LESSON PLAN

Name of the Institute:	C. V. RAMAN POLYTECHNIC
Department:	ELECTRICAL ENGINEERING
Semester/Division/Branch:	4th SEM/EE
Subject Name with code:	ENERGY CONVERSION-I(TH-1)
Total No. of Class (Required):	60
Faculty Name:	MAHUPRACHI NAYAK

Class No.	*Brief description of the Topic/Chapter to be taught*	Remarks
1	Operating principle of generator .	
2	Constructional features of DC machine	
3	Yoke, Pole & field winding, Armature, Commutator	
4	Armature winding, back pitch, Front pitch, Resultant pitch and commutator-pitch.	
5	Armature winding, back pitch, Front pitch, Resultant pitch and commutator-pitch.	
6	Simple Lap and wave winding, Dummy coils.	
7	Different types of D.C. machines (Shunt, Series and Compound)	
8	Derivation of EMF equation of DC generators. (Solve problems)	
9	Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.	
10	Armature reaction in D.C. machine	
11	Commutation and methods of improving commutation.	
12	Commutation and methods of improving commutation.	
13	Role of inter poles and compensating winding in commutation.	
14	Characteristics of D.C. Generators	
15	Application of different types of D.C. Generators.	
16	Concept of critical resistance and critical speed of DC shunt generator .	

17	Parallel operation of D.C. Generators & Uses of D.C generators.	
18	Basic working principle of DC motor .	
19	Significance of back emf in D.C. Motor.	
20	Voltage equation of D.C. Motor and condition for maximum power output(simple problems)	
21	Voltage equation of D.C. Motor and condition for maximum power output(simple problems)	
22	Voltage equation of D.C. Motor and condition for maximum power output(simple problems)	
23	Derive torque equation (solve problems)	
24	Characteristics of shunt, series and compound motors and their application	
25	Starting method of shunt, series and compound motors.	
26	Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems	
27	Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method	
28	Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	
29	Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	
30	Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	
31	Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems)	
32	Losses, efficiency and power stages of D.C. motor(solve numerical problems) , Uses of D.C. motors	
33	Working principle of transformer.	
34	Arrangement of core & winding in different types of transformer.	
35	Brief ideas about transformer accessories such as conservator, tank, breather, and explosion vent etc.	
36	Explain types of cooling methods	
37	State the procedures for Care and maintenance.	
38	EMF equation of transformer.	

39	Ideal transformer voltage transformation ratio	
40	Operation of Transformer at no load, on load with phasor diagrams.	
41	Equivalent Resistance, Leakage Reactance and Impedance of transformer.	
42	To draw phasor diagram of transformer on load, with winding Resistance and	
43	Magnetic leakage with using upf, leading pf and lagging pf load.	
44	To explain Equivalent circuit and solve numerical problems.	
45	Approximate & exact voltage drop calculation of a Transformer.	
46	Regulation of transformer.	
47	Different types of losses in a Transformer. Explain Open circuit and Short Circuit	
48	test.(Solve numerical problems)	
49	Explain Efficiency, efficiency at different loads and power factors, condition for	
50	maximum efficiency (solve problems)	
51	Explain All Day Efficiency (solve problems)	
52	Determination of load corresponding to Maximum efficiency.	
53	Constructional features of Auto transformer & working principle	
54	Comparison of Auto transformer with an two winding transformer (saving of Copper).	
55	Uses of Auto transformer ,Explain Tap changer with transformer (on load and off load condition)	
56	Explain Current Transformer and Potential Transformer	
57	Explain Current Transformer and Potential Transformer	
58	Define Ratio error, Phase angle error, Burden.	
59	Define Ratio error, Phase angle error, Burden.	
60	Uses of C.T. and P.T.	

Signature of the Faculty

Signature of the H.O.D