INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Basic Structural Steel Design
2.	Course Number	CE3101
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 Civil Engineering
8.	To take effect from	July 2018
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	**Course Objective:** This course introduces the Limit State Design (LSD) philosophy and the design of steel structural elements as per IS 800: 2007. This course mainly emphasises on the design of tension members, compression members, column bases, beams, beam-columns and their connections using welds and bolts.	
12.	**Course Content:** Introduction: types of structural steel, mechanical properties of steel, cold work and strain hardening, advantages of steel as a structural material, types of steel structural system, codes and specifications and failure theories for ductile material; Introduction to LSD; Design of tension members; Introduction to buckling and design of compression members; Laced and battened columns; Design of laterally supported and unsupported beams; Beam-columns; Bolted and welded connections subjected to in-plane and out of plane loading; Splice connections and base plates subjected uniform compression combine with uniaxial moment.	
13.	Text book(s): 1. Narayanan R, Kalyanaraman V, Santhakumar A R, Seetharaman S, Kumar S, Jayachandran A S and Senthil R, *Teaching Resource Materials for Structural Steel Design (1,2 & 3 Volumes)*, INSDAG Publications (2005). 2. Subramaniam N, *Design of Steel Structures : Limit State Method* , Oxford Higher Education (2008).	
14.	Reference(s): 1. Arya A S and Ajmani J L, *Design of steel structures*, Nem Chand & Bros (2007). 2. Sairam K S, *Design of Steel Structures*, Pearson Publications (2015). 3. INS/PUB/114, *Design Manual for Designing Steel Structures According to New IS:800*, INSDAG Publications (2010). 4. IS 800 : 2007, *Code of Practice for General Construction in Steel*, Bureau of Indian Standards (2007).	