**LESSON PLAN**

Name: Dr. Vanita Thakur, Assistant Professor (Physics)

Class and Section: B.Sc Non-medical/ Computer Science (Pass course) II Semester

Subject: Electromagnetic Induction and Electronic Devices

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| Week 1  **Unit I** |
| Asssignments |
| Week 1,day 1, 1/1/18   * 1.1.1 Electromagnetic Induction and Faraday’s Laws |
| Week 1 ,day 2, 2/1/18   * 1.1.2 Lenz’s law and Right Hand rule * 1.1.3 Self Inductance and its coefficient |
| Week 1,day 3, 3/1/18   * 1.1.4 Self Inductance in terms of work or energy stored in an inductor * 1.1.5 Mutual Inductance and its coefficient |
| Week 1,day 4, 4/1/18   * 1.1.6 Coefficient of coupling between two coils (K) |
| Week 1,day 5, 5/1/18   * 1.1.7 Growth and decay of current in RL circuit |
| Week 1,day 6, 6/1/18   * Doubt clearing session and Revision |
| Week 2  Unit I |
| Assignments |
| Week 2, day 1, 8/1/18   * 1.2.1 Charging of a capacitor through a resistance or Growth of current in RC circuit |
| Week 2, day 2, 9/1/18   * 1.2.2 Discharging of a capacitor through a resistance or decay of current in RC circuit |
| Week 2, day 3, 10/1/18   * 1.2.3 Quantitative analysis of Penetrating Orbits |
| Week 2, day 4, 11/1/18   * 1.2.4 Charging of a capacitor through an inductor only * 1.2.5 Discharging of a capacitor through an inductor only |
| Week 2, day 5, 12/1/18   * 1.3.1 Charging of a capacitor through resistance and Inductance |
| Week 2, day 6, 13/1/18   * Revision of topics and Doubt clearing |
| Week 3,  Unit I |
| Assignments |
| Week 3, day 1, 15/1/18   * 1.3.2 Discharging of a capacitor through resistance and Inductance |
| Week 3, day 2, 16/1/18   * Numericals Practice |
| Week 3, day 3, 17/1/18   * 1.4.1 Alternating Current (A.C.) * 1.4.2 Average or Mean value of A.C. |
| Week 3, day 4, 18/1/18   * 1.4.3 RMS or Effective value of A.C. * 1.4.4 The form Factor |
| Week 3, day 5, 19/1/18   * 1.4.5 AC circuit analysis using complex variables * 1.4.6 AC circuit with an Ohmic resistance |
| Week 3, day 6, 20/1/18   * Class Test |
| Week 4,  Unit I |
| Assignments |
| Week 4, day 1, 22/1/18   * 1.5.1 AC circuit with a Pure Inductor |
| Week 4, day 2, 23/1/18   * 1.5.2 AC circuit with a Pure Capacitor |
| Week 4, day 3, 24/1/18   * 1.5.3 AC circuit with Resistance and Inductance |
| Week 4, day 4, 25/1/18   * 1.5.4 AC circuit with Resistance and Capacitance |
| Week 4, day 5, 26/1/18   * Republic day |
| Week 4, day 6, 27/1/18   * 1.5.5 AC Circuit with LCR series |
| Week 5  Unit I |
| Assignments |
| Week 5, day1, 29/1/18   * 1.6.1 Impedance Triangle |
| Week 5, day2, 30/1/18   * 1.6.2 LCR series Resonant Circuit |
| Week 5, day3, 31/1/18   * 1.6.3 Sharpness of Resonance and Quality Factor (Q) |
| Week 5, day4, 1/2/18   * 1.6.4 Energy Considerations in Simple Series AC circuits |
| Week 5, day5 , 2/2/18   * Numericals Practice |
| Week 5, day6 , 3/2/18   * Doubt Clearing and Revision |
| Week 6  **Unit II** |
| Assignments |
| Week 6, day 1, 5/2/18   * 2.1.1 Energy Bands in Solids * 2.1.2 Distinction Between Conductors, Semi Conductors and Insulators on the basis of Band theory |
| Week 6, day 2, 6/2/18   * 2.1.3 Holes formation in Semi Conductor * 2.1.4 Types of Semi Conductor, Intrinsic Semi conductor |
| Week 6, day 3, 7/2/18   * 2.1.5 Extrinsic Semi conductor * 2.1.6 Distinction Between Intrinsic and Extrinsic Semi conductor |
| Week 6, day 4, 8/2/18   * 2.1.7. Electrical Conductivity of Semi conductor |
| Week 6, day 5, 9/2/18   * 2.2.1 Hall Effect and Lorentz force |
| Week 6, day 6, 10/2/18   * Revision |
| Week 7  Unit II |
| Assignments |
| Week 7, day 1, 12/2/18   * 2.3.1 pn junction diode |
| Week 7, day 2, 13/2/18   * 2.3.2 Biasing of pn junction diode |
| Week 7, day 3, 14/2/18   * 2.3.3 Characteristics of pn junction diode |
| Week 7, day 4, 15/2/18   * 2.4.1 Zener Diode and Avalanche breakdown * 2.4.2 Light Emitting Diode (LED) |
| Week 7, day 5, 16/2/18   * 2.4.3 Photo conduction in Semi conductors * 2.4.4 Photo diodes |
