ME/EID 458 **Industrial Robots**

Course Description: Basic concepts, techniques, and limitations of modern industrial robots; industrial automation; robot programming languages; definition and description of a robot work space; application of transform and operator matrices in industrial robotics. Student projects include computer programming of forward and inverse kinematics and application programming with industrial robots via ROS and Python.
3 credits; 3 contact hours.

Prerequisite: ME200 and MA240 or permission of instructor.

Instructor: **Dirk Martin Luchtenburg** (dluchten@cooper.edu)
41 Cooper Square, Room 719
Mili Shah (mili@cooper.edu)
41 Cooper Square, Room 311

Lectures: Tuesday, 02:00PM - 03:50PM, 41 Cooper Square, Room 503/806
Thursday, 11:00AM - 11:50AM, 41 Cooper Square, Room 104

Office Hours: Tuesday, 10:30AM - 12:00PM, 41 Cooper Square, Room 311/719

Participation: Please contribute to the classroom environment by asking questions and participating in discussions. Your interaction will be considered when assigning borderline grades, as will improving performance throughout the course of the semester.

Grading: ROS Projects: (10% of final grade)
Exam: Thursday, February 27 (30% of final grade)
Exam: Thursday, April 9 (30% of final grade)
Final Project: Tuesday, May 12 (30% of final grade)
Note: We reserve the right to adapt exam/project dates.

Homework: Weekly written homework will be assigned but not graded. Collaboration is encouraged on these assignments but note the exams will be graded individually.

ROS Projects: Applications of industrial robotics will be presented through an online simulation platform: `http://theconstructsim.com`. Projects/exams will be presented through this platform and automatically graded. Collectively these projects will be worth 10% of the final grade.

Late policy: No work will be accepted late without prior arrangement or a written excuse. Neither exam or final project may be made up without prior arrangement or a written excuse.

Suggested Texts: Corke, *Robotics, Vision, and Control*, Springer
Murray et. al, *A Mathematical Introduction to Robotic Manipulation*, CRC Press
Sicilliano et. al, *Robotics, Modelling, Planning and Control*, Springer
Craig, *Introduction to Robotics: Mechanics and Control*, Pearson

Cell Phones: Cell phones are not permitted in class unless in off or silent mode.

Disabilities: If you believe you are entitled to an accommodation on assessments through the Americans with Disabilities Act, you must self-identify to the Office of the Dean of Students and meet with me during the first week of the term to discuss arrangements for meeting your accommodation.