INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Concepts in Engineering & Design
2.	Course Number	ID1101
3.	Status of the Course	Core
4.	Structure of Credits	1-0-2-2
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Engineering Departments
8.	To take effect from	July 2018
9.	Prerequisite	
10.	Whether approved by the Department	Yes
11.	**Course Objective:** The purpose of this course is to introduce engineering to the first year undergraduate students. The objective is to familiarize the students with the field of engineering, various disciplines, functions, challenges, skills, design, ethics, importance of teamwork etc. At the end of the course students are expected to be cognizant of the role of an engineer in society.	
12.	**Course Content:** Introduction to General Engineering: (7 Lectures) What is Engineering? Difference between Science, Engineering & Technology. History of Engineering. Origin of formal engineering degrees. Achievements of Engineers; Engineering Disciplines and related fields. Engineering functions, Characteristics of engineers. Traits of engineers. Engineering Education: Bloom Taxonomy; Information and Mathematics required for problem solving; Engineering examples using Algebra, Trigonometry, Differential equations, ODEs & PDEs; Tables & graphs; SI units; Conversions; Engineering Design; Engineering challenges; Ethics; Communication skills; Team work; Attitude. **Part 2** (6 Lectures) Introduction to Civil, Chemical, Computer Science, Electrical and Mechanical Engineering (parallel classes), Overall perspective of each engineering mentioned above, exciting examples, challenges and road map for the next 3.5 years of B Tech. **Part 3** Simple hands on projects.	
13.	Text book(s): 1. Mark T. Holtzapple,, W. Dan Reece, *Concepts in Engineering,* McGraw – Hill, (2005). 2. Kuldip S. Rattan, Nathan W. Klingbeil, *Introductory Mathematics for Engineering Applications,* John Wiley and Sons, (2015).	
14.	Reference(s): -----	