

Teaching Plan
Academic Year 2015 – 2016

CLASS – B.Sc.III Year

SEMESTER --V,

SUBJECT –Physics,

Paper- **XV (PHY – 301)**

PERIODS/ WEEK – 3

TOTAL WEEKS – 15

Weeks	Topics to be covered
1	Mechanics of particle, Mechanics of system of particles.
2	Constaints – Holonomic and nonholonomic, Virtual work , D'Alembert's principle.
3	Lagrange's equation , Simple applications of Lagrange's formulation – Linear harmonic oscillator.
4	Simple applications of Lagrange's formulation – Simple pendulum , problems.
5	Origin of quantum theory , Black body radiations, Distribution of spectrum in Black Body radiations.
6	Photoelectric effect , Laws of photoelectric emission .
7	Ritz combination principle , Plank's radiation, problems.
8	Inadequacy of classical mechanics, Two slit experiment , Super position theorem.
9	Wave particle dualism for light and matter , De Broglie's wave and De Broglie's model of atom.
10	Wave velocity and group velocity , Heisenberg's uncertainty principle.
11	Applications of Heisenberg's uncertainty principle—Energy and radius of Bohr's first orbit , Why electron can not present in nucleus.
12	Concept of wave function , Schrodinger's equation , Time dependent form.
13	Expectation value , Operators , Time independent Schrodinger's equation.
14	Particle in one dimensional box , Energy quantization , Wave function.
15	Revision and problems.

Teacher's Signature

H. O. D's Signature

Teaching Plan
Academic Year 2015 – 2016

CLASS – B.Sc.III Year

SEMESTER --V,

SUBJECT –Physics,

Paper- **XVI (PHY – 302)**

PERIODS/ WEEK – 3

TOTAL WEEKS – 15

Weeks	Topics to be covered
1	Electric field lines, Electric flux and Gauss law, The divergence of E, Curl of E.
2	Applications of Gauss law: Electric field due to a uniform charged sphere, Electric field due to charged cylinder.
3	Gaussian Pillbox, Poisson's equation, Laplace's equation.
4	Uniqueness theorem (first and second), Faraday's laws of Electromagnetic Induction, Lenz's law.
5	Self Induction, Mutual Induction, Equation of Continuity.
6	Maxwell's displacement current, Maxwell's equations: Derivation and Differential form.
7	Origin of electromagnetic waves, Characteristics of electromagnetic waves.
8	Electromagnetic wave equations in conducting media.
9	Transverse nature of electromagnetic waves, plane polarized electromagnetic waves .
10	Polarization of electromagnetic waves.
11	The Poynting vector and Poynting theorem.
12	Boundary condition of electromagnetic field vector: B , E at the interface between two media .
13	Boundary condition of electromagnetic field vector: D , H at the interface between two media.
14	Reflection at the boundary of two non conducting media.
15	Refraction at the boundary of two non conducting media.

Teacher's Signature
Dr. M.I. Iqbal

H. O. D's Signature

Teaching Plan
Academic Year 2015-2016

Class:- B.Sc. III Year

Semester:- V

Subject:- Electronics

Paper No:- **XV (ELE-501)**

Periods Per weeks:- The, Prac Weeks (Total):-

WEEKS	TOPICS TO BE COVERED
1.	Thyristors, silicon controlled rectifier ,construction.
2.	Operation, equivalent, circuit characteristics.
3.	Unijunction transistor, Diac.
4.	Triac, IGBT, Detection sensors.
5.	Limit switches proximity detectors inductive proximities switches (ports, output stages operation).
6.	Capacitor proximity switches photoelectric seasons method of detection.
7.	Operation specification sensor interfacing.
8.	Electromagnetic relays resistive load inductive load solid state relay two wine system.
9.	DC derives fundamental.
10.	Variable voltage DC drive, motor braking.
11.	AC dives AC drive fundamentals AC drive system. Drive controller internal circuit circaition.
12.	Circuit operation of AC drive, PWM control method control panel.
13.	Input drive function, inverter self protection function.
14.	Motor braking.
15.	REVISION

Teacher's Signature

H.O.D.'s Signature

Dr. J. M. Pathan

MAULANA AZAD COLLEGE, OF ARTS, SCIENCE AND COMMERCE,
DEPARTMENT OF PHYSICS AND ELECTRONICS

Teaching Plan (2015 – 2016)
Academic Year 2015-2016

Class: B.Sc. III year

Semester: V

Subject: Electronics

Paper No.: **XVI (A) (ELE- 502)** Period/Week: Theory: 03 Weeks (Total): 15

WEEKS	TOPICS TO BE COVERED
1.	Introduction, Microcontrollers and microprocessors, history of microcontrollers, embedded versus external memory devices, Parallel I/O Ports, Memory Organization.
2.	8-bit and 16-bit microcontrollers, CISC and RISC processors, Harvard and Von Neumann architecture.
3.	Commercial microcontroller devices 8051 Pin Description, Connections.
4.	Parallel I/O Ports, Memory Organization.
5.	8051 Addressing Modes.
6.	MCS – 51 Instruction Set.
7.	8051 Instructions and Simple programs, Using Stack Pointer.
8.	Interrupts, Interrupts in MCS – 51.
9.	Timers and Counters.
10.	Serial Communication.
11.	Pin diagrams of 89C51 and 89C 2051.
12.	Applications of MCS – 51 and Atmel 89C51 and 89C2051 Microcontrollers.
13.	Square Wave Generation, Pulse Generation.
14.	Staircase Ramp Generation, Pulse Width Measurement.
15.	Revision.

Teacher's Signature

H. O. D.'s Signature