

Three Rivers Community College

EET K104 – Electronic CAD and Fabrication

Course Syllabus – Fall 2019

Instructor

Mr. Aaron Dahlen

Office C-140

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Course Description

Credit Hours: 1.0

Format: Lab

This course is an introduction to the art of electronics. Students will reverse engineer electronic products to facilitate component identification and construction practices. Students will gain hands on experience with electronic test equipment including the digital multimeter and oscilloscope. Students will construct simple circuits and then use CAD software to design a Printed Circuit Board.

Class Time

CRN 33562: Wednesday 06:00 PM - 08:45 PM PM in room B209

Office Hours

Scheduled hours posted on Blackboard, and office door; also available by appointment.

Required Materials

N/A

University Policy

Academic integrity policy / statement: Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly documenting the sources of the material you use from others; and act at all time with honor.

Student disabilities policy / statement: Three Rivers Community College (TRCC) is committed to the goal of achieving equal educational opportunity and full participation for individuals with disabilities. To this end, TRCC seeks to ensure that no qualified person is excluded from participation in, is denied the benefit of, or otherwise is subjected to discrimination in any of its programs, services, or activities. Achieving full participation and integration of persons with disabilities requires the full cooperation and effort of all TRCC faculty and staff. The college will strive to maintain excellence in its services and to deliver those services equitably and effectively.

Student: Students must complete and submit the form for self-disclosure of a disability to the college Advising and Counseling Center (Room A113) . Students should also contact and meet with a college disability service provider and provide adequate documentation of disability to their disability service provider as soon as possible after admission.

Instructor: As needed, the college disability service provider will interact with faculty to help ensure reasonable and appropriate adjustments for a student with a documented disability. The college disability service provider will complete a memo to faculty and a form detailing appropriate adjustments for the student. Generally, the student will carry this information to instructors and discuss it with them. Whenever possible, the student and faculty member will collaborate on the implementation of the student's adjustments.

The college's two disability service providers are:

Elizabeth Willcox, Advisor
(860) 215-9289, ewillcox@trcc.commnet.edu

Matt Liscum, Counselor
(860)215-9265, mliscum@trcc.commnet.edu

Non-discrimination policy / statement: Three Rivers Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression, or genetic information in its program and activities. In addition, the College does not discriminate in employment on the basis of veteran status or criminal records. The following person has been designated to handle inquires regarding the non-discrimination policies:

Ken Saad, Equity and Diversity Officer,
(860) 215-9319, KSaad@trcc.commnet.edu

Sexual misconduct policy / statement: Three Rivers Community College strongly encourages all students to report any incidents of sexual misconduct, which includes, but is not limited to, sexual harassment, intimate partner violence, and sexual assault. Students have the right to the prompt and fair resolution of all claims, and the College will preserve the confidentiality of all who report to the fullest extent possible and allowed by law. College employees will explain the limits of confidentiality before information about the incident is revealed. To report sexual misconduct, or to learn more about your options, please contact the Title IX Coordinator. **If you need immediate, confidential assistance, please call the Sexual Assault Crisis Center of Eastern Connecticut (SACCEC) hotline at 860-456-2789**

Maria Krug
Title IX Coordinator
Three Rivers Community College
574 New London Turnpike, Norwich, CT 06360
(860) 215-9208; mkrug@trcc.commnet.edu.

SACCEC
78 Howard Street, 2nd floor
New London, CT 06320
(860) 442-0604
<http://www.saccec.org/>

TRCC EET Stated Outcomes:

1. Students will practice the skills needed to work effectively in teams and as an individual.
2. Students will demonstrate the ability to use appropriate mathematical and computational skills needed for engineering technology applications.
3. Students will combine oral, graphical, and written communication skills to present and exchange information effectively and to direct technical activities.
4. Students will know of a professional code of ethics.
5. Students will describe concepts relating to quality, timeliness, and continuous improvement.
6. Students will describe how the concepts of electric circuits, electrical measurements, digital electronic devices, programmable logic circuits, electromechanical and automated systems, affect the design, maintenance, and operation of electrical systems.
7. Students will illustrate an ability to think critically and identify, evaluate and solve complex technical and non-technical problems; demonstrate creativity in designing problem solutions; and conduct and interpret experimental data and outcomes.
8. Students will recognize actions and acts of professionalism that allows them to become informed and participating citizens cognizant of ethics, civic duty, and social responsibility.
9. Students will recognize the need to be lifelong learners.

EET K105 Course Outcomes:

1. **Practice** the general safety precautions required for electronics assembly.
2. **Physically** identify a limited set of through hole and surface mount electronic components.
3. **Sketch** the schematic representation of a limited set of electronic components.
4. **Enter** a circuit into the CAD software package.
5. **Read** and **interpret** mechanical drawings as found on the data sheet for electrical components.
6. **Read** and **interpret** a limited set of electrical specifications as found on the data sheet for electrical components.
7. Use CAD software to **layout** a minimalist Printed Circuit Board (PCB) of student or instructor design.
8. **Obtain** a quote from a commercial board house to manufacture the student designed PCB.
9. **Assemble** and test a project kit by soldering components to a PCB.
10. **Operate** a digital voltmeter to measure voltage and resistance.
11. With assistance, **operate** an oscilloscope to read the amplitude and frequency of an AC waveform.
12. **Demonstrate** the ability to perform through-hole rework.

Class Policy

Security: Any student who has difficulty affording groceries or accessing sufficient food to eat every day or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the student services office for support. Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any other resources that I may possess.

Course Web Page: Course material will be posted to Blackboard. The site includes links to a complete syllabus, course schedule, and select homework / quiz / exam solutions. All course announcements including changes to the schedule and modifications to assignments will be made via email announcements to the student's default TRCC email address.

Schedule: The class schedule is posted to Blackboard. This will be adjusted as necessary to account for snow days or other unexpected events.

Participation: Every class includes a group activities where students work together to solve exercises reinforcing the day's topic.

Lab deliverables: Several of the labs have specific deliverables. For example, in lab #4 students will assemble a small kit. Each deliverable will include a rubric describing the specific deliverable and the associated grading.

Written Report: A one page (2 page absolute max) written document is required for each class period. There are 10 possible points based on:

2 pts: document is typed and proofed

5 pts: document clearly describes the class activities for a particular day

3 pts: document describes an activity or research performed, independent of the class, to increase the student's knowledge of electronics

The format for the written report is open. It can be written as formal document or in the form of a personal letter. The report is due at the start on the next class period. There is a 10% penalty for every day the document is late.

Students are encouraged to contact the instructor as soon as possible after a missed class.

Extra Credit: Extra credit may be given on rare occasions. All such opportunities will be made available to all students and announced in class or via email.

Grade Weight: The class grade is calculated using the following weighting scale:

Item	Weight
Lab deliverables	60 %
Written reports	40 %

The overall grade conversion is:

A+	95% - 100%	A	93% - 94%	A-	90% - 92%
B+	87% - 89%	B	83% - 86%	B-	80% - 82%
C+	77% - 79%	C	73% - 76%	C-	70% - 72%
D+	67% - 69%	D	63% - 66%	D-	60% - 62%
F	0 - 59%				

The class policies and procedures outlined in this document may be changed due to extenuating circumstances or as agreed upon by instructor and students.