Lesson Plan

Name of Faculty : Raj Kumar

Discipline : Electronics and Communication Semester : Ist Sem

Subject : FEE

Lesson Plan Duration: 15 weeks

Work Load (lecture per week (in hours): Lectures- 03

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| **Week** | **Theory** |  |
|  | **Lecture Day** | **Topic(including assignment/test)** |
| 1 | 1 | Unit 1 :Electrical Fundamentals Nature of Electricity |
| 2 | Charge, free electrons, Electric current, Electric potential |
| 3 | potential difference, Electric current, Electrical Energy |
| 2 | 4 | Electrical power and their unit. |
| 5 | Resistance: Definition, Unit, Laws of resistance |
| 6 | conductivity and resistivity, Effect of temperature on resistance |
| 3 | 7 | Temperature coefficient of resistance |
| 8 | Types of resistance & their applications |
| 9 | Color coding of resistance |
| 4 | 10 | Inductors and capacitors with their wattage consideration. Assignment 1 |
| 11 | Factors affecting capacitance of a capacitor. Capacitors in series and parallel |
| 12 | Unit 2: DC Circuits & Theorems Ohm's law and its verification |
| 5 | 13 | Kirchhoff’s current law and Kirchhoff’s voltage law |
| 14 | Star – Delta connections. |
| 15 | Ist sessional exam |
| 6 | 16 | Voltage and current source, symbol and graphical representation |
| 17 | Characteristics of ideal and practical sources. |
| 18 | Mesh and Loop analysis, Assignment 2 |
| 7 | 19 | Thevenin’s theorem, Norton’s theorem |

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|  | 20 | Superposition Theorem, Maximum Power Transfer Theorem. |
| 21 | Unit 3: AC Circuits, AC Fundamentals: Cycle, frequency, time period, amplitude, difference between AC and DC, instantaneous value, average value, r.m.s. value, maximum value, form  factor and peak factor |
| 8 | 22 | Concept of conductance, susceptance, admittance, impedance and concept of inductive and capacitive reactance |
| 23 | RL-RC Circuits |
| 24 | Introduction to series and parallel resonance and its conditions |
| 9 | 25 | Power in pure resistance, inductance and capacitance, power in  combined RLC circuits. |
| 26 | Power factor, active and reactive power: Definition and their significance. |
| 27 | 2nd Sessional Test |
| 10 | 28 | Unit 4: Electro Magnetic Circuit, Concept of electro-magnetic field produced by flow of electric current, magnetic circuit |
| 29 | concept of magneto-motive force (MMF), flux, reluctance, permeability |
| 30 | analogy between electric and magnetic circuit, Faraday’s laws of electro-magnetic induction |
| 11 | 31 | Principles of self and mutual induction, self and mutually induced emf. |
| 32 | Energy stored in an inductor, series and parallel combination of inductors. Assignment 3 |
| 33 | Unit 5: Batteries, Basic idea of primary and secondary cells, solar cell, solar panel & applications |
| 12 | 34 | Construction, working principle and applications of Lead-Acid, Nickel- Cadmium, Li Ion batteries |
| 35 | Series and parallel connections of batteries. Introduction to maintenance of free batteries. Disposal of batteries |
| 36 | 3rd sessional test |
| 13 | 37 | Revision of unit 1 |
| 38 | Revision of unit 2 |
| 39 | Revision of unit 3 |

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| 14 | 40 | Revision of unit 4 |
| 41 | Revision of unit 5 |
| 42 | Very short answer questions revision |
| 15 | 43 | Short answer questions revision |
| 44 | Long answer questions revision |
| 45 | Revision |