II YEAR SEM-1I B.Tech CSE	CORE	L	T	P	C
CODE:CS2205	INTRODUCTION TO ROBOTICS	1	1	0	2

UNIT I (Introduction to Robotics)

What is robot and robotics, already designed robots, Manual and Autonomous robots, Different types of industrial ARM robots, and arm design, Coordinate transformations for more motor moments, Electrical connections of different boards and modules: How to connect closed circuit, digital and analog pins connections.

Unit II (Logic design, Actuators and sensors)

Logic and binary math conversions:OR, AND, XOR, XNOR gates, binary and hexadecimal conversions,Introduction to Arduino, Actuators, Sensors, Wired and wireless communication, I/O communication through USB cable, Bluetooth HC05, RF modules, DTMF module, Xbee modules.

Unit III (Basic robots and Raspberry pi)

Line follower:Line follower robot design and control with arduino board, Obstacles avoider: Obstacle avoider robot with IR sensors and arduino board, Mobile controller: Mobile controller robot with DTMF module and HC05 module, Introduction to Raspberry pi: What is raspberry and differences between arduino and raspberry pi, Applications of robotics.

Text Books:

1. John J. Craig - Introduction to Robotics: Mechanics and Control, Pearson, Upper Saddle River, NJ, 2005.
2. Marco Schwartz - Internet of Things with Arduino Cookbook.

Reference Books:

1. Myke Predko, "Programming Robot Controllers" – McGrawHill, 1st edition, 2003.
2. Murphy Robin R," Introduction to AI Robotics", MIT Press, 2000.
3. Siegwart R and Nourbakhsh I.R, "Introduction to Autonomous mobile Robots", Prentice Hall India, 2005.

Video Reference:

Title	Expert Name	Affiliation	Weblink
Introduction to Robotics	Prof. Khatib	Stanford University	**https://see.stanford.edu/Course/CS223A**