



COURSE PLAN -PART I			
Name of the programme and specialization	III Year B.Tech, EEE		
Course Title	POWER ELECTRONICS LABORATORY		
Course Code	EELR15	No. of Credits	02
Course Code of Pre-requisite subject(s)	EEPC21		
Session	July 2022	Section	A
Name of Faculty	Dr. Sundareswaran K.	Department	EEE
Email	kse@nitt.edu	Telephone No.	0431-2503255
Pre-requisites of Course Code	Basics of SCR,IGBT,MOSFET and Pulse generation, Basics of Electronics Circuits.		
Course Coordinator(s) (if, applicable)	Dr. Manoranjan Sahoo		
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
<ol style="list-style-type: none">1. Demonstration of SCR firing.2. Demonstration of IGBT firing.3. DC – DC converter employing power MOSFET.4. Design, fabrication, and implementation of UJT firing circuit.5. Experiments on AC – DC converter.6. Experiments on DC – DC converter.7. Experiments on DC – AC converter.8. Experiments on AC – AC converter .9. Performance characteristics of speed control of AC – motors.10. Mini Project.			
COURSE OBJECTIVES			
<ul style="list-style-type: none">• To enable the students to develop hands-on experience in analyzing, designing and carrying out experiments on various electrical networks by make use of power electronic components. It aims to familiarize the switching devices, power converters and their applications in various systems for power control.			



Course Outcomes	Aligned Programme Outcomes (PO)					
Upon completion of the course, the students will be able to 1. Understand the characteristics of various switching devices and appreciate its applications in various electrical networks/systems. 2. Analyze and design the operation of power switching converters. 3. Develop practical control circuits for various real time applications. 4. Analyze and prepare the technical report on the experiments carried out. Develop practical control circuits for various real time applications using different switching devices.	COs / POs	Course Outcomes (COs)				
		1	2	3	4	
	Programme Outcomes (POs)	1	M	H	M	H
		2	H	M	M	H
		3	H	H	M	M
		4	M	H	H	H
		5	L	L	L	L
		6	L	L	L	M
		7	M	M	H	H
		8	M	H	M	H
		9	NA	NA	NA	NA
		10	M	M	M	M
		11	L	M	M	H
		12	M	H	M	M
		13	L	M	M	M
14		L	L	L	M	

COURSE PLAN –PART II

COURSE OVERVIEW

The primary goal of this course is to give an in-depth laboratory experience in design, operation, characterization, and application of electronic circuits for conversion and control of electrical energy. The course aims to study and explore the characteristics of switching devices and its applications in various power converter circuits. Application of different electronic devices for conversion, control conditioning of electrical power help students to get an overview of different types of power semiconductor devices and their switching characteristics to understand the operation and switching techniques.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	Weeks 1 to 8 (14 Sessions)	1. Demonstration of SCR firing. 2. Demonstration of IGBT firing. 3. DC – DC converter employing power MOSFET. 4. Design, fabrication, and implementation of UJT firing circuit. 5. Experiments on AC – DC converter.	Experiment/hardware development



2	Weeks 9 to 17 (16 sessions)	6. Experiments on DC - DC converter. 7. Experiments on DC - AC converter. 8. Experiments on AC - AC converter. 9. Performance characteristics of speed control of AC - motors. 10. Minor Project.	Experiment/hardware development
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Mode of Assessment				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Experimental results, observations and records	-	-	50
2	Minor Project	-	-	20
3	Lab Experimental Evaluation	-	-	30

COURSE EXIT SURVEY

Feedback from the students during class committee meetings.

COURSE POLICY

COMPENSATION ASSESSMENT POLICY

Attending all the assessments (Assessment 1-3) are MANDATORY for every student.

ATTENDANCE POLICY

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC HONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC



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chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programs.

ADDITIONAL INFORMATION: ---

FOR APPROVAL

Course Faculty Imolagudi CC-Chairperson Dalay HOD [Signature]