

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

1.	Title of the Course	Basic Electrical Engineering
2.	Course Number	ES1201
3.	Status of the Course	Core
4.	Structure of Credits	3-1-0-4
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Electrical Engineering
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective:</b> To familiarize students with basic electronic principles, modern semiconductor devices, their characteristics and application circuits. This course will also help the students to develop the ability to design and test electronic circuits on their own.	
12.	<b>Course Content:</b> Introduction: resistors, capacitors and inductors, Thevenin's, Norton's and superposition theorems, diodes, types of diodes, transistors, BJT, FET, characteristics, integrated circuits; Operational amplifiers: feedback, mathematical operations, application circuits, active filters, non-linear circuits, comparators, relaxation oscillator; Fundamentals of digital circuits: binary arithmetics, logic gates, combinational logic and code converters, flipflops, registers, counters, 7-segment displays, AD and DA converters; Arduino Uno-features: programming and applications.	
13.	Text book(s): 1. Malvino A P, <i>Electronic Principles</i> , McGraw-Hill (1999). 2. Horowitz P and Hill W, <i>The Art of Electronics</i> , Cambridge University Press (1989).	
14.	Reference(s): 1. Boylestad R and Nashelsky L, <i>Electronic Devices and Circuits</i> , Pearson Education (2015). 2. Mano M M and Ciletti M D, <i>Digital Design</i> , Pearson Education (1989). 3. Floyd T L , <i>Digital Fundamentals</i> , Pearson (2014). 4. Francis B, <i>Arduino: The Complete Beginner's Guide - Step By Step Instructions</i> , Kindle Edition (2016).	