

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Robotics and Automation
2.	Course Number	EE6023
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Dr. PS Saikrishna
8.	To take effect from	July 2019
9.	Prerequisite	Student should have completed Control Engineering or Linear dynamical systems course before
10.	Whether approved by the Department	Yes
11.	Course Objective: To understand the importance of robotics in scientific and industrial domains. To introduce mathematical aspects of robotics such as spatial transformations, kinematics, dynamics, trajectory generation, actuators and control.	
12.	Course Content: Introduction to robotics; Elements of robots; Kinematics of serial and parallel robots; Velocity and static analysis of robots; Dynamics of robots; Motion planning and control; Flexible manipulators; Wheeled mobile robots; Advanced concepts in robotics; Introduction to Cloud and Fog robotics; Basic concepts of industrial automation and communication protocols for PLC, DCS, SCADA systems; Introduction to Internet of Things, Protocols and real time applications.	
13.	Text book(s): 1. Bruno S and Sciavicco L, <i>Robotics: Modelling, Planning and Control</i> , Springer (2009). 2. John J C, <i>Introduction to Robotics: Mechanics and Control</i> , Addison-Wesley (1989).	
14.	Reference(s): 1. Fu K S, Ralph G and Lee C S G, <i>Robotics: Control Sensing, Vision, and Intelligence</i> , Tata McGraw-Hill (1987). 2. Mukhopadhyay S, Sen S and Deb A K, <i>Industrial Instrumentation, Control and Automation</i> , Jaico (1999). 3. Rajkumar B and Dastjerdi A V, <i>Internet of Things: Principles and Paradigms</i> , Morgan Kaufmann (2016).	