

"PVC"NSSK Govt. Poly. Bilaspur		Department: Mechanical Engg	Subject: Electrical Technology
Theory -4 lecture/week Total Period-56		Practical-2/week	
Week	THEORY		PRACTICAL
	Lecture Day	Topic (including assignment/test)	
1	1	1.1 Types of electrical engineering materials: conducting, semi-conducting & insulating materials and their applications.	1. Use of Multimeter for measurement of voltage & current (ac & dc).
	2	1.2 Applications of electricity and Advantages of Electrical Energy over other forms of energy.	
	3	1.3 Concept of voltage, current, power Energy and their units	
	4	2.1 Resistance, factors affecting the resistance resistivity and their units	
2	1	2.2 Resistances in series	2. Measurement of voltage, current, power and power factor of a motor at various loads
	2	Resistance in parallel	
	3	Numericals	
	4	2.3 Ohm's Law	
3	1	3.1 Faraday's Laws of electromagnetic induction	3. Measurement of transformation ratio of a single phase transformer
	2	Lenz's Law and Fleming's rules	
	3	3.2 Definition of cycle, frequency, time period, instantaneous value, RMS	
	4	maximum value of sinusoidal wave, relation between RMS & maximum value, form factor & peak factor	
4	1	3.3 Concept of phase & phase difference	4. Starting of three-phase squirrel cage induction motor using star/delta starter and DOL starter and reversing the direction of three phase induction motor
	2	3.4 Concept of resistance, inductance, capacitance and impedance in ac circuits	
	3	3.5 Power factor (concept of lead, lag & unity p.f.),	
	4	Power factor its importance and Improvement	
5	1	3.6 Determination of true power, current & p. f. in simple ac series circuits	5. Measurement of terminal voltage of DC shunt generator as a function of load current and plot the load-characteristic curve.
	2	Numericals	
	3	advantages of three phase generation over single phase generation	
	4	Three phase star & delta connections	
6	1	voltage & current relationship in star and delta	6. Study of different types of fuses, MCBs and ELCBs
	2	3.7 Relation of Power in 3-phase	
	3	measurement of three phase power using two wattmeter method	
	4	measurement of three phase power using two wattmeter method	

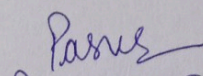
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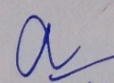
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7	1	4.1 Construction & principle of working of DC motor & generator	7. To plot the V-I characteristics of semiconductor diode
	2	4.2 Starting of DC motors (three-point starter	
	3	speed control and speed reversal	
	4	5.1 Types of AC motors	
8	1	Application of ac motor	8. Study and testing of workshop equipment for earthing
	2	5.2 Construction and working of three phase induction motors	
	3	working of three phase induction motors,	
	4	comparison of squirrel cage and slip-ring induction motors	
9	1	5.3 Reversing the direction of rotation of single phase & three phase induction motors	9. Troubleshooting in domestic wiring and distribution board
	2	5.4 Starting of three phase induction motors using star/delta	
	3	& DOL starter	
	4	5.5 Basic Concept of single phase motors	
10	1	5.6 Applications of stepper motors and servo motors in process control.	
	2	6.1 Construction & working principle.	
	3	6.2 Transformation ratio	
	4	EMF equation	
11	1	losses & efficiency (no derivation	
	2	Concept of Auto transformer and its applications	
	3	Cooling methods of transformers	
	4	Do	
12	1	Safety precautions in handling electrical equipments	
	2	Various safety equipments	
	3	treatment of electrical shock	
	4	need and types of fuses in electrical circuits	
13	1	Need of earthing, applications of MCBs and ELCBs	
	2	Basic idea of semiconductors: P and N types	
	3	diodes, zener diodes and their applications	
	4	basic concept of transistors (PNP and NPN) and its applications	
14	1	Class test -1 3 rd week of October	
	2	Class test 2- 4 th week of November	
	3	House test-2 nd week of December	
	4		

RECOMMENDED BOOKS

1. Electrical Technology by B.L Theraja, S Chand and Co. New Delhi.
2. Basic Electrical and Electrical Engineering by S.K Sahadev, Dhanpat Rai and Sons.
3. Principles of Electrical Engineering by B.R Gupta, S Chand and Co.


 Parveen Dogra
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