ECE-B ENGG PHYSICS LESSION PLANE 2016-17 SEM-I

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| **PERIOD** | **DATE**  **{Tentative}** | **TOPIC** | **UNIT**  **No** | **TEACHING**  **METHODOLOGY** | **REMARKS** | **CORRECTIVE**  **ACTION UPON**  **REVIEW** |
|  |  | **General Introduction** |  |  |  |  |
| 1 | 18-08-2016 | The Basic differences between Intermediate and Professional College Education and Parity among the Institutes, the Departments and the Faculty  Broad perspective of Engineering Physics and Scope of the Syllabus – Teaching Methodology – Course Regulations | -- | -- |  |  |
|  |  | **UNIT I - Interference** |  | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 2 | 19-08-2016 | **Pre Requisites for 0ptics**  SHM and a Wave  Basic Terms Associated with a Wave. Time Period, Frequency, Wave Length, Amplitude etc.  What is Size of Light – Also the Size of Electromagnetic Spectrum  What is Coherence? Spatial and Temporal Coherence |  | ,, |  |  |
| 3 | 20-08-2016 | Huygen’s Principle and Wave Front – Wave Front Division and Amplitude Division to Achieve Coherence  Phase Change on Reflection and Concept of Optical Path Equivalence | -- | ,, |  |  |
| 4 | 22-08-2016 | Superposition of Two Waves –  Resultant Amplitude and Resultant Phase  Young’s Double Experiment  Conditions for the Interference | -- | ,, |  |  |
| 5 | 22-08-2016 | Thin Film Interference under Reflected System | -- | ,, |  |  |
| 6 | 23-08-2016 | Newton’s Rings under Reflected System | -- | ,, |  |  |
| 7 | 27-08-2016 | Newton’s Rings Continued…  Applications of Newton’s Rings | -- | ,, |  |  |
|  |  | **UNIT I - Diffraction** | -- | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 8 | 30-08-2016 | Fraunhofer Diffraction at Single Slit |  | ,, |  |  |
| 9 | 2-9-2016 | Fraunhofer Diffraction at Single Slit continued… Effect of Slit Width  Maximum Number of Orders  Difference Between the Interference and Diffraction | I | ,, |  |  |
|  |  | **UNIT II - Lasers** | I | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 10 | 3-09-2016 | Introduction to Lasers –  Characteristics of a Laser | I | ,, |  |  |
| 11 | 03-09-2016 | Absorption, Spontaneous and Stimulated Emissions and  Einstein’s Coefficients | I | ,, |  |  |
| 12 | 06-09-2016 | Einstein’s Coefficients continued… - MASER and LASER | I | ,, |  |  |
| 13 | 8-09-2016 | Population Inversion in Three Level and Four Level Systems  Optical Feedback and Resonating Action | I | ,, |  |  |
| 14 | 08-09-2016 | Ruby Laser and He-Ne Laser and Applications of Lasers |  | ,, |  |  |
|  |  | **UNIT II – Fiber Optics** | I | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 15 | 9-09-2016 | Introduction to Fiber Optics  Total Internal Reflection  Principle of Optical Fiber | I | ,, |  |  |
| 16 | 9-09-2016 | Acceptance Angle, Acceptance Cone and Numerical Aperture | I | ,, |  |  |
| 17 | 13-09-2016 | Types of Optical Fibers and Refractive Index Profiles, Single Mode and Multimode Fibers and Maximum Number of Modes |  | ,, |  |  |
| 18 | 13-09-2016 | Advantages of Optical Fiber Communication | II | ,, |  |  |
|  |  | **UNIT III**  **Preliminary Quantum Mechanics** | II | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 19 | 15-09-2016 | Derivation of Classical Wave Equation  and Its Physical Significance | II | ,, |  |  |
