Lesson Plan			
	Discipline:Electrical Engineering	**Semester-5th Winter 2023(A)**	**Name of the Teaching Faculty: PRIYABRATA PALASINGH NAYAK**
Sl. No.	**Subject-Energy Conversion-II**	**No. Of Days/Week class alloted:04**	**Semester From date: 07/08/2023 To date: 30 /11/2023. No of weeks: 13**
	Weeks/Months	**Class Day**	**Topic**
1	1st Week	1st (07/08/2023) 2nd (08/08/2023) 3rd (09/08/2023) 4th (10/08/2023)	1.1. Types of alternator and their constructional features. 1.2. Basic working principle of alternator and the relation between speed and frequency.
2	2nd Week	1st (14/08/2023) 2nd (16/08/2023) 3rd (17/08/2023)	1.4. Explain harmonics, its causes and impact on winding factor. 1.5. E.M.F equation of alternator. (Solve numerical problems).1.6. Explain Armature reaction and its effect on emf at different power factor of load. 1.7. The vector diagram of loaded alternator. (numerical problems
3	3rd Week	1st (21/08/2022) 2nd (22/08/2022) 3rd (23/08/2023) 4th (24/08/2023)	1.8. Testing of alternator (Solve numerical problems) 1.8.1. Open circuit test. 1.8.2. Short circuit test. 1.9. Determination of voltage regulation of Alternator by direct loading and synchronous impedance method. (Solve numerical problems
4	4th Week	1st (28/08/2023) 2nd (29/08/2023) 3rd (031/08/2023)	1.10. Parallel operation of alternator using synchro-scope and dark & bright lamp method. 1.11. Explain distribution of load by parallel connected alternators 2.2 2.1. Constructional feature of Synchronous Motor. 2.2. Principles of operation, concept of load angle
5	5th Week	1st (4/09/2023) 2nd (5/09/2023) 3rd (7/09/2023)	2.3. Derive torque, power developed. 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. 2.7. Explain effect of excitation on Armature current and power factor, Hunting in Synchronous Motor. 2.8. Function of Damper Bars in synchronous motor and generator. 2.9. Describe method of starting of Synchronous motor. 2.10. State application of synchronous motor
6	6th Week	1st (11/09/2023) 2nd (12/09/2023) 3rd (13/09/2023) 4th (14/09/2023)	3.1. Production of rotating magnetic field. 3.2. Constructional feature of Squirrel cage and Slip ring induction motors. 3.3. Working principles of operation of 3-phase Induction motor. 3.4. Define slip speed, slip and establish the relation of slip with rotor quantities, Derive expression for torque during starting and running conditions and derive conditions for maximum torque. (numerical problems)
7	7th Week	1st (18/09/2023) 2nd (21/09/2023)	4.1. Explain Ferrari's principle. 4.2. Explain double revolving field theory and Cross-field theory to analyze starting torque of 1-phase induction motor. 4.3. Explain Working principle, Torque speed characteristics, performance
8	8th Week	1st (25/09/2023) 2nd (26/9/2023) 3rd (27/9/2023) 4th (28/9/2023)	4.3.3. Capacitor start, capacitor run motor. 4.3.4. Permanent capacitor type motor. 4.3.5. Shaded pole motor. 4.4. Explain the method to change the direction of rotation of above motors 4.3.4. Permanent capacitor type motor. 4.3.5. Shaded pole motor. 4.4. Explain the method to change

9	9th Week	1st (3/10/2023)	5.1. Construction, working principle, running characteristic and application of single phase series motor. 5.2. Construction, working principle and application of Universal motors.
		2nd (4/10/2023)	
		3rd (5/10/2023)	
10	10th Week	1st (9/10/2023)	5.3. Working principle of Repulsion start Motor, Repulsion start Induction run motor, Repulsion Induction motor6.1. Principle of Stepper motor.
		2nd (10/10/2023)	
		3rd (11/10/2023)	
		4th (12/10/2023)	
11	11th Week	1st (16/10/2023)	6.2. Classification of Stepper motor. 6.3. Principle of variable reluctant stepper motor. 6.4. Principle of Permanent magnet stepper motor
		2nd (17/10/2023)	
		3rd (18/10/2023)	
		4th (19/10/2023)	
12	12th Week	1st (30/10/2023)	6.5. Principle of hybrid stepper motor. 6.6. Applications of Stepper motor.
		2nd (31/10/2023)	
		3rd (01/11/2023)	
		4th (02/11/2023)	
13	13th Week	1st (06/11/2023)	7.1. Explain Grouping of winding, Advantages. 7.2. Explain parallel operation of the three phase transformers. 7.3. Explain tap changer (On/Off load tap changing) 7.4. Maintenance Schedule of Power Transformers
		2nd (07/11/2023)	
		3rd (08/11/2023)	
		4th (09/11/2023)	
14	14th Week	1st (13/11/2023)	6.3. Principle of variable reluctant stepper moto
		2nd (14/11/2023)	6.5. Principle of hybrid stepper motor
		3rd (15/11/2023)	7.1. Explain Grouping of winding, Advantages.
		4th (16/11/2023)	7.1. Explain Grouping of winding, Advantages.
15	15th Week	1st (20/11/2023)	Stepper motor problem
		2nd (21/11/2023)	problem practice
		3rd (22/11/2023)	problem practice
		4th (23/11/2023)	problem practice
16	16th Week	1st (28/11/2023)	Revision
		2nd (29/11/2023)	Revision
		3rd (30/11/2023)	Revision