Lesson PlanName:Satpal SinghDiscipline:Mechanical Engg.Semester:3rdSubject:BEEEs with effect from:15.09.2022 (Lecture r

Duration-16 weeks with effect from : 15.09.2022 (Lecture per week 3, P 2)

		Theory	#	Practical
Week	Lecture Day	Topic (Including Assignment/ Test)	Practical Day	Торіс
1 st	1	Unit 1. Application and Advantage of Electricity (03 Hrs) Difference between ac and dc, various applications of electricity	1^{th}	Introduction to BEEE Lab
	2	Advantages of electrical energy over other types of energy		
	3	Assignment		
2 nd	4	Unit 2. Basic Electrical Quantities (04 Hrs) Definition of voltage, current, power and energy with their units	2 nd	Connection of a three- phase motor and starter with fuses and reversing of direction of rotation
	5	Name of instruments used for measuring above quantities		
	6	Connection of these instruments in an electric circuit		
	7	Assignment / Test	3 rd	Connection of a single- phase induction motor with supply and reversing of its direction of rotation
3 rd	8	Unit 3. AC Fundamentals (08 Hrs) Electromagnetic induction-Faraday's Laws, Lenz's Law; Fleming's rules		
	9	Principles of a.c. Circuits; Alternating emf, Definition of cycle		
4^{th}	10	Frequency, amplitude and time period. Instantaneous, average, r.m.s and maximum value of sinusoidal wave	4 th	Troubleshooting in domestic wiring system, including distribution board
	11	Form factor and Peak Factor		
	12	Concept of phase and phase difference		
5^{th}	13	Concept of resistance, inductance and capacitance in simple a.c.	5 th	Connection and reading of an electric energy meter
5	14	Power factor and improvement of power factor by use of capacitors		
	15	Concept of three phase system; star and delta connections; voltage and current relationship (no derivation)		
6 th	16	Assignment / Test	6 th	Use of ammeter, voltmeter, wattmeter, and multi-meter
	17	Unit 4. Transformers (06 Hrs) Working principle and construction of single phase transformer		
	18	transformer ratio emf equation		
7^{th}	19	losses and efficiency of Transformer	7 th	Measurement of power and power factor in a given single phase ac circuit
	20	Cooling of transformers, isolation transformer		
	21	CVT		

8thUnit 5. Distribution System (06 Hrs) Difference between high and low voltage distribution systemof fuses, MCBs and ELCBs24Identification of three-phase wires8thStudy of zener diode as a constant voltage source and to draw its V-I characteristics9th26Identification of voltages between phases and between one phase and neutral9thStudy of zener diode as a constant voltage source and to draw its V-I characteristics27Difference between three-phase and single-phase supply9thStudy of earthing practices10th28Unit 6. Electric Motor (08 Hrs) Description and applications of single-phase motors10th29Description and applications of three-phase induction motors by star-delta starter10th11th32Motors used for driving pumps, compressors 3311th31Changing direction of rotation of a given 3 phase induction motor11th32Motors used for driving pumps, compressors 34To draw V-I characteristics of a (i) NPN transistor		22	Auto transformer (brief idea), applications.		Study of different types
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