MASTER OF PHYSICS

COURSE OUTCOMES (COs)

On completion of the course students will be able to

COURSE COMPONENT	COURSE	COURSE OUTCOME
CORE THEORY	**MATHEMATICAL PHYSICS**	**CO1:** Understand the basic principles and carry the knowledge forward which can be applied in future research. **CO2:** Gain well versed knowledge in the advanced mathematical methods and tools which can be used to analyze the nature of the problems in physics. **CO3:** Strike a balance between formalism and applications. **CO4:** Include applications of boundary value problems of mathematics towards modern physics. **CO5:** Enable them to improve their logical and analytical skills.
CORE THEORY	**CLASSICAL MECHANICS AND RELATIVITY**	**CO1:** To develop familiarity with the physical concepts and facilitate with the mathematical methods of classical mechanics. **CO2:** To develop skills in formulating physics problems and gain knowledge in relativistic concepts. **CO3:** To emphasize the analyzing solution and explore its consequences towards various means. **CO4:** To expand and evaluate the student's physical intuition and thinking process through the understanding of the theory. **CO5:** To acquire knowledge of real time problems in macroscopic view and applying it to the microscopic level.
CORE THEORY	**QUANTUM MECHANICS I**	**CO1:** To understand the central concepts and basic formalisms of

		quantum mechanics from classical point of view. **CO2:** Enhances the mathematical implementation to solve problems in various dimensions. **CO3:** To establishing the relations and validating various results to give concise physical interpretations, and arguments for the validity of the methods. **CO4:** To integrate several components of theories with applications to problems. **CO5:** To solve present tools and test ideas on problems involving many body systems.
CORE THEORY	**INTEGRATED ELECTRONICS AND MICROPROCESSOR**	**CO1:** To understand the concepts of theories and circuits and implemented over devices. **CO2:** To analyze logics and impact them to design circuits. **CO3:** To design the electronic circuits to solve mathematical equations. **CO4:** To implement the knowledge of integrated chips and develop programming with microprocessor. **CO5:** To compute microprocessor extended towards peripheral systems.
CORE THEORY	**QUANTUM MECHANICS II**	**CO1:** Explain the basic theories and extended to microscopic units. **CO2:** Understand the concepts of perturbation and to evaluate the problems with certain approximation. **CO3:** Give concise physical interpretation and arguments for validity. **CO4:** Integrate several components of quantum system to assess problems. **CO5:** Establish application towards field equations
CORE THEORY	**ELECTROMAGNETIC THEORY AND PLASMA PHYSICS**	**CO1:** To revise the basis and fundamental theories of classical electrostatics.

		CO2: To analyze the concept of Electrodynamical field. **CO3:** Give concise physical interpretation and arguments for validity. **CO4:** Integrate several components of quantum system to assess problems. **CO5:** Establish application towards field equations.
CORE THEORY	**COMPUTATIONAL METHODS AND C PROGRAMMING**	**CO1:** Study the concepts of nonlinear algebraic equations and extend it to three dimensions. **CO2:** Analyze the theoretical concepts and formulate the results in interpolation and curve fitting. **CO3:** Apply advanced knowledge of mathematics in numerical techniques. **CO4:** Attain a comprehensive introduction to the C-programming language and structured design. **CO5:** Extent the numerical techniques with programming language.
ELECTIVE THEORY	**SPECTROSCOPY**	**CO1:** To impart basic knowledge of electromagnetic region and elaborate it to rotational level. **CO2:** To understand vibrational spectroscopy applied in infrared region. **CO3:** To study the vibrational and rotational level and to elucidate the structure of molecules. **CO4:** To learn the physics behind the concept of resonance in spectroscopy and study the environment of any molecule. **CO5:** To understand the concepts of NQR its instrumentation with applications
CORE THEORY	**STATISTICAL MECHANICS**	**CO1:** To Learn relationship between equilibrium distributions and kinetic processes leading to equilibrium. **CO2:** To Become aware of the richness and complexity of statistical

		behaviour exhibited by interacting systems and various approaches related to thermodynamics in various statistical systems. **CO3 :** To Apply in and various approaches macroscopic and microscopic systems. **CO4:** To develop statistical description of system to real statistical problems using classical and quantum distributions. **CO5:** To Examine appropriate limiting behaviors in various statistical systems and to develop statistical description of system and use it to obtain thermodynamic quantities of interest.
CORE THEORY	**NUCLEAR AND PARTICLE PHYSICS**	**CO1:** To Understand the concepts of nucleus and its properties to apply quantum theory of a particle and measure the properties of quantum system. **CO2 :**To Expand and evaluate the concepts of nuclear structures in nuclear reactions. **CO3:** To Analyze the properties of stable nucleus and explore different types of nuclear models. **CO4:** To Applying the decay concepts to study decay rates and extended to neutrino physics of parity conservation violation. **CO5:** To Learn the concepts of elementary particles and symmetries.
ELECTIVE THEORY	**NANOSCIENCE AND TECHNOLOGY**	**CO1:** To understand the basic concepts in nanoscience. **CO2:** To Comprehend the principles of nanotechnology. **CO3:** To explore the field of nanomaterials. **CO4:** To Became aware of knowledge over tools of nanotechnology. **CO5:** To Frame to acquire knowledge towards the applications of nanoscience in medical field.

ELECTIVE THEORY	**CRYSTAL PHYSICS**	**CO1:** To understand the basics of nucleus and the concepts of nucleation. **CO2 :**To Analyze the experimental studies of crystal growth methods. **CO3:** To Acquire the ideas on types of characterization of crystals and its applications. **CO4 :**To recognize the crystal structure determination and reciprocal lattice. **CO5:** To study the concepts of crystallography.
CORE THEORY	**CONDENSED MATTER PHYSICS**	**CO1:** To Understand the fundamental principles and concepts of crystal physics. Applying the reciprocal lattice to the crystal structure and explain how it gives rise to band structure and Brillouin zone. **CO2:** To enhance students familiar with lattice vibrations. **CO3:** To Expand and evaluate the energy band structure of metal and semiconductors. **CO4:** To gain basic knowledge about magnetism and ferromagnetic domains. **CO5:** To Acquire knowledge on functional materials like superconductors.
CORE ELECTIVE	**MICROPROCESSOR 8086 AND MICROCONTROLLER 8051**	**CO1:** To study the basic concepts for analyzing the peripheral devices. **CO2:** To understand the architecture of 8086 microprocessor. **CO3 :** Be familiar with the basic concepts of architecture and assembly language programming of 8086 microprocessor. **CO4 :** To gain knowledge about microcontroller family and educate clear idea in 8051 microcontroller. **CO5:** To write a program with interfacing concepts
CORE ELECTIVE	**MATERIAL SCIENCE**	**CO1:** To make students familiar with advanced materials

		CO2: Become aware of knowledge towards polymers **CO3:** To educate the concepts of Dielectric and extended towards its applications **CO4:** Understand the fundamental principles and concepts of crystal growth techniques **CO5:** To gain basic knowledge about magnetic materials.