| Week 7, day 6, 17/2/18   * 2.4.5 Solar Cell * Numericals Practice |
| Week 8  Unit II |
| Week 8, day 1, 19/2/18   * 2.5.1 Half wave Rectifier * 2.5.2 Efficiency and Ripple factor of Half Wave rectifier |
| Week 8, day 2, 20/2/18   * 2.5.3 Full Wave rectifier * 2.5.4 Efficiency and Ripple factor of Full Wave rectifier |
| Week 8, day 3, 21/2/18   * 2.6.1 Types of Filter Circuits * 2.6.2 Series Inductor Filter * 2.6.3 Shunt Capacitor Filter |
| Week 8, day 4, 22/2/18   * 2.6.4 L-section Filter * 2.6.5 Capacitor Input Filter |
| Week 8, day 5, 23/2/18   * 2.7.1 Zener diode as Voltage Regulator |
| Week 8, day 6, 24/2/18   * Numericals Practice |
| Week 9  Unit II |
| Week 9, day 1, 26/2/18   * 2.8.1 Transistor * 2.8.2 Working of Transistor (NPN and PNP) |
| Week 9, day 2, 27/2/18   * 2.8.3 Transistor Connections (CB, CE,CC) |
| Week 9, day 3, 28/2/18   * 2.8.4 Transistor characteristics in CE configuration |
| Week 9, day 4, 1/3/18   * 2.8.5 Transistor characteristics in CC configuration |
| Week 9, day 5, 2/3/18   * 2.8.6 Relation Between Current gains of a transistor in Various configuration |
| Week 9, day 6, 3/3/18   * Revision |
| Week 10,  Unit II |
| Week 10, day 2, 6/3/18   * 2.8.7 Comparison of various configurations |
| Week 10, day 2, 7/3/18   * 2.9.1 General facts about a Transistor |
| Week 10, day 3, 8/3/18   * 2.9.2 Cathode Ray Oscilloscope |
| Week 10, day 4, 9/3/18   * 2.9.3 Various controls of CRO |
| Week 10, day 5, 10/3/18   * 2.9.4 Application of CRO * Numericals Practice |
| Week 11  **Unit III** |
| Week 11, day1, 12/3/18   * 3.1.1 Transistor DC Load Line |
| Week 11, day2, 13/3/18   * 3.2.1 Variation of transistor PArameters * 3.2.2 Need for Bias Stabilization |
| Week 11, day3, 14/3/18   * 3.2.3 Various methods for Transistor Biasing |
| Week 11, day4, 15/3/18   * 3.3.1 Biasing with Feedback Resistor |
| Week 11, day5, 16/3/18   * 3.3.2 Bias Circuit with emitter resistor |
| Week 11, day6, 17/3/18   * 3.3.3 Voltage Divider with Biasing Circuit * 3.3.4 Mid Point Biasing |
| Week 12  Unit III |
| Assignments |
| Week 12, day 1, 19/3/18   * 3.3.5 Line Shape Function * 3.3.6 Line Broadening Mechanism |
| Week 12, day 2, 20/3/18   * 3.4.1 Types of Amplifiers (CB, CE, CC) |
| Week 12, day 3, 21/3/18   * 3.4.2 Common base Transistor Amplifier |
| Week 12, day 4, 22/3/18   * 3.4.3 Common emitter Transistor Amplifier |
| Week 12, day 5, 23/3/18   * 3.4.4 Practical Circuit of Transistor Amplifier Using Voltage Divider Biasing |
| Week 12, day6, 24/3/18   * 3.5.1 RC coupled Transistor Amplifier |
| Week 13  Unit III |
| Assignments |
| Week 13, day1, 26/3/18   * 3.5.2 Advantages and Disadvantages in RC coupled Transistor Amplifier * 3.5.3 Concept of Bandwidth in R-C coupled Amplifiers |
| Week 13, day2, 27/3/18   * 3.5.4 Feedback in Amplifiers |
| Week 13, day3, 28/3/18   * 3.5.4 Voltage gain for a Feedback Amplifier |
| Week 13, day4, 29/3/18   * 3.5.5 Advantage of Negative voltage Feedback |
| Week 13, day5, 30/3/18   * 3.5.6 Input and output Impedance of a voltage Series feedback Amplifier |
| Week 13, day6, 31/4/18   * 3.5.7 Doubt Clearing Session |
| Week 14  Unit III |
| Assignment |
| Week 14, day1, 2/4/18   * 3.5.8 Amplifier Circuit with negative feedback * 3.5.9 Emitter Follower Circuit |
| Week 14, day2, 3/4/18   * 3.5.10 Distortion in Amplifiers |
| Week 14, day3, 4/4/18   * 3.6.1 Oscillators * 3.6.2 Principle of oscillation |
| Week 14, day4, 5/4/18   * 3.6.3 Classification of Oscillators |
| Week 14, day5, 6/4/18   * 3.6.4 Principle of a Feedback Oscillator and Barkhausen criterion |
| Week 14, day6, 7/4/18   * Revision and doubt clearing session |
| Week 15  Unit III |
| Assignments |
| Week 15, day1, 9/4/18   * 3.6.5 Tuned Collector Oscillator |
| Week 15, day2, 10/4/18   * 3.6.6 Hartley Oscillator |
| Week 15, day3, 11/4/18   * 3.6.7 Colpitt’s Oscillator |
| Week 15, day4, 12/4/18   * Numerical Practice |
| Week 15, day5, 13/4/18   * 3.6.8 Doubt Clearing Session of whole unit |
| Week 15, day6, 14/4/18   * Test of Unit III |
| Week 16, Day 1,2,3,16/4/18 to 18/4/18  Revision |