

**PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
**PANIPAT**  
**DEPARTMENT OF APPLIED SCIENCES & HUMANITIES**

**LESSON PLAN**

**Name: - Mr. Yeeshu Ralhen**

**Subject Name: - Basic Electrical engineering**

**Semester/Session: -1<sup>st</sup> Sem. (Session 2023-24)**

**Subject Code:- ES-101A**

| <b>Sr. No</b> | <b>Lecture No.</b> | <b>Description of Topic</b>  | <b>Tentative date</b> | <b>Methodology</b>       | <b>CO</b>  |
|---------------|--------------------|--|-----------------------|--------------------------|------------|
| 1             | L1                 | Discussion about subject, Course outcomes and Exam pattern                     | 22-08-2023            | Discussion with Students | <b>CO1</b> |
| 2             | L2                 | <b>Unit-1:</b> Some Basic Definitions, Ohm's Law, Series and Parallel Circuits | 23-08-2023            | Lecture                  |            |
| 3             | L3                 | Numerical based on ohms law, series and parallel circuits                      | 24-08-2023            | Lecture                  |            |
| 4             | L4                 | KVL, KCL and its numerical   | 28-08-2023            | Lecture                  |            |
| 5             | L5                 | Terms used in network terminology, Circuit elements classification             | 29-08-2023            | Lecture                  |            |
| 6             | L6                 | Mesh analysis of resistive circuit   | 31-08-2023            | Lecture                  |            |
| 7             | L7                 | Numericals on Mesh analysis of resistive circuit                               | 04-09-2023            | Lecture                  |            |
| 8             | L8                 | Node Voltage analysis of Circuits  | 05-09-2023            | Lecture                  |            |
| 9             | L9                 | Numericals on Node Voltage analysis of Circuits                                | 06-09-2023            | Lecture                  |            |
| 10            | L10                | Concept of Super Mesh & Super Node   | 11-09-2023            | Lecture                  |            |
| 11            | L11                | Star Delta transformation derivation   | 12-09-2023            | Lecture                  |            |
| 12            | L12                | Numericals on Star Delta transformation  | 13-09-2023            | Lecture                  |            |
| 13            | L13                | Superposition theorem  | 14-09-2023            | Lecture                  |            |
| 14            | L14                | Numericals on Superposition theorem  | 18-09-2023            | Lecture                  |            |
| 15            | L15                | Thevenin's Theorem and its numericals  | 19-09-2023            | Lecture                  |            |
| 16            | L16                | Norton's Theorem and its numericals  | 20-09-2023            | Lecture                  |            |

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| 17 | L17 | Maximum Power Transfer Theorem and its numericals                         | 21-09-2023 | Flip Learning        |
| 18 | L18 | Revision of Unit 1  | 25-09-2023 | Lecture              |
| 19 | L19 | Test of Unit-1  | 26-09-2023 | Test                 |
| 20 | L20 | <b>Unit 2:</b> AC Fundamentals: Introduction and Some definitions         | 27-09-2023 | Lecture              |
| 21 | L21 | Generation of AC quantities, EMF equation of AC quantities                | 28-09-2023 | Lecture              |
| 22 | L22 | Peak value and Average value  | 03-10-2023 | Using animated video |
| 23 | L23 | RMS value of alternating quantity   | 04-10-2023 | Lecture              |
| 24 | L24 | Numerical on Average and RMS values                                       | 05-10-2023 | Lecture              |
| 25 | L25 | Phase, Phase difference and Phasor addition                               | 09-10-2023 | Lecture              |
| 26 | L26 | Numerical on Phasor addition and subtraction                              | 10-10-2023 | Lecture              |
| 27 | L27 | Mathematical representations of Phasors                                   | 11-10-2023 | Lecture              |
| 28 | L28 | AC circuits with pure Resistor and Inductor                               | 12-10-2023 | Lecture              |
| 29 | L29 | Pure capacitor and RL series combination                                  | 16-10-2023 | Lecture              |
| 30 | L30 | RC series circuits  | 17-10-2023 | Flip Learning        |
| 31 | L31 | RLC Series Circuits and Series resonance                                  | 18-10-2023 | Lecture              |
| 32 | L32 | AC parallel circuits, phasor method                                       | 19-10-2023 | Lecture              |
| 33 | L33 | J- method for solving parallel circuits                                   | 23-10-2023 | Lecture              |
| 34 | L34 | Test of unit 2  | 25-10-2023 | Test                 |
| 35 | L35 | <b>Unit 3:</b> Introduction to three phase circuits,                      | 30-10-2023 | Lecture              |
| 36 | L36 | Generation of alternating 3- phase emf, Phase sequence and its importance | 31-10-2023 | Lecture              |
| 37 | L37 | Voltage and current relations in star connections                         | 06-11-2023 | Lecture              |

**CO2**

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| 38 | L38 | Voltage and current relations in delta connections   | 07-11-2023 | Flip Learning            |            |
| 39 | L39 | Measurement of 3-phase power by two wattmeter method for various types of star connected balanced loads.   | 08-11-2023 | Lecture                  | <b>CO3</b> |
| 40 | L40 | Measurement of 3-phase power by two wattmeter method for various types of delta connected balanced loads.  | 09-11-2023 | Lecture                  |            |
| 41 | L41 | Introduction to magnetic circuits  | 16-11-2023 | Lecture                  |            |
| 42 | L42 | Single Phase Transformer: Principle, construction  | 20-11-2023 | Lecture                  |            |
| 43 | L43 | Emf equation, Ideal transformer, Transformer at no load  | 21-11-2023 | Lecture                  |            |
| 44 | L44 | Phasor diagram at on load conditions   | 22-11-2023 | Lecture                  |            |
| 45 | L45 | Losses & Efficiency, regulation, Concept of auto transformer   | 23-11-2023 | Lecture                  |            |
| 46 | L46 | OC & SC test, equivalent circuit   | 27-11-2023 | Lecture                  |            |
| 47 | L47 | Revision of unit 3   | 04-12-2023 | Lecture                  |            |
| 48 | L48 | <b>Unit 4: Electrical Machines:</b><br>Introduction, Construction of DC machine                            | 05-12-2023 | Lecture                  |            |
| 49 | L49 | Working of dc machine with commutator action   | 06-12-2023 | Animated video           |            |
| 50 | L50 | Speed control of dc shunt motor  | 07-12-2023 | Lecture                  |            |
| 51 | L51 | Construction and working of a three-phase induction motor  | 11-12-2023 | Lecture                  |            |
| 52 | L52 | Generation of rotating magnetic fields, Significance of torque-slip characteristic                         | 12-12-2023 | Flip Learning            |            |
| 53 | L53 | Basics of Single-phase induction motor, Capacitor start capacitor run Single-phase induction motor working | 13-12-2023 | Power Point Presentation | <b>CO4</b> |
| 54 | L54 | Basic construction and working of synchronous generator and motor.   | 14-12-2023 | Power Point Presentation |            |
| 55 | L55 | Revision of various motors and generators  | 18-12-2023 | Power Point Presentation |            |
| 56 | L56 | Electrical Installations: Switch Fuse Unit (SFU), MCB  | 19-12-2023 | Power Point Presentation |            |
| 57 | L57 | ELCB, MCCB, Types of Wires and Cables, Earthing  | 20-12-2023 | Power Point Presentation |            |

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| 58 | L58 | Test of unit 4 | 21-12-2023 | Test |  |
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**\*Highlighted part represents Content beyond Syllabus topics**