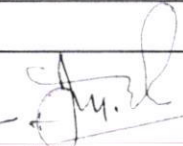
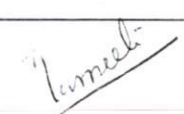
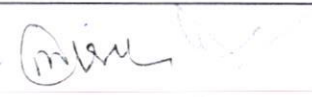


Department of Physics
Part I: Course outcome

Name of Programme	Course/Paper	Name of course/Paper	Course outcome (should include one point for each unit of the paper)
B. Sc. I	Paper I	Physics - Mechanics, Oscillations and Properties of Matter	I-Grasping the fundamentals of different types of frames and transformation laws,different type of coordinate systems
			II - Understanding of rigid body motion including examples.
			III - Learn the fundamentals of oscillators including damped and forced and grasp the sigificant terms like quality factor and damping factor.
			IV - Learn the effect of electric and magnetic field on a charge particle.
			V - Learn the basics of properties of matter and laws for them including elasticity,viscosity and surface tension .
	Paper II	Physics- Electricity, Magnetism and Electromagnetic Theory	I - Students are expected to understand the use of mathematical operators-gradient,divergence and curl,understanding of different theorems for complicated circuits.
			II - Have gained the elaborated knowledge about electrostatics and laws governing the charge distribution.
			III - Study in depth about Polarisation,bound charges and boundary conditions,study of transient current response of CR,LC,LR and LCR circuits
			IV - To realize the importance of Biot- Savert law and Ampere's law
			V - Capable to solve a variety of problems related to Faraday's law and Maxwell's equations expected to understand displacement current as well.
B. Sc. II	Paper I	Physics- Thermodynamics, Kinetic Theory and Stastical Physics	I - Become familiar with laws of thermodynamics and various thermodynamical processes.
			II - Clear understanding of thermodynamial relationship.
			III - Understanding of maxwelliiian distribution of speed and transport phenomena in gases.
			IV - Familiarize with the statistical basis of thermodynamics.
			V - Introduction to basic statistics- Maxwell-boltzman,bose-Einstien,Fermi-dirac statistics.
	Paper II	Physics- Waves, Acoustics and Optics	I - Understanding of waves, their propagation ,phenomena related to sound.
			II - Understanding of geometrical optics,image formation ,aberrations in images, optical instruments.
			III - Understanding of phenomena of interference and interferometer.
			IV - Understanding of diffraction and diffraction grating.
			V - Basic knowledge of LASER.

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B. Sc. III	Paper I	Physics- Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics	I- Students will be able to understand different frames of reference, concept of relativity and its applications .
			II- Capable to understand the origin of quantum theory and get the knowledge about wave properties of particles De-Broglie waves and its application.
			III- To find the solution of schrodinger equation for many system, familiarize with different quantum numbers.
			IV- To understand the spectra of hydrogen atom ,alkali atoms and fine structure of spectra.
			V- To understand different types of nuclear detectors,nuclear reactions and different atomic models.
	Paper II	Physics- Solid State Physics, Solid State Devices and Electronics	I- Understanding of different crystal structure and parameters.
			II- Understanding of electron model of metals,kronig-penny model,semiconductors,magnetic theory and principles for substance.
			III- Have a basic knowledge of semiconductor physics and devices.
			IV- Application of semiconductor devices,rectifier,amplifier and oscillators.
			V- Understanding of basics of computers hardware and introduction to programing.
M. Sc. I SEMESTER	Paper I	Physics - Mathematical Methods - I	I- Understandig of Matrices, eigen values and eigen vectors.
			II- Understanding of different theorems such as Cauchy - Riemann, Residue etc.
			III- Understanding of first and second order differential equation, and Green's functions.
			IV- Understanding of Legendre, Bessel, Hermite and Laguerre functions with their physical applications.
	Paper II	Physics - Classical Mechar	I- Understing of mechanics of particle, equation of motion of particleand D'Alembert principle.
			II- Deduction of different Principle and equations from Hamilton variational principle.
			III- Capable to understand the applications of Hamilton equation of motion.
			IV- Undersanding of Hamilton - Jacobi differential equation and Poisson Bracket.
	Paper III	Physics - Numerical Methods and Programming	I- Understanding of computational procedure and programming.
			II- Understanding of different statements and different concept associated with with different functions.
			III- Understanding of determination of zeros of linear, non linear, algebric equation and transcendental equations.
			IV- Understanding of numerical differention and Integarationand Newton cote's formula
	Paper IV	Physics - Electronics - I	I- Understanding of working of Transistor, JFET, MOSFE Tand UJT.
			II- Understanding of MISdiode, MOS diode and CC.
			III- Understanding of Microwave devices such as Tunnel diode, Gunn diode, Backward diode.
			IV- Understanding of Modulation and Demodulatio.

