including Classical and Quantum Mechanics, Electrodynamics, Laser, Fiber optics, semiconductor devices and Non-conventional Energy Sources.

5) They had experience of independent work such as projects; seminars etc. The experimental skills were developed through a series of experiments. Students will design and conduct an experiments and processes. Students will demonstrate an understanding of the impact of physics on Society.

Learning outcomes of the physics undergraduate program

F.Y. B. Sc.

(SEMESTER – I & II)

Sr. No	Course	Learning Outcomes
1	Physics Paper I Mechanics Properties of Matter and Sound	1. Understanding of Newton's law and apply them into calculation of the motion of simple system.
		2. The properties of solids especially knowledge of elasticity help the students to identify the materials suitable for the construction of buildings, houses etc.
		3. Properties of fluids especially knowledge of viscosity and surface tension help the students in their daily life and agriculture.
		4. Use of Bernoulli's theorem in real life problems.
		5. Sound gives knowledge or reverberation of hall, echoes and will helpful for the construction of good acoustical condition of hall.
2	Physics Paper II Heat and Thermodynamics	1. This course gives knowledge about the heat flow, thermal conductivity real gases and transport phenomena.
		2. Study of Van der waal's equation and constants of it.
		3. Understood mean free path and transport phenomenon of gas.
		4. Analyze heat engines and calculate Thermal efficiency
		5. Understood property entropy and derive some thermodynamically relations using entropy concept.
3	Physics paper III Practical	1. Acquire technical and manipulative skills in using laboratory equipment, tools and Materials
		2. Demonstrate to collect data and interpret it.

		3.Demonstrate an understanding of laboratory procedures including safety and scientific methods
4	Physics paper IV Geometrical and Physical optics	1.Acquire knowledge of optical system
		2. Understanding of Ramsden's and Huygens's eyepiece.
		3. Covering the very important and fascinating areas of interference, diffraction and polarization with many experiments associated with it.
5	Physics Paper V Electricity and Magnetism	1. Understands dot cross product, vector triple product, curl, divergence, Gauss divergence theorem and Stokes theorem.
		2. To understand Coulombs law and Gauss law in details.
		3. Demonstrate and understanding of Biot-Savart and Ampere's law
		4. Understanding of L, C and R concept and study LCR Circuits.
6	Physics paper VI Practical	1.Acquire technical and manipulative skills in using laboratory equipment, tools and Materials
		2. To understand theories behind the experiments.
		3. Make a set up carry out practical's independently.

S.Y. B. Sc.

SEMESTER – III & IV

Sr. No.	Course	Learning Outcomes
1	Physics Paper VII Mathematical, Statistical Physics and Relativity	1. Understanding of Scalar and Vector product and various Physical concepts using mathematical tools
		2. Understand Partial equations
		3. To study the Probability concept in details and study Maxwell-Boltzmann law
		4. Understand Bose-Einsteins and Fermi- Dirac Principle
		5. This course is intended to introduce principles of spectroscopy and special theory of relativity.
2	Physics Paper VIII	1. This course gives knowledge about the Photoelectric effect.
		2. Study of X-rays, bragg's law and laue method
		3. Understood different Nuclear forces and models

