INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Surveying
2.	Course Number	CE2103
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
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 will introduce surveying terminology and techniques in compliance with land surveying standards. The students will be able to calculate and adjust survey data to analyze errors and derive unknown bearings, distances and coordinates. This course will describe the theoretical principles of optical instruments of surveying and application to construct profiles, cross-sections, mass haul diagram, and contour lines, calculate areas and volumes. The students will learn basics of Electronic Distance Measurement (EDM) instruments and Geographical Information Systems (GIS).	
12.	**Course Content:** Introduction, an overview of plane surveying; Distance: distance measurement conventions and methods, use of tape, electronic distance measurement (EDM); Directions: meridians, azimuths and bearings, declination computations angle measurements, vernier transits, theodolites, electronic theodolites, tachometric surveying; Levelling: concept and terminology, differential levelling instruments, field methods, contouring; Traverse: using theodolite, plane table, methods of adjustments, areas by coordinates; Construction surveys: introduction, building siting, foundation layout etc; Earthwork: longitudinal section, cross section; Volume computations, prismoidal correction; Introduction to top geodetic surveying, remote sensing and global positioning system; Introduction to Geographic Information System (GIS).	
13.	Text book(s): 1. Arora, K R, *Surveying*, Standard Book House (2016). 2. Pradip, K G, *Remote Sensing for the Beginner*, East-West Press (2003).	
14.	Reference(s): 1. Schofield, W and Breach, M, *Engineering Surveying*, Spon Press (2017). 2. Subramanian, R, *Surveying and Levelling*, Oxford University Press (2012).	