



Robotics at Rose-Hulman



Industry Partners

The robotics program is grateful for support received from the following organizations in the form of curriculum guidance, advisory board representation, student and faculty internships, project sponsorship, and gifts of cash, equipment, and time:

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| Advanced Circuits | Alcoa |
| Automotive Insight | Bastian Solutions |
| Beckman Coulter | Elphel |
| FIRST Robotics | Garmin |
| iRobot | KISS Institute for Practical Robotics |
| LEGO | National Instruments |
| MicroStrain | Raytheon |
| Precise Path Robotics | Silicis Technologies |
| Rockwell Collins | |

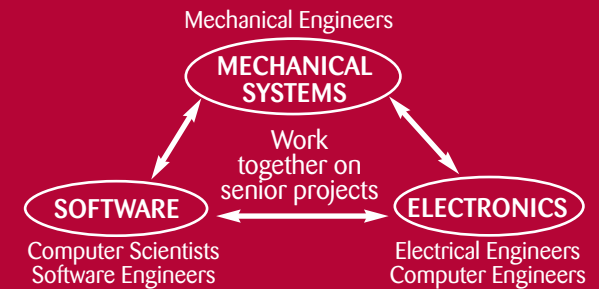
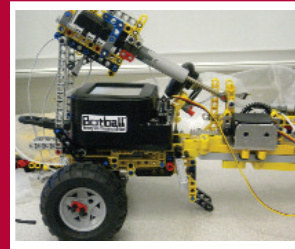
CONTACT INFORMATION

Multidisciplinary Minor in Robotics
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Why Robotics?

From programs such as FIRST and Botball, many students have had experience with robots and know how fun and cool they can be. But, did you know that robots are also great for making connections between computing, engineering, science and mathematics? Working with robots gives you a broader understanding of your chosen major, helps you understand how to work on multidisciplinary teams, and increases your marketability upon graduation.

There are many types of robots including humanoid, mobile, industrial, surgical, insect and many more. Robots are mechanical systems with electrical controls and sensors given intelligence through software. Thus, the design, programming and construction of robots requires the collaboration of Biomedical, Computer, Electrical, Mechanical and Software Engineers, as well as Computer Scientists, Mathematicians and others.

Does this sound like something you would be interested in? Well, we have the perfect program for you!

Rose-Hulman offers a **multidisciplinary minor in robotics** that you can tailor to your own interests. Students majoring in Computer, Electrical, Mechanical, and Software Engineering, or in Computer Science, can typically complete the minor without overloading. Students in other disciplines should contact the robotics faculty to discuss their interest.

Web: robotics.rose-hulman.edu

Multidisciplinary Minor in Robotics

The multidisciplinary minor in robotics requires seven courses chosen from one of several tracks. Most students can complete the minor in their four years at Rose-Hulman without overloading.

How do you start?

First, enroll in *Introduction to Software Development – Robotics* (CSSE120) during your freshman year to gain your first exposure to software development, using iRobot Create® robots.



Then, select one of several tracks, based upon your interests. A typical track focuses on two or three areas chosen from controls, mechanics, software, electronics, sensors, biomechanics and more.

You also choose electives from courses like Mobile Robotics, Artificial Intelligence, Robotics Engineering, Advanced Kinematics, Wireless Systems, Microsensors, Swarm Intelligence, and Robotics & Teamwork.

In your senior year, you complete a three-term, multidisciplinary senior design project in robotics, working with students from other majors. Design projects from previous years have included a gripper for a pipetting robot for filling vials, a robot to deliver sodas from a machine to faculty offices, a robotic caster system for moving pieces around on stage at a theatre, and an interactive manipulator at the Terre Haute Children's Museum.

Careers

Graduates of the multidisciplinary minor in robotics have increased marketability based upon their firsthand knowledge of multidisciplinary teamwork; the development of software on a physical system; and increased knowledge of topics related to robotics, including artificial intelligence, controls, kinematics, computer vision, image processing, microcontrollers, embedded systems, and system design. Some graduates of the program go on to graduate school in robotics, some work as automation consultants for small and large companies, or simply apply the skills they learned in the program to science and engineering careers.

Robotics Team

The robotics team welcomes students interested in designing mobile robots for regional competitions. Previous experience is welcome but not required.



The team has competed for over 10 years, first in the International Aerial Robotics Competition, now in the Intelligent Ground Vehicle Competition and MATE-ROV (remotely operated underwater vehicle) competition. The team also volunteers in outreach programs like Blue Key's Youth Science Day, Botball and First Lego League.

For more information, visit the team's web site:

rhitorobotics.org