1.	Title of the course	Power Electronics
2.	Course number	EE401L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To EE4101/8
6.	To be offered by	Department of Electrical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To introduce basics of power electronic devices and converters. Working principles, operating modes and analysis of DC-DC, DC-AC, AC-DC, and AC-AC converters would be covered for a variety of loads. Control of power electronic converters would be explained. Certain specialized concepts in power electronics like matrix converter, active rectifiers and SiC/GaN devices would be included, along with some of the popular applications of power electronics such as renewable energy conversion and power quality enhancement.	
10.	**Course Content:** Introduction and applications of power electronics; Difference between power electronics and low power analog electronics; Characteristics of semiconductor power devices: diode, thyristor, triac, GTO, MOSFET, IGBT; Diode rectifiers; Single and three phase configuration of uncontrolled and controlled rectifiers; Line commutated thyristor based converters; DC to DC conversion: buck, boost and buck-boost converters; Bidirectional AC to DC voltage source converters; Issues of line current harmonics; Power factor; Distortion factor of ac to dc converters; Single phase and three phase inverters; Sinusoidal pulse width modulation.	
11.	**Textbook(s):** 1. Rashid M H, *Power Electronics*, Pearson Education (2018).	
12.	**Reference(s):** 1. Mohan N, Undeland and Robbins, *Power Electronics: Converters Applications and Design*, Wiley India (2018).	