

LESSON PLAN:- Electrical Engineering					
SEMESTER:- 6th				SUBJECT :- Electric Drive & Traction	
WEEK	THEORY				
	LECTURE DAY	TOPIC (INCLUDING ASSIGNMENT /TEST)		TOPIC	
1	1	Definition & classification of different type of electric drives	1	Study of Industrial Applications of various mills.	
	2	Review characteristics			
	3	choice of electric drive			
	4	components of electric drives			
	5	advantages and applications			
2	1	Fundamental load torque equation	1	Variable Torque Control of Induction Motor.	
	2	types of loads			
	3	frequency operation of motor subjected to intermittent loads, pulse loads			
	4	Determination of motor rating			
	5	Heating/cooling curve			
3	1	Nature of loads and classes of motor duty	1	Braking of DC Motor by using Mechanical & Electrical Methods	
	2	Modes of operation			
	3	closed loop control of drives			
	4	sensing of current and speed			
	5	Various methods of braking of D.C. drives			
4	1	Speed control methods of D.C. drives	1	Rotor resistance control of 3 phases Slip Ring Induction Motor.	
	2	1-phase fully controlled rectifier fed separately excited D.C. motor			
	3	SESSIONAL -1			
	4	SESSIONAL -1			
	5	SESSIONAL -1			
5	1	3-phase fully controlled rectifier fed separately excited D.C. motor	1	Methods of starting Induction Motor.	
	2	3-phase fully controlled fed separately excited D.C. Motor			
	3	3-phase half controlled fed separately excited D.C. Motor			
	4	Performance and characteristics of 1-phase			
	5	Performance and characteristics of 3-phase			
6	1	Various methods of braking of A.C. drives	1	Variable Voltage Control of Induction Motor.	
	2	Speed control methods of A.C. drives			
	3	Basic principle of induction motor drives, 3 -phase A.C. Voltage controller fed I.M drive			
	4	Drives using chopper			

	5	multi quadrant control of chopper fed motors		
7	1	Synchronous motor Drives	1	Chopper Control of DC Motor.
	2	Automatic starting and pulling operation of synchronous motors		
	3	Nature of traction load		
	4	A.C.motor drives in transportation system		
	5	D.C.motor drives in transportation system		
8	1	system and traction & its characteristics	1	Chopper Control of separately excited DC motor.
	2	SESSIONAL -2		
	3	SESSIONAL -2		
	4	SESSIONAL -2		
	5	Duty cycle & speed time relationship		
9	1	Polyphase A.C. motors for traction drives	1	
	2	D.C. traction using chopper controlled D.C. motors		
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	4			
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10	1		1	
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	5			
11	1		1	
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12	1		1	
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	5			
13	1		1	
	2	SESSIONAL -3		
	3	SESSIONAL -3		
	4	SESSIONAL -3		
	5			

LESSON PLAN:- Electrical Engineering				
SEMESTER:- 6th			SUBJECT :- Electrical Machine Design	
WEEK	THEORY	TOPIC (INCLUDING ASSIGNMENT /TEST)		TOPIC
	LECTURE DAY			
1	1	General features of machine design	1	
	2	limitations of electrical machine design		
	3	specific loadings		
	4	thermal design		
	5	types of enclosures		
2	1	ventilation	1	
	2	heat dissipation		
	3	temperature rise		
	4	heating & cooling cycles		
	5	rating of machines		
3	1	cooling media used	1	
	2	advantages of hydrogen cooling		
	3	effect of size and ventilation		
	4	DC MACHINES Main parts		
	5	Output equation		
4	1	choice of specific loadings	1	
	2	choice of poles and speed		
	3	SESSIONAL -1		
	4	SESSIONAL -1		
	5	SESSIONAL -1		
5	1	Design of core length	1	
	2	armature diameter		
	3	depth of armature core		
	4	air gap length		
	5	cross section of armature conductors		
6	1	armature slots	1	
	2	design of field system		
	3	field poles, field coils		
	4	commutater		
	5	TRANSFORMERS-Main parts of transformer		
7	1	Standard specifications	1	
	2	output equation		
	3	voltage per turn		
	4	optimum design		
	5	design of core		

