## **ACADEMIC LESSON PLAN OF WINTER 2021**

		ACADEMIC LESSON PLAN OF WINTER 2021			
Discipline: ELECTRICAL	Semester: 5 <sup>th</sup> Sem. (1 <sup>st</sup> Shift)	Name of the Teaching Faculty: AMIT KUMAR BISOYI			
Subject:	No. of days/per	Semester From: 1 <sup>ST</sup> OCTOBER 2021 to 8 <sup>th</sup> JANUARY 2022			
ENERGY	week class	No. of weeks:13 weeks			
CONVERSION-II	allotted:4p/week				
Week	Class Day	Theory Topics			
		1. ALTERNATOR:			
1 <sup>st</sup>	5/10/2021	1.1. Types of alternator and their constructional features.			
		1.2. Basic working principle of alternator and the relation between speed and			
	9/10/201	frequency.			
2 <sup>nd</sup>		.3. Terminology in armature winding and expressions for winding factors			
	23/10/2021	(Pitch factor, Distribution factor).			
		1.4. Explain harmonics, its causes and impact on winding factor.			
	26/10/2021				
	20, 20, 2022	1.5. E.M.F equation of alternator. (Solve numerical problems).			
3 <sup>rd</sup>	27/10/2021				
3	27/10/2021	1.5. E.M.F equation of alternator. (Solve numerical problems).			
	0=1:01000	and the second of the second o			
	27/10/2021	1.6. Explain Armature reaction and its effect on emf at different			
		power factor of load.			
	30/10/2021				
		1.7. The vector diagram of loaded alternator. (Solve numerical problems)			
	2/11/2021				
		1.8. Testing of alternator (Solve numerical problems)			
	3/11/2021	1.8.1. Open circuit test.			
		1.8.2. Short circuit test.			
4 <sup>th</sup>	3/11/2021				
		1.9. Determination of voltage regulation of Alternator by direct loading and			
	5/11/201	synchronous impedance method. (Solve numerical problems)			
	3/ 11/ 201	1.9. Determination of voltage regulation of Alternator by direct loading and			
	5/11/2021	Synchronous impedance method. (Solve numerical problems)			
		1.10. Parallel operation of alternator using synchro-scope and dark &			
	C /11 /201	Brightlamp method.			
	6/11/201	1.11. Explain distribution of load by parallel connected alternators.			
	0/44/2024	,			
	9/11/2021	2. SYNCHRONOUS MOTOR:			
		2.1. Constructional feature of Synchronous Motor.			
41-	10/11/2021	2.2. Principles of operation, concept of load angle			
5 <sup>th</sup>		2.3. Derive torque, power developed.			
	10/11/2021				
		2.4. Effect of varying load with constant excitation.			
		2.5. Effect of varying excitation with constant load.			
		2.6. Power angle characteristics of cylindrical rotor motor.			
	13/11/2021				
		2.7. Explain effect of excitation on Armature current and power factor.			
6 <sup>th</sup>	16/11/2021				
		2.8. Hunting in Synchronous Motor.			
	17/11/2021	2.9. Function of Damper Bars in synchronous motor and generator.			
L	· · · · · · · · · · · · · · · · · · ·				

	1	2.40 Describe mostly of starting of Construction		
	2.10. Describe method of starting of Synchronous motor.			
	18/11/2021			
		2.11. State application of synchronous motor.		
	18/11/2021			
		3. THREE PHASE INDUCTION MOTOR:		
	23/11/2021	3.1. Production of rotating magnetic field.		
		3.2. Constructional feature of Squirrel cage and Slip ring induction motors.		
	24/11/2021			
7 <sup>th</sup>	24/11/2021	3.3. Working principles of operation of 3-phase Induction motor.		
	25/44/2024			
	25/11/2021	3.4. Define fine slip speed, slip and establish the relation of slip with		
		rotor quantities.		
	25/11/2021	· ·		
		3.5. Derive expression for torque during starting and running conditions and derive conditions for maximum torque. (solve numerical problems)		
	26/11/2021			
		3.6. Torque-slip characteristics.		
	30/11/2021			
		3.7. Derive relation between full load torque and starting torque etc.		
	1/12/2021	(solve numerical problems)		
8 <sup>th</sup>	, ,	3.8. Establish the relations between Rotor Copper loss, Rotor output and		
8	2/12/2021	Gross Torque and relationship of slip with rotor copper loss.		
	2/12/2021	(solve numerical problems)  3.9. Methods of starting and different types of starters used for		
		three phase Induction motor.		
	2/12/2021			
		3.10. Explain speed control by Voltage Control, Rotor resistance control, Pole changing, frequency control methods.		
	3/12/2021			
		3.10. Explain speed control by Voltage Control, Rotor resistance control,		
	7/12/2021	Pole changing, frequency control methods.		
		3.11. Plugging as applicable to three phase induction motor.		
	8/12/2021			
		3.12. Describe different types of motor enclosures.		
9 <sup>th</sup>	9/12/2021			
	3/12/2021	3.13. Explain principle of Induction Generator and state its applications.		
	0/12/2021			
	9/12/2021	4. SINGLE PHASE INDUCTION MOTOR:		
		4.1. Introduction and Explain Ferrari's principle.		
	10/12/2021	4.2. Explain double revolving field theory and Cross-field theory to		
		analyze starting torque of 1-phase induction motor.		
	11/12/2021			
	14/12/2021	4.2. Explain double revolving field theory and Cross-field theory to analyze starting torque of 1-phase induction motor.		
10 <sup>th</sup>		4.3. Explain Working principle, Torque speed characteristics, performance		
	45/12/222	characteristics and application of following single phase motors.		
	15/12/2021	4.3.1. Split phase motor.		
		4.3.2. Capacitor Start motor.		
	16/12/2021	4.3.3. Capacitor start, capacitor run motor.		
		4.3.4. Permanent capacitor type motor.		
	16/12/2021	4.3.5. Shaded pole motor.		

		4.4. Explain the method to change the direction of rotation of above motors.		
	17/12/2021			
	, , -	4.4. Explain the method to change the direction of rotation of above motors.		
	18/12/2021			
		5. COMMUTATOR MOTORS:		
	18/12/2021	5.1. Construction, working principle, running characteristic and application of single phase series motor.		
	1 1	5.1. Construction, working principle, running characteristic and application of		
		single phase series motor.		
	21/12/2021			
		5.2. Construction, working principle and application of Universal motors.		
	22/12/2021			
a a th	22/12/2021	5.2. Construction, working principle and application of Universal motors.		
11 <sup>th</sup>		S-E- construction, northing principle and apprication or converse motors.		
	23/12/2021			
		5.3. Working principle of Repulsion start Motor, Repulsion start Induction		
	23/12/2021	run motor, Repulsion Induction motor.		
		5.3. Working principle of Repulsion start Motor, Repulsion start Induction		
	0.44040004	run motor, Repulsion Induction motor.		
	24/12/2021	C CRECIAL ELECTRICAL MANGUINE		
		6. SPECIAL ELECTRICAL MACHINE: 6.1. Principle of Stepper motor.		
	28/12/2021	6.2. Classification of Stepper motor.		
		6.3. Principle of variable reluctant stepper motor.		
		The state of the s		
	29/12/2021			
12 <sup>th</sup>		6.4. Principle of Permanent magnet stepper motor.		
	30/12/2021			
		6.5. Principle of hybrid stepper motor.		
	30/12/2021			
	30/12/2021	6.6. Applications of Stepper motor.		
		o.o. Applications of Stepper Motor.		
	31/12/2021			
		7. THREE PHASE TRANSFORMERS:		
		7.1. Explain Grouping of winding, Advantages.		
1				
	4/1/2022	7.2 Fundain manuflat an arction of the Cl		
		7.2. Explain parallel operation of the three phase transformers.		
	5/1/2022			
13 <sup>th</sup>				
		7.2. Explain parallel operation of the three phase transformers.		
		7.2. Explain parallel operation of the times phase transformers.		
	6/1/2022			
		7.3. Explain tap changer (On/Off load tap changing)		
	6/1/2022			
	5, -, 2022	7.4. Maintenance Schedule of Power Transformers		
	-1.10			
	7/1/2022			

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Discipline:	Semester:	Name of the Teaching Faculty: <b>AMIT KUMAR BISOYI</b>			
ELECTRICAL	5 <sup>th</sup> Sem. (2 <sup>nd</sup>				
Collete	Shift)	Comporter From: 4ST OCTORER 2024 to 0th LANULARY 2022			
Subject: ENERGY	No. of days/per week class	Semester From: 1 <sup>ST</sup> OCTOBER 2021 to 8 <sup>th</sup> JANUARY 2022 No. of weeks:13 weeks			
CONVERSION	allotted:4p/we	INU. UI WEEKS.13 WEEKS			
-II	ek				
Week	Class Day	Theory Topics			
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		1.1. Types of alternator and their constructional features.			
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		frequency.			
	9/10/2021	.3. Terminology in armature winding and expressions for winding factors			
		(Pitch factor, Distribution factor).			
2 <sup>nd</sup>	23/10/2021	1.4. Explain harmonics, its causes and impact on winding factor.			
	25/10/2021	1.5. E.M.F equation of alternator. (Solve numerical problems).			
ard	26/10/2021	1.5. E.M.F equation of alternator. (Solve numerical problems).			
3 <sup>rd</sup>	27/10/2021	1.6. Explain Armature reaction and its effect on emf at different			
		power factor of load.			
	30/10/2021	1.7. The vector diagram of loaded alternator. (Solve numerical problems)			
	1/11/2021	1.8. Testing of alternator (Solve numerical problems)			
		1.8.1. Open circuit test.			
4 <sup>th</sup>	2/11/2021	1.8.2. Short circuit test.			
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	9/11/2021	1.11. Explain distribution of load by parallel connected alternators.			
	10/11/2021	2. SYNCHRONOUS MOTOR:			
5 <sup>th</sup>		2.1. Constructional feature of Synchronous Motor.			
		2.2. Principles of operation, concept of load angle			
	11/11/2021	2.3. Derive torque, power developed.			
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8 <sup>th</sup>	2/12/2021	three phase Induction motor.		
	2/12/2021	3.10. Explain speed control by Voltage Control, Rotor resistance control,		
	2/42/2024	Pole changing, frequency control methods.		
	3/12/2021	3.10. Explain speed control by Voltage Control, Rotor resistance control,		
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	20/12/2021	5.2. Construction, working principle and application of Universal motors.		
	21/12/2021	5.3. Working principle of Repulsion start Motor, Repulsion start Induction		
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		7.1. Explain Grouping of winding, Advantages.		
13 <sup>th</sup>	4/1/2022	7.2. Explain parallel operation of the three phase transformers.		
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