M.Sc.(Master of Science)-Physics
Program Outcomes

The Master of Science in Physics program provides the candidate with knowledge, general competence, and analytical skills on an advanced level, needed in industry, consultancy, education, and research.

By the end of the program, the students will be able to:

PO1: To develop an ability to become a specialist in various areas of Physics and apply the same in day to day life.

PO2 :To acquire knowledge about the nature, concepts, methods, techniques and objectives in the core physics subjects.

PO3: To make the students in mastering in the field of materials science and astrophysics and prepare them for research .

PO4: To cultivate scientific approach and culture of research aptitude.

PO5: To enhance the problem solving skills of the students so that they will be able to tackle the national level competitive exams like NET, GATE and SET etc.

PO6: To understand the links of Physics to other disciplines and also to the societal issues.

PO7 :To train the students to develop their skill development, employability and entrepreneurship skills

M.Sc.(Master of Science)-Physics

Program Specific Outcomes

PSO1: Understand and apply inter disciplinary concepts of Physics for understanding and describing the natural phenomenon.

PSO2: Provide basic foundations with a sound knowledge of underlying principles along with recent developments.

PSO3: Enable students to work with state-of-the arttechnologies.

PSO4: Ability to plan and execute their own innovative ideas in the form of projects, product design and development.

PSO5: Know about the importance of research methodology in science by acquiring knowledge In the form of project, summer internship and field visit/industrial visit conducted bya committee consisting of the external examiner, guide and the department faculty

M.Sc.(Master of Science)-Physics I Semester

Course Outcomes

Mathematical Physics	CO1:Knowledge about Vector calculus, Bessel Functions, Legendre Differential equations, complex variable, Laplace transforms, Fourier Series etc. CO2:Physical significance is learnt by students. CO3:These mathematical concepts are widely used in various physics derivations.
Classical mechanics	This paper enables the students to understand : CO1: The Lagrangian and Hamiltonian approaches in classical mechanics. CO2: The classical background of Quantum mechanics and get familiarized with Poisson brackets and Hamilton -Jacobi equation.
Electrodynamics & Plasma Physics	After successful completion of the course, the student is expected to : CO1:Have gained a clear understanding of Maxwell's equations. CO2:Have grasped the idea of electrostatics and Magnetostatics along with time varying fields
Electronics	On completion of this course the student will learn about : CO1: Understand the basic principle of semiconductors various types of diode characteristics and opto electronic devices and its working . CO2:Construction of Op- Amp. Then characterization of its various types of working modes. CO3: Understands the basic principle of various types of logic gates – Registers' and counter and also the memory device.
Laboratory Course I-A : General & Optics	• Practical understanding of the Hall-effect,He-Ne Laser,Band gap of semiconductor.
Laboratory Course I-B: Electronics	• Practical understanding of the characteristics of various diodes, transistors, Op-Amp, designing concepts of logic gates and digital circuits.

M.Sc.(Master of Science)-Physics II Semester

Course Outcomes

Quantum Mechanics –I	CO1: Study the basic physical concept of quantum mechanics. CO2:To understand to solve the one dimensional Schrodinger wave equation. CO3:To verify the first order and second order Perturbations theory. CO4:Understand the basic ideas of spin angular momentum. CO5: Verify Klein –Gordon equation for a free particle in a electromagnetic field.
Statistical Mechanics	CO1: Verify the laws of thermodynamic equation. CO2:Analyse the Boltzmann transport equation and its distribution. CO3: Understand the Maxwell Boltzmann distribution law. CO4: Study the basic ideas of Bose-Einstein and Fermi –Dirac distribution law. CO5:Study the Planck's black body radiation.
Electronic & Photonic Devices and Optical Madulators	On completion of this course the student will learn about : CO1: Field effect transistors,Bipolar junction transistor s, amplifiers, Oscillators and their applications. CO2: Digital electronics basics using logic gates and working of major digital devices like flip flops, multivibrators etc .
Computational Methods & Programming	CO1: Understand the general ideas about Errors . CO2:Analyse the method for writing the C – programme for its algebraic equation. CO3: Understand the theory for Gauss Forward and Backward difference rule. CO4: Perform the theory and derivations for numerical differentiations and integral. CO5: Study the importance of Eulers method and Runge – kutta

	second and third order and first order differential equations.
Laboratory CourseII-A: Numerical Analysis & Computer Programming	• Understanding to solve simultaneous linear equation transcendental equation . • Find complex root of polynomial through different types of numerical method.
Laboratory Course II-B: Digital Electronics & Microprocessor	• Practical understanding of the characteristics of various diodes, transistors, Op-Amp, designing concepts of logic gates,digital circuits and optoelectronics devices.

M.Sc.(Master of Science)-Physics III Semester

Course Outcomes

Quantum Mechanics – II	CO1:To verify the first order and second order Perturbations theory. CO2: Verify Klein –Gordon equation for a free particle in a electromagnetic field.
Atomic & Molecular Physics	CO1:Study the Quantum state of electrons in atoms. CO2:Analyse the Quantum chemistry of molecule. CO3: Study the Raman and electronic spectra of molecules.
Solid State Physics-I	CO1: Find out the relationship between crystals detector, structure analysis by various methods . CO2: Understand the elastic constant of crystals and lattice vibration . CO3:Understand the Energy levels and define Electrical conductivity – Hall Effect and free electron model and band gap energy. CO4:Perform and verify the theory of super conductivity phenomenon.
Electronics (Communication)-I	CO1: Different types of transducers, impedence matching, filtering and noice reduction techniques, etc. CO2: To Study about klystron, magnetron and helixe travelling wave tubes. CO3:To study the radar system and satellite communication.
Laboratory Course III-A : Material Science & General	• Practical understanding of the e/m thomsan method,Hall-effect,He-Ne Laser,Band gap of semiconductor.
Laboratory Course III-B: Electronics (Communication)	• Practical understanding of the characteristics of various diodes, transistors, Op-Amp, designing concepts of logic gates and digital circuits.

M.Sc.(Master of Science)-Physics IV Semester

Course Outcomes

Nuclear & Particle Physics	CO1: To study the basic properties of nuclear forces. CO2: To understand the radiative decays and nuclear radiative detectors . CO3: To study the various types of accelerator and nuclear fission and fusion. CO4: To understand the basic ideas about elementary particle.
Laser Physics & Applications	CO1: Introductory concepts of lasers and interaction of radiation with matter. CO2:Various types of lasers and laser spectroscopy.
Solid State Physics-II	CO1:Analyse the relationship between dielectric and Ferro electric proportion of crystal. CO2:Perform and verify the theory and experimental procedure for magnetism .
Electronics (Communication)-II	CO1:Modulation and communications. CO2:Studying the principle, construction and working of signal modulators. Perform the working of various types of microwave devices.
Project Work	• To understand the basic ideas of the materials. • Prepare and optimize the materials by various methods. • Characterize the materials using various methods. • Study the materials into application side. • Useful results obtained by the project work for future studies.