

CSCE 274 - Robotic Applications and Design

Credit Hours: 3 hours

Contact Hours: 3 lecture hours

Instructor: Drs. O’Kane and Rekleitis

Required Textbooks: Maja J. Mataric, *The Robotics Primer*, The MIT Press, 2007.

Bulletin Description: Design and control of robots. Interactions between robots, sensing, actuation, and computation.

Prerequisites: CSCE 146

Required Course in CE, CIS, and CS programs

Learning Outcomes: Students will be able to:

1. Describe the components of modern robot systems.
2. Apply robotic control architectures.
3. Implement autonomous navigation and planning on mobile robot platforms.

Student (Program) Outcomes addressed by course (Detailed mappings of these course outcomes to the Student Outcomes of the programs are in the detailed syllabus and the Assessment plan.)

Student Program Outcomes	SOs supported	SOs Moderately supported
Computer Engineering	a, b, c, e	j, k
Computer Information Systems		
Computer Science		

Topics covered and approximate weight:

1. History (2 hours)
2. Control architectures (10 hours)
3. Sensing (8 hours)
4. Robot motion (5 hours)
5. Robot programming (4 hours)
6. Uncertainty (5 hours)
7. Multi-robot systems (2 hours)
8. Biomemetic robots (2 hours)
9. Reviews and Exams (4 hours)