

**Department of Physics**  
**Liberal College**  
**Programme outcome for Bachelor of science in physics.**

**Programme outcomes**

1. Acquire adequate knowledge of the subject.
2. Craft a foundation for higher study.
3. Be initiated into the basis of research.
4. Imbibe sound moral and ethical values.
5. Become conscious of environmental and societal responsibilities.
6. Attain skills for compunction and career.
7. Learn to tolerate diverse ideas and different points of view.
8. Become empowered to face the challenges of the changing universe.

**Programme Specific Outcomes**

1. Understand the basic concepts of methodology of science and the fundamentals of Mechanics, Properties of matter and electrodynamics.
2. Understand the theoretical basis of quantum mechanics, relativistic physics, nuclear physics, optics, Spectroscopy, solid state physics and Thermodynamics.
3. Understand and apply the concepts of electronics in the designing of different analog and digital circuits.
4. Understand the basics of computer programing and numerical analysis.
5. Apply and verify theoretical concept thought laboratory experiments.

**B. SC. 1st Semester**

**COURSE OUTCOME: PHY-101 MECHANICS,**

After completing the course e, the student will be able to

1. Understand the features of non-inertial system and fictitious force.
2. Understand and analyse the features of central forces with respect to planetary motion.
3. Understand the basis ideas of harmonic oscillations
4. Understand and analyse the basis concepts of wave motion
5. Elaborate and explain the concepts of relativity with applications.

## **B.Sc. 2<sup>nd</sup> Semester**

### **COURSE OUTCOME: PHY-202. THERMAL PHYSICS AND OPTICS**

After completing the course, the student will be able to

1. Understand the zero and the first law of thermodynamics
2. Understand the thermodynamics description of the ideal gas
3. Understand the second law of thermodynamics and its applications.
4. Understand the basic ideas of entropy.
5. Understand the concept of thermodynamics potentials and phase transitions.
6. Understand the fundamentals of Fermat's principles and geometrical optics.
7. Understand and apply the basis ideas of diffraction of light.
8. Understand the basis ideas of polarization of light
9. Describe the basis principles of holography and fiber optics.

## **B.Sc. 3<sup>rd</sup> Semester**

### **COURSE OUTCOME: PHY-303. ELECTRICITY AND MAGNETISM.**

After completing the course, the student will be able to

1. Design many electric circuits used for many purposes in daily life.
2. Design many hydroelectric generators for generation of energy.
3. Understand the working electrical mechanics
4. Understand the applications of electricity and magnetism in medical science.
5. Understand the concept of charge transport in materials.
6. Apply knowledge of electricity and magnetism to explain natural physical processes and related technological advances.
7. Assess the contribution of physics to our evolving understanding of global change the development of physics in its historical and cultural context.

## **B.Sc. 4<sup>th</sup> Semester:**

### **COURSE OUTCOME: PHY- 404 ATOMIC AND NUCLEAR PHYSICS**

After completing the course, the student will be able to

1. Describe a typical photoelectric – effect experiment and explain what experimental observations provide evidence for the photon nature of light.
2. Understand the detail theory of X-rays and its applications to society.
3. Understand about the nuclear energy and their importance of the use of mankind.
4. Explain the application of radioactivity in medical science.
5. Study the hazards of radioactivity radiation
6. We the nuclear energy in useful purposes
7. Formulate the mathematical formula of X-rays.

## **B.Sc. 5<sup>th</sup> semester**

### **COURSE OUTCOME: PHY – 505 ELECTRONICS.**

After completing the course, the student will be able to

1. Assist, assemble, modify and test electronic circuit in accordance with job requirements.
2. Explain the dangerous effect of electronics.
3. Apply trouble shooting to electronic circuit/system and perform test procedure.
4. Develop the advance experimental techniques based on electronics.
5. Understand the value of mathematical proof.

### **COURSE OUTCOME: PHY – 506 MATHEMATICAL PHYSICS.**

After completing the course, the students will be able to

1. Apply mathematical ideas and models to problems.
2. Apply mathematical problems and solutions in aspect of science and technology.
3. Understand the value of mathematical proof.
4. Create a hypothesis and appreciate how physics relates to other theories.
5. Demonstrate the ability to justify and explain their thinking and approach.

### **COURSE OUTCOME: PHY – 507 (P) LABORATORY.**

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

1. Draw the characteristics of a transistor in the CE and CB configurations.
2. Draw the resonance curve of series and parallel LCR circuit and to determine the Q-Factor.
3. Construct toe input OR and AND logic gates using P-n junction transistor and to verify their truth table.
4. Study the performance of NOT circuit using transistors.
5. Draw the characteristics of a Zener diode and to study its used as a voltage regulator.

## **B.Sc. 6<sup>th</sup> Semester.**

### **COURSE OUTCOME: PHY – 608 QUANTUM MECHANICS,**

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

1. Understand to solve the problems for both micro and macro world.
2. Demonstrate the ability to justify and explain their thinking and approach.
3. Understand the beauty of Physics for society.
4. Understand every phenomenon in this universe.
5. Create hypothesis and appreciate how mathematics relates to Quantum theory.

### **COURSE OUTCOME: PHY- 609 PHYSICS OF MATERIALS.**

After completing the course, the students will be able to

1. Generalize the theory and expt. Of differ materials.
2. Understand the properties of all materials in our daily life.
3. Apply to diff fields of material science, medical science and engineering
4. Explore the exact theory of nanomaterials and nanotechnology.
5. Understand the materials about human necessity

### **COURSE OUTCOME: PHY – 610 – LAB**

After completing the course, the student will be able to

1. Determine the frequency ( $f$ ) and wave length ( $\lambda$ ) of radiation
2. Determine the wavelength ( $\lambda$ ) of radiation.
3. Compare the intensities of light for diff. courses.
4. Measure the current by using simple photo cell
5. Measure the current through simple semiconductor devices.
6. Use the digital signals by using Boolean algebra