# LESSON PLAN

**Name of Teacher**: Vivek Sheel Verma
**Name of subject**: Fundamentals of Electrical Engineering

**Branch:** Electrical Engg.
**Semester**: 3rd

| Week | Chapters Covered | Topic Covered | Conclusion | Refrence |
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| 1st | 1 | **Basic Electrical Concepts**Basic Electrical Terminologies Potential Difference (Voltage), Charge, Current, Resistance | Students will learn about the basics terms regarding electrical quantities. | VK Mehta, JB Gupta |
| 2nd | 1 | Power & Energy-Their definition, units and their interrelation with each other. | Students will learn about the basics terms regarding electrical quantities. | VK Mehta, JB Gupta |
| 3rd | 2 | **DC Circuits**<br>-Ohm's law, Resistances in Series and Parallel, Voltage & Current Divider Rules<br>-Effect of temperature on resistance, temperature coefficient of resistance, Resistivity.<br>-Kirchhoff's Laws and their applications in solving Electrical Network Problems. | Students will have the knowledge about DC circuits and various network theorms | Tarlok Singh, BR Gupta |
| 4th | 2 | Network Theorems: Thevenin's theorem, Norton's theorem,Superposition theorem, Maximum Power Transfer theorem | Students will have the knowledge about DC circuits and various network theorms | Tarlok Singh, BR Gupta |
| 5th | 3 | **Electrostatics**<br>-Concept of Capacitance, Capacitor, Dielectric, Factors affecting Capacitance of a Capacitor.<br>-Capacitance of Parallel plates Capacitor & Cylindrical Capacitor. | Students will learn about the concepts of electrostatics and capacitors | Tarlok Singh, V K Mehta |
| 6th | 3 | Grouping of Capacitors, Charging and Discharging of Capacitor, Time Constant, Energy Stored in a capacitor. | Students will learn about the concepts of electrostatics and capacitors | Tarlok Singh, V K Mehta |
| 7th | 4 | Working Principle, Construction and Applications of Lead acid, Nickel-Cadmium, Silver Oxide, and Li-ion Batteries<br>-Charging methods used for Lead acid battery.<br>-Care and maintenance of a Lead acid battery, testing of battery<br>-Grouping of cells in series and parallel (simple numerical problems). | Students will learn about the construction and working of different batteries | VK Mehta, JB Gupta |
| 8th | 5 | **Electromagnetism**<br>-Introduction to Electromagnetism: Magnetic effect of electrical current MMF, Magnetic Flux, Reluctance, Permeability, Magnetic flux density (B), Magnetic field intensity (H), Analogy between Electric and Magnetic circuits. | Students will learn the electromagnetic effect and terms associated with electromagnetism | VK Mehta, Tarlok Singh |

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| 9th | 5 | Cross and Dot Convention, Right Hand thumb rule and Cork screw rule, Nature of magnetic field around straight current carrying conductor, Concepts of Solenoid and Torroid.<br>-Force on a Conductor placed in the Magnetic field, Force between two Parallel current carrying conductors. | Students will learn the electromagnetic effect and terms associated with electromagnetism | VK Mehta, Tarlok Singh |
| 10th | 5 | Series & Parallel Magnetic circuits, Numerical problems on magnetic circuits.<br>-Concept of Hysteresis loop (B-H Curve) and Hysteresis loss. | Students will learn about BH curves and series parallel circuits. | VK Mehta, Tarlok Singh |
| 11th | 6 | **Electromagnetic Induction**<br>-Faraday's Laws of electromagnetic induction.<br>-Lenz's law.<br>-Fleming's Right and Left Hand Rule.<br>-Principle of self and mutual induction.<br>-Principle of Self and mutually induced e.m.f. and simple numerical problems<br>-Inductances in Series and Parallel. | Concept of electromagnetic induction and its various rules will be understood by the students. | J B Gupta, VK Mehta |
| 12th | 6,7 | Energy stored in a magnetic field.<br>-Concept of Eddy current, Eddy current losses.<br>**A.C. Circuits**<br>-Concept of alternating current/EMF generation, Equation of instantaneous values of alternating current and voltage.<br>-AC terms: Cycle, Amplitude, Time period, Frequency, Instantaneous values, RMS value, Average value, Form factor, Peak factor. Numerical | Students will learn various AC concepts and terms related to AC | J B Gupta, VK Mehta |
| 13th | 7 | Representation of alternating sinusoidal quantities by vectors.<br>-Phasor algebra (addition, subtraction of complex quantities).<br>-AC through pure resistance, inductance and capacitance.<br>-Alternating voltage applied to RL, RC and RLC Series circuits (impedance triangle, phasor diagram and their solutions).<br>-Power in pure resistance (R), inductance (L), capacitance (C), RL, RC, and RLC circuits | Students will learn various AC concepts and terms related to AC in RL, RC, RLC circuits | J B Gupta, VK Mehta |
| 14th | 7 | Concept of Susceptance, Conductance and Admittance.<br>-Active and reactive components of current and their significance.<br>-Power factor and its practical significance,<br>-Resonance in series and parallel circuits, Quality factor, Numerical. | Students will learn various AC concepts and concept of power factor | Tarlok Singh, VK Mehta |

Prepared By
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