

Course name : M. Sc.
Mode of study : Full time
Duration : 2 years

Programme Outcomes, Programme Specific Outcomes and Course Outcomes

Department of Physics – PG

M.Sc. Physics

Programme Outcomes

- The programme provides the students high quality education in physics within an environment committed to excellence in both teaching and research.
- It enables the students to develop transferable skills relevant to a wide range of professional careers.
- It makes the students to apply contemporary research methods, skills and techniques to conduct independent inquiry in a discipline.
- The programme enables the students to understand the issues of environmental contexts and sustainable development.
- It educates the students in the core of Physics, including substantial practical and experimental physics while enabling students to train in both the theoretical and practical aspects.

Programme Specific Outcomes

- The programme provides the candidate the required knowledge, general competence and analytical skills on an advanced level needed in industry, consultancy, education, research or in public administration.
- It enables the students to apply graduate – level knowledge and solve problems in the areas of Electrodynamics, Quantum Mechanics, Classical Mechanics, Statistical Mechanics, Mathematical Physics, Nuclear Physics, Solid State Physics, Spectroscopy, Nanoscience and Nanotechnology.

- Post Graduate from this programme will be eligible to continue research at the higher degree (Ph.D.) level. They will be well qualified to obtain employment in research and development, in the scientific or engineering industries.
- Students can work independently on projects in multidisciplinary environments.
- They can develop a basis for future learning and work experience.

Course Outcomes

On the completion of the programme the students are able to

- explain the concept of two body problem, rigid body dynamics, Lagrangian and Hamiltons formulation and mechanics of small oscillations (Classical Mechanics).
- apply the basic ideas to create, solve and analyze the problems of interest in Mathematical Physics, Complex analysis and Numerical methods.
- provide knowledge in Quantum Mechanics which enables the students capable of solving many problems.
- understand the basics of elementary particles, nuclear structure, nuclear forces and nuclear reactions.
- get an overview about the concept of Statistical Physics with the prerequisites of quantum ideas.
- give detailed knowledge about various types of spectroscopy. The structure of different chemical compounds can be determined by studying these types.
- provide an insight into the properties of solid state materials and characterize crystals and nanoparticles.
- describe the principle and working of different kinds of analog and digital electronic devices.
- acquire basic knowledge about Maxwell's equation and propagation of electromagnetic waves through various media including waveguides.
- learn the architecture of microprocessor and microcontroller and develop programming skills in assembly language.
- inculcate the knowledge on ordinary and partial differential equations by introducing the effect of non-linearity.

- collect literature, write the research articles and thesis and to develop the knowledge of the software Origin and Latex.
- develop the basic skills to handle the advanced instruments effectively and independently. The theory behind the experiments is also studied.
- provide hands on experience on microprocessor experiments.
- solve many tedious physical problems numerically by knowing the knowledge of C++ programming.
- work independently on project, create innovative ideas, develop scientific attitudes and write the thesis effectively.