

1.	Title of the Course	Applied Electronics
2.	Course Number	PH5109
3.	Status of the Course	Core
4.	Structure of Credits	2-0-3-4
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Physics
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective:</b> To introduce students with basic electronic principles, modern semiconductor devices, their characteristics and application circuits. To help the students to develop the ability to design and test electronic circuits on their own.	
12.	<b>Course Content:</b> Resistors, capacitors; Thevenin's, Norton's and superposition theorems; Diodes; Transistors; Integrated circuits; Operational amplifiers: feedback, mathematical operations, application circuits, active filters, non-linear circuits, comparators, relaxation oscillator; Digital circuits: binary arithmetic, logic gates, combinational logic and code converters, flipflops, registers, counters, displays, analog to digital and digital to analog converters; Arduino Uno-features, programming and applications; Related laboratory experiments using operational amplifiers, 555 Timers, universal logic gates, binary ripple counter, Wien-Bridge oscillator and ultrasonic range finder using Arduino Uno.	
13.	<b>Text book(s):</b> 1. Horowitz P and Hill W, <i>The Art of Electronics</i> , Cambridge University Press (2015). 2. Malvino A and Bates D J, <i>Electronic Principles</i> , McGraw-Hill Education (2017).	
14.	<b>Reference(s):</b> 1. Boylestad R L and Nashelsky L, <i>Electronic Devices and Circuit Theory</i> , Pearson Education India (2015). 2. Floyd T L, <i>Digital Fundamentals</i> , Pearson Education (2017). 3. Mano M M and Ciletti M D, <i>Digital Design</i> , Pearson Education India (2018).	