

**Manufacturing Technology, MTEC 70, 2 Units, Basic Robotics**  
**August 26 - December 11 (16 Weeks)**

No Class on November 27 due to Thanksgiving Break

Division of Industry & Technology    310-660-3600

1:00-1:30PM	Tu, Th Lecture	..... Bob Diaz.....	TA-105
1:30-3:05PM	Tu, Th Lab	..... Bob Diaz.....	TA-105
Section 7702		rdiaz@elcamino.edu	
310-660-3593    x4209    voicemail only			

El Camino College is committed equal employment and educational opportunities for all individuals, regardless of race, color, ancestry, religion, gender, national origin, martial status, sexual orientation, handicap, age, and Vietnam-era status.



**Required Text:** All course materials are provided. This includes the handouts for this class. I **STRONGLY** suggest you get a 3 ring binder to hold all the materials.

**Course Discription:** In this course, students will explore the technologies used to fabricate model robotic systems. Additional topics covered include basic electronics theory, electro-mechanical fabrication, micro-controller operation, machining processes, metal fabrication, and careers in technology. Project building and problem solving will be stressed.

**Course Prerequisite:** None

**Course Objectives:**

- Complete a safety test with 100% accuracy.
- Interpret schematic diagrams to assemble self-propelled robots.
- Use a soldering iron and electronic assembly tools to make electrical and mechanical connections.
- Program operational tasks into robotic systems using industry standard compilers.
- Perform machining operations to fabricate components for robotic systems.
- Demonstrate a basic understanding of electronics with an emphasis on appropriate test measurement techniques.
- Build simple circuits for testing and evaluation on a "Proto-Board."
- Compare and contrast types of micro-controllers.

**Student Learning Outcomes:**

Upon completion of the courses in this discipline, the student wills be able to identify the differences between open and closed loops control methods.

Upon completion of the courses in this discipline, the student will be able to identify different digital and analog sensor technologies.

**Assessment Activities:** Three things determine your grade: Labs, Safety Quiz, Mid-Term Test and the Final. The total for each item is converted into a percentage of the total grade as follows:

All Labs (total)	40%
Quiz & Mid-Term Test (total)	40%
Final Exam	20%
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Total	100%

**REMEMBER:** **Your attendance will have an impact on your grade.** After grading several classes of students, there is a strong connection between attendance and grade.

**Grading Scale:** Your final grade for this class is calculated as a percentage of possible points.

100% - 90%	=	A
89% - 80%	=	B
79% - 70%	=	C
69% - 60%	=	D
59% - 0%	=	F

#### **Evaluation Criteria:**

The Safety Test (Quiz) is a requirement of this course. It is the ONLY quiz/test that can be taken later and more than once. You must get 100% on the Safety Test to do the labs. All quizzes and tests are True/False and Multiple Choice.

There will be a mid-term test.

**I allow your own handwritten notes during any quiz/test.**

Every week we will be having both Lecture and Lab. The first part of our time will be the lecture. The second part of our is lab time. If you miss a lab, it may be possible to make it up on a later day, but don't count on it. The Labs are done in groups of 2 or 3, subject to the number of students in the class.

When we use the VEX Robots for labs. Each VEX Lab is a challenge. Your team will be building your robot to win the challenge against other robots. Vex Labs are scored on did you do all the work required or only part of it. The score will range from zero to five points for that day. The VEX Competition will offer extra points to the winning teams. You must be present to earn the extra points. One win = one extra point.

During a VEX Build day, either you are present or you are NOT present. I use a sign-in sheet to determine whether a student is present or not. It may only be signed for that day and after that day, a red line will be put in place saying you were not there. Your initials equals 5 points for that day and a red line equals zero.

We finish with the Boe-Bot Labs, where you will learn Basic Programming and simple electronics. The robots are already build for you, so you'll have a chance to play around with simple robotic movements. The score for these labs is from zero to five. If you did all the work required, you will get the full five points, but if only part of the work is done, I will adjust your grade to the percentage of work finished.

On the last week we have a final exam. The questions in the Final represents everything we covered in the class and are True/False and Multiple Choice questions. **You are allowed to have your own handwritten notes out for the final.**

**Fees:** No fees for high school students; registration fees for others.

**Credit:** Two Semester Unit Credits for:  
***Manufacturing Technology 70, Basic Robotics***

**Attendance:** Students need to attend all the class sessions. I am aware that due to personal events and other school events that's not always possible. I've found that when the students miss 3 or more classes, the chance of failing is quite high.

**Friday, November 14, 2013** is the last day a student can drop without getting a grade. (You will get a "W" for withdrawing, but that does not count against you.) **I have the option to drop any student who has missed 3 or more classes, but I can not offer any guarantee that I will do it.** After Friday, November 14, 2013 there is nothing I can do to be able to drop a student.

