SEMESTER	*DEPARTMENT*	*COURSE TITLE*
Eighth	*Control Engineering*	*Robotic*
COURSE CODE	*HOURS:* 3	*COURSE SPECIFICATIONS*
EC805	*UNITS:* 3	*Theoretical Content*

1. Introduction:

➢ Introduction to Robotics. Types of Robots. Robotics used in industry and mobile robots. Robot sensing, light sensors, sonar sensors (Ultrasound) and visual sensing, Position and velocity sensing.

➢ Robot motion and path planning, degrees of motion freedom. Homogeneous transformations, Direct kinematics, Inverse kinematics of joint actuator systems. Robotic Dynamic and modelling using state-space representation.

➢ Robotic Programming and Control.

➢ Robotic Localization, Monte Carlo Localisation.

➢ Obstacle avoidance.

➢ Place recognition and occupancy mapping..

➢ Six freedom robots used in the industry and their programming.

➢ Robotic design using PID, feedback linearization and adaptive controllers.

➢ Application of Intelligent controllers in Robotics.

References:

1. J. Craig "Introduction to Robotics: Mechanics & Control", 3rd Ed. Prentice-Hall, ISBN: 0-201-54361-3.

2. raig J J, "*Introduction to Robotics, Mechanics and Control",* Pearson Education, New Delhi (2004).
3. Saeed B Niku "*Introduction to robotics"* Pearson Education, New Delhi (2003).
4. Mikell P. Weiss G.M., N.G industrial Robotics, McGraw-Hill Singapore.1996

5. Ghosh Control in robotics and automation: sensor Based Integration, Allied Publishers, Chennai.1998

* Recommended Simulation Programs can be either MATLAB or LABVIEW.