

## PG - Physics

<b>PO No.</b>	<b>Upon completion of M.Sc Physics Programme, the graduates will be able to:</b>
PO-1	Understand the historical development of physics, its possibilities and limitations, and explain the value of lifelong learning.
PO-2	Understand the role of physics in society and has the background to consider ethical problems.
PO-3	Acquire the knowledge, general competence, and analytical skills on an advanced level needed in industry, consultancy, education, research or public administration.
PO-4	Utilize their knowledge to do the project works, both independently and in collaboration with others, and also across disciplines.
PO-5	Develop and renew scientific competence independently, via courses or through PhD studies in physics.
PO-6	Apply a systematic concept-based problem-solving approach to various physical concepts.
PO-7	Understand the theories which describe the nature of physical phenomena and to establish them by experiments.
PO-8	Apply their knowledge in lifelong learning process and exploring their knowledge independently.

<b>PSO No.</b>	<b>Upon completion of M.Sc Physics Degree Programme, the graduates will be able to:</b>	<b>PO No</b>
PSO-1	Acquire the skills which includes the Entrepreneurship and Employability.	PO-3, PO-5
PSO-2	Adopt new technology for Projects and Model Design	PO-4, PO-8
PSO-3	Acquire the knowledge of Experimental skill in Higher Education.	PO-1, PO-4
PSO-4	Evaluate the problems in different fields of physics.	PO-2, PO-4, PO-6
PSO-5	Discover the solutions of the physical problems.	PO-2, PO-6
PSO-6	Acquire fellowship and placement in research laboratories.	PO-3, PO-4, PO-7
PSO-7	Identify placement in software firms, engineering and electronics industries and educational institutions.	PO-4, PO-5, PO-8
PSO-8	Comprehend the scientific temperament to focus on a relentless pursuit of innovative applications.	PO-1, PO-5

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH11</b>			
<b>Title</b>	<b>MATHEMATICAL PHYSICS – I</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>90</b>	<b>Hours/Week</b>	<b>6</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Outline the linear vector space and matrices.	PSO-4	Understanding
CO-2	Recall the Legendre and Hermite polynomials.	PSO-4,8	Remembering
CO-3	Solve the problem in Laplace and Fourier transforms.	PSO-5	Applying
CO-4	Explain the postulates of Group and analyze the concept of Group Symmetry.	PSO-1,7	Evaluating
CO-5	Elaborate the character of representation and illustrate the character table for $C_{2v}$ and $C_{3v}$ .	PSO-4	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH12</b>			
<b>Title</b>	<b>CLASSICAL MECHANICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>90</b>	<b>Hours/Week</b>	<b>6</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Understand the necessity of Lagrangian and Hamiltonian formulations.	PSO-4,5	Understanding
CO-2	Solve two body central force problems and interpret the transformation of scattering problems to laboratory Co-Ordinates.	PSO-4	Applying
CO-3	Analyze the independent Co-Ordinates and Equation of motion for a rigid body.	PSO-6,7	Analyzing
CO-4	Discuss the Hamiltonian formulation of mechanics.	PSO-2	Creating
CO-5	Interpret the importance of small oscillations and normal frequency of vibrations.	PSO-8	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH13</b>			
<b>Title</b>	<b>MOLECULAR AND RESONANCE SPECTROSCOPY</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>I</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>90</b>	<b>Hours/Week</b>	<b>6</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Summarize the important features of rotational spectroscopy.	PSO-3	Understanding
CO-2	Analyze the change in Normal for IR and Raman Activity and construct the $C_{2v}$ and $C_{3v}$ point groups.	PSO-2	Analyzing
CO-3	Analyze the features of IR and Electronic Spectroscopy.	PSO-2,8	Analyzing
CO-4	Discuss the theory of Raman spectroscopy.	PSO-1,2	Creating
CO-5	Recall the Principle and Instrumentation of NMR, ESR, NQR and Mossbauer Spectroscopy.	PSO-1,7	Applying