| 20 | 17-09-2016 | Origin of Quantum – Black Body Radiation  Wein’s Law, Rayleigh Jean’s Law and Planck’s Law – Qualitative Treatment only | II | ,, |  |  |
| 21 | 19-9-2016 | Einstein’s Mass Energy Relation, Nature of Light & Nature of Electromagnetic Radiation | II | ,, |  |  |
| 22 | 20-9-2016 | De-Brogile’s Wave Length – Physical Significance and Properties of Matter Waves |  | ,, |  |  |
| 23 | 22-09-2016 | Heisenberg’s Uncertainty Principle and its Applications | II | ,, |  |  |
| 24 | 22-09-2016 | Appications of Heisenberg’s Uncertainty Principle Contd…… | II | ,, |  |  |
| 25 | 23-09-2016 | Physical Significance of Wave Function – The Waves of Probability | II | ,, |  |  |
| 26 | 24-09-2016 | Schrodinger’s Time Independent Equation | II | ,, |  |  |
| 27 | 26-9-2016 | Particle in One Dimensional Potential Box – The Relevant Plots | II | ,, |  |  |
| 28 | 26-9-2016 | Eigen States, Eigen Values and Degeneracy  The Operator version of Quantum Mechanics | II | ,, |  |  |
| 29 | 03-10-2016 | Maxwell Boltzmann, Bose Einstein and Fermi Dirac Statistics |  | ,, |  |  |
| 30 | 04-10-2016 | Maxwell Boltzmann, Bose Einstein and Fermi Dirac Statistics contd… | III | ,, |  |  |
| 31 | 6-10-2016 | Revision of Quantum Mechanics | III | ,, |  |  |
|  |  | **UNIT IV – Magnetic Properties** | III | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 32 | 13-10-2016 | 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 | III | ,, |  |  |
| 33 | 14-10-2016 | Basic Terms Continued…, Relation between B, H & I | III | ,, |  |  |
| 34 | 17-10-2016 | Dia, Para and Ferromagnetism | III | ,, |  |  |
| 35 | 18-10-2016 | Domain Theory of Ferromagnetism | III | ,, |  |  |
| 36 | 20-10-2016 | Hysteresis | III | ,, |  |  |
| 37 | 21-10-2016 | Soft and Hard Magnetic Materials | III | ,, |  |  |
| 38 | 25-10-2016 | Applications of Magnetic Materials |  | ,, |  |  |
| 39 | 27-10-2016 | Ferrites | IV | ,, |  |  |
| 40 | 28-10-2016 | Transformer Cores and Solution for Eddy Current Losses | IV | ,, |  |  |
| 41 | 31-10-2016 | Magnetostriction | IV | ,, |  |  |
| 42 | 01-11-2016 | Revision on Magnetic Properties | IV | ,, |  |  |
|  |  | **UNIT V – Dielectric Propeties** | IV | Lectures, PPT Demonstration  Animations,  Group Discussion |  |  |
| 43 | 04-11-2016 | Introduction to Dielectrics and Basic Terms |  | ,, |  |  |
| 44 | 05-11-2016 | Basic Terms Continued…  Relation between D, E & P and  Relation between Permittivity and Susceptibility | IV | ,, |  |  |
| 45 | 05-11-2016 | Electronic Polarization | IV | ,, |  |  |
| 46 | 14-11-2016 | Ionic Polarization | IV | ,, |  |  |
| 47 | 14-11-2016 | Orientational Polarization | IV | ,, |  |  |
| 48 | 15-11-2016 | Orientational Polarization contd… | V | ,, |  |  |
| 49 | 16-11-2016 | Total Polarizability  and  Frequency Dependence of Polarizability | V | ,, |  |  |
| 50 | 17-11-2016 | Dielectric Loss and Dielectric Breakdown | V | ,, |  |  |
| 51 | 18-11-2016 | Applications of Dielectrics | V | ,, |  |  |
| 52 | 19-11-2016 | Ferroelectricity - Spontaneous Polarization in Barium Titanate | V | ,, |  |  |
| 53 | 25-11-2016 | Piezoelectricity | V | ,, |  |  |
| 54 | 25-11-2016 | Guidelines in Final Exam Point of View | V | ,, |  |  |