

## Department of Electrical and Electronics Engineering

### Lesson Plan & Work-done Diary for AY:2023-24, ODD Semester

Course with Code: Power Electronics_21EE54				Faculty: Dr Sathish K R			Semester & Section: 5th Sem	
Class No.	Date planned (DD/MM M)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
<b>MODULE-1</b>								
1		<b>Introduction:</b> Applications of Power Electronics,	Chalk & Talk	1				
2		Types of Power Electronic Circuits,	Chalk & Talk	2				
3		Peripheral Effects, Characteristics and Specifications of Switches.	Chalk & Talk	3				
4		Characteristics of diodes and applications of diodes.	Chalk & Talk	4				
5		Types of diodes and reverse recovery characteristics.	Chalk & Talk	5				
6		Diode switched R load and RL load.	Chalk & Talk	6				
7		Freewheeling Diodes with Switched RL Load.	Chalk & Talk	7				
8		<b>Diode Rectifiers:</b> Introduction, Single-Phase Full-Wave Rectifiers with R Load	Chalk & Talk	8				
9		Single-Phase Full-Wave Rectifier with a RL load and highly Inductive Load	Chalk & Talk	9				
10		Solving Numerical and evaluation of Module using SRS/Mock Test.	Chalk & Talk	10				

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<b>MODULE-2</b>								
11		<b>Power Transistors:</b> Introduction, Power Transistor – Steady State Characteristics	Chalk & Talk	11				
12		Switching Characteristics of BJT	ICT	12				
13		Steady State Characteristics of MOSFET	ICT	13				
14		Switching Characteristics of MOSFET, Switching Limits,	ICT	14				
15		Solving numerical on characteristics of BJT & MOSFET	Chalk & Talk	15				
16		IGBTs, MOSFET Gate Drive circuits	Chalk & Talk	16				
17		BJT Base Drive circuits	Chalk & Talk	17				
18		Isolation of Gate and Base Drives	ICT	18				
19		Pulse transformers and Optocouplers	Chalk & Talk	19				
20		Solving numerical on-base drive requirements Evaluation of Module using SRS/Mock Test	Chalk & Talk	20				

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<b>MODULE-3</b>								
21		<b>Thyristors:</b> Introduction and Types	Chalk & Talk	21				
22		Characteristics: Thyristor Turn- On characteristics.	ICT	22				
23		Thyristor Turn-Off characteristics, Two-Transistor Model of Thyristor,	Chalk & Talk	23				
24		Solving numerical on Two – Transistor model	Chalk & Talk	24				
25		Series and Parallel Operation of Thyristors,	Chalk & Talk	25				
26		$di/dt$ Protection, $dv/dt$ Protection,	ICT	26				
27		Solving numerical on parallel operation on thyristors.	Chalk & Talk	27				
28		DIACs, Thyristor Firing Circuits,	ICT	28				
29		Unijunction Transistor.	Chalk & Talk	29				
30		Solving numerical on-firing circuits of thyristor and evaluation of Module using SRS/Mock Test	Chalk & Talk	30				

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<b>MODULE-4</b>								
31		<b>Controlled Rectifiers:</b> Introduction, Single-Phase Full Converters,	Chalk & Talk	31				
32		Single-Phase Dual Converters,	ICT	32				
33		Three- Phase Full Converters,	Chalk & Talk	33				
34		Three-Phase Dual Converters,	ICT	34				
35		Solving numerical on Controlled rectifiers	Chalk & Talk	35				
36		<b>AC Voltage Controllers:</b> Introduction, Single-Phase Full-Wave Controllers with Resistive Loads,	ICT	36				
37		Single- Phase Full-Wave Controllers with Inductive Loads	ICT	37				
38		Three-Phase Full-Wave Controllers	Chalk & Talk	38				
39		Solving numerical on AC voltagecontrollers	Chalk & Talk	39				
40		Solving numerical on AC voltage controllers and evaluation of Module.	Chalk & Talk	40				

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<b>MODULE-5</b>								
41		<b>DC-DC Converters:</b> Introduction, principle of step down with RL load.	Chalk & Talk	41				
42		Principle of step-up chopper with RL load	Chalk & Talk	42				
43		Performance parameters of Step-up and step-down chopper	Chalk & Talk	43				
44		DC-DC converter classification	ICT	44				
45		Solving numerical on DC-DC converters	Chalk & Talk	45				
46		<b>DC-AC converters:</b> Introduction, principle of operation single-phase bridge inverters	Chalk & Talk	46				
47		Principle and operation of three-phase bridge inverters	ICT	47				
48		Voltage control of single-phase inverter	ICT	48				
49		Harmonic reductions and current source inverter	Chalk & Talk	49				
50		Solving numerical & Evaluation of Module using SRS/Mock Test	Chalk & Talk	50				

## Department of Electrical and Electronics Engineering

	Activity	Planned	Actual	Remarks
1	Theory Classes	50		
2	Assignments/ Quizzes/ Self-study	5		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	30		
<b>Planning</b>			<b>Execution</b>	
<b>Faculty Signature:</b>			<b>Faculty Signature:</b>	
<b>HoD Signature:</b>			<b>HoD Signature:</b>	