Robotics in the World (PS)

ENGR1070-401

Course Description

Robotics technology influences every aspect of work and home life. This technology, a cornerstone application of physical laws, has evolving usage in many fields that will be discussed in this class such as: healthcare, agriculture, aerospace, business, and everyday society. This course also introduces students to the basic concepts of programming robotics.

Semester(s): All

Robotics technology influences every aspect of work and home life. This technology has evolving usage in many fields that will be discussed in this class such as: healthcare, agriculture, aerospace, business, and everyday society. This course also introduces students to the basic concepts of programming robotics.

Course Student Learning Outcomes

- Apply physical science principles to describe behaviors and characteristics of robotics.
- Investigate current applications of robotics in engineering, chemistry, physics and biology.
- Recognize tools and processes used in the field of robotics while visiting a robotics facility.
- Differentiate between realistic outcomes achievable with robotics and the speculative outcomes described in science fiction.
- Evaluate the potential and dangers of robotics.
- Demonstrate proficiency in the use of databases to obtain published scientific information for inclusion in research papers and class presentations.
- Use the scientific method while participating in a final group project programming their own robot.

Course Prerequisites

none.

Communication Plan

I will respond to email within 1-2 business days. I will offer feedback on major assignments within 1-2 weeks. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.

Keys for Success (how to succeed in the course)

For students to be successful in this course, the following actions and student engagement activities are strongly recommended and encouraged:

1. Attend class, take notes, and participate in class activities. Complete all your assignments, and do your best.

2. Read and study the lecture notes, slides, and the relevant handouts.

3. Dedicate at least three hours outside of class for assignments for every one hour spent in class.

4. Use the STEM Learning Resource Center for free tutoring. See their hours here: https://www.slcc.edu/stem/tutoring/stem-learning-resources-hours.aspx

5. Do not hesitate to ask questions.

6. Turn on your Canvas Notifications so that when announcements are posted about the course you get notified immediately.

7. Be familiar with the late policy for this course.

PS

There will be no textbook for this course. Regular assignments will often include readings, which will be provided as needed.

Brief Description of Assignments/Exams

HOMEWORK:

Each homework assignment will be unique, so please pay attention to the individual requirements. Professional, well-organized, and complete assignments are required for full credit. Late assignments are not accepted. However, the lowest homework score will be dropped. Assignments that are submitted after each unit exam will not be accepted, and no assignments will be accepted after the final exam.

EXAMS:

Exams may include a mixture of exercises and questions that will assess how well you understand and can apply the concepts and skills that are covered throughout the course. If you will be absent on the date of an exam is due, it is your responsibility to let me know before hand, and we can make alternative arrangements.

E-PORTFOLIO

Each student in General Education courses at SLCC maintains a General Education ePortfolio.Instructors in every Gen Ed course will ask you to put at least one assignment from the

course into your ePortfolio, and accompany it with reflective writing. It is a requirement in this class for you to add to your ePortfolio, and this syllabus details the assignments and reflections you are to include. Your ePortfolio will allow you to include your educational goals, describe your extracurricular activities, and post your resume. When you finish your time at SLCC, your ePortfolio will then be a multi-media showcase of your educational experience. For detailed information visit: https://www.slcc.edu/eportfolio.

If you would like in-person help with your ePortfolio please visit an ePortfolio Lab on the Taylorsville-Redwood, Jordan, or South City Campus during business hours, and staff will help you. No appointment necessary. You can also make an online or phone appointment with a lab specialist. For lab hours, locations, and appointments please look at the following site: https://www.slcc.edu/eportfolio/remote.aspx

ACADEMIC INTEGRITY:

Although working together is a good way to learn, it's not effective if only one partner does the work and the other just copies. I hope you do help each other with homework, but you are responsible for understanding the material, and producing your own assignment submission. Homework that is turned in and is identical or substantially the same as another student's will be given a grade of 0. If this happens more than once, both students will be asked to withdraw from the class, or will receive a grade of E if it is past the drop date. Turning in a copy of my solution is also considered cheating and will have the same consequence listed above. Tests must be your own work – no collaboration is permissible and will be considered cheating. Persons observed cheating on a test will receive a grade of E in the class.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Exam 1 Curve	Assignment	0
	Introduce Yourself	Discussion	0
	Roll Call Attendance	Assignment	100
8/27	Week 1 Class Notes: History of Robotics	Assignment	10
8/29	Lab Assignment 1: Assemble the Robot	Assignment	10
8/29	Software Download	Assignment	10

Due Date	Assignment Name	Assignment Type	Points
9/2	Week 2 Class Notes: Library Research	Assignment	10
9/3	Technical Paper Research	Discussion	10
9/5	Lab Assignment 2: LEGO Classroom Introduction	Assignment	10
9/9	Week 3 Class Notes: Science Fiction	Assignment	10
9/12	Lab Assignment 3: Robot Movement and Loops	Assignment	10
9/16	Week 4 Class Notes: Manufacturing	Assignment	10
9/19	Lab Assignment 4: Selection Structures	Assignment	10
9/25	Exam 1 Review	Assignment	10
9/26	Exam 1	Assignment	100
9/30	Week 5 Class Notes: Automotive	Assignment	10
10/3	Create ePortfolio	Assignment	10
10/10	Lab Assignment 5: Relational Operators	Assignment	10
10/16	Week 8 Class Notes: Order Fulfillment	Assignment	10

Due Date	Assignment Name	Assignment Type	Points
10/16	Week 7 Class Notes: Aviation	Assignment	10
10/23	Week 9 Class Notes: Space Exploration	Assignment	10
10/24	Lab Assignment 6: Complex Algorithms	Assignment	10
11/1	Exam 2 Review	Assignment	10
11/4	Week 10 Class Notes: Biotechnology	Assignment	10
11/5	Exam 2	Assignment	100
11/7	Lab Assignment 7: Distance Competition	Assignment	10
11/14	Lab Assignment 8: 3D Printing Basics	Assignment	10
11/18	Week 12 Class Notes: Agriculture	Assignment	10
11/21	Lab Extra Credit: 3D Printing Design	Assignment	10
11/26	Lab Signature Project: Autonomous Robot	Assignment	100
12/2	Week 14 Class Notes: Medical	Assignment	10

Due Date	Assignment Name	Assignment Type	Points
12/3	Technical Paper Presentation	Assignment	50
12/5	Final Exam Review	Assignment	10
12/11	Final Exam	Assignment	100

Grading Scale

Grading for this course is divided into the following components: 25% homework (exercises, quizzes, readings), 10% ePortfolio signature project, 40% exams, and 25% lab assignments.

Grades will be assigned according to the following scales:

A	93-100	
A-	90-92	
B+	87-89	
B	83-86	
B-	80-82	
C+	77-79	
C	73-76	
C-	70-72	
D	61-69	
E	<60	

How to Navigate to Canvas

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar