LESSION PLAN 4TH SEMESTER(2020-21)				
SUBJECT-Th1. ENERGY CONVERSION - I				
MONTH	MODULE/UNIT	COURSE TO BE COVERED	TOTAL NO. OF CLASS	REMARK
APRIL	**UNIT-1**	**DC GENERATORS**	**17**	
		1.1.Operating principle of generator	01	
		1.2.Constructional features of DC machine.	01	
		1.2.1. Yoke, Pole & field winding, Armature, Commutator.	01	
		1.2.2. Armature winding, back pitch, Front pitch, Resultant pitch and commutator- pitch.	01	
		1.2.3. Simple Lap and wave winding, Dummy coils.	01	
		1.3.Different types of D.C. machines (Shunt, Series and Compound)	01	
		1.4. Derivation of EMF equation of DC generators. (Solve problems)	01	
		1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.	01	
		1.6. Armature reaction in D.C. machine.	01	
		1.7. Commutation and methods of improving commutation.	01	
		1.7.1. Role of inter poles and compensating winding in commutation.	01	
		1.8.Characteristics of D.C. Generators	01	
		1.9. Application of different types of D.C. Generators.	01	
		1.10.Concept of critical resistance and critical speed of DC shunt generator	01	
		1.11. Conditions of Build-up of emf of DC generator.	01	
		1.12. Parallel operation of D.C. Generators.	01	
		1.13.Uses of D.C generators	01	
MAY	**UNIT-2**	**2.D. C. MOTORS**	**15**	

		2.1.Basic working principle of DC motor	01	
		2.2. Significance of back emf in D.C. Motor.	01	
		2.3.Voltage equation of D.C. Motor and condition for maximum power output(simple problems)	02	
		2.4.Derive torque equation (solve problems)	02	
		2.5. Characteristics of shunt, series and compound motors and their application.	01	
		2.6. Starting method of shunt, series and compound motors.	01	
		2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems	01	
		2.8.Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method	01	
		2.9.Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	01	
		2.10.Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems)	02	
		2.11.Losses, efficiency and power stages of D.C. motor(solve numerical problems)	01	
		2.12.Uses of D.C. motors	01	
MAY	**UNIT-3**	**3.SINGLE PHASE TRANSFORMER**	**20**	
		3.1 Working principle of transformer.	01	
		3.2 Constructional feature of Transformer.	01	
		3.2.1 Arrangement of core & winding in different types of transformer.	01	
		3.2.2 Brief ideas about transformer accessories such as	01	

		conservator, tank, breather, and explosion vent etc.		
		3.2.3 Explain types of cooling methods	01	
		3.3 State the procedures for Care and maintenance.	01	
		3.4 EMF equation of transformer.	01	
		3.5 Ideal transformer voltage transformation ratio	01	
		3.6 Operation of Transformer at no load, on load with phasor diagrams.	01	
		3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer.	01	
		3.8 To draw phasor diagramof transformer on load, with winding Resistance and Magnetic leakage with using pf, leading pf and lagging pf load.	01	
		3.9 To explain Equivalent circuit and solve numerical problems.	01	
		3.10 Approximate & exact voltage drop calculation of a Transformer.	01	
JUNE		3.11 Regulation of transformer.	01	
		3.12 Different types of lossesin a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)	01	
		3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)	01	
		3.14 Explain All Day Efficiency (solve problems)	02	
		3.15 Determination of load corresponding to Maximum efficiency.	01	
		3.16 Parallel operation of single phase transformer.	01	
JUNE	**UNIT-4**	**4. AUTOTRANSFORMER**	**03**	
		4.1. Constructional features of Auto transformer.	01	
		4.2. Working principle of single phase Auto Transformer.	01	

		4.3. Comparison of Auto transformer with an two winding transformer (saving of Copper).		
		4.4. Uses of Auto transformer. 4.5. Explain Tap changer with transformer (on load and off load condition)	01	
JUNE	**UNIT-5**	**5.INSTRUMENT TRANSFORMERS**	05	
\		1.1 Explain Current Transformer and Potential Transformer	02	
		1.2 Define Ratio error, Phase angle error, Burden.	02	
		1.3 Uses of C.T. and P.T.	01	