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| **PERIOD** | **DATE**  **{Tentative}** | **TOPIC** | **UNIT**  **No** | **TEACHING**  **METHODOLOGY** | **REMARKS** | **CORRECTIVE**  **ACTION UPON**  **REVIEW** |
|  |  | **General Introduction** |  |  |  |  |
| 1 | 29-12-2015  (Tue) | The Basic differences between Intermediate and Professional College Education and Parity among the Institutes, the Departments and the Faculty | -- | -- |  |  |
| 2 | 31-12-2016  (Thu) | Broad perspective of Engineering Physics and Scope of the Syllabus – Teaching Methodology – Course Regulations | -- | -- |  |  |
|  |  | **Pre Requisites for 0ptics** |  |  |  |  |
| 3 | 31-12-2016  (Thu) | SHM and a Wave | -- | Lectures, Demonstration  Animations |  |  |
| 4 | 07-01-2016  (Thu) | Basic Terms Associated with a Wave. Time Period, Frequency, Wave Length, Amplitude etc. | -- | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 5 | 07-01-2016  (Thu) | Superposition of Two Waves –  Resultant Amplitude and Resultant Phase | -- | ,, |  |  |
| 6 | 08-01-2016  (Fri) | What is Size of Light – Also the Size of Electromagnetic Spectrum  What is Coherence? Spatial and Temporal Coherence | -- | ,, |  |  |
| 7 | 12-01-2016  (Tue) | Huygen’s Principle and Wave Front – Wave Front Division and Amplitude Division to Achieve Coherence | -- | ,, |  |  |
| 8 | 19-01-2016  (Tue) | Phase Change on Reflection and Concept of Optical Path Equivalence | -- | ,, |  |  |
|  |  | **UNIT I - Interference** |  |  |  |  |
| 9 | 21-01-2016  (Thu) | Young’s Double Experiment | I | ,, |  |  |
| 10 | 21-01-2016  (Thu) | Conditions for the Interference | I | ,, |  |  |
| 11 | 22-01-2016  (Fri) | Thin Film Interference under Reflected System | I | ,, |  |  |
| 12 | 28-01-2016  (Thu) | Newton’s Rings under Reflected System | I | ,, |  |  |
| 13 | 28-01-2016  (Thu) | Newton’s Rings Continued…  Applications of Newton’s Rings | I | ,, |  |  |
| 14 | 29-01-2016  (Fri) | Problems on Interference and Revision | I | ,, |  |  |
|  |  | **UNIT I - Diffraction** |  |  |  |  |
| 15 | 09-02-2016  (Tue) | Introduction to Diffraction – Fresnel and Fraunhofer Diffraction  Difference Between the Interference and Diffraction | I | ,, |  |  |
| 16 | 11-02-2016  (Thu) | Fraunhofer Diffraction at Single Slit | I | ,, |  |  |
| 17 | 11-02-2016  (Thu) | Fraunhofer Diffraction at Single Slit continued… Effect of Slit Width  Maximum Number of Orders | I | ,, |  |  |
|  |  | **UNIT II - Lasers** |  |  |  |  |
| 18 | 12-02-2016  (Fri) | Introduction to Lasers –  Characteristics of a Laser | II | ,, |  |  |
| 19 | 16-02-2016  (Tue) | Absorption, Spontaneous and Stimulated Emissions and  Einstein’s Coefficients | II | ,, |  |  |
| 20 | 23-02-2016  (Tue) | Einstein’s Coefficients continued… - MASER and LASER | II | ,, |  |  |
| 21 | 25-02-2016  (Thu) | Population Inversion in Three Level and Four Level Systems  Optical Feedback and Resonating Action | II | ,, |  |  |
| 22 | 25-02-2016  (Thu) | Ruby Laser and He-Ne Laser and Applications of Lasers | II | ,, |  |  |
|  |  | **UNIT II – Fiber Optics** |  |  |  |  |
| 23 | 26-02-2016  (Fri) | Introduction to Fiber Optics | II | ,, |  |  |
| 24 | 01-03-2016  (Tue) | Total Internal Reflection  Principle of Optical Fiber | II | ,, |  |  |
| 25 | 03-03-2016  (Thu) | Acceptance Angle, Acceptance Cone and Numerical Aperture | II | ,, |  |  |
| 26 | 03-03-2016  (Thu) | Types of Optical Fibers and Refractive Index Profiles | II | ,, |  |  |
