

CASPER COLLEGE COURSE SYLLABUS
ROBO 2616 Robot Construction

Semester/Year: Fall 2015

Lecture Hours: 0

Lab Hours: 4

Credit Hours: 2

Class Time: 6:00 - 9:50 p.m.

Days: Th

Room: GW 102/103

Instructor's Name: Megan Graham

Instructor's Contact Information:

Office Phone: 268-2539

Office: GW 116D

Email: mgraham@caspercollege.edu

Office Hours: M,T,W,Th: 12:00-1:00 p. m.
T, W: 5:00-6:00 p. m.

Course Description:

This is an advanced class in robotics. Students will be working on complex projects in designing, building, and programming a robot. Students will gain advanced experience in fabrication, electronics, computer programming, physics, and teamwork.

Statement of Prerequisites:

None

Institutional Outcomes:

- Demonstrate effective oral and written communication
- Use the scientific method
- Solve problems using critical thinking and creativity
- Demonstrate knowledge of diverse cultures and historical perspectives
- Appreciate aesthetic and creative activities
- Use appropriate technology and information to conduct research
- Describe the value of personal, civic, and social responsibilities
- Use quantitative analytical skills to evaluate and process numerical data

Program Goals:

1. To provide comprehensive training in the fields of electronics technology, so that the associate degree graduate is technically qualified to obtain employment in the electronics industries or an allied field.
2. To provide the necessary training for graduates to continue on to advanced training in an electronics program or a related four-year program.

Course Goal:

- To provide an environment in which students must solve complex design and electromechanical problems as they build a robot.
- To enhance teamwork skills.
- To develop leadership and mentoring skills.

Course Objectives:

- Design of a robot given some specifications.
- Build the robot
- Program tasks for a robot to perform
- Demonstrate leadership and team building skills

Methodology:

Weekly activities will introduce students to new skills as they build a robot. Each week a question-and-answer or presentation will test for understanding of skills learned. Students' teamwork will be graded based on team functioning and improvement. Group discussions will provide an environment to learn about leadership and mentoring. The robot may be judged by outside judges. Students are required to participate in Service Learning activities outside of the class time. These activities will be discussed in class.

Evaluation Criteria:

Activities	20%
Robot Project Evaluation	30%
Teamwork	10%
Robot Presentation	20%
Service Learning	20%
TOTAL	100%

Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.

Required Text, Readings, and Materials:

None

Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade: Thursday, November 12, 2015

Student Rights and Responsibilities: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Vice President for Academic Affairs.

Academic Dishonesty: (Cheating & Plagiarism) Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly. This is also where you will find course evaluation links during course evaluation periods.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college's Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor

is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

Safety: Personal and equipment safety standards will be strictly enforced. It is the individual's responsibility to develop a safe work attitude.

Calendar or schedule indicating course content:

WEEK	CONTENT	LAB
1	Safety Class projects First Robotics	Safety
2	Project Planning Service Learning Projects	Project Flow Chart Parts List Robot Dismantle
3	Labor Day Holiday	No Class
4	Robot Frame Large and Small Robots	Frame Drawing Cut Metal and Welding <i>Progress Evaluation</i>
5	Robot Motion: Motors	Motor Demonstration Cut Metal and Welding
6	Robot Motion: Pneumatics	Pneumatic Demonstration Cut Metal and Welding
7	Drive: Chains, Belts and Gears	Motor Selection Motor Mounting Drive Selection
8	Robot Electrical	Drive Mounting <i>Progress Evaluation</i>
9		Wiring Diagram Wiring
10	Robot Sensors	Sensor Selection
11		Sensor Mounting Wiring Diagram Addition
12	Robot Programming	Robot Programming <i>Progress Evaluation</i>
13	Robot Programming	Robot Programming
14	Robot Testing	Robot Testing
15	Thanksgiving Holiday	No Class
16	Robot Testing	Robot Testing <i>Progress Evaluation</i>
Final	Demo Robots	Demo Robots Robot Presentation Service Learning Reflections