Programme specific outcome

Physics (Hons.)

After successful completion of the programme physics (Hons.), a student should be able to :

1. Understand the basic physics with mathematics.
2. Know the importance of mathematics and python programme in physics.
3. Solve the problem and also think step by step methodically and finally draw a logical conclusion.
4. Carry out, record and analyse the results of physics experiments.
5. Create an awareness of the impact of physics on the society, and development outside the scientific community.
6. Get knowledge and conception about topics in courses are essential to understand the higher level physics and engineering and research.

Physics (Generic Elective)

After successful completion of the programme physics (GE), a student should be able to :

1. learn all the fundamental concepts of quantum mechanics, statistical mechanics, solid state physics, electronics in a wholesome manner such that he / she will be able to teach the subject confidently.
2. They will be well equipped with the expertise and knowledge of a good number of basic physics experiments.

Course outcome of

PHYSICS (Hons.)

Semester	Course Code	Course Name	Course Outcome
I	**PHSHCC1T**	Mathematical Physics- I	The course provides the mathematical tools to know the basic laws of physics and good knowledge of vector calculus and probability.
	PHSHCC1P	Mathematical Physics- I Lab	The lab course provides basic knowledge of computational skills.
	PHSHCC2T	Mechanics	The course deals with fundamentals of dynamics, collisions, elasticity and fluid motion. Gravitation and central forces are also discussed in this paper.
	PHSHCC2P	Mechanics Lab	This course deals with basic mechanics lab.

II	**PHSHCC3T**	Electricity and Magnetism	The course provides knowledge of electric field and potential, magnetic field and its properties and electromagnetic induction. Electrical circuits and network theorem are also discussed here
	PHSHCC3P	Electricity and Magnetism Lab	This course provides experimental skills on electricity and magnetism.
	PHSHCC4T	Waves and Optics	The course deals with the basics of superposition of harmonic oscillators, wave motion and optics like interference, diffraction, holography etc.
	PHSHCC4P	Waves and Optics Lab	This course deals with basic optical experiments.
III	**PHSHCC5T**	Mathematical Physics- II	This course provides more knowledge about mathematical physics.
	PHSHCC5P	Mathematical Physics –II Lab	This lab course provides knowledge on numerical computation.
	PHSHCC6T	Thermal Physics	This course gives introduction to thermodynamics, thermodynamic relations and kinetic theory of gases.
	PHSHCC6P	Thermal Physics Lab	This course enhances experimental skills on thermal physics.
	PHSHCC7T	Digital Systems and Applications	This paper gives basic knowledge of Digital circuits, Integrated circuits, the structure and use of flip flops, timers counters, registers etc.
	PHSHCC7P	Digital Systems and Applications Lab	This lab deals with digital systems and applications
	PHSHSEC1	Physics Workshop skill Or electrical Circuits and Network skills	The course enhances skills; it may be on workshop or electric circuits and network.
IV	**PHSHCC8T**	Mathematical Physics- III	The course deals with detail knowledge on mathematical Physics which provides an opportunity for students of physics to master many of the mathematical techniques.
	PHSHCC8P	Mathematical Physics –III Lab	The course is on mathematical physics lab.
	PHSHCC9T	Elements of Modern Physics	This course provides knowledge on elements of modern physics.
	PHSHCC9P	Elements of Modern Physics Lab	The course is on elements of modern physics lab.

	PHSHCC10T	Analog Systems and Applications	This course briefs the basics of semiconductor diodes, two terminal devices and their applications. It gives knowledge on transistors, FETs and amplifiers.
	PHSHCC10P	Analog Systems and Applications Lab	This is a course on analog systems and application lab.
	PHSHSEC2	Computational Physics or Basic Instrument Skill or Renewable Energy & Energy Harvesting or Applied Optics	The skill enhancement course improves both theoretical and practical skills and knowledge on the concerned subject.
V	**PHSHCC11T**	Quantum Mechanics and Applications	The course provides knowledge on Schrodinger equations, quantum theory of hydrogen like atoms, atoms in electric and magnetic field and many electron atoms.
	PHSHCC11P	Quantum Mechanics and Applications Lab	This is a computational course based on quantum mechanics and applications.
	PHSHCC12T	Solid State Physics	The course gives good idea of the structure of solid and its magnetic, dielectric and ferro-electric properties. The fundamentals of superconductivity are also discussed here.
	PHSHCC12P	Solid State Physics Lab	This is a course on solid state physics lab.
	DSE-1T	Classical Dynamics	This course deals with classical mechanics of point particles, small oscillations, fluid dynamics and special theory of relativity.
	DSE-1P	Classical Dynamics	This course provides knowledge on dynamics lab.
	DSE-2T	Nuclear and Particle Physics	The course deals with general properties of nuclei, nuclear models and reactions, interaction and detection of nuclear radiation and particle physics.
	DSE-2P	Nuclear and Particle Physics	This course provides knowledge on nuclear and particle physics lab.
VI	**PHSHCC13T**	Electromagnetic Theory	The course deals with basics of electromagnetic theory and properties of electromagnetic waves.
	PHSHCC13P	Electromagnetic Theory	This course provides knowledge on
		Lab	electromagnetic theory lab.
	PHSHCC14T	Statistical Mechanics	The course deals with classical as well as quantum theory of radiation and the basic features of Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics

	PHSHCC14P	Statistical Mechanics Lab	This is a computational course based on statistical mechanics.
	DSE-3T	Nanomaterials and applications	This course expands the world of nanomaterials. The state of the art facts and techniques involved in nanomaterial preparation, comprehensive awareness of use of different instruments for characterizing the materials and their applications in various field**.**
	DSE-3P	Nanomaterials and applications Lab	This lab course provides the hands on training on the preparation and characterization of nanomaterials
	DSE-4T	Experimental Techniques	This course enhances knowledge of experimental techniques and working principle, efficiency applications of lab as well as industrial instrumentation.
	DSE-4P	Experimental Techniques Lab	This is a hands on training course on experimental techniques

<u>Course outcome of PHYSICS as Generic Elective</u>

Semester	**Course Code**	**Course Name**	**Course Outcome**
I	**GE-1T**	Elements of Modern Physics	The course is offered to introduce the basic concepts of modern physics and elementary quantum mechanics to the students.
	GE-1P	Elements of Modern Physics Lab	The lab course provides basic knowledge of elementary modern physics.
II	**GE-2T**	Thermal Physics & Statistical Mechanics	The course deals with introduction to thermodynamics and kinetic theory of gases along with basic statistical mechanics.
	GE-2P	Thermal Physics & Statistical Mechanics Lab	The course enhances the experimental skills on thermal physics and statistical mechanics.
III	**GE-3T**	Solid State Physics	The course gives an idea of the structure of solid and its magnetic,
			dielectric and ferro-electric properties. The fundamentals of superconductivity are also discussed here.
	GE-3P	Solid State Physics Lab	This is a course on solid state physics lab.

IV	**GE-4T**	Digital, Analog Circuits and Instrumentation	The students will get knowledge about primary digital circuits, semiconductor devices and electrical instrumentation from this course.
	GE-4P	Digital, Analog Circuits and Instrumentation Lab	This lab course deals with digital and analog systems.