



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BANGALORE - 560109

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CO-PO Mapping

Course: POWER ELECTRONICS			
Type: Core		Course Code: 15EC73	
No of Hours			
Theory (Lecture Class)	Practical/Field Work/Allied Activities	Total/Week	Total teaching hours
5	0	5	50
Marks			
Internal Assessment	Examination	Total	Credits
20	80	100	4
Aim/Objectives of the Course			
<ol style="list-style-type: none"> 1. Understand the construction and working of various power devices. 2. Study and analysis of thyristor circuits with different triggering conditions. 3. Learn the applications of power devices in controlled rectifiers, converters and inverters. 4. Study of power electronics circuits under various load conditions. 			
Course Learning Outcomes			
After completing the course, the students will be able to			
CO1	Understand the characteristics of various power semiconductor devices and its control characteristics		Understanding (K2)
CO2	Understand the working principle of SCRs, its characteristics, turn-on and turn-off methods and designing of gate triggering circuits.		Applying (K3)
CO3	Understand the working principle of thyristor circuits such as controlled rectifiers AC voltage controllers, its analysis, design and application.		Applying (K3)
CO4	Understand the working principle of choppers, analyze the basic types of DC-DC converters and identify its performance parameters.		Applying (K3)
CO5	Understand the working the principle of PWM inverters and to make use of the knowledge of thyristor in design of inverters.		Applying (K3)
Syllabus Content			
Module 1			CO1
Introduction - Applications of Power Electronics, Power Semiconductor Devices, Control Characteristics of Power Devices, types of Power Electronic Circuits, Peripheral Effects.			10 hrs
Power Transistors: Power BJTs: Steady state characteristics. Power MOSFETs: device operation, switching characteristics, IGBTs: device operation, output and transfer characteristics, di/dt and dv/dt limitations.			PO1-3 PO2-2 PO3-1 PO6-1 P12-1
LO: At the end of this session the student will be able to <ol style="list-style-type: none"> 1. Identify and discuss the different types of power semiconductor devices 2. Explain the control and steady state characteristics of power devices. 3. Explain different power electronic circuits and identify the different types of 			PSO1-3 PSO2-1

