PHYSICS

Programme Outcomes

Student should be able to,

PO1: Apply the knowledge of physical laws and to design a scientific and computational model that illustrates and explains the different laws.

PO2: Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classroom

PO3: Develop scientific temperament, an ability to merge, interconnect and extrapolate information and knowledge across various streams.

PO4: Design solutions for complex scientific problems and design processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural societal, legal, constitutional and environmental consideration.

PO5: Realize the given scientific data critically and systematically and the ability to draw the objective conclusions.

PO6: Communicate effectively on complex scientific activities with the science community and at society at large, such as, being able to comprehend and write effective reports and design documents, make effective presentations, and give and receive clear instructions.

PO7: Demonstrate knowledge and understanding of the scientific principle and apply these to one's own work, as a member and leader in a team, to manage projects and multidisciplinary environments.

PO8: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of scientific development, technological advancement and global changes.

PO9: Use research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

PO10: Value and foster physical physiological and physiological wellbeing by staying committed through personal practice and conduct. Apply the learning for life-long commitment to ethics to fulfilment of professional and social obligations.

PO11: Apply academic to promote higher studies, sustainable living through employment and initiation of entrepreneurial advents to create opportunities and wealth for self and society.

PO12: Value and Support social causes and rural development through service and philanthropic activities.

.Program Specific Outcomes

Student should be able to,

PSO 01: Apply the rigorous understanding of the core theories & principles of Physics, which includes Classical Physics, Mathematical Physics, Quantum Physics, Statistical Physics, Electrodynamics, and Relativity while pursuing higher education or in real life situations e.g., knowledge of Electronics and Instrumentation shall be helpful to design and develop several devices and sensors etc.

PSO 02: Analyse the applications of interdisciplinary learning especially Mathematics and computational methods using MATLAB, PYTHON, SCILAB etc. to solve the problems in Physics & develop suitable mathematical and computational methods for new formulation of Physical theories.

PSO 03: Demonstrate a solid foundation about the fundamental interactions of nature (gravity, electromagnetic, weak, strong) and develop a solid foundation of atomic and nuclear structure, i.e., understand the fundamental theories to unravel nature at atomic and sub-atomic level as well as at large astrophysical length scale.

Course Outcomes

Paper CC-05 Mathematical Physics II

After successful completion of the course, the student is expected to:

CO1:- Recall the basic elements of signals and linear time-invariant systems, including the complex exponential and sinusoidal signals, unit step function and unit impulse function (Dirac delta function), discrete time unit step and unit impulse sequences, continuous and discrete time system, linear time invariant (LTI) systems, continuous time LTI systems, and properties of LTI systems.

CO2:- Develop the ability to solve some special ordinary second order differential equations important in the physical sciences.

CO3:- Understand how to expand a function in a Fourier series, and under what conditions such an expansion is valid.

CO4:- Describe Fourier analysis of continuous-time signals and systems.

CO5:- Understand frequency and time domain characteristics of system and sampling and reconstruction of signal.

Paper CC-06 Thermal Physics

After successful completion of the course, the student is expected to

CO1:- Compare various thermodynamic processes and work done in each of these processes.

CO2:- Have a clear understanding about Reversible and irreversible process and also working of a Carnot engine, and knowledge of calculating change in entropy for various process.

CO3:- Realise the importance of Thermo-dynamical functions and applications of Maxwell's relations to real problem.

CO4:- Familiarize in depth about statistical distribution and have basic Ideas about Maxwell-Boltzmann, Bose-Einstein and Fermi Dirac Statistics and their applications

Paper CC-07 Digital Systems and Applications

After successful completion of the course, the student is expected to

CO1: Create understanding with the digital signal, positive and negative logic, Boolean algebra, logic gates, logical variables, the truth table, number systems, codes, and their conversion from to others.

CO2: Apply the minimization techniques to simply the hardware requirements of digital circuits, implement it, design and apply for real time digital systems.

CO3: Implement the working mechanism and design guidelines of different combinational, sequential circuits and their role in the digital system design.

CO4: Illustrate various types of components-ADC and DAC, memory elements and the timing circuits to generate different waveforms, and also the different logic families involved in the digital system.