



ROBOTICS SPECIALIZATION

Enhance your degree by applying **Mechanical Engineering** principles to solve problems in **robotics** and related fields.

Students interested in **robotics** can select courses from **robotics, mechatronics, controls,** and related courses to fulfill their technical elective requirements within the BSME program.

RECOMMENDED COURSES

Technical Electives (12 credits)

- ME/ECE 439 – Introduction to Robotics (3)
- ME/ECE 441 – Kinematics, Dynamics, and Control of Robotic Manipulators (3)
- ME 601 Special Topics – Automation Systems Integration Lab (3)
- ME 446 – Introduction to Feedback Control (3)
- ME 458 – Introduction to Feedback Control of Autonomous Systems (3)
- ME 468 – Computer Modeling and Simulation of Autonomous Vehicles and Robots (3)
- ME/ECE 577 – Automatic Controls Laboratory (4)
- EMA 542 – Advanced Dynamics (3)
- ME 601 Special Topics (New Courses):
 - Advanced Robotics: Modern Motion Planning, Estimation and Control (3)
 - Microrobotics (3)
 - Marine Robotics (3)
- Related Analytical / Math Subjects:
 - ECE 334 – State Space Systems Analysis
 - ECE 524 – Introduction to Optimization (3)
 - ECE/ME/COMP SCI 532 – Matrix Methods in Machine Learning (3)



SUGGESTED EXTRACURRICULARS

- Wisconsin Robotics
- Wisconsin Autonomous
- BadgerFly
- Insight Wisconsin
- Formula Electric
- American Society of Mechanical Engineers (ASME)
- Undergraduate Research



CAREER POSSIBILITIES

- Autonomous Transportation
- Healthcare Robotics
- Sensor Technology
- Mechatronic Systems Design
- Natural Resources & Agriculture
- Inspection and Maintenance
- Defense and Security
- Internet of Things

**Specializations are not formal, but rather a list of recommended tech elective courses and/or experiences to specialize in a certain area. Specializations do not appear on transcripts.*



Mechanical Engineering
UNIVERSITY OF WISCONSIN-MADISON