

B.Sc Physics UGPHY

Program Outcome

PO1: Study the concepts of Mechanics and Relativity, introduced at the College level

PO2: Understand the set of Physical laws, describing the motion of the bodies under the influence of the system of forces.

PO3: Know the elementary particles, fundamental particles and God particle.

PO4: Acquire the Knowledge of recent trend in Science and technology.

PO5: Student should be able to transfer and apply the acquired concept and Principles to study the different branches of Physics.

PO6: Demonstrate the ability to justify and explain their thinking or approach both oral and written.

PO7: Developing their scientific intuition, ability and techniques to tackle problems either theoretical or experiment in nature.

PO8: Understand the structure of solid materials and their physical properties along with metallurgy, electronics and material Science.

Program Specific Outcome -UGPHY

PSO1: Students are expected to acquire knowledge in physics, including the major premises of Properties of matter, Mechanics, Nuclear Physics etc

PSO2: Constructing and tacking problems of day to day life by correlating them with appropriate physical principles.

PSO3: Understand the basic concepts of physics particularly Optics, Atomic Physics, Theoretical Physics and Nuclear Physics.

PSO4: Students are expected to acquire knowledge about Materials, Nano Materials, Semiconductor devices and superconductor.

PSO5: This program explain recent trend in Neutrino Physics and Communication Physics.

Properties of Matter and Accoustics-16SCCPH1

After Successful Completion of the Course, the student is expected to

PCO1: Learn the basis of Properties of matter.

PCO2: Study the different types of modulus and relation between them

PCO3: Understand about Surface tension and Viscosity

PCO4: Learn the fundamentals of Sound

PCO5: Understand about good acoustical building.

Mechanics 16SCCPH2

PCO1: Learn the basis of dynamics.

PCO2: Study the two types of impacts

PCO3: Learn the different types of Pendulum

PCO4: Grasped the fundamentals of different types of frame of references

PCO5: Understand the magic of relativity

Thermal Physics-16SCCPH3

On the successful completion of the course, students will be able to

PCO1: Understand the basic idea of heat

PCO2: Understand the central concepts and basic formalisms of specific heat, entropy, quantum theory of radiation;

PCO3: Solving problems based on heat transfer, entropy and thermal radiation

PCO4: Find applications of the physical quantities.

PCO5: Understand the fundamentals of Statistical Mechanics

Electricity and Electromagnetism-16SCCPH4

PCO1: Understand the basic Knowledge about charge, current and voltage

PCO2: Study the fundamentals and types of capacitors

PCO3: Grasped the fundamentals of Electromagnetic induction and its laws

PCO4: Get the depth knowledge about a.c and d.c current.

PCO5: Get depth knowledge of this course in day today life

Optics-16SCCPH5

This course will enable the student to

- PCO1: Apply basic knowledge of principles and theories about the behaviour of light and the Physical environment to conduct experiments.
- PCO2: Understand the working of selected optical instruments like biprism, interferometer, diffraction grating, and holograms.
- PCO3: Understand the wave nature of light from Huygens theory
- PCO4: Get the depth knowledge interference and polarization.
- PCO5: Get depth knowledge of this course in day today life

Atomic and Molecular Physics 16SCCPH6

After completion of this course, students should understand

- PCO1: The behaviour of atoms in an external applied electric field and magnetic field
- PCO2: X-ray characteristics and their applications-Brag's Law and its importance
- PCO3: Different types of atom model and various quantum numbers
- PCO4: Photoelectric effects and its applications
- PCO5: Different types of Lasers and their action.

Electronics-16SCCPH7

Upon completion of the course student will have

- PCO1: Understand the basics of semiconducting devices
- PCO2: Acquire the knowledge about amplifiers and oscillators
- PCO3: Know about the digital number systems
- PCO4: Understand the combinational and sequential digital systems
- PCO5: Acquire the knowledge about the operational amplifier

Nuclear Physics-16SCCPH8

After completion of this course, students should understand

- PCO1: Constituents of nucleus and its Properties
- PCO2: Radioactivity and its effect
- PCO3: Neutrinos and their Properties
- PCO4: Nuclear reactions and Reactors

PCO5: Different types of particles and fundamental quarks.

Theoretical Physics 16SCCPH9

After completion of this course, students should understand

PCO1: D'Alembert's principle and Virtual work

PCO2: The Lagrangian and Hamiltonian approaches in Classical Mechanics.

PCO3: Matter wave and its properties-dual nature of matter

PCO4: Why electron cannot exist inside the nucleus-Uncertainty principle

PCO5: Schrodinger's Equations and their applications

Materials Science-16SMBEPH1

Upon completion of the course student will have

PCO1: Acquire knowledge about the crystal structure

PCO2: Acquire knowledge about the superconducting materials

PCO3: Understand the basics of nano materials

PCO4: Know about the smart materials

PCO5: Acquire the knowledge of mechanical behaviour of materials

Microprocessor and C programming 16SMBEPH2

After completion of this course, students should understand

PCO1: Real and ideal microprocessor-INTEL 85

PCO2: Architecture of Microprocessor and pin diagram

PCO3: Applications of Microprocessor

PCO4: Character set of C-language

PCO5: Class, functions and simple programs

Communication Physics- 16SMBEPH3

After completion of this course, students should understand

PCO1: Electromagnetic spectra and different frequency bands.

PCO2: Satellite communication including uplinking and downlinking.

PCO3: understand the basic concepts of communication.

PCO4: Modulation, different types of modulation and about super heterodyne receivers.

PCO5: communication system and its working

M.Sc Physics PGPHY

Program outcome

PO1: Study the concepts of Classical Mechanics, Quantum Mechanics Electromagnetic theory ,Nuclear Physics and Advanced Physics, Explained at the high level

PO2: Understand the set of Physical laws, describing the motion of the celestial bodies under the influence of the system of forces.

