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|  |  | **Lesson Plan** |
| **Name of the Faculty :** | | Er. Gaurav Kumar |
| **Discipline** | **:** | **Electrical & Electronics Engineering** |
| **Semester** | **:** | **2nd** |
| **Subject** | **:** | Basics of Electronics Engg. |
| **Lesson Plan Duration:** | | 15 weeks (from January, 2019 to April, 2019) |

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| Week | Theory | | Practical | |
| Lecture day | Topic(Including assignment/test) | Practical Day | Topic |
| 1st | 1st | Introduction of DC Circuit | 1st | Introduction and use of measuring instruments – voltmeter, ammeter, multi-meter, oscilloscope. |
| 2nd | Electrical circuit elements - Resistor |
| 3rd | Electrical circuit elements – Inductor and Capacitor. |
| 2nd | 1st | Voltage and current sources, KCL & KVL | 2nd | Introduction and use of measuring instruments – Practical resistors, capacitors and inductors. |
| 2nd | Mesh Analysis |
| 3rd | Nodal Analysis |
| 3rd | 1st | Analysis of simple circuits with dc excitation, Superposition theorem. | 3rd | To verify KCL and KVL. |
| 2nd | Thevenin Theorem |
| 3rd | Norton Theorem |
| 4th | 1st | Time-domain analysis of first-order RL and RC circuits. | 4th | To verify Thevenin's Theorem |
| 2nd | Time-domain analysis of first-order RL and RC circuits. |
| 3rd | Introduction of AC Circuits. |
| 5th | 1st | Representation of sinusoidal waveforms | 5th | To verify Norton Theorem |
| 2nd | Peak and RMS values |
| 3rd | Phasor representation |
| 6th | 1st | Real power, Reactive power, apparent power and Power Factor | 6th | To verify Maximum power transfer Theorem. |
| 2nd | Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance |
| 3rd | Practice Problem Set. |
| 7th | 1st | **Introduction of Transformer** | 7th | To perform O.C. and S.C. tests of a transformer |
| 2nd | Equivalent circuit, losses in  transformers, ideal and practical transformer |
| 3rd | Magnetic materials, BH characteristics |
| 8th | 1st | Transformer tests regulation and efficiency, Auto-transformer and three-phase transformer connections. | 8th | Measurement of power in a 3-phase system by two wattmeter method. |
| 2nd | Embedded Systems-Introduction, Classification |
| 3rd | Three phase balanced circuits |
| 9th | 1st | voltage and current relations in star and delta connections. | 9th | Measurement of power in a 3-phase system by two wattmeter method. |
| 2nd | Power Measurement by two wattmeter method. |
| 3rd | **Measuring Instruments** |
| 10th | 1st | Construction, operating and uses of moving iron type Instruments | 10th | Measurement of power by 3 voltmeter/3 Ammeter method. |
| 2nd | Construction, operating and uses of moving iron type Instruments |
| 3rd | Construction, operating and uses of moving iron type Instruments |
| 11th | 1st | Ammeter | 11th | Measurement of power by 3 voltmeter/3 Ammeter method. |
| 2nd | induction type voltmeter |
| 3rd | watt meter |
| 12th | 1st | Energy Meter | 12th | Torque Speed Characteristic of shunt dc motor. |
| 2nd | **Electrical Machine:** Generation of rotating magnetic fields, construction |
| 3rd | working, starting and speed control of single-phase induction motor. |
| 13th | 1st | Construction and working of a three-phase induction motor. | 13th | Demonstration of cut-out sections of machines. |
| 2nd | Construction, working, torque-speed characteristic and speed control of dc motor |
| 3rd | Construction, working, torque-speed characteristic and speed control of dc motor |
| 14th | 1st | Construction and working of synchronous generators. | 14th | Speed control of dc motor. |
| 2nd | **Electrical Installations:** Components of LT Switchgear |
| 3rd | Introduction to Switch Fuse Unit (SFU), MCB, ELCB, MCCB |
| 15th | 1st | Types of Wires and Cables, Earthing, Types of Batteries | 15th | Internal Viva |
| 2nd | Important Characteristics for Batteries, power factor improvement and battery backup |
| 3rd | Elementary  calculations for energy consumption |