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH1A</b>			
<b>Title</b>	<b>INTEGRATED ELECTRONICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Explain the working details of various types of transistors.	PSO-7	Understanding
CO-2	List out the characteristic features and applications of Operational Amplifier	PSO-2	Remembering
CO-3	Elaborate the construction, working and applications of Semiconductor memories	PSO-3,1	Analyzing
CO-4	Design the photo electronic devices and sensors.	PSO-2,8	Creating
CO-5	Interpret the importance of special diodes such as Tunnel, Gunn and Laser diode.	PSO-3,7	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH1B</b>			
<b>Title</b>	<b>NANO SCIENCE</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Explain about the different types of nano-materials and their synthesis.	PSO-2,5	Understanding
CO-2	List the synthesizing methods of carbon nanotubes.	PSO-1,6	Remembering
CO-3	Develop the formulation of quantum hetero-structures.	PSO-3	Applying
CO-4	Analyze the fabrication and production of quantum dot and wires.	PSO-1,7	Analyzing
CO-5	Explain the concept of magneto-electronics and applications of nanotechnology.	PSO-8	Understanding

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH1P1</b>			
<b>Title</b>	<b>GENERAL PHYSICS EXPERIMENTS – I</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Compute conductivity, resistivity and thermo-dynamical properties of solids.	PSO-8	Applying
CO-2	Analyze magnetic properties and magnetic behavior of magnetic materials.	PSO-6	Analyzing
CO-3	Solve the problem with critical thinking and analytical reasoning.	PSO-4,5	Applying
CO-4	Recall the concepts of mechanics, properties of matter and sound through different experiments.	PSO-3	Remembering
CO-5	Relate the basic trouble shooting skills and appreciate Physics concepts through experiments.	PSO-3,7	Remembering
CO-6	Determine the optical constants with spectrometer and understand the advanced experiments using lasers.	PSO-6	Evaluating



<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH1P2</b>			
<b>Title</b>	<b>ADVANCED ELECTRONICS EXPERIMENTS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>		<b>I</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Develop their knowledge for handling and building electronics circuits.	PSO-1,2	Creating
CO-2	Relate the usage of various components such as resistors, capacitor, inductor, IC chips in circuits.	PSO-3	Remembering
CO-3	Explain the construction, working principles and V-I characteristics of various devices such as LED, LDR and photovoltaic cell.	PSO-1,2	Understanding
CO-4	Make use of the components of digital electronics for various applications.	PSO-8	Applying
CO-5	Design and perform scientific experiments and analyze the results.	PSO-2,4	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH21</b>			
<b>Title</b>	<b>MATHEMATICAL PHYSICS – II</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the features of complex analysis.	PSO-4,5	Understanding
CO-2	Recall the Bessel and Laguerre polynomials.	PSO-4,8	Remembering
CO-3	Apply the method of separation of variables to solve the partial differential equations.	PSO-4,5	Applying
CO-4	Apply the concept of tensors in non-relativistic physics.	PSO-2	Applying
CO-5	Discuss the properties of Dirac delta and green function.	PSO-8	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH22</b>			
<b>Title</b>	<b>QUANTUM MECHANICS – I</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the fundamentals of quantum mechanics.	PSO-1,4	Understanding
CO-2	Solve the bound state problems and evaluate the Eigen value and Eigen function for rigid rotator and Hydrogen atom.	PSO-4,5	Applying
CO-3	Interpret the importance of various pictures and matrix mechanics.	PSO-2	Evaluating
CO-4	Discuss the properties of angular momenta and evaluate the Clebsch Gordan Coefficients.	PSO-6	Creating
CO-5	Examine the features of identical particles and discuss about the time dependent density matrix.	PSO-8	Analyzing

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH23</b>			
<b>Title</b>	<b>STATISTICAL MECHANICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the basic concepts of statistical mechanics.	PSO-4	Understanding
CO-2	Determine the thermo-dynamical functions for the canonical ensemble.	PSO-4,5	Evaluating
CO-3	Analyze the features of Bose-Einstein, Fermi-Dirac and Maxwell Boltzmann quantum statistics.	PSO-8	Analyzing
CO-4	Discuss the applications of quantum statistics in Debye theory of Specific heat of Solid and Bose-Einstein condensation.	PSO-2,8	Creating
CO-5	Develop the theory of first and second order of phase transition.	PSO-6,7	Applying

