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 446 – Introduction to Feedback Control (3)
- ME 455 – Microrobotics (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)
- ME 578 - Marine Robotics (3)
- EMA 442 – Advanced Dynamics (3)
- ME 738: Advanced Robotics: Modern Motion Planning, Estimation and Control (3)
- ME/EMA/ECE/EP/COMPSCI 759: High Performance Computing for Applications in Engineering (3)
- COMP SCI 580: Intelligent Robotics (3)
- Related Analytical / Math Subjects:
  - ECE 334 – State Space Systems Analysis (3)
  - ECE/COMP SCI/ISYE 524 – Introduction to Optimization (3)
  - ECE/ME/COMP SCI 532 – Matrix Methods in Machine Learning (3)

SUGGESTED EXTRACURRICULARS

- Wisconsin Robotics
- Wisconsin Humanoids
- RoboMaster
- Wisconsin Autonomous
- BadgerFly
- Wisconsin Racing
- 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.*

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UNIVERSITY OF WISCONSIN-MADISON