Robotics Clubs

Robotics Team: designs an autonomous robot for an annual regional competition

Unmanned Aerial Systems: designs an autonomous air drone for competition

Robotic Mining Competition: designs a mining rover for a NASA competition

3D Print Club: 3D printing is just a very specific type of robot

Robotics is all around us.

Go to an amusement park and you’ll find a life-size dinosaur stalking its prey. Or how about manufacturing where robotic technology provides an economic edge to the US economy. And, what about those places you can’t go, like the depths of the oceans or far away planets. Robots are serving us in various ways and their continued advancement will make a significant impact in the workplace and in our homes.

For more information
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Department of Mathematics and Computer Science
SD Mines offers a minor in robotics. Since it crosses many disciplines, it’s a great way to enhance any program of study.

### Robotics @ Mines

Our minor has a strong base in programming because it is the software of robotics that is the growing area of the industry. It is an interesting area to study since it can range from exploration, defense, security, to advanced manufacturing.

We have several student clubs focused around robotics. Each of these teams accepts students in the freshmen year and trains them from zero background to expert level.

### Required Courses

- Calculus III (Math 225)
- Data Structures (CSC 300)
- Introduction to Robotics/Lab (CSC 415/415L)

### Additional 6 Credits from the following approved courses:

- Introduction to Computer Vision (CSC/CENG 414)
- Advanced Algorithms for Robotics (CSC 416)
- Digital Image Processing (CSC 442)
- Artificial Intelligence (CSC 447)
- Computer-Controlled Manufacturing Systems and Robotics (IENG 475/475L)
- Mechatronics and Measurement Systems/Lab (ME/EE 351)
- Introduction to Dynamic Systems (ME 352)
- Robotic Control Systems/Lab (CENG 452/452L)

### Your Future

Graduates have the knowledge and skills to work on commercial, military and NASA projects as they design and build intelligent autonomous systems capable of interacting with the environment and performing complex tasks.

### Advanced Degree

Students who find their niche in robotics can enroll in the accelerated master’s degree in Computational Sciences and Robotics (CSR) completing both a bachelor’s and master’s degree in as little as five years.

The primary objective of the CSR program is to give students a basic understanding of the mechanical, electrical and computing systems needed to participate in advanced mobile intelligent robotics applications.

The program covers:

- the essentials of robotics
- artificial intelligence
- control
- communications
- sensors and signal processing
- pattern recognition
- computer vision
- nonlinear control
- digital signal processing
- communications