



## Course Syllabus

Course: EET K266/7 Advanced Controls and Robotics

Course Detail:

CRN	Cred	Title	Day(s)	Time	Date
10316	3	Advanced Controls & Robotics	R	05:00 pm-07:45 pm	01/22-05/20
10317	1	LAB, Advanced Controls	R	07:46 pm-09:26 pm	01/22-05/20

Prerequisites: EET K264/5

Instructor: Dan Courtney – dcourtney@trcc.commnet.edu

Office Hours: As Posted

Text: Modern Control Technology, Christopher T. Kilian  
Programmable Controllers, David A. Geller

### Course Description:

This course familiarizes students with the sensors, programmable controllers, and actuators that make up modern day robots. Automatic control system techniques are used to implement robot analysis and design. The lab portion of the course includes experiments and simulations to parallel the lecture.

### Course Topics:

Course Overview  
Robotics  
Sensors  
Feedback Control Principles  
DC Motors  
Stepper Motors  
AC Motors  
Actuators  
Intro to Programmable Logic Controllers (PLC)  
I/O Wiring  
Ladder Logic Basics  
Timers & Counters  
Logic and Math Instructions

### Lab Topics:

Arduino/LabVIEW Review  
Sensor Examples  
Robot Build/Refurbish  
Individual Projects  
PLC Intro  
Basic Ladder Logic  
Timers & Counters  
Logic & Math Instructions



**Course Format:** Classes will consist of topic discussions, classroom exercises and laboratory exercises. Classes will move fluently between these activities.

**Course Grading:** Class Participation, Homework, Laboratory Skills, Professional Attitude. Grading is heavily based on progress toward EET Course Outcomes. Homework will be assigned weekly and graded by technical correctness, quality, and timeliness.

**Attendance/Timeliness:** Attendance is mandatory at all class and lab sessions. Tardiness of attendance and/or assignments will have a significant negative impact on grading.

**Independence of Student Work:** Students are encouraged to collaborate and discuss class material and assignments. Assignment submittals should be completed individually without the direct help of others. Students are not allowed to work together on assignment submittals unless specifically directed by the instructor.

All students are required to maintain a learning portfolio in Digication that uses the (Three Rivers) College Template.

**Other Required Course Materials:** Flash Drive, Scientific Calculator e.g. TI-30 – Calculators should be available at all times during classes.

**Course Outcomes:**

1. Mastery of Controls and Robotics concepts as defined in the course syllabus
2. Ability to analyze controls circuits and systems
3. Ability to build, test and troubleshoot controls circuits and systems
4. Ability to analyze and solve problems relating to controls and robotic systems
5. Demonstrate technician level oral and written communication skills
6. Ability to engage in self-directed professional development
7. Demonstrate proper professional and ethical behavior
8. Demonstrate a commitment to quality, timeliness and continuous improvement

**Disabilities Statement**

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Disabilities Counseling Services at 383-5240. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. Please note that I cannot provide accommodations based upon disability until I have received an accommodation letter from the Disabilities Counselor.