

BHUBANANANDA ORISSA SCHOOL OF
ENGINEERING, CUTTACK

ELECTRICAL ENGG. DEPARTMENT

LESSON PLAN

SEMESTER: 4TH (C)

SESSION – SUMMER (2021-22)

SUBJECT: EC-I (ENERGY CONVERSION-I)

NAME OF FACULTY: MR. SRIKANTA THAKUR



Discipline: Electrical Engg.	Semester: 4 th (C)	Name of the teaching faculty: Mr. SRIKANTA THAKUR
Subject-EC-I	No. of Days/per week class allotted: 05 PERIODS /WEEK (TUES-2,WED-1,THUR-1,FRI-1 PERIOD)	Semester: From Date: 10/03/2022 To Date: 10/06/2022 No. of weeks: 14 WEEKS
Week	Class Day	Theory/Practical Topics
1 st (10/03/2022-12/03/2022)	10/03/2022	1. D.C GENERATOR 1.1. Operating principle of generator
	11/03/2022	1.2. Constructional features of DC machine.
2 nd (14/03/2022-19/03/2022)	15/03/2022	1.2.1. Yoke, Pole & field winding, Armature, Commutator.
		1.2.2. Armature winding, back pitch, Front pitch, Resultant pitch and commutator- pitch.
	16/03/2022	1.2.3. Simple Lap and wave winding, Dummy coils.
	17/03/2022	1.3. Different types of D.C. machines (Shunt, Series and Compound)
	18/03/2022	Dola Purnima
3 rd (21/03/2022-26/03/2022)	22/03/2022	1.4. Derivation of EMF equation of DC generators. (Solve problems).
		1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.
	23/03/2022	1.6. Armature reaction in D.C. machine
	24/03/2022	1.7. Commutation and methods of improving commutation.
	25/03/2022	1.7.1. Role of inter poles and compensating winding in commutation.

4 th (28/03/2022-02/04/2022)	29/03/2022	1.8. Characteristics of D.C. Generators 1.9. Application of different types of D.C. Generators
	30/03/2022	1.10. Concept of critical resistance and critical speed of DC shunt generator.
	31/03/2022	1.11. Conditions of Build-up of emf of DC generator.
	01/04/2022	UTKAL DIVAS
5 TH (04/04/2022-09/04/2022)	05/04/2022	1.12. Parallel operation of D.C. Generators
	06/04/2022	CLASS TEST
	07/04/2022	1.13. Uses of D.C generators.
	08/04/2022	2. D. C. MOTORS
6 TH (11/04/2022-16/04/2022)	12/04/2022	2.1. Basic working principle of DC motor 2.2. Significance of back emf in D.C. Motor. 2.3. Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
	13/04/2022	2.4. Derive torque equation (solve problems)
	14/04/2022	AMBEDKAR JAYANTI
	15/04/2022	GOOD FRIDAY
7 th (18/04/2022-23/04/2022)	19/04/2022	2.5. Characteristics of shunt, series and compound motors and their application. 2.6. Starting method of shunt, series and compound motors.
	20/04/2022	2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
	21/04/2022	2.8. Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method
	22/04/2022	2.9. Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)
8 th (25/04/2022-30/04/2022)	26/04/2022	2.10. Determination of efficiency of D.C. Machine by

		Swinburne's Test method(solve numerical problems) 2.11. Losses, efficiency and power stages of D.C. motor(solve numerical problems)
	27/04/2022	2.12. Uses of D.C. motors
	28/04/2022	3. SINGLE PHASE TRANSFORMER
	29/04/2022	3.1 Working principle of transformer. 3.2 Constructional feature of Transformer.
9 th (01/05/2022-07/05/2022)	03/05/2022	ID-UL-FITRE
	04/05/2022	CLASS TEST
	05/05/2022	3.2.1 Arrangement of core & winding in different types of transformer.
	06/05/2022	3.2.2 Brief ideas about transformer accessories such as conservator, tank, breather, and explosion vent etc. 3.2.3 Explain types of cooling methods
10 th (09/05/2022-14/05/2022)	10/05/2022	3.3 State the procedures for Care and maintenance. 3.4 EMF equation of transformer.
	11/05/2022	INTERNAL ASSESSMENT
	12/05/2022	INTERNAL ASSESSMENT
	13/05/2022	3.5 Ideal transformer voltage transformation ratio
11 th (16/05/2022-21/05/2022)	17/05/2022	3.6 Operation of Transformer at no load, on load with phasor diagrams. 3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer.
	18/05/2022	3.8 To draw phasor diagram of transformer on load, with winding Resistance and Magnetic leakage with using upf, leading pf and lagging pf load.
	19/05/2022	3.9 To explain Equivalent circuit and solve numerical problems.
	20/05/2022	3.10 Approximate & exact voltage drop calculation of a Transformer
12 th (23/05/2022-28/05/2022)	24/05/2022	3.11 Regulation of transformer.

		3.12 Different types of losses in a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)
	25/05/2022	3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)
	26/05/2022	3.14 Explain All Day Efficiency (solve problems)
	27/05/2022	3.15 Determination of load corresponding to Maximum efficiency.
13 th (30/05/2022-04/06/2022)	31/05/2022	3.16 Parallel operation of single phase transformer.
		4. AUTO TRANSFORMER
		4.1. Constructional features of Auto transformer.
	01/06/2022	4.2. Working principle of single phase Auto Transformer.
	02/06/2022	4.3. Comparison of Auto transformer with an two winding transformer (saving of Copper).
	03/06/2022	4.4. Uses of Auto transformer.
14 th (06/06/2022-10/06/2022)	07/06/2022	4.5. Explain Tap changer with transformer (on load and off load condition)
	08/06/2022	5. INSTRUMENT TRANSFORMERS
		5.1 Explain Current Transformer and Potential Transformer
	09/06/2022	5.2 Define Ratio error, Phase angle error, Burden.
	10/06/2022	5.3 Uses of C.T. and P.T.