


PLANNED THEORY SYLLABUS COVERAGE

GPB		Department: Electrical Engg.		Subject- EMT (EEPC213)		
		Sem. & Branch -3 rd (EE)		Duration – 3 years		
SYLLABUS COVERAGE		Total Periods----- Theory -70 (T-42+DCS-28) Practical - 28				
Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-11	Unit – I DC Generators	DC generator: construction, parts, materials and their functions. Principle of operation of DC generator: Fleming's right hand rule, schematic diagrams, e.m.f. equation of generator, armature reaction, commutation and Applications of DC generators.	Electrical Machines G.C. Garg & P.S. Bimbhra	Basic Electrical Engineering, V.N. Mittle and, Arvind Mittle	
2	12-25	Unit – II D.C. Motors	DC motor: Types of DC motors. Fleming's left hand rule, Principle of operation of, Back e.m.f. and its significance, Voltage equation of DC motor. Torque and Speed; Armature torque, Shaft torque, BHP, Brake test, losses, efficiency. DC motor starters: Necessity, two point and three point starters. Speed control of DC shunt and series motor: Flux and Armature control. Brushless DC Motor: Construction and working.			
3	26-39	Unit– III Single Phase Transformers	Types of transformers: Shell type and core type; Construction: Parts and functions, materials used for different parts: CRGO, CRNGO, HRGO, amorphous cores. Transformer: Principle of operation, EMF equation of transformer: Derivation, Voltage transformation ratio, Significance of transformer ratings. Transformer No-load and on-load phasor diagram, Leakage reactance, Equivalent circuit of transformer: Equivalent resistance and reactance. Voltage regulation and Efficiency: Direct loading, OC/SC method, All-day efficiency.			
4	40-59	Unit– IV Three Phase Transformers	Bank of three single phase transformers, Single unit of three phase transformer. Distribution and Power transformers, Construction, cooling, Three phase transformers connections as per IS:2026 (part IV)-1977, Three phase to two phase conversion (Scott Connection), Selection of transformer as per IS: 10028 (Part I)-1985, Criteria for selection of distribution			

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5	60-70	Unit V Special Purpose Transformers	<p>transformer, and power transformer, Amorphous Core type Distribution Transformer, Specifications of three-phase distribution transformers as per IS: 1180 (part D)-1989 Need of parallel operation of three phase transformer, Conditions for parallel operation. Polarity tests on mutually inductive coils and single phase transformers; Polarity test, Phasing out test on Three-phase transformer.</p> <p>Single phase and three phase auto transformers: Construction, working and applications.</p> <p>Instrument Transformers: Construction, working and applications of Current transformer and Potential transformer.</p> <p>Isolation transformer: Constructional Features and applications.</p> <p>Single phase welding transformer: constructional features and applications. Pulse transformer: constructional features and applications.</p> <p>'K' factor of transformers: overheating due to non-line loads and harmonics</p>			

APPROVED	SIGN HOD/OIC
DATE <u>09/08/23</u>	

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