

1.	Title of the Course	Compound Semiconductor Devices
2.	Course Number	EE5033
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Electrical Engineering
8.	To take effect from	January 2020
9.	Prerequisite	CoT
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce the properties of most widely used compound semiconductors, high-speed devices and circuits.	
12.	Course Content: High-speed performance metrics for devices and circuits, Si based devices for high-speed operation and their limitations, technology of compound semiconductor devices and their suitability for high speed operation, metal-semiconductor contacts and MOS devices, Metal Semiconductor Field Effect Transistors (MESFETs), High Electron Mobility Transistors (HEMTs), Heterojunction Bipolar Transistors (HBTs), optoelectronic devices: solar cells, photodiodes, LEDs and LASERS on compound semiconductors, high-speed circuits: direct coupled FET Logic, Schottky diode FET logic, FET Amplifiers and MMICs.	
13.	Text book(s): 1. Gandhi S K, <i>VLSI Fabrication Principles: Silicon and Gallium Arsenide</i> , John Wiley & Sons (2013).	
14.	Reference(s): 1. Ashburn P, <i>SiGe Heterojunction Bipolar Transistors</i> , John Wiley & Sons (2003). 2. Chang C Y and Kat F, <i>GaAs high speed devices: Physics, Technology and circuit applications</i> , John Wiley & Sons (1994). 3. Shur M, <i>GaAs Devices & Circuits</i> , Plenum Press (1987). 4. Sze S M, <i>High Speed Semiconductor Devices</i> , John Wiley & Sons (1990).	