



MAHARSHI VISHWAMITRA COLLEGE, BUXAR

(A Constituent Unit of V. K. S. U, Ara)



4 Years Bachelor of Arts B.A. (Hons.) in Physics under CBCS

Programme Outcomes (Major Courses)

S.No	UG Semester	Course	POS
1.	I	MJC-1 Introduction to Mathematical Physics & Classical Mechanics	i) Concept of Differentiation & Integration ii) Vector Algebra & Vector Calculus iii) Fundamentals of Dynamics iv) Centre-of-Mass frame and Central Forces
2.	II	MJC-2 Oscillations & Waves	i) Basics of Oscillations ii) Superposition of Oscillations iii) Wave Motion iv) Sound Waves
3.	III	MJC-3 Thermal Physics & Thermodynamics	i) Kinetic Theory of Gases ii) Real Gases iii) Zeroth and First Law of Thermodynamics iv) Second Law Of Thermodynamics
4	III	MJC-4 Electricity & Magnetism	i) Electrostatics. ii) Dielectric Properties of Matter. iii) Magnetism iv) Electromagnetic Induction v) Electrical Circuits
5.	IV	MJC-5 Mathematical Physics-II and Introduction to Computational Methods	i) Curvilinear Coordinates, Tensors and special functions ii) Partial Differential Equations and Complex Analysis iii) Introduction: Importance of Computer in physics, Algorithm and Flow charts iv) Scientific Programming v) Control Statements
6	IV	MJC-6 Electrodynamics and Electromagnetism	i) Maxwell's Equations ii) Electromagnetic wave Propagation in unbounded media iii) EM Wave Propagation in Bounded Media iv) Polarization of Electromagnetic Waves v) Transmission Line Wave Guides Optical Fibers
7.	IV	MJC-7 Optics	i) Interference ii) Interferometer iii) Fraunhofer Diffraction Fresnel diffraction iv) Polarization and Double Refraction
8.	V	MJC-8 Elements of Modern Physics	i) Practical Properties of Radiations Wave Aspect of Particles ii) Wave - Particle Duality. iii) Atomic Structure iv) Wave Mechanical Description of electron Particles v) Fundamental Properties of Nucleus



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9.	V	MJC-9 Basic Electronics	i) Digital Circuits ii) Basic Circuit Operations Combinational Circuits iii) Semiconductor Devices Electronic Devices and their Applications Bipolar Junction transistors Amplifier iv) Operational Amplifiers (Black Box approach) v) Instrumentations
10.	VI	MJC-10 Analytical Mechanics & Special Theory of Relativity	i) Constraints Variation Principle and Hamiltonian formalism ii) Canonical Transformation iii) Motion of Rigid body iv) Special Theory of Relativity
11.	VI	MJC-11 Statistical Mechanics	i) Classical Statistics ii) Classical Theory of Radiation iii) Quantum Theory of Radiation iv) Bose-Einstein Statistics v) Fermi-Dirac Statistics
12.	VI	MJC-12 Quantum Mechanics & its Application	i) Wave-Particle duality ii) Time Independent Schrodinger Wave Equation iii) Formalism of Quantum Mechanics iv) Time Dependent Schrodinger Wave Equation
13.	VII	MJC-13 Physics of Atoms and Nuclei	i) H-spectra ii) Quantum mechanics of H-atom iii) Concept of Vector Atom model iv) Spectra of 1 and 2 electron system (Alkali and Alkaline Earth Element) v) Nuclear Models
14.	VII	MJC-14 Research Methodology	
15.	VII	MJC-15 Solid State Physics	i) Crystal Structure ii) A Crystal Bonding iii) A Free Electron Theory iv) Magnetic Properties of Matters
16.	VIII	MJC-16 Physics of Laser and Molecules	i) Basic Theory of LASER. ii) Application of LASER in Holography iii) Concept of molecule iv) Hamiltonian of Molecule theory v) Different Molecular spectroscopic techniques as a tool