**If you need to drop the class, don't assume that you will be automatically dropped, contact the IT Office, (310) 660-3600 for any help in dropping the class.**

**Instructor:** Bob Diaz, Instructor, El Camino College  
**[rdiaz@elcamino.edu](mailto:rdiaz@elcamino.edu)**  
I do not have an office or a phone on campus.  
**310-660-3593 x4209 voicemail only**

# ***El Camino College***

## **CLASSROOM POLICIES**

### ***EL CAMINO COLLEGE MISSION STATEMENT***

The mission of El Camino College is to meet the educational needs of our diverse community and ensure student success by offering quality comprehensive educational opportunities.

### ***ATTENDANCE POLICY***

#### **1. Attendance at first class**

Students who enroll in class but do not attend the first scheduled class meeting may be dropped from the roster. A student who registers for a class and never attends is still responsible for dropping the class.

#### **2. Attendance without official enrollment**

Students will not be permitted to attend classes in which they are not enrolled.

#### **3. Attendance during semester**

A student may be dropped from class when the number of hours absent exceeds the number of units assigned to the course. If your absences and tardiness exceed the unit value of the course, you can be dropped.

This rule also applies to excessive absences due to illness or medical treatment.

### ***CHILDREN IN CLASSROOMS***

Children are not permitted in classrooms while class is in session. Attendance in class is limited to officially enrolled students and authorized visitors or guests. In addition, students must not allow children to be left unsupervised or unattended anywhere on campus.

### ***CLASSROOM MISCONDUCT***

1. Dishonesty, including but not limited to cheating, plagiarism or knowingly furnishing false information to the College.
2. Forgery, alteration, or misuse of college documents, records, or identification.
3. Violation of college policies or off-campus regulations, including but not limited to campus regulations concerning student organizations, the use of college facilities, or time, place, and manner of public expression.
4. Continued disruptive behavior, continued willful disobedience, profanity or vulgarity, or continued defiance of the authority of, or abuse of, college personnel or to anyone on campus.
5. Willful misconduct which results in injury or death to a student or college personnel.
6. Assault, battery, sex crimes including sexual assault or rape, or any threat of force or violence upon a student or college personnel.
7. Sexual harassment which includes unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature.

8. Obstruction or disruption of teaching, research, administration, disciplinary proceedings, or other authorized college activities including but not limited to its
9. community service functions or to authorized activities held off campus. Obstruction or disruption includes but is not limited to the use of skateboards, bicycles, radios, and roller skates.
10. Unauthorized entry to or use of college facilities, equipment or supplies.
11. Theft or deliberate damage to property of a college staff member, a student, or a visitor to the college including but not limited to the Library, Bookstore, and Food Service areas.
12. Defacing or damaging any college real or personal property.
13. Failure to comply with the directions of a member of the college certificated personnel, college management or supervisor personnel, or campus police acting within the scope of his or her duties.

## ***DISCIPLINARY ACTION***

Disciplinary action appropriate to the misconduct as defined above may be taken by an instructor the Dean of Student Services or his or her designee and the Board of Trustees.

Misconduct should be brought to the immediate attention of the Campus Police, or local police department/security force for courses taught off campus.

*Removal by Instructor* — In addition to an instructor's right to drop a student permanently from a class when the student is no longer participating i.e. lack of attendance in the course, an instructor may remove (suspend) a student from his or her class for the day of the incident and the next class meeting. During this period of removal, a conference should be held with the instructor and the student to attempt to resolve the situation that led to the student's removal and the student shall not be returned to the class from which he or she was removed without the concurrence of the instructor of the class.

1. If a student is suspended for one class meeting, no additional formal disciplinary procedures are necessary.
2. If a student is suspended from class for the day of the incident and the next class meeting, the instructor shall send a written report of the action to his or her dean who shall forward this information to the Dean of Student Services, the Provost. If the student removed by an instructor is a minor, the President's designee (Dean of Student Services) shall ask a parent or guardian of the student to attend a parent conference regarding the removal as soon as possible. If the instructor or the parent or guardian so requests, a college administrator shall attend the conference.
3. The instructor may recommend to his or her dean that a student be suspended for longer than two class meetings. If the dean, instructor and student cannot resolve the problem, the suspension will be referred to the President or the President's designee.
4. During the period following the initial suspension from class for the day of the incident and the following class meeting, the student shall be allowed to return to the class until due process and the disciplinary procedures are completed unless the student is further suspended as a result of actions.

