

**LESSON PLAN-2022-2023**  
**SWAMI VIVEKANANDA SCHOOL OF ENGG & TECH, BBSR**

<b>Discipline- ELECTRICAL</b>	<b>Semester-4TH</b>	<b>Name of teaching faculty- ARUN KU. PRUSTY</b>
<b>SUBJECT- ENERGY CONVERSION-1</b>	<b>No of days/ per week class allotted-5</b>	<b>SEM From date- 20/02/2023 No of weeks-</b>
<b>Week</b>	<b>Class day</b>	<b>Theory Topics</b>
03 WEEK		<b>D.C GENERATOR</b>
4TH	2/20/2023	Operating principle of generator
	2/21/2023	Constructional features of DC machine: Yoke, Pole & field winding, Armature, Commutator.
	2/22/2023	Armature winding, back pitch, Front pitch, Resultant pitch and commutator- pitch.
	2/23/2023	Simple Lap and wave winding, Dummy coils.
	2/24/2023	Different types of D.C. machines (Shunt, Series and Compound)
	2/25/2023	Derivation of EMF equation of DC generators. (Solve problems)
		Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.
	2/27/2023	Armature reaction in D.C. machine
	2/28/2023	Commutation and methods of improving commutation.
1ST	3/01/2023	Role of inter poles and compensating winding in commutation.
	3/02/2023	Characteristics of D.C. Generators
	3/03/2023	Application of different types of D.C. Generators
	3/04/2023	Concept of critical resistance and critical speed of DC shunt generator
2ND	3/06/2023	Conditions of Build-up of emf of DC generator.
	3/07/2023	Parallel operation of D.C. Generators.
	3/09/2023	Uses of D.C generators.
	3/10/2023	<b>D. C. MOTORS</b>
	3/11/2023	Basic working principle of DC motor
3RD	3/13/2023	Significance of back emf in D.C. Motor.
	3/14/2023	Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
	3/15/2023	Derive torque equation (solve problems)
	3/16/2023	Characteristics of shunt, series and compound motors and their application.
	3/17/2023	Starting method of shunt, series and compound motors.
	3/18/2023	Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
4TH	3/20/2023	Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method

	3/21/2023	Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)
	3/22/2023	Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems)
	3/23/2023	Losses, efficiency and power stages of D.C. motor(solve numerical problems)
	3/24/2023	Uses of D.C. motors
	3/25/2023	<b>SINGLE PHASE TRANSFORMER</b>
5TH	3/27/2023	Working principle of transformer.
	3/28/2023	Constructional feature of Transformer
	3/29/2023	Arrangement of core & winding in different types of transformer.
	3/31/2023	Brief ideas about transformer accessories such as conservator, tank, breather, and explosion vent etc.
1ST	4/3/2023	Explain types of cooling methods
	4/4/2023	State the procedures for Care and maintenance.
	4/5/2023	EMF equation of transformer.
	4/6/2023	Ideal transformer voltage transformation ratio
	4/8/2023	Operation of Transformer at no load, on load with phasor diagrams.
2ND	4/10/2023	Equivalent Resistance, Leakage Reactance and Impedance of transformer.
	4/11/2023	To draw phasor diagram of transformer on load, with winding Resistance and Magnetic leakage with using upf, leading pf and lagging pf load.
	4/12/2023	To explain Equivalent circuit and solve numerical problems
	4/13/2023	Approximate & exact voltage drop calculation of a Transformer.
	4/15/2023	Regulation of transformer.
3RD	4/17/2023	Different types of losses in a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)
		Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)
	4/18/2023	Explain All Day Efficiency (solve problems)
	4/19/2023	Determination of load corresponding to Maximum efficiency.
	4/20/2023	Parallel operation of single phase transformer.
	4/21/2023	<b>AUTO TRANSFORMER</b>
	4/22/2023	Constructional features of Auto transformer.
4TH	4/24/2023	Working principle of single phase Auto Transformer.
	4/25/2023	Comparison of Auto transformer with an two winding transformer (saving of Copper).
	4/26/2023	Uses of Auto transformer.

	4/27/2023	Explain Tap changer with transformer (on load and off load condition)
	4/28/2023	<b>INSTRUMENT TRANSFORMERS</b>
	4/29/2023	Explain Current Transformer and Potential Transformer
1ST	5/1/2023	Define Ratio error, Phase angle error, Burden.
	5/2/2023	Uses of C.T. and P.T.
	5/3/2023	Various applications of c.t and p.t.
	5/4/2023	Numerical solved
	5/5/2023	Previous year Question discussion.

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PRINCIPAL