SOUTHERN
MAINE
COMMUNITY
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South Portland, Maine 04106

Academic Department

Title: Introduction to Robotics	Catalog Number: CSCI 104
Credit Hours: 3	Total Contact Hours: 45
Lecture (or Lab): Lecture	Instructor: Kshanti Greene
Office Hours – Location:	Contact Information:
	kgreene@smccme.edu

Course Syllabus

Course Description

This course is an introduction to robotics using the Arduino microcontroller system. The course covers basic electronics, mechanics, and programming concepts. The projects are intended to enhance the student's' problem-solving skills, creativity, and logical reasoning abilities. There will be a number of in-class labs and a large final project requiring in-class work with a group. Outside reading and homework may also be required.

Prerequisite: Successful completion of Math 50 or equivalent.

Text, Tools and / or Supplies

Recommended:
Getting Started in Electronics, by Forrest Mims

Course Objectives

Students completing this course will understand basic electronics concepts.

Students completing this course will understand basic mechanics concepts, such as simple machines and small motors.

Students completing this course will understand basic programming concepts, such as how to control triggers, signals, and small motors.

After successfully completing the course, the student will be able to:
 •   Create circuits using a modular microcontroller architecture.
 •   Control electronic and mechanical components using programming commands.
 •   Design basic robots to perform a relatively simple function.
 •   Prototype robots by combining skills they gained in electronics, mechanics, and programming.

- Troubleshoot problems with their circuits and robots.
- Work in a team.
- Describe the outcome of experiments and work in writing.

This course seeks to develop the following core abilities:

Global Awareness / Diversity
- Identify resources and strategies needed to problem solve and/or achieve goals inclusive of diverse perspectives and experiences.
- Demonstrate the ability to work collaboratively with people from diverse backgrounds in pursuit of a common objective or goal utilizing interpersonal skills that are essential to team building, conflict resolution and cross-cultural communication.

Critical Thinking
- A student can interpret information logically by selecting and organizing relevant facts and opinions and identifying the relationships among them.
- A student can analyze an issue or problem by separating it into its component parts and investigating the relationship of the parts to the whole.
- A student can synthesize information by combining ideas from multiple sources to come to an independent conclusion.
- A student can evaluate information by making informed judgments as to whether the information is accurate, reliable or useful.
- A student can apply theory to practice.

Communications
- Demonstrate a command of the English language
- Identify and extract relevant data from written and oral presentations

Quantitative Methods
- Recognize problems that can be solved with quantitative methods
- Identify the quantitative components of a problem
- Select and appropriate mathematical method to solve a problem
- Demonstrate accurate computational and/or algebraic skills to solve a problem
- Estimate the reasonableness of answers to problems

Student Evaluation and Grading

Students will complete 10 or so circuit labs and a large final team project. Most labs and project work will be conducted in class so attendance is critical.

10 in-class labs	35%
Final Team Project	40%
Quizzes	10%
Attendance and Participation	15%

Attendance Policy

You are required, as stated in the college handbook, to attend all classes. This course relies on work done in class. As such, attendance is strictly enforced. 15% of the student's grade is dependent on attendance and participation, and many of the assignments cannot be completed outside of class. Email the instructor to alert them of a planned absence.

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. You will receive an e-mail to your student e-mail account when course evaluations are available.

ADA Syllabus Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

SMCC Pay-for-Print Policy

Each semester students receive a $20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses, usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct