

BALASORE SCHOOL OF ENGINEERING, BALASORE

LESSON PLAN FOR 5TH SEMESTER, SESSION:-2023-24(W-23)

BRANCH:- ELECTRICAL		SECTION- B		SEMESTER:-5 TH		
SUBJECT:- ENERGY CONVERSION –II				THEORY:-TH-2		
NAME OF TEACHER:- BAMADEV PATHI						
SL. No.	Month /No .of academic days available for the subject	Chapter	DATE	TOPICS TO BE COVERED	No of periods available as per syllabus	No of periods available as per plan
	AUG-2023 (22)	Unit-03	1/08/23	3. THREE PHASE INDUCTION MOTOR: 3.1. Production of rotating magnetic field.	14	20
			2/08/23	3.1. Production of rotating magnetic field.		
			3/08/23	3.2. Constructional feature of Squirrel cage and Slip ring induction motors.		
			4/08/23	3.2. Constructional feature of Squirrel cage and Slip ring induction motors.		
			5/08/23	3.3. Working principles of operation of 3-phase Induction motor.		
			8/08/23	3.4. Define slip speed, slip and establish the relation of slip with rotor quantities.		
			9/08/23	3.5. Derive expression for torque during starting and running conditions and derive conditions for maximum torque. (solve numerical problems)		
			10/08/23	3.5. Derive expression for torque during starting and running conditions and derive conditions for maximum torque. (solve numerical problems)		
			11/08/23	3.5. Derive expression for torque during starting and running conditions and derive conditions for maximum torque. (solve numerical problems)		
			12/08/23	3.6. Torque-slip characteristics.		

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	AUG-2023	Unit-03	16/08/23	3.7. Derive relation between full load torque and starting torque etc. (solve numerical problems)	08	05
			17/08/23	3.7. Derive relation between full load torque and starting torque etc. (solve numerical problems)		
			18/08/23	3.8. Establish the relations between Rotor Copper loss, Rotor output and Gross Torque and relationship of slip with rotor copper loss. (solve numerical problems)		
			19/08/23	3.8. Establish the relations between Rotor Copper loss, Rotor output and Gross Torque and relationship of slip with rotor copper loss. (solve numerical problems)		
			22/08/23	3.9. Methods of starting and different types of starters used for three phase Induction motor.		
			23/08/23	3.9. Methods of starting and different types of starters used for three phase Induction motor.		
			24/08/23	3.10. Explain speed control by Voltage Control, Rotor resistance control, Pole changing, frequency control methods.		
			25/08/23	3.10. Explain speed control by Voltage Control, Rotor resistance control, Pole changing, frequency control methods.		
			26/08/23	3.11. Plugging as applicable to three phase induction motor. 3.12. Describe different types of motor enclosures.		
	29/08/23	3.13. Explain principle of Induction Generator and state its applications.				
	SEP-2023(18)	Unit-04	30/08/23	4. SINGLE PHASE INDUCTION MOTOR: 4.1. Explain double revolving field theory to analyze starting torque of 1-phase induction motor.		
			31/08/23	4.3. Explain Working principle, Torque speed characteristics, performance characteristics and application of following single phase motors. 4.3.1. Split phase motor.		
			1/09/23	4.3.2. Capacitor Start motor. 4.3.3. Capacitor start, capacitor run motor. 4.3.4. Permanent capacitor type motor.		
			2/09/23	4.3.5. Shaded pole motor.		
			5/09/23	4.4. Explain the method to change the direction of rotation of above motors.		
			7/09/23	CLASS TEST....		