## ***CHEATING OR PLAGIARISM POLICY***

**This policy applies to all forms of dishonesty, including but not limited to cheating, plagiarism or knowingly furnishing false information to the college.**

### **CONSEQUENCES FOR CHEATING OR PLAGIARISM**

Given alleged violation of the Standards of Conduct, any or all of the following actions may be imposed:

1. When there is evidence of cheating or plagiarism in classroom work, students may receive an F for that piece of work or may be suspended from all classes for that term and the following term if deemed appropriate.
2. The instructor may assign a failing grade to the examination or assignment in which the alleged cheating or plagiarism occurred. This action is based on information that the instructor had.
3. The instructor may dismiss the student from the class or activity for the present and/or following class session(s)
4. The instructor may recommend suspension or expulsion of the student from the college as stipulated in BP5138, Section IIB6 and 8. This recommendation must be in accordance with El Camino College's Due Process and Disciplinary Procedures.
5. The instructor will complete the Academic Dishonesty Report Form and submit it to the Academic Affairs Office.

### **EXAMPLES OF CHEATING OR PLAGIARISM**

1. Representing the words, ideas or work of another as one's own in any academic exercise (plagiarism), including the use of commercial term paper companies;
2. Copying or allowing another student to copy from one's paper or answer sheet during an examination;
3. Allowing another individual to assume one's identity for the purpose of enhancing one's grade in any of the following: testing, field trips or attendance;
4. Falsifying or attempting to falsify attendance records and/or grade rosters;
5. Changing answers on a previously scored test, assignment or experiment with the intent to defraud;
6. Inventing data for the purpose of completing a laboratory experiment or case study analysis with the intent to defraud;
7. Giving and/or taking information during an examination by any means such as sign language, hand signals or secret codes;
8. Obtaining copies of notes, exams or exam questions by any means other than distribution from the instructor. (This includes copying and removing exam questions from the classroom for any purpose.);
9. Using study aids such as calculators, tape recorders or notes that have been specifically prohibited by the instructor.

### **STUDENTS WITH DISABILITIES**

Students with disabilities who believe they may need accommodations in this class are encouraged to contact the Special Resource Center located in room F-10 as soon as possible to better ensure such accommodations are implemented in a timely fashion. Also, please contact the instructor privately to discuss your specific needs.

## **Other Issues:**

While the computers do have the ability to access the internet, **do NOT play on the internet during class time.** Those who insist on surfing the net, will find that their lab points will be reduced because you are not doing the work.

Also, because some of students may be under 18 years of age, any Porn will not be allowed in class. "Sexting" has become very common and is a form a child pornography, which is a serous crime. IF I find any pornography on anyone's computer or cell phone, it will be reported. The Disciplinary action that will follow will be very harsh. What may seem like an innocent thing is really a serous offense.

**Students that are Tardy:** Because we begin the day with lecture, I've found that those who come in late seem to do worse on the tests. This factor seems to adjust for the fact that students who are late get points deducted from their scores.

**Audio / Video Recording:** If you ask first, you are allowed to record the class using audio or video equipment.

**Students will be notified ahead of time when and if any changes are made to course requirements or policies.**

### Tentative Schedule

Week 1: Aug 26, 28 Introduction, No Labs this week/  
Week 2: Sep 2, 4 Team assignment, Initial VEX Robot Lab  
Week 3: Sep 9, 11 Finish First Vex, VEX Challenge #1, Sumo-Bot  
Week 4: Sep 16, 18 VEX Challenge #1, Competition (Thursday)  
Week 5: Sep 23, 25 VEX Challenge #2, Build, Block Race  
Week 6: Sep 30, Oct 2 VEX Challenge #2, Competition (Thursday)  
Week 7: Oct 7, 9 VEX Challenge #3, Build, Soccer  
Week 8: Oct 14, 16 VEX Challenge #3, Competition (Thursday)  
**>>> Mid-Term Test Oct 16 <<<**  
Week 9: Oct 21, 23 Programming / Begin BotBoarduino / Elect.  
Week 10: Oct 28, 30 BotBoarduino Labs  
Week 11: Nov 4, 6 BotBoarduino Labs  
Week 12: Nov 11, 13 Electronics Lab  
>>>>>> No Class on November 11, Veterans Day <<<<<<  
Week 13: Nov 18, 20 Electronics Lab / VEX Challenge #4, Block Lift  
Week 14: Nov 25, 27 VEX Challenge #4, Building Block Lift  
>>>>>> NO Class November 27, Thanksgiving Holiday <<<<<<  
Week 15: Dec 2, 4 VEX Challenge #4, Competition  
Week 16: Dec 9, 11 Last Week Review Dec. 9 / Final Dec. 11

Due to unforeseen factors, this schedule may have to change.