



ME 412 **AUTONOMOUS MOBILE ROBOTS**

Fall 2025

Time: Tuesday 6-9 PM

Place: Classroom (Rm 427), Mechatronics Laboratory, and Machine Shop

Instructor: Ericson Mar

Contact: Ericson Mar, Dr. Melody Baglione

The objective of the course is to build a mobile robot capable of competing in a competitive robot tank battle game. This course introduces basic concepts, technologies, and limitations of autonomous mobile robots. Topics include digital and analog I/O, tactile sensing, IR sensing and range finding, light sensing, sonar, magnetic field sensing, inertia sensing, encoders, electric motor actuators, high-level microprocessor control, low-level microprocessor control, power management, and prototyping. Students will form teams to design and build autonomous mobile robots configured to compete in a singles-match game, or to perform a team-oriented task. During the semester, students are expected to demonstrate progress on the development of their robot and complete project assignments that will lead to the final competition-ready robot and accompanying quality research paper.

To get an idea of the contents of this course, please visit:

<http://faculty.cooper.edu/mar/>

Students will be required to pay some basic expenses for project material.

Prerequisites: ME/EID 353 or ECE 251. Limited space is available.