

Introduction to Robotics

July 27-31, 2014



Audience

Introduction to Robotics was attended by 25 participants (21 males, 4 females, 40% minority), ranging in grade from high school sophomores to seniors. Participants came from all over the United States, including one student from Brazil. Participants were selected based on completed applications and review of high school transcripts.

Funding

Participants pay a fee of \$770, which covers all academic sessions, fun activities, as well as room and board.

Objectives

Goals for the Introduction to Robotics program are:

- To explore the engineering fields involved with robotics
- To develop teamwork and problem-solving skills
- To expose students to current research related to robotics engineering
- To gain experience in programming and building robots
- To provide participants with an authentic university experience and environment

Description

Intended for high school students interested in the growing field of robotics, this program focuses on providing a broad overview of the different applications of and different career options related to robotics. Students are more specifically introduced to the integration of robotics within different fields of engineering.

During several hands-on sessions working with VEX and VEX IQ robotics, students built and programmed robots. Additionally, participants attended short lectures and lab tours centered on biomimetic robotic fish, nanorobotics, mechatronics, evolutionary robotics, and manufacturing automation, including a tour of the General Motors Delta Assembly Plant floor.

The program includes approximately 30 intentional contact hours with MSU College of Engineering faculty, graduate students, and undergraduate students.

Outcomes

Participants completed a post-evaluation, providing the below feedback on several program aspects:

- Prior to the program, 52% of students reported having moderate to very good understanding of robotics, which improved to 96% upon completion
- 100% of participants rated the program as “Good” or “Excellent”
- All participants agreed that program instructors were knowledgeable about their area, helpful, and easy to approach and ask questions.
- The highest-rated sessions were VEX Robotics, VEX IQ Robotics, GM plant tour, nanomaterials lab tour and evolutionary robotics lab tour

Participant testimonials:

- “The best part was being able to create our robots and operate them to engage in games and with other robots”
- “It has expanded my horizons to consider any career or field and to maintain an open mind”
- “It increased my confidence in problem-solving”
- “It inspired me to someday become an engineer and to work with robotics”

Additional Significant Information

Introduction to Robotics incorporated topics from faculty and research related to Robotics Engineering for Better Life and Sustainable Future, as part of the National Science Foundation’s Research Experiences for Teachers program in partnership with the College of Engineering.

Contact Information

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