- II**

### **C-3**

- Students will have a sound knowledge of Electric Field and Potential, Magnetic field, Electrical circuits and be able to apply this knowledge to analyze a variety of physical phenomena.
- Students will be capable of written scientific communication and will prove that they can think critically and work independently.

### **C-4**

- Students will have a thorough knowledge about Geometrical optics, wave optics, wave motion, interference, diffraction etc. and be able to apply the above knowledge to analyze various aspects of a physical phenomena.

## **PHYSICS LAB C-III**

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

## **PHYSICS LAB C-IV**

- Students will develop a good laboratory skills, which help them to take observations and analyze the results to draw conclusions.

### **SEMESTER-III**

#### **C-5**

- Students will have a sound knowledge in mathematical physics ( Fourier series, Frobenius method, Special Functions, Some special Integrals, Partial differential equations) and be able to apply this knowledge for a proper understanding of physics.

#### **C-6**

- Students will have a thorough knowledge of Thermal physics and be able to study of different physical phenomena.

### **PHYSICS LAB-C-V**

- Students will have a good knowledge of computer programming and numerical analysis but to emphasize its role in solving problems in physics.

#### **LAB-C-VI**

- Students will have a good laboratory skills which will help them to take observations and measurements in a physics laboratory and to draw valid conclusions.

#### **C-7**

- Students will have a sound knowledge of Digital system and applications, and be able to apply this knowledge to analyze a variety of physical phenomena.

#### **LAB-C-VII**

- Students will have a thorough laboratory skills enabling them to take observations and measurements in a physics laboratory and to analyze its results.

## **SEMESTER-IV**

### **C-8**

- Students will have proficiency in mathematical physics (Complex analysis, Integral transform, Laplace transform) and the mathematical concepts needed for a proper understanding of physics.

### **C-9**

- Students will have a good knowledge of modern physics, nuclear physics and be able to apply this knowledge to analyze a variety of physical phenomena.
- Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.

### **C-10**

- Students will have a sound knowledge of analog systems and its applications, which will help them to analyze different physical phenomena.

## **PHYSICS LAB- C-VIII**

- Students will develop computing skills relating to Scilab based simulations experiments based on mathematical physics.

## **PHYSICS LAB -C-IX**

- Students will have a thorough laboratory skills, enabling them to take observations in a laboratory and to draw conclusions.

## **LAB-C-X**

- Students will have a good laboratory skills, enabling them to take observations and measurements in a physics laboratory and analyze the results to draw valid conclusions.

## **SEMESTER-V**

### **C-11**

- Students will have a thorough knowledge of quantum mechanics and its applications, and be able to apply the knowledge to analyze different physical problems.
- It is helpful for students to develop oral and written scientific communication relating to physics.

### **C-12**

- Students will have a sound knowledge of solid state physics and be able to apply this knowledge to analyze a variety of physical phenomena.

### **C-13**

- Students will have a good knowledge of electromagnetic theory and be able to apply this knowledge to analyze different problems relating to physics.

### **C-14**

- Students will have a thorough knowledge of statistical mechanics and be able to apply this knowledge to analyze a variety of physical phenomena.

## **PHYSICS LAB-C-XI**

- Students will have a sound knowledge on C/C++/Scilab for solving various problems based on Quantum mechanics.

## **LAB-C-XII**

- Students will have a good laboratory skills which will help them to take observations and measurements in a physics laboratory and to draw valid conclusions.

### **LAB-C-XIII**

- Students will have a thorough laboratory skills enabling them to take observations and to analyze its results and to draw valid conclusions.

### **C-15**

- Students will have a good knowledge of statistical mechanics and be able to study and analyze a variety of physical phenomena.

## **DEPARTMENT OF PHYSICS**

### **PROGRAMME OUTCOMES**

1. Students are expected to acquire a core knowledge in physics, including the major premises of mathematical physics, classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.
2. Students are also expected to develop a written and oral communication skills in communicating physics related topics.
3. Students would be able to learn how to design and conduct an experiment ( or series of experiments) demonstrating their understanding of the scientific method and processes. They are expected to have an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.
4. Students will develop the proficiency in the acquisition of data using a variety of laboratory instruments and in the analysis and interpretation of such data.
5. Students will realize and develop an understanding of the impact of physics and science on society.
6. Students can apply conceptual understanding of the physics to general real-world situations.
7. Students will have to describe the methodology of science and the relationship between observation and theory.



- 8.** Students will have to discover the different concepts of physics relating to other disciplines such as mathematics, computer science, engineering and chemistry.
- 9.** Students will have to analyze the various physical problems and develop correct solutions using natural laws.
- 10.** Students can appear different competitive examinations like IAS, IPS, Indian Forest Service, OAS and some defence services taking physics as a major subject and can score good marks in physics.
- 11.** After completion of this programme students can join masters' programme in physics or applied physics by qualifying the entrance examinations for these programmes of different universities and technical institutions of India.