

1.	Title of the course	Advanced Power Electronics
2.	Course number	EE4021
3.	Status of the course	Elective
4.	Structure of credits	3-0-0-3
5.	Offered to	UG
6.	New course/modification to	New course
7.	To be offered by	Department of Electrical Engineering
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective(s):</b> To introduce different practical applications of power electronics in DC-DC, DC-AC and AC-DC power conversions through modeling and control of power electronic converters. To introduce new converters for high power applications.	
12.	<b>Course Content:</b> Modeling and voltage control of DC-DC converters, current programmed control of DC-DC converters, modeling and control of single phase and three phase AC-DC converters, power factor correction in single phase and three phase AC-DC converters, modeling and control of grid connected single phase and three phase DC-AC inverters, multilevel converters for high power drives, dual active bridge and triple active bridge converters and control.	
13.	<b>Textbook(s):</b> 1. Rashid M, <i>Power Electronics: Devices, Circuits and Applications</i> , 4th Edition, Pearson Education (2017). 2. Umanand L, <i>Power Electronics: Essentials and Applications</i> , 1st Edition, Wiley (2009).	
14.	<b>Reference(s):</b> 1. Bhimbra P S, <i>Power Electronics</i> , 1st Edition, Khanna (1990). 2. Mohan N, Undeland T, <i>Power Electronics: Converters Applications and Design</i> , 3rd Edition, Wiley (2013).	