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH2A</b>			
<b>Title</b>	<b>MICROPROCESSOR AND MICROCONTROLLERS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the features of 8 bit microprocessor.	PSO-1,3	Understanding
CO-2	Recall the addressing modes and instruction sets of 8085.	PSO-4,5	Remembering
CO-3	Explain the architecture, addressing modes and instruction set of 8051 microcontroller	PSO-2	Evaluating
CO-4	Discuss the interfacing scheme in Intel 8255 and Intel 8279.	PSO-1,6	Creating
CO-5	Design the microprocessor based system such as Temperature controller, Motor speed and Traffic light control system.	PSO-1,7,8	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH2B</b>			
<b>Title</b>	<b>NUMERICAL METHODS AND PROGRAMMING</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Explain various iterative methods to solve the equation.	PSO-3	Understanding
CO-2	Solve the equation using numerical differentiation and integration techniques.	PSO-4,5	Creating
CO-3	Interpret the importance of Monte Carlo method	PSO-2	Evaluating
CO-4	Estimate the numerical solution of partial differential equations.	PSO-4	Evaluating
CO-5	Solve some physical problems using C++ Programming.	PSO-2,7,8	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH2P1</b>			
<b>Title</b>	<b>GENERAL PHYSICS EXPERIMENTS – II</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Summarize the operating principle of laser, LED and optical fibers.	PSO-1,8	Understanding
CO-2	Determine the particle size, wavelength and thickness using laser source.	PSO-2,3,6	Evaluating
CO-3	Estimate the values of elastic constants using spectrometer experiment.	PSO-8	Evaluating
CO-4	Experiment with Solar cell, LED and Lasers.	PSO-2,8	Applying
CO-5	Estimate the various parameters of optical fiber through experiment.	PSO-7,8	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH2P2</b>			
<b>Title</b>	<b>ELECTRONICS EXPERIMENTS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive level</b>
CO-1	Explain the principle of digital electronics, oscillators and amplifiers.	PSO-3	Understanding
CO-2	Recall the importance of counters, registers and filters.	PSO-7	Remembering
CO-3	Experiment with active filters and counters.	PSO-2	Applying
CO-4	Examine the characteristics of UJT/SCR, FET etc. through experiments.	PSO-3	Analyzing
CO-5	Construct various multivibrators, rectifiers and oscillators.	PSO-2,7,8	Applying



<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PIPH21</b>			
<b>Title</b>	<b>RENEWABLE ENRGY</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>I</b>	<b>II</b>		
<b>Type</b>	<b>IDC</b>			
<b>Credits</b>	<b>3</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>45</b>	<b>Hours/Week</b>	<b>3</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Illustrate the types of energy sources and prospects of renewable energy sources.	PSO-3	Understanding
CO-2	Explain the construction details of solar energy collectors.	PSO-2,6	Evaluating
CO-3	List the types of wind machines and advantages and disadvantages of wind energy.	PSO-1,2	Analyzing
CO-4	Explain the features of ocean thermal energy.	PSO-8	Evaluating
CO-5	Recall the concepts of photosynthesis and biogas generation.	PSO-1,2	Remembering

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH31</b>			
<b>Title</b>	<b>QUANTUM MECHANICS-II</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the features of time independent perturbation theory.	PSO-4,5	Understanding
CO-2	Recall the importance of time-dependent perturbation theory.	PSO-4,5	Remembering
CO-3	Discuss the application of scattering theory.	PSO-2,8	Creating
CO-4	Develop various approximation-methods to find the solution of quantum mechanical problem.	PSO-5	Creating
CO-5	Examine the features of relativistic quantum mechanics.	PSO-8	Analyzing

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH32</b>			
<b>Title</b>	<b>ELECTROMAGNETIC THEORY</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the fundamental formulation of electrostatics and analyze the dielectric constant of Linear dielectrics.	PSO-3	Understanding
CO-2	Recall the concept of magnetic susceptibility and permeability in linear and Non-linear media.	PSO-3	Remembering
CO-3	Apply the laws of electromagnetism and Maxwell's equation in different media.	PSO-5	Applying
CO-4	Discuss the generation and interaction of electromagnetic waves and their different modes of propagation in wave guide.	PSO-7,8	Creating
CO-5	Discuss the behavior of electric and magnetic dipole radiation and physical origin of radiation reaction.	PSO-2	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH33</b>			
<b>Title</b>	<b>NUCLEAR AND PARTICLE PHYSICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Explain the general properties nuclear forces and their dependence of various parameters.	PSO-3	Understanding
CO-2	Develop the theory of nuclear decay.	PSO-4,6	Applying
CO-3	Analyze the various types of nuclear models and its stability.	PSO-2	Analyzing
CO-4	Elaborate the various types of nuclear reaction.	PSO-3,7	Creating
CO-5	Recall the classification of elementary particles and study about SU3 Multiplet.	PSO-6,8	Remembering