PO3: Know the elementary particles, fundamental particles and God particle.

PO4: Acquire the Knowledge of recent trend in Nano Science and Nano technology.

PO5: Demonstrate the ability to justify and explain their thinking or approach both oral and written.

Program Specific outcome -PGPHY

PSO1: Students are expected to acquire knowledge in physics, including the major premises of Classical Mechanics, Quantum Mechanics, Condensed Matter Physics, Non linear Optics, Nuclear Physics and Advance Physics etc.

PSO2: Learn to carry out experiments in basic as well certain advanced areas of physics such as, semiconductor Physics, laser and electronics

PSO3: Gain the knowledge of physics through theory and experiments.

PSO4: Develop research oriented skills through project work.

PSO5: Develop reading and understanding skill through LFD method.

Program Course Outcome

Mathematical Physics P16PY11

After completion of this course, students should understand

PCO1: Green's theorem, Stoke's theorem and their applications

PCO2: Matrix and Tensor

PCO3: Reducible and irreducible representations

PCO4: Complex Analysis- Taylor's and Laurent's Series

PCO5: Special Functions-Properties.

Classical Dynamics &Relativity-16PY12

After completion of this course, students should understand

PCO1: Conservation laws for a particle and System of Particles

PCO2: The Lagrangian and Hamiltonian approaches in Classical Mechanics

PCO3: Kinematics and Dynamics of rigid body in detail

PCO4: Theory of small oscillations and motion symmetric top

PCO5: four velocities and four force and other important Relativistic phenomenon

Quantum Mechanics-P16PY22

After completion of this course, students should understand

PCO1: Wave function and its Properties

PCO2: Schrodinger's Equations and their applications

PCO3: Perturbation Theory, Tunnelling problem

PCO4: The Concept of Angular Momentum

PCO5: Klein –Gorden Equation and Dirac Equation for a free particle.

Statistical Mechanics-P16PY31

After completion of this course, students should understand

PCO1: Thermo dynamics Laws and their consequence

PCO2: Why the entropy of Universe always increasing

PCO3: Transport Phenomena, ensembles

PCO4: Classical and quantum Statistical Mechanics

PCO5: Photons and Black body radiations

Nuclear &Particle Physics P16PY41

Upon completion of the course student will have

PCO1: Acquire knowledge in the content area of nuclear and Particle Physics, focusing on concepts that are commonly used in this area.

PCO2: Basic properties of nuclear forces, nucleus and nuclear models to study the nuclear structure properties.

PCO3: Understanding atom bomb, nuclear bomb and thermo nuclear reaction.

PCO4: Importance of Neutrino research in Tamil Nadu

PCO5: Knowledge about fundamental particles.

Microprocessor and Microcontroller – P16PYE1

Upon completion of the course student will have

PCO1: Acquire the knowledge 8085 microprocessor architecture

PCO2: Know the various instructions sets of 8085.

PCO3: Acquire the knowledge of peripheral devices

PCO4: Know the principles of microcontroller 8051.

PCO5: Acquire the knowledge of 8051 instructions.

Methods of Spectroscopy – P16PY14

Upon completion of the course student will have

PCO1: Students learn and understand the concept of Molecular spectroscopy

PCO2: know the microwave and IR spectroscopy

PCO3: know the theories of Raman spectroscopy

PCO4 : Understand the principles of NMR spectroscopy

PCO5: know the UV and ESR spectroscopy

Electronics - P16PY13

Upon completion of the course student will have

PCO1: Acquire knowledge about semiconductor devices.

PCO2 : Acquire knowledge about operational amplifiers.

PCO3: Apply the circuit theory to design digital circuits

PCO4: Acquire the knowledge memory devices

PCO5: Acquire the knowledge IC fabrication.

Crystal growth and thin film physics P16PYE3

Upon completion of the course student will have

PCO1: Know the theories of nucleation of crystals; understand their different types of nucleation

PCO2: Know the growth of single crystals by various techniques

PCO3 : know the melt and vapour growth methods

PCO4: Know various methods to prepare thin film

PCO5: Analyze the properties and characteristics of crystals by different techniques

Nanophysics – P16PYE5

Upon completion of the course student will have

PCO1: Know the nano types of materials

PCO2: Acquire the knowledge of carbon nano-materials

PCO3: Acquire the knowledge of fabrication of nano-materials

PCO4: Know the various characterization methods of nano-materials

PCO5: Acquire the applications of nano-materials

Advanced Physics-P16PYE6

After completion of this course, students should understand

PCO1: Properties of stars-Life cycle of a star

PCO2: Indian Space programmes and Geo informatics ideas

PCO3: Ear and hearing aids and several bio-medical instruments

PCO4: Data communication and personal communication system.

PCO5: Satellite communication and wireless packet data services.

Programme Specific out come for Ph.D. in Physics

- ❖ Research scholars become globally proficient to publish their research works in referred journals.
- ❖ Research scholars experience gathering for various analytical instrumentation skills
- ❖ Research scholars learn the teaching / presentation techniques in physics
- ❖ Research scholars to explore and expedite the recent possibility in physics research
- ❖ To obtain the recent advance techniques toward research in different research fields
- ❖ To develop the problem solving skills and effective communication skills
- ❖ To launch different project from the getting the various funding agencies.

Course outcome.

- Know various methods to prepare thin films crystal growth.
- Know the measurement of thickness, other properties of thin films.
- Know the theories of nucleation kinetics of crystals
- Know the growth of single crystals by various techniques.
- Analyze the properties and characteristics of crystals by different techniques.