

Lesson Plan

Name of the Faculty : Sh. Ranjeet Singh

Discipline : Agri. Engineering

Semester : 3rd

Subject : Basics of Electrical & Electronics Engineering (BEEE)

Lesson Plan duration : 17 weeks (15.09.2022 to 16.01.2023)

Work load per week : Lecture – 03, Practical – 02

Week	Theory		EXECUTION	
	Lecture Day	Topic (Including assessment/test)	Date	Sign.
1 st	1 st	Introduction about the subject & brief overview.		
	2 nd	1. Application and Advantage of Electricity: Difference between ac and dc,		
	3 rd	various applications of electricity,		
2 nd	4 th	Advantages of electrical energy over other types of energy.		
	5 th	2. Basic Electrical Quantities: Definition of voltage, current with their units, Name of instruments used for measuring above quantities,		
	6 th	Definition of power and energy with their units, Name of instruments used for measuring above quantities,		
3 rd	7 th	connection of these instruments in an electric circuit.		
	8 th	3. AC Fundamentals: Electromagnetic induction-Faraday's Laws, Lenz's Law;		
	9 th	Fleming's rules, Principles of a.c. Circuits; Alternating emf		
4 th	10 th	Definition of cycle, frequency, amplitude and time period.		
	11 th	Instantaneous, average, r.m.s and maximum value of sinusoidal wave;		
	12 th	form factor and Peak Factor. Concept of phase and phase difference.		

5 th	13 th	Concept of resistance, inductance and capacitance in simple a.c. circuit.		
	14 th	Power factor and improvement of power factor by use of capacitors		
	15 th	Concept of three phase system; star and delta connections; voltage and current relationship (no derivation)		
6 th	16 th	4. Transformers: Working principle and construction of single phase transformer, transformer ratio		
	17 th	Emf equation, losses and efficiency,		
	18 th	Cooling of transformers, isolation transformer,		
7 th	19 th	CVT, auto transformer (brief idea), applications.		
	20 th	1st sessional test (Tentative)		
	21 st	Assessment		
8 th	22 nd	5. Distribution System: Difference between high and low voltage distribution system,		
	23 rd	Identification of three-phase wires, neutral wire and earth wire in a low voltage distribution system.		
	24 th	Identification of voltages between phases and between one phase and neutral.		
9 th	25 th	Difference between three-phase and single-phase supply.		
	26 th	6. Electric Motor: Description and applications of single-phase motors.		
	27 th	Description and applications of three-phase motors.		
10 th	28 th	Connection and starting of three-phase induction motors by star-delta starter.		
	29 th	Changing direction of rotation of a given 3 phase induction motor.		
	30 th	Motors used for driving pumps, compressors, centrifuge, dyers etc.		

11 th	31 st	Totally enclosed submersible and flame proof motors.		
	32 nd	2nd sessional test (Tentative)		
	33 rd	Assessment		
12 th	34 th	7. Domestic Installation: Distinction between light-fan circuit and single phase power circuit, sub-circuits		
	35 th	various accessories and parts of domestic electrical installation.		
	36 th	Identification of wiring systems. Common safety measures and earthing.		
13 th	37 th	8. Electrical Safety: Electrical shock and precautions against shock, treatment of electric shock,		
	38 th	concept of fuses and their classification, selection and application,		
	39 th	Concept of earthing and various types of earthing,		
14 th	40 th	applications of MCBs and ELCBs.		
	41 st	9. Basic Electronics: Basic idea of semiconductors – P and N type;		
	42 nd	Diodes, zener diodes and their applications.		
15 th	43 rd	Transistor – PNP and NPN, their characteristics and uses.		
	44 th	Characteristics and applications of a thyristor,		
	45 th	characteristics and applications of stepper motors and servo motors in process control.		
16 th	46 th	3rd sessional test (Tentative)		
	47 th	Assessment		
	48 th	Revision		
17 th	49 th	Revision		
	50 th	Revision		
	51 st	Revision		

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Week	EXECUTION				
	Practical Day	Topic	G1	G2	Sign.
1 st	1 st	Introduction about the Lab & brief discussion over the Lab practical's to be conducted.			
2 nd	2 nd	Connection of a three-phase motor and starter with fuses and reversing of direction of rotation.			
3 rd	3 rd	Connection of a single-phase induction motor with supply and reversing of its direction of rotation.			
4 th	4 th	Troubleshooting in domestic wiring system, including distribution board.			
5 th	5 th	Connection and reading of an electric energy meter.			
6 th	6 th	Use of ammeter, voltmeter, wattmeter, and multi-meter.			
7 th	7 th	Checking of Practical file/ 1st sessional test (Tentative)			
8 th	8 th	Measurement of power and power factor in a given single phase ac circuit.			
9 th	9 th	Study of different types of fuses, MCBs and ELCBs.			

10 th	10 th	Study of zener diode as a constant voltage source and to draw its V-I characteristics.			
11 th	11 th	Study of earthing practices			
12 th	12 th	Checking of Practical file/ 2nd sessional test (Tentative)			
13 th	13 th	To draw V-I characteristics of a (i) NPN transistor (ii) Thyristor (SCR)			
14 th	14 th	Study of construction and working of a (i) stepper motor and (ii) sServo motor			
15 th	15 th	Checking of Practical file			
16 th	16 th	Checking of Practical file/ 3rd sessional test (Tentative)			
17 th	17 th	Evaluation			