

Department of Physics
Program outcome and Program Specific Outcome
for Bachelor of Science in Physics

PROGRAMME OUTCOMES

1. Study the materials in different dimensions.
2. Explore about the new materials.
3. Understand the materials about human necessity.
4. Understand the application of mathematics in materials.
5. Understand its role in human development.
6. Find career opportunities throughout nation and abroad.
7. Formulate the basic mathematical equations based on natural phenomenon.
8. Apply the simple law of nature to different field of science, engineering, technology and even in medical sciences.

PROGRAMME SPECIFIC OUTCOMES

1. Elaborate the basic theory and ideas of nature.
2. Understand and communicate the underlying ideas of different phenomenon on our daily life.
3. Formulate the advance theories based on basic laws of physics.
4. Transmit the theories and applications of physics to young students.
5. Transmit the knowledge of the correlation of physics with other subjects to the people.
6. Apply for the administrative service.
7. Establish private industries based on basic physics for economic development and to solve unemployment problem for the country.

B.Sc. 1st Semester

Course Outcome: PHY – 101: MECHANICS

After completing the course the student will be able to

1. Demonstrate the simple phenomenon concerning motion in our daily life.
2. Apply the conservation laws in many physical phenomena.
3. Formulate the mathematical relations based on physical phenomenon.
4. Demonstrate the ability to justify and explain their thinking and approach.
5. Develop proficiency in the analysis of complex physical problems.
6. Understand the Philosophical views of Physics.
7. Elaborate and explain the concept of relativity with applications

B.Sc. 2nd Semester

Course Outcome: PHY-202: THERMAL PHYSICS AND OPTICS

After completing the course, the student will be able to

1. Design many simple apparatus or machines based on thermal energy
2. Develop many simple instruments based on optics.
3. Explain the applications of thermal energy and optical phenomenon in daily life
4. Apply in chemistry, life science and automobile engineering etc
5. Formulate many advance theories based on heat and light.
6. Understand the working of thermometry and optical instruments in medical sciences.
7. Develop the advance theories and experimental techniques based on heat and light.
8. Understand and explain the practical applications of heat and light.
9. Use the appropriate techniques to explain the thermodynamic and optical process.
10. Develop proficiency in the analysis of complex thermodynamic system.
11. Explain the application of thermodynamic and optics in Astrophysics.
12. Understand the concept of thermal transport in nanoscience.

B.Sc. 3rd 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 machines.
4. Understand the applications electricity magnetism in medical science.
5. Explain about the production of electromagnetic waves.
6. Explain about the dangerous effect of electricity and magnetism to health
7. Understand about the Atmospheric electricity.
8. Develop the advance experimental techniques based on electricity and magnetism.
9. Understand and explain about the properties of charge for energy generation.
10. Apply the mathematical tools to explain the electric and magnetic phenomenon
11. Understand the concept of charge transport in materials.

B.Sc. 4th Semester

Course Outcome: PHY-404: Atomic and Nuclear Physics

After completing the course, the student will be able to

1. Understand about the powerful nuclear apparatus and applications.
2. Understand the detail theory of X-rays and its applications to society.
3. Explain about the structure of atom and the relevant theories.
4. Explain the applications of radioactivity in Medical science, Geology and Archeology
5. Formulate the simple equations regarding nuclear reactions.
6. Apply the theories in generation of energy.
7. Formulate mathematical formula of X-rays
8. Formulate new theories of radioactivity based on quantum theory.
9. Study the hazards of radioactive radiation.
10. Use nuclear energy in useful purpose.
11. Propose the different model of nucleus.

B.Sc. 5th Semester

Course Outcome: PHY-505: Electronics

After completing this course, the student 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. Assist, Assemble, Modify and Test electronic circuit in accordance with job requirements.
5. Explain scientific procedures and their experimental observations.
6. Explain about the dangerous effect of electronics
7. Gain experience to investigate the real world problems.
8. Apply troubleshooting to electronic circuit/systems and perform test procedure.
9. Develop the advance experimental techniques based on electronics.
10. Apply the mathematical tools to explain the electronics and allied phenomenon.

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. Demonstrate proficiency in mathematics and mathematical concept needed for a proper understanding of physics
5. Demonstrate the ability to justify and explain their thinking and approach.
6. Gain experience to investigate the real world problems.
7. Create a hypothesis and appreciate how Physics relates to other theories.
8. Apply system design and development principles in the construction of software systems of varying complexity.

Course Outcome: PHY: 507(P): Laboratory

After completing the course, the students will be able to

1. To draw the characteristics of a transistor in the CE and CB configurations
2. To draw the resonance curve of series and parallel LCR circuit and to determine the Q-factor
3. Determination of the constant of a ballistic galvanometer by using a standard capacitor
4. To construct two input OR and AND logic gates using p-n junction transistors and to verify their truth table
5. To study the performance of NOT circuit using transistors
6. To draw the characteristics of a Zener diode and to study its use as a voltage regulator
7. To study solid state half-wave and full-wave rectifiers and to determine the ripple factor and percentage of regulation and different types of filters
8. To plot the frequency response of an R-C coupled amplifier (i) without feedback and (ii) with negative feedback and to determine the bandwidth in each case
9. Determination of self-inductance by Anderson's method
10. Determination of mutual inductance by using a Ballistic Galvanometer and to draw the M.O. curve
11. Determination of the band gape of a p-n junction diode (germanium)

B.Sc. 6th Semester

Course Outcome: PHY-608: Quantum mechanics

After completing the course, the student will be able to

1. Understand the evolution of physics in 20th century.
2. Understand to solve the problems for both micro and macro world.
3. Apply mathematical problems and solutions in aspect of science and technology.
4. Apply mathematical ideas and models to problems.
5. Demonstrate proficiency in mathematics and mathematical concept needed for a proper understanding of physics
6. Demonstrate the ability to justify and explain their thinking and approach.
7. Understand the beauty of Physics for society.
8. Understand every phenomenon in this universe.
9. 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. Understand the properties of all materials in our daily life.
2. Generalize the theory and experiment of different materials.
3. Apply to different 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: Laboratory

After completing the course, the students will be able to

1. Determine the wavelength of radiation using spectrometer.
2. Determine the frequency and wavelength of radiation using complex optical bench.
3. Compare the intensities of light for different sources.
4. Measure the intensity of polarization of light by different fluids.
5. Measure the current by using simple photo cells.
6. Design simple electronic devices such as diode, transistors and amplifiers.
7. Measure current through simple semiconductor devices.
8. Realize the digital signals by using Boolean Algebra.