

Department of Physics

Course Outcomes

Paper No	Name	Expected Outcome
I (SEMI)	DSC 1A Mechanics I	Vector analysis and differential equations are strong mathematical tools to understand higher level physical Phenomena. They are directly applicable in practical electrical circuits. Trouble shooting in electrical circuit and network analysis can be easily done by the students. Another application is in mechanics this is helpful in understanding kinetics of moving bodies.
II (SEMI)	DSC-2 A Mechanics II	<ol style="list-style-type: none"> 1. Understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them. 2. Understand Newton's laws of gravitation, geostationary satellite and can apply their knowledge for different application of satellite 3. Understand the surface tension and how to apply their knowledge to determine surface tension of various liquids 4. Demonstrate quantitative problem solving skills in all the topics covered.
III (SEMII)	DSC- 1B ELECTRICITY AND MAGNETISM- II	<ol style="list-style-type: none"> 1. To understand the vector analysis and its application in electrostatics 2. To understand different concepts of electrostatics and application in dielectrics
IV (SEMII)	DSC- 2B ELECTRICITY AND MAGNETISM- II	<ol style="list-style-type: none"> 1. Understand the basics of electromagnetism and will be prepared to understand classical electrodynamics at third year 2. Understand the basics of magnetism and fantastic phenomena of electromagnetic induction 3. Students are able to understand the Maxwell equations and electromagnetic wave propagation
V (SEM III)	DSC C1 Thermal Physics and Statistical Mechanics -I	<ol style="list-style-type: none"> 1. Understand the types of thermometers and their usage 2. To comprehend the basic concepts of thermodynamics and its applications in Physical situations 3. Understand property 'entropy'
VI (SEM III)	DSC C2 Waves and Optics	By studying the basics of this paper student learn about different types of frequencies and energy transferred in coupled oscillatory systems.

		<p>Ultrasonic waves have different applications. They are mainly seen in sonography and measuring of elastic moduli of materials and Sound navigation and ranging devices, transducers and others. Therefore basics must be understood thoroughly.</p> <p>Good acoustics are basics requirements in the architecture of the building. Student gets clear idea about the various musical notes and reverberation time, intensity levels and pitch of the sound.</p> <p>Fluid dynamics is essential to study the aerodynamics, and various lubricants used in practical life.</p>
VII (SEMIV)	DSC D1 Thermal Physics and Statistical Mechanics -I	<p>To understand the concepts of black body radiation and other laws that forms basis for modern physics</p> <p>To understand the basics of statistical Mechanics with a emphasis on classical and quantum statistics</p>
VIII(SEMIV)	DSC D2 Waves and Optics	<ol style="list-style-type: none"> 1. To understand the concept of cardinal points 2. To understand resolving power of optical instruments 3. Understand optical phenomena such as polarisation, interference and diffraction in terms of the wave model. 4 analyse simple examples of interference and diffraction phenomena.

Paper No	Name	Expected Outcome
IX (SEM V)	Mathematical and statistical Physics	<ol style="list-style-type: none"> 1. Understand the physical phenomena at the undergraduate level and get exposure to important ideas of statistical mechanics. 2. Students are able to solve simple problems in probability, understand the concept of independent events and work with standard continuous distributions 3. Understand the difference between different statistics, classical as well as quantum. 4. Students have an idea of the functions of complex variables; solve non homogeneous differential equations and partial differential equations using simple methods which can be used in various physics phenomena.
X (SEM V)	Quantum mechanics	The science behind miniaturization of devices is Quantum Mechanics. Today's buzz word is Nano. Hence to understand clearly the atomic

		level phenomena this paper is essential. Students get clear idea about the working principles of microscopic techniques.
XI (SEM V)	Classical Mechanics	<ol style="list-style-type: none"> 1. Students learn about the Universal phenomena governing the motion of Macroscopic bodies and also they learn to apply the principles of this subject in understanding the motion of planets and other celestial bodies. 2. Lagrangian formulation in this paper helps them to understand working principles of machines used in day to day life. Transfer of energy observed in natural phenomena can be easily understood.
XII (SEM V)	Atomic and Molecular Spectra, Astronomy and Astrophysics	<ol style="list-style-type: none"> 1. With basic background of vector atom model, students will learn about optical spectra with examples and origin of fine doublet spectra due to spin-orbit interaction and the effect of weak and strong magnetic fields on atomic spectra. 2. To comprehend molecular spectroscopy and Raman Scattering. This paper will widen student's knowledge of possible applications of spectroscopy in the different fields. 3. To understand different cosmological theories, origin of solar system and the different properties of the Sun.
XIII (SEM VI)	Nuclear and Particle Physics	<ol style="list-style-type: none"> 1. Understand nuclear properties and nuclear behavior. 2. Understand the type isotopes and their applications. 3. Demonstrate and understand the quantum mechanical concepts. 4. Demonstrate quantitative problem solving skills in all the topics covered
XIV (SEM VI)	Energy Studies and Materials Science	<ol style="list-style-type: none"> 1. To comprehend available energy resources and need of renewable energy sources 2. To comprehend potential in wind and solar energy and method to use these resources. 3. Students will get acquainted with properties of materials like superconductivity and atomic disorders in them

		4. The course will introduce interdisciplinary concept “Nanomaterials”; their properties and methods to develop them
XV (SEMVI)	Electrodynamics and Electromagnetic waves	Students will be able to understand the physical interpretation and applications of Maxwell’s equations. They should be able to analyze fields under time varying situations.
XVI(SEMVI)	Solid State Physics	Students after learning this paper will develop a liking towards research in materials. They will come to know how structure of the material is intimately associated with its property and functionality. Thus this paper concludes with solid state electronic devices.

Program specific outcomes

At the end of the program our students will be able to learn

1. To critically analyse and solve any problem in professional life
2. A sense of responsibility for conserving energy and adapting alternative approaches to generate energy harnessing non-conventional resources
3. Use of graphical analytics in problem solving.
4. An inclination towards unfolding the mysteries of the universe
5. To address the current issues of climate changes by applying the laws of thermodynamics