	Modern and Nuclear Physics	4. Understood different accelerators and Counters.
		5. Understood working of nuclear models, fission and fusion.
3	Physics paper IX Practical	1. Acquire knowledge of instruments able to use it.
		2. Determine the different constants using experimental values.
		3. Comapre the result by Calculation and graph.
4	Physics paper X Practical	4. Design the circuit and calculate the unknown values
		5. Study spectroscopic techniques for to study Newton's Law and R.P. of Telescope.
		6. Analyse the data and plot appropriate graphs.
5	Physics Paper XI General Electronic	1. Understands Diode, transistor and FET in detail with Circuit diagram.
		2. To understand amplifiers and Op-Amp in details.
		3. Demonstrate and understanding of Oscillators and Multivibrators
		4.Understanding of Modulation and demodulation
6	Physics Paper XII Solid State Physics	1. This course is intended to provide an introduction to the physics of Solid Matter.
		2. This study attempts to explain various types of phenomena like electro-magnetic properties, super-conductivity.
		3. Material science is a very wide branch where extensive research is going on.
		4.Thermal, electrical, optical and magnetic properties of matter provide a strong foundation in that direction
7	Physics paper XIII Practical	1. To design and Run experiments like Carry Fosters Bridge, thermister and Oscillating Disc
		2. To understand the basic physic behind the experiments.
		3. Keep well maintained and instructive laboratory manuals.
8	Physics paper XIV	4. Design the circuit and analyze the outputs of the circuit.
		2. Find the unknown Parameters of the Oscillators.
		3. Understood the Theory behind the Practical's

	Practical	4.Analyse the data and plot appropriate graphs and reach the conclusions from your data analysis.

T.Y. B. Sc.

SEMESTER - V & VI

Sr. No.	Course	Learning Outcomes
1	Physics Paper XV Classical and Quantum Mechanics	1. Understanding of Newton's law and apply them into calculation of the motion of simple system.
		2. Solve problems related to Lagrangian Equation
		3. This course is a prelude to advanced theoretical studies in Condensed Matter Physics, Spectroscopy and Hamiltonian, Schrödinger Theory and applications of it.
2	Physics Paper XVI Electrodynamic	1. Students can use Maxwell equations in analysing the electromagnetic field due to time varying charge and current distribution.
		2. They can describe the nature of electromagnetic wave and its propagation through different media and interfaces.
		3. Understood Faraday's, Lenz and Maxwell's Equation
		4. Explain Electromagnetic wave concept in details
		5. Understood B,E, D and H and boundary conditions
3	Physics paper XVII Practical	1. To increase the understanding depth of theoretical concept thermodynamics, magnetism and dielectric concepts.
		2. Understanding and Analysis of data and plot appropriate graphs and reach the conclusions from your data analysis using Excel Shit
4	Physics paper XVIII Practical	1. To increase the understanding depth of theoretical concept Semiconductors, impedance and grating.
		2. The student will demonstrate the ability to think critically and to use appropriate concepts to analyze qualitatively problems or situations involving fundamental principles of Physics

		3. Practise of setting up and conducting experiments with due regards to minimizing error.
5	Physics Paper XIX Atomic, Molecular Physics and LASER	1. Understands dot cross product, vector triple product, curl, divergence, Gauss divergence theorem and Stokes theorem.
		2. To understand Coulombs law and Gauss law in details.
		3. Demonstrate and understanding of Biot-Savart and Ampere's law
		4. Understanding of L, C and R concept and study LCR Circuits.
		5. The basic of LASER is insisted and different types of LASERS.
6	Physics Paper XX Non-conventional energy sources and optical fiber	1. This course is expected to provide necessary back ground for applications of nonconvential energy sources.
		2. Students will familiarise with Photovoltaic systems and applications of it.
		3. Understanding concept of fiber cables and optical fibbers and fabrication processes.
		4. Useful to understand the applications of Fiber cables.
7	Physics paper XXI Practical	1. The student will demonstrate the ability to think critically and to use appropriate concepts to analyze qualitatively problems or situations involving fundamental principles of Physics
		2. Understanding and Analysis of data and plot appropriate graphs and reach the conclusions from your data analysis using Excel Shit
		3. Understand concept of Refractive Index, Thermocouple and spectroscopic techniques.
8	Physics paper XXII Practical	1. Practise of setting up and conducting experiments with due regards to minimizing error.
		2. Handling of LASER Sources and precautions to be taken at the time experiment.
		3. Understand concept of optical fiber and e/m techniques.

		4. Understanding and Analysis of data and plot appropriate graphs and reach the conclusions from your data analysis using Excel Shit
		5. Work in group to plan, implement and report on a project/experiment.