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH3A</b>			
<b>Title</b>	<b>NON LINEAR DYNAMICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the behavior of Linear and Non-linear Oscillators.	PSO-3	Understanding
CO-2	Recall the definitions of equilibrium points, bifurcations and chaos.	PSO-2	Understanding
CO-3	Determine numerically and experimentally, the onset of chaos in nonlinear electronic circuits such as Chua's Oscillator, Murali-Lakshmanan-Chua (MLC) oscillator and a Duffing oscillator.	PSO-2,5	Analyzing
CO-4	Apply the concept of Fractal Structure and its implementation in research area and publications.	PSO-4,6,8	Applying
CO-5	Analyze the properties and its applications of Solitons.	PSO-6,7,8	Analyzing

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH3B</b>			
<b>Title</b>	<b>CRYSTAL GROWTH AND THIN FILMS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the features of solution growth techniques.	PSO-3	Understanding
CO-2	Explain the principle and process of gel growth techniques.	PSO-2,6	Evaluating
CO-3	Discuss Bridgman and Czochralski techniques.	PSO-2,8	Creating
CO-4	Analyze the various thin film deposition techniques.	PSO-6,7	Analyzing
CO-5	Apply various characterization techniques to characterize the various forms of crystal.	PSO-1,3	Applying

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH3P1</b>			
<b>Title</b>	<b>ADVANCED PHYSICS EXPERIMENTS – I</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the principles of UV-Visible and FTIR.	PSO-3,7	Understanding
CO-2	Determine the miller indices, lattice parameters by X-ray diffraction studies.	PSO-6,8	Evaluating
CO-3	Estimate the values of elastic constants Elliptical fringes experiment.	PSO-4	Creating
CO-4	Examine the magnetic properties of magnetic materials using Hall effect set up and Guoy's method.	PSO-1,6	Evaluating
CO-5	Estimate the dielectric constants of given solids.	PSO-7	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH3P2</b>			
<b>Title</b>	<b>MICROPROCESSOR EXPERIMENTS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Explain the Assembly language program of 8085 Microprocessor.	PSO-1,3	Understanding
CO-2	Solve the Algebraic and Logical Operations using 8085/8086.	PSO-4,5	Creating
CO-3	Construct the Square, Sine and Triangular waveform using 8085.	PSO-2	Applying
CO-4	Recall the techniques of interfacing.	PSO-1,6	Remembering
CO-5	Experiment with counters and A/D converters.	PSO-1,7,8	Applying



<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PIPH31</b>			
<b>Title</b>	<b>DIGITAL ELECTRONICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>III</b>		
<b>Type</b>	<b>IDC</b>			
<b>Credits</b>	<b>3</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>45</b>	<b>Hours/Week</b>	<b>3</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the number systems and its codes.	PSO-2,3	Understanding
CO-2	Solve the Boolean and Logical expression using Karnaugh map.	PSO-2,3	Understanding
CO-3	Design Arithmetic and Logical circuits.	PSO-2,5	Creating
CO-4	Recall the types and features of sequential circuits.	PSO-7,8	Remembering
CO-5	Interpret the importance of counters and data converters.	PSO-1,6,7	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH41</b>			
<b>Title</b>	<b>SOLID STATE PHYSICS</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>IV</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Hours/Week</b>	<b>5</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the construction of reciprocal lattice and the formation of energy bands.	PSO-3	Understanding
CO-2	Analyze the vibration of the crystal, density of state and thermal conductivity and resistivity of crystals.	PSO-4	Analyzing
CO-3	Explain the various features of free electron Fermi gas.	PSO-3	Evaluating
CO-4	Discuss the theory of Dia, Para and Ferromagnetism.	PSO-3,8	Creating
CO-5	Interpret the importance of dielectric, ferroelectrics and superconductivity.	PSO-6,7,8	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH42</b>			
<b>Title</b>	<b>RESEARCH METHODOLOGY</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>		<b>IV</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>75</b>	<b>Total Hours</b>	<b>75</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Explain the characteristics and types of Research.	PSO-2	Understanding
CO-2	Interpret the importance of review literature and planning of research.	PSO-3,4,5	Evaluating
CO-3	Analyze the format of thesis and synopsis writing.	PSO-1	Analyzing
CO-4	Discuss the various features of Origin software.	PSO-2,6	Creating
CO-5	Explain the various options available in Word-2010.	PSO-7,8	Remembering

