



ME 625 Introduction to Robotics

Prerequisites: undergraduate differential equations, kinematics and demonstrated competence in computer programming and ME 616. (May be taken concurrently.)

Number of credits: 3

Description: Introduction to robotics, and computer-controlled programmable robotic manipulators; robot geometries; kinematics of manipulators; differential motion; work space planning and trajectory control; dynamics; robot sensing, and robot programming.

Instructor: Dr. Zhiming Ji
Office: MEC 305
Phone/Email: 973-596-3341, ji@njit.edu

Text: Introduction to Robotics: Mechanics and Control, by John J. Craig, 3rd Ed. 2005, Prentice Hall, ISBN 0-201-54361-3

Grading:	Weekly Homework	30%
	Project	20%
	Midterm Exam	25%
	Final Exam	25%

Topics:

- Introduction
- Robot Structure and Workspace
- Spatial Transformations
- Orientation Matrices
- Forward Kinematics
- Inverse Kinematics
- Jacobian and Singularities
- Trajectory Generation
- Dynamics and Control
- Robot Programming

Week 3: Project Assigned
Week 8: Midterm Exam
Week 14: Project presentation, Project Report due
Week 15: Final Exam.

NJIT HONOR CODE

All Students should be aware that the Department of Mechanical Engineering takes the NJIT Honor Code very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the Honor Code, students are obligated to report any such activities to the Instructor.