8	1	design of winding	1	
	2	SESSIONAL -2		
	3	SESSIONAL -2		
	4	SESSIONAL -2		
	5	simplified steps for transformer design		
9	1	tank and Cooling tubes	1	
	2	Operating calculations circuit parameters		
	3	magnetizing current		
	4	losses and efficiency		
	5	Temperature rise and regulations from design data.		
10	1	SYNCHRONOUS MACHINES: Types of construction, types of synchronous alternators Specifications	1	
	2	output equation		
	3	design of salient pole machines main dimensions		
	4	short circuit ratio , length of air gap		
	5	choice of armature slots		
11	1	turns per phase, conductor section	1	
	2	design difference between turbo alternator & salient pole generators, , direct & indirect cooling		
	3	Three Phase Induction Motor: Standard specifications, output equations		
	4	choice of specific loadings, main dimensions		
	5	conductor size and turns, no. of slots, slot design		
12	1	stator core depth, rotor design	1	
	2	rotor bars& slots area, end rings		
	3	SINGLE PHASE INDUCTION MOTOR output equations		
	4	specific loadings, main dimensions		
	5	design of main and auxiliary winding, capacitor design		
13	1	equivalent circuit parameters, torque, efficiency	1	
	2	SESSIONAL -3		
	3	SESSIONAL -3		
	4	SESSIONAL -3		
	5			

LESSON PLAN:- Electrical Engineering				
SEMESTER:- 6th			SUBJECT :- Power System Analysis	
WEEK	THEORY			
	LECTURE DAY	TOPIC (INCLUDING ASSIGNMENT /TEST)		TOPIC
1	1	Characteristics & representation of components of a power system	1	
	2	synchronous machines		
	3	transformers		
	4	lines cables & loads		
	5	Single line diagram of a power system Flow of zero sequence current		
2	1	zero sequence impedance diagrams of power system with different types of connections of three phase transformers	1	
	2	need for neutral grounding		
	3	various types of neutral grounding		
	4	Flow of zero sequence current		
	5	zero sequence impedance diagrams of power system with different types of connections of three phase transformers		
3	1	Circuit interruption	1	
	2	theory of arc formation and it's excitation in d.c., a.c. circuits		
	3	restricking & recovery voltage		
	4	interruption of capacitive & inductive currents		
	5	Rupturing capacity & rating of circuit breakers		
4	1	Classification of circuit-breakers	1	
	2	circuit-breakers of low medium voltages		
	3	SESSIONAL -1		
	4	SESSIONAL -1		
	5	SESSIONAL -1		
5	1	high & extra high voltages. Multibreak & resistance switching	1	
	2	Auto-restoring of high capacity & H.V. circuit breakers		
	3	calculation of fault currents		
	4	use of current limiting reactors		
	5	Symmetrical & Unsymmetrical faults		
6	1	Types of transformation in power system analysis	1	
	2	symmetrical components transformation		
	3	sequence impedance of power system elements		
	4	Sequence network of power system analysis of unsymmetrical short faults		
	5	Network analysis & it's application to interconnected system		
7	1	Protective System	1	
	2	features of good protective system		
	3	elements of relay		

	4	terms connected with relay	
	5	time grading of over current protection	
8	1	Revise	1
	2	SESSIONAL -2	
	3	SESSIONAL -2	
	4	SESSIONAL -2	
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9	1	differential relay	1
	2	distance relay	
	3	impedence relay	
	4	static relays	
	5	Protection of alternators	
10	1	Protection of transformer	1
	2	Protection of motors	
	3	Protection of bus bars	
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	3		
	4		
	5		
13	1		1
	2	SESSIONAL -3	
	3	SESSIONAL -3	
	4	SESSIONAL -3	
	5		