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH43</b>			
<b>Title</b>	<b>PROJECT (P)</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>		<b>IV</b>	
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>8</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>120</b>	<b>Hours/Week</b>	<b>8</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the advanced theoretical tools and experimental techniques related to their research work.	PSO-2,3	Understanding
CO-2	Demonstrate the field of research and the programming software and experimental facilities available for the work.	PSO-4	Understanding
CO-3	Apply some advanced analytical tools and techniques to solve problems.	PSO-1,3	Applying
CO-4	Design a new material or a simulation programme that is useful for the society .	PSO-5,8	Creating
CO-5	Utilize the help of project supervisor to prepare dissertation and research paper publication.	PSO-6,7	Applying

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH4A</b>			
<b>Title</b>	<b>OPTO ELECTRONICS AND LASER</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>		<b>IV</b>	
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the fundamentals of light wave and analyze its polarization and critical angle reflections.	PSO-3	Understanding
CO-2	Recall the laser principles and operations in Q-Switching method.	PSO-4,6	Remembering
CO-3	Discuss the operations of various types of lasers and light detectors.	PSO-2,8	Applying
CO-4	Develop the wave equations of step-index and graded index fibers.	PSO-7	Creating
CO-5	Explain the operating principle of holography and types of hologram.	PSO-1,8	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PEPH4B</b>			
<b>Title</b>	<b>MATERIALS SCIENCE</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>		<b>IV</b>	
<b>Type</b>	<b>Elective</b>			
<b>Credits</b>	<b>4</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Summarize the concept of lattice parameters and their phase nature using X-Ray Diffraction.	PSO-2,4	Understanding
CO-2	Develop the knowledge in classical and quantum free electron theory of conducting materials.	PSO-3,4	Applying
CO-3	Analyze the features of semiconducting materials.	PSO-2,8	Analyzing
CO-4	Explain the types, properties and applications of ceramics and glasses.	PSO-1,6,8	Evaluating
CO-5	Discuss the features of various electric materials.	PSO-1,7	Creating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH4P1</b>			
<b>Title</b>	<b>ADVANCED PHYSICS EXPERIMENTS – II</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>IV</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Infer the basic principles and concepts of Fraunhofer diffraction.	PSO-3	Creating
CO-2	Interpret the concept applicable in Project work.	PSO-2,5	Evaluating
CO-3	Apply the optical laws in certain experiments such as spectrometer, Interferometer etc.	PSO-1,6	Applying
CO-4	Construct thin Film and to study its various parameters.	PSO-6,7,8	Applying
CO-5	Measure the resistivity, conductivity and band gap energy of semiconductors and Thermistors.	PSO-3	Evaluating

<b>Course</b>	<b>PG</b>			
<b>Code</b>	<b>18PCPH4P2</b>			
<b>Title</b>	<b>NUMERICAL METHODS AND C++ PROGRAMMING</b>			
<b>Degree</b>	<b>M.Sc.</b>			
<b>Branch(s)</b>	<b>Physics</b>			
<b>Year/Semester</b>	<b>II</b>	<b>IV</b>		
<b>Type</b>	<b>Core</b>			
<b>Credits</b>	<b>2</b>			
<b>No. of Contact Hours</b>	<b>Total Hours</b>	<b>60</b>	<b>Hours/Week</b>	<b>4</b>

<b>CO No.</b>	<b>Upon completion of this course, the students will be able to:</b>	<b>PSO Addressed</b>	<b>Cognitive Level</b>
CO-1	Outline the physics problem through C++ programming.	PSO-5	Remembering
CO-2	Apply the concept of curve fitting and data interpolation to find the Cauchy's constant.	PSO-4	Applying
CO-3	Develop the knowledge in various computational methods like Euler such as Newton-Raphson, Runge-Kutta etc.	PSO-2,6	Creating
CO-4	Analyze the solution of transcendental or polynomial equations by the Newton-Raphson method.	PSO-3,7	Analyzing
CO-5	Construct a C++ program using the numerical methods to solve the physical problem.	PSO-2,7,8	Applying