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	SEP-2023	Unit-01	8/09/23	1. ALTERNATOR: 1.1. Types of alternator and their constructional features.	14	14
			9/09/23	1.2. Basic working principle of alternator and the relation between speed and frequency.		
			12/09/23	1.3. Terminology in armature winding and expressions for winding factors (Pitch factor, Distribution factor).		
			13/09/23	1.3. Terminology in armature winding and expressions for winding factors (Pitch factor, Distribution factor).		
			14/09/23	1.4. Explain harmonics, its causes and impact on winding factor. 1.5. E.M.F equation of alternator. (Solve numerical problems).		
			15/09/23	1.5. E.M.F equation of alternator. (Solve numerical problems).		
			16/09/23	1.6. Explain Armature reaction and its effect on emf at different power factor of load.		
			21/09/23	1.6. Explain Armature reaction and its effect on emf at different power factor of load.		
			22/09/23	1.7. The vector diagram of loaded alternator. (Solve numerical problems)		
			23/09/23	1.7. The vector diagram of loaded alternator. (Solve numerical problems)		
			26/09/23	1.8. Testing of alternator (Solve numerical problems) 1.8.1. Open circuit test. 1.8.2. Short circuit test		
			27/09/23	1.9. Determination of voltage regulation of Alternator by direct loading and synchronous impedance method. (Solve numerical problems)		
			28/09/23	1.10. Parallel operation of alternator using synchro-scope and dark & bright lamp method.		
	OCT-		3/10/23	2. SYNCHRONOUS MOTOR: 2.1. Constructional feature of Synchronous Motor		

	2023(10)		4/10/23	2.2. Principles of operation, concept of load angle		
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SL. No.	Month /No .of academic days available for the subject	Chapter	DATE	TOPICS TO BE COVERED	No of periods available as per syllabus	No of periods available as per plan
	OCT-2023	Unit-02	5/10/23	2.2. Principles of operation, concept of load angle	08	08
			6/10/23	2.3. Derive torque, power developed.		
			7/10/23	2.4. Effect of varying load with constant excitation. 2.5. Effect of varying excitation with constant load.		
			10/10/23	2.5. Effect of varying excitation with constant load.		
			11/10/23	2.6. Power angle characteristics of cylindrical rotor motor. 2.7. Explain effect of excitation on Armature current and power factor.		
			12/10/23	2.8. Hunting in Synchronous Motor. 2.9. Function of Damper Bars in synchronous motor and generator. 2.10. Describe method of starting of Synchronous motor. 2.11. State application of synchronous motor		
		Unit-05	13/10/23	5. COMMUTATOR MOTORS: 5.1. Construction, working principle, running characteristic and application of single phase series motor. 5.2. Construction, working principle and application of Universal motors.	06	02
			31/10/23	5.3. Working principle of Repulsion start Motor, Repulsion start Induction run motor, Repulsion Induction motor.		
	NOV-	Unit-06	1/11/23	6. SPECIAL ELECTRICAL MACHINE: 6.1. Principle of Stepper motor. 6.2. Classification of Stepper motor. 6.3. Principle of variable reluctant stepper motor	05	02
			2/11/23	6.4. Principle of Permanent magnet stepper motor. 6.5. Principle of hybrid stepper motor.		

Minimum 55 minutes
On hours, wherever
even Semes
Grade

2023(8) NOV-2023			6.6. Applications of Stepper motor.		
	Unit-07	3/11/23	7. THREE PHASE TRANSFORMERS: 7.1. Explain Grouping of winding, Advantages. 7.2. Explain parallel operation of the three phase transformers.	05	02
		4/11/23	7.3. Explain tap changer (On/Off load tap changing)		
		7/11/23	REVISION		
		8/11/23	REVISION		
		9/11/23	REVISION		
		10/11/23	REVISION		

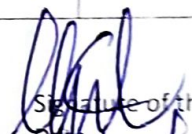
Brief Summary of the Plan

Sino	Month	Units/Chapter To be Covered	Percentage of Coverage
1	AUG.	Chapter- 3, Chapter- 4 UP TO 4.3.1	40%
2	SEP.	Chapter- 4, Chapter- 1	25%
3	OCT.	Chapter- 2, Chapter- 5	25%
4	NOV.	Chapter- 6, Chapter- 7	10%

Signature of the Faculty
Date


22/7/23

Signature of the Principal
Date


22/7/23