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M. Sc. II SEMESTER	Paper I	Physics - Quantum Mechanics - I	I- Origin of Quantum theory and explanation of different phenomena on the basis of this theory.
			II- Some principles and theorems related with Quantum theory.
			III- Study of some physical quantity and problems on the basis of quantum mechanics.
			IV- Detailed study of hydrogen atom and its spectra on the basis of quantum mechanics.
	Paper II	Physics - Laser Physics and applications	I- Basic idea of LASER and its parameters.
			II- Study of different LASER systems.
			III- Advanced study of LASER physics.
			IV- Study of laser Physics in different fields.
	Paper III	Physics - Electrodynamics	I- Capable to understand maxwell's equation and wave propagation in different media.
			II- Different phenomena related with wave propagation and boundary conditions.
			III- Understanding of Einstein theory of special relativity and it's covariant form.
			IV- Understanding of relativistic electrodynamics.
	Paper IV	Physics - Electronics - II	I- Study of different type of transistors.
			II- Understanding the working and characteristic of different phototransistors.
			III- Detail study of operational amplifier.
			IV- Parameters related with practicals of operational amplifier.
M. Sc. III SEMESTER	Paper I	Physics - Quantum Mechanics - II	I- Different approximation methods to determine the energy states of Hydrogen and Helium atoms.
			II- Basic idea of scattering and its parameters.
			III- Study of different particles on the basis of time dependent perturbation theory.
			IV- Understanding of relativistic quantum mechanics and its formulation.
	Paper II	Physics - Statistical Mechanics	I - Foundation of statistical mechanics, microstates, macrostates and theorems related with them.
			II- Basic idea of ensemble theory.
			III- Formulation of quantum statistics, theory of ideal gases and different statistics.
			IV- Ideal Bose and Fermi gases and their thermodynamics behaviour.

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M. Sc. III SEMESTER	Paper III	Physics - Solid State Physics	I- Theories and models for electron in solids and electronic properties.
			II- Effects and theory related with Fermi surfaces of metals.
			III- Lattice dynamics of monoatomic, diatomic gases and thermal properties.
			IV- Understanding of electron-phonon interaction and superconductivity.
	Paper IV	Physics - Electronics - III	I- Understanding of different number system and their conversion used in digital system.
			II- Understanding of different combinational logic circuits like adder, subtractor, coder, decoder, multiplexer, demultiplexer.
			III- Understanding different sequential logic circuits like flip-flop, registers and counters.
			IV- Idea of digital to analogue and analogue to digital converters, basic idea of integrated circuits.
M. Sc. IV SEMESTER	Paper I	Physics- Solid State Physics - II	I- Understanding of Plasmons and Polaritons
			II- Understanding of Maxwell's equations for dielectric and ferroelectrics.
			III- General idea of dia, para magnetism and different theory for them.
			IV- Understanding of Ferromagnetism and anti ferromagnetism.
	Paper II	Physics- Atomic and Molecular physics	I- Understanding of Bohr theory of Hydrogen atom and Hydrogen like atom.
			II- Understanding of Zeeman effect, Paschen Back effect and Stark effect.
			III- Understanding of Rotational and Vibrational Spectra.
			IV- Understanding of Rotational-Vibrational spectra and electronic spectra.
	Paper III	Physics - Nuclear and Particle physics	I- Understanding of Nucleon - nucleon interaction and Nuclear forces.
			II- Understanding of Beta and Gamma decay and selection rules.
			III- Understanding of different nuclear model such as liquid drop, shell model etc.
			IV- Understanding of elementary particle and Quark model.
	Paper IV	Physics - Electronics - IV	I- Understanding of memory, magnetic memory and networking in microprocessor.
			II- Understanding of Intel 8085 and time diagram.
			III- Understanding of instruction set of 8085 and addressing modes.
			IV- Understanding of Optical fiber and types of optical fiber.



Part II: Programme outcome

Name of programme/degree	Name of subject	Programme outcome
B. Sc.	B. Sc. - PHYSICS	<p>After successful completion of three year Undergraduate degree program in physics a student should be able to: -</p> <p>PO -1 Demonstrate, solve and an understanding of major concepts in all disciplines of physics. PO- 2 Solve the problem and also think methodically, independently and draw a logical conclusion. PO-3. Employ critical thinking and the scientific knowledge to design, carryout, record and analyze the results of Physics experiments. PO-4. Create an awareness of the impact of Physics on the society, and development outside the scientific community. PO-5. To inculcate the scientific temperament in the students and outside the scientific community. PO-6 - Gain the knowledge to appear and qualify the diffenent competitive exams such as PSC, UPSC, SSC, BANK, RAILWAYS, SCHOOL TEACHER EXAM etc.</p>
M. Sc.	M. Sc. PHYSICS	<p>After successful completion of two year Post Gratuade degree program in physics a student should be able to: -</p> <p>PO-1. Apply the skill and knowledge in the design and development of electronic circuits to fulfill the needs of small scale electronic industry. PO-2. Demonstrate, solve and an understanding of major concepts in all disciplines of physics. PO-3. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-4. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments. PO-5. Create an awareness of the impact of Physics on the society, and development outside the scientific community. PO- 6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, computer and Microprocessor. PO-8. Become professionally trained in the area of electronics, material science, lasers and nonlinear circuits. PO-9 - Gain the knowledge to appear and qualify the diffenent competitive exams such as NET, SET, GATE, PSC, UPSC, SSC, BANK, RAILWAYS, SCHOOL TEACHER EXAM etc</p>

