DEPARTMENT OF PHYSICS

Programme Specific Outcomes (PSOs) – B. Sc Applied Physics (2019 Admissions)
Programme

	Programme specific outcomes
PSO1	Understand the basic concepts of methodology of science and the fundamentals of mechanics, properties of matter and electrodynamics
PSO2	Understand the theoretical basis of quantum mechanics, relativistic physics, nuclear physics, optics, spectroscopy, solid state physics, astrophysics, statistical physics, photonics and thermodynamics
PSO3	Understand and apply the concepts of electronics in the designing of different analog and digital circuits
PSO4	Understand the basics of computer programming and numerical analysis
PSO5	Apply and verify theoretical concepts through laboratory experiments

Course Outcomes

Semester	Course Code	Course Name	Course outcomes
I	APH1B01	METHODOLOGY OF SCIENCE AND BASIC MECHANICS	• CO1-Understand the features, methods and limitations of science
			• CO2- Understand and apply the basic concepts of Newtonian Mechanics to physical systems
			• CO3- Understand and apply the basic idea of work-energy theorem to physical systems
			• CO4- Understand and apply the rotational dynamics of rigid bodies
			• CO5- Understand the basic ideas of elasticity
II	APH2B02	MECHANICS	• CO1-Understand the features of non-inertial systems and fictitious forces
			• CO2- Understand and analyze the features of central forces with respect to planetary motion
			• CO3- Understand the basics ideas of harmonic oscillations
			• CO4-Understand and analyze the basics concepts of wave motion
III	APH3B03	ELECTRODYNAMICS I	• CO1- Understand and apply the fundamentals of vector calculus

			• CO2- Understand and analyze the electrostatic properties of physical systems
			• CO3- Understand the mechanism of electric field in matter.
			• CO4- Understand and analyze the magnetic properties of physical systems
			• CO5- Understand the mechanism of magnetic field in matter.
III	A11	PYTHON	• CO1- Understand various statements, data types and functions in Python
			• CO2- Develop programs in Python programming language
			• CO3- Understand the basics of Object oriented programming using Python
III	A12	SENSORS AND TRANSDUCERS	• CO1- Explain resistance, inductance and capacitance transducers.
			• CO2-Perceive the concepts of temperature and pressure transducers.
			• CO3- Perceive the concepts level transducers such as and flow transducers
			• CO4-Explain Electromagnetic transducers and radiation sensors
			• CO5- Explain force and torque transducers and sound transducers
IV	APH4B04	ELECTRODYNAMICS II	• CO1- Understand the basic concepts of electrodynamics
			• CO2- Understand and analyze the properties of electromagnetic waves
			• CO3- Understand the behavior of transient currents
			• CO4- Understand the basic aspects of ac circuits
			• CO5- Understand and apply electrical network theorems
IV	A13	DATA COMMUNICATION & OPTICAL FIBERS	• CO1- Understand the fundamentals of transmission
			• CO2- Understand the multiplexing
			• CO3-Understand the different protocols regarding data link

			• CO4- Understand the fundamentals of OFC
IV	A14	MICROPROCESSORS – ARCHITECTURE AND PROGRAMMING	• CO1- Understand the fundamentals of a microcomputer
			• CO2- Understand the microprocessor programming
			• CO3- Understand the fundamentals of Microprocessor architecture
			• CO4-Understand the basics of INTEL 8085
			• CO5- Understand various controls of INTEL 8085,8086
IV	APH4B05(1)	PRACTICAL-I(1)	• CO1-Apply and illustrate the concepts of properties of matter through experiments
			• CO2-Apply and illustrate the concepts of electricity through experiments
			• CO3-Apply and illustrate the concepts of optics through experiments
			• CO4-Apply and illustrate the principles of magnetism through experiments
IV	APH4B05(2)	PRACTICAL-I(2)	• CO1-Apply and illustrate the concepts of optics through experiments
			• CO2-Apply and illustrate the concepts of electricity through experiments
			• CO3-Apply and illustrate the concepts of thermodynamics through experiments
			• CO4-Apply and illustrate the principles of magnetism through experiments
V	APH5B06	COMPUTATIONAL PHYSICS	• CO1-Understand the Basics of Python programming
			• CO2- Understand the applications of Python modules
			• CO3-Understand the basic techniques of numerical analysis

