BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

ELECTRICAL ENGG.DEPARTMENT

LESSON PLAN

SEMESTER : 4th (C)

SESSION– SUMMER (2022-23)

SUBJECT: ENERGY CONVERSION-1

NAME OF FACULTY: Smt. Snehalata Samal

Discipline: **Electrical Engg.**	Semester: **4th (C)**	Name of the teaching faculty: **Smt.SnehalataSamal**
Subject-**EC-1**	No. of Days/per week class allotted: **05PERIODS /WEEK (TUE-1period,WED-1 period,THU-1 period,FRI-1 period,SAT-1 period)**	Semester: From Date: **14/02/2023** To Date:**23/05/2023** No. of weeks: **15 WEEKS**
Week	**Class Day**	**Theory/PracticalTopics**
1st(14/02/2023-18/02/2023)	14/02/2023	**1. D.C GENERATOR** 1.1 Operating principle of generator
	15/02/2023	1.2 Constructional features of DC machine 1.2.1 Yoke, Pole & field winding, Armature, Commutator
	16/02/2023	1.2.2 Armature winding, back pitch, Front pitch, Resultant pitch and commutator- pitch.
	17/02/2023	1.2.3 Simple Lap and wave winding, Dummy coils
	18/02/2023	.MAHA SHIVARATRI
2nd(20/02/2023-25/02/2023)	21/02/2023	1.3 Different types of D.C. machines (Shunt, Series and Compound)
	22/02/2023	1.4. Derivation of EMF equation of DC generators. (Solve problems)
	23/02/2023	1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.
	24/02/2023	1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.
	25/02/2023	1.6. Armature reaction in D.C. machine
3rd(27/02/2023-04/03/2023)	28/02/2023	1.7. Commutation and methods of improving commutation. 1.7.1. Role of inter poles and compensating winding in commutation.
	01/03/2023	1.8. Characteristics of D.C. Generators
	02/03/2023	1.9. Application of different types of D.C. Generators. 1.10. Concept of critical resistance and critical speed of DC shunt generator
	03/03/2023	1.11. Conditions of Build-up of emf of DC generator

	04/03/2023	1.12. Parallel operation of D.C. Generators.
4th(06/03/2023-11/03/2023)	07/03/2023	**DOLA PURNIMA....**
	08/03/2023	**HOLI FESTIVAL**
	09/03/2023	1.13. Uses of D.C generators.
	10/02/2023	**2. D. C. MOTORS** 2.1 Basic working principle of DC motor
	11/03/2023	2.2. Significance of back emf in D.C. Motor
5TH(13/03/2023-18/03/2023)	14/03/2023	2.3 Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
	15/03/2023	**CLASS TEST 1**
	16/03/2023	2.3 Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
	17/03/2023	2.3 Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
	18/03/2023	2.4 Derive torque equation (solve problems)
6TH(20/03/2023-25/03/2023)	21/03/2023	2.5 Characteristics of shunt, series and compound motors and their application.
	22/03/2023	2.6. Starting method of shunt, series and compound motor
	23/03/2023	2.7.Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
	24/03/2023	2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
	25/03/2023	2.8. Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method
7th(27/03/2023-01/04/2023)	28/03/2023	2.9. Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)
	29/03/2023	2.10. Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems)
	30/03/2023	**Ram Navami....**
	31/03/2023	2.11 Losses, efficiency and power stages of D.C. motor(solve numerical problems)

	01/04/2023	**UTKAL DIWAS**
8th(03/04/2023-08/04/2023)	04/04/2023	2.11 Losses, efficiency and power stages of D.C. motor(solve numerical problems)
	05/04/2023	2.12. Uses of D.C. motors
	06/04/2023	**3. SINGLE PHASE TRANSFORMER** 3.1 Working principle of transformer.
	07/04/2023	**GOOD FRIDAY**
	08/04/2023	3.2 Constructional feature of Transformer. 3.2.1 Arrangement of core & winding in different types of transformer
9th (10/04/2023-15/04/2023)	11/04/2023	3.3 State the procedures for Care and maintenance.
	12/04/2023	3.4 EMF equation of transformer.
	13/04/2023	**CLASSTEST 2**
	14/04/2023	**AMBEDKAR JAYANTI**
	15/04/2023	3.5 Ideal transformer voltage transformation ratio
10th (17/04/2023-22/04/2023)	18/04/2023	3.6 Operation of Transformer at no load, on load with phasor diagrams.
	19/04/2023	3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer.
	20/04/2023	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.
	21/04/2023	3.9 To explain Equivalent circuit and solve numerical problems
	22/04/2023	3.9 To explain Equivalent circuit and solve numerical problems
11th (24/04/2023-29/04/2023)	25/04/2023	3.10 Approximate & exact voltage drop calculation of a Transformer. 3.11 Regulation of transformer.
	26/04/2023	**INTERNAL ASSESSMENT**
	27/04/2023	**INTERNAL ASSESSMENT**
	28/04/2023	3.12 Different types of losses in a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)

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12th (01/05/2023-06/05/2023)	02/05/2023	3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems) 3.14 Explain All Day Efficiency (solve problems)
	03/05/2023	3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems) 3.14 Explain All Day Efficiency (solve problems)
	04/05/2023	3.15 Determination of load corresponding to Maximum efficiency
	05/05/2023	**BUDHHA PURNIMA**
	06/05/2023	3.16 Parallel operation of single phase transformer
13th (08/05/2023-13/05/2023)	09/05/2023	**4. AUTO TRANSFORMER** 4.1. Constructional features of Auto transformer.
	10/05/2023	4.2. Working principle of single phase Auto Transformer.
	11/05/2023	**QUIZ TEST**
	12/05/2023	4.3. Comparison of Auto transformer with an two winding transformer (saving of Copper).
	13/05/2023	**CLASS TEST 3**
14th (15/05/2023-20/05/2023)	16/05/2023	4.4. Uses of Auto transformer
	17/05/2023	4.5. Explain Tap changer with transformer (on load and off load condition)
	18/05/2023	5. INSTRUMENT TRANSFORMERS 5.1 Explain Current Transformer and Potential Transformer
	19/05/2023	5.2 Define Ratio error, Phase angle error, Burden
	20/05/2023	5.3 Uses of C.T. and P.T.
15th (15/05/2023-20/05/2023)	23/05/2023	REVISION AND DISCUSSION