| 27 | 04-03-2016  (Fri) | Single Mode and Multimode Fibers and Maximum Number of Modes | II | ,, |  |  |
| 28 | 08-03-2016  (Tue) | Advantages of Optical Fiber Communication | II | ,, |  |  |
|  |  | **UNIT III – Crystal Structure** |  |  |  |  |
| 29 | 10-03-2016  (Thu) | Introduction to Crystal Structure and Basic Terms – Unit Cell, Primitive Cell, Lattice, Basis, Crystal Structure | III | ,, |  |  |
| 30 | 10-03-2016  (Thu) | Lattice Parameters [Crystallographic Axes, Interfacial Angles and Primitives] Atomic Radius, Coordination Number and Packing Fraction | III | ,, |  |  |
| 31 | 11-03-2016  (Fri) | Bravais Lattices | III |  |  |  |
| 32 | 15-03-2016  (Tue) | Illustration and Packing Fraction of Simple Cubic Structure and Body Centered Cubic Structure | III | ,, |  |  |
| 33 | 17-03-2016  (Thu) | Illustration and Packing Fraction of Face Centered Cubic Structure | III | ,, |  |  |
|  |  | **UNIT III – X-Ray Diffraction** |  |  |  |  |
| 34 | 17-03-2016  (Thu) | Crystal Planes, Directions and Miller Indices | III | ,, |  |  |
| 35 | 18-03-2016  (Fri) | Procedure for Finding Miller Indices and  Important Features of Miller Indices | III | ,, |  |  |
| 36 | 22-03-2016  (Tue) | Inter Planar Spacing | III | ,, |  |  |
| 37 | 29-03-2016  (Tue) | Diffraction of X-Rays by Crystal Planes and Bragg’s Law | III | ,, |  |  |
|  |  | **UNIT IV – Magnetic Properties** |  |  |  |  |
| 38 | 31-03-2016  (Thu) | Basic Terms in Magnetism – Magnetic Flux (φ),  Magntic Flux Density/Magnetic Field Induction/ Magnetic Induction (B)  Magnetic Filed Strength/Magnetizing Force/Magnetic Field Intensity/Magnetic Intensity/Intensity of Magnetizing Field (H)  Intensity of Magnetization (I), Permeability (µ) and Susceptibility | IV | ,, |  |  |
| 39 | 31-03-2016  (Thu) | Basic Terms Continued…, Relation between B, H & I | IV | ,, |  |  |
| 40 | 01-04-2016  (Fri) | Origin of Magnetic Moment – Bohr Magnetron | IV | ,, |  |  |
| 41 | 07-04-2016  (Thu) | Dia, Para and Ferromagnetism – Weiss and Domain Theory | IV | ,, |  |  |
| 42 | 07-04-2016  (Thu) | Hysteresis – Soft and Hard Magnetic Materials | IV | ,, |  |  |
|  |  | **UNIT IV – Dielectric Propeties** |  |  |  |  |
| 43 | 12-04-2016  (Tue) | Introduction to Dielectrics and Basic Terms | IV | ,, |  |  |
| 44 | 19-04-2016  (Tue) | Basic Terms Continued…  Relation between D, E & P and  Relation between Permittivity and Susceptibility | IV | ,, |  |  |
| 45 | 21-04-2016  (Thu) | Electronic, Ionic and Orientational Polarization | IV | ,, |  |  |
| 46 | 21-04-2016  (Thu) | Ferroelectricity and Piezoelectricity | IV | ,, |  |  |
|  |  | **UNIT V – Free Electron Theory** |  |  |  |  |
| 47 | 22-04-2016  (Fri) | Classical Free Electron Theory | V | ,, |  |  |
| 48 | 26-04-2016  (Tue) | Mean Free Path, Relaxation Time and Drift Velocity  Relation between various Terms | V | ,, |  |  |
|  |  | **UNIT V – Preliminary Quantum Mechanics** |  |  |  |  |
| 49 | Extra Class | De-Brogile’s Wave Length – Physical Significance and Properties of Matter Waves | V | ,, |  |  |
| 50 | Extra Class | Experimental Verification of De-Brogile Hypothesis – G.P. Thompson Experiment | V | ,, |  |  |
| 51 | Extra Class | Physical Significance of Wave Function | V | ,, |  |  |
| 52 | Extra Class | Schrodinger’s Time Independent Equation | V | ,, |  |  |
| 53 | Extra Class | Particle in One Dimensional Potential Box – The Relevant Plots | V | ,, |  |  |
| 54 | Extra Class | Guidelines in Exam Point of View |  |  |  |  |