			• CO4-Understand and apply computational techniques to physical problems
V	APH5B07	QUANTUM MECHANICS	• CO1-Understand the particle properties of electromagnetic radiation
			• CO2- Describe Rutherford – Bohr model of the atom
			• CO3-Understand the wavelike properties of particles
			• CO4-Understand and apply the Schrödinger equation to simple physical systems
			• CO5- Apply the principles of wave mechanics to the Hydrogen atom
V	APH5B08	OPTICS	• CO1- Understand the fundamentals of Fermat‟s principles and geometrical optics
			• CO2- Understand and apply the basic ideas of interference of light
			• CO3- Understand and apply the basic ideas of diffraction of light
			• CO4- Understand the basics ideas of polarization of light
			• CO5- Describe the basic principles of holography and fibre optics
V	APH5B09	ELECTRONICS (ANALOG & DIGITAL)	• CO1-Understand the basic principles of rectifiers and dc power supplies
			• CO2- Understand the principles of transistor
			• CO3- Understand the working and designing of transistor amplifiers and oscillators
			• CO4- Understand the basic operation of Op – Amp and its applications
			• CO5- Understand the basics of digital electronics
V	APH5D01(1)	NONCONVENTIONAL ENERGY SOURCES	• CO1- Understand the importance of non conventional energy sources
			• CO2- Understand basic aspects of solar energy
			• CO3- Understand basic principles of wind energy conversion

			• CO4-Understand the basic ideas of geothermal and biomass energy and recognize their merits and demerits
			• CO5- Understand the basic ideas of oceans and chemical energy resources and recognize their merits and demerits
VI	APH6B10	THERMODYNAMICS	• CO1- Understand the zero and first laws of thermodynamics
			• CO2-Understand the thermodynamics description of the ideal gas
			• CO3- Understand the second law of thermodynamics and its applications
			• CO4- Understand the basic ideas of entropy
			• CO5- Understand the concepts of thermodynamic potentials and phase transitions
VI	APH6B11	STATISTICAL PHYSICS, SOLID STATE PHYSICS, SPECTROSCOPY & PHOTONICS	• CO1-Understand the basic principles of statistical physics and its applications
			• CO2- Understand the basic aspects of crystallography in solid state physics
			• CO3- Understand the basic elements of spectroscopy
			• CO4- Understand the basics ideas of microwave and infra red spectroscopy
			• CO5-Understand the fundamental ideas of photonics
VI	APH6B12	NUCLEAR PHYSICS AND PARTICLE PHYSICS	• CO1- Understand the basic aspects of nuclear structure and fundamentals of radioactivity
			• CO2- Describe the different types of nuclear reactions and their applications
			• CO3- Understand the principle and working of particle detectors
			• CO4- Describe the principle and working of particle accelerators
			• CO5 Understand the basic principles of elementary particle physics

VI	APH6B13	RELATIVISTIC MECHANICS AND ASTROPHYSICS	• CO1-Understand the fundamental ideas of special relativity
			• CO2- Understand the basic concepts of general relativity and cosmology
			• CO3-Understand the basic techniques used in astronomy
			• CO4-Describe the evolution and death of star
			• CO5-Describe the structure and classification of galaxies
VI	APH6B14 (EL2)	MICROPROCESSOR AND MICROCOMPUTER SYSTEMS	• CO1- Understand the fundamentals of a microcomputer.
			• CO2-Understand the different number systems
			• CO3- Understand the fundamentals of Microprocessor architecture
			• CO4-Understand the basics of INTEL 8085
			• CO5 Understand the instructions and various controls of INTEL 8085
VI	APH6B15:	PRACTICAL II	• CO1-Apply and illustrate the principles of semiconductor diodes and transistors through experiments
			• CO2-Apply and illustrate the principles of transistor amplifier and oscillator through experiments
			• CO3-Apply and illustrate the principles of digital electronics through experiments
			• CO4-Analyze and apply computational techniques using C programming
VI	APH6B16	PRACTICALS III	• CO1- Apply and illustrate the ideas of Network theorems through experiments
			• CO2-Apply and illustrate the concepts of multivibrators through experiments
			• CO3- Apply and illustrate the ideas of Operational amplifiers through experiments
			• CO4- Apply and illustrate the ideas of digital electronics through experiments

VI	APH6B17(P)	PROJECT	• CO1-Understand research methodology
			• CO2- Understand and formulate a research project
			• CO3- Design and implement a research project
			• CO4- Identify and enumerate the scope and limitations of a research project