



AE190 Electronics

2023 - FALL - LATE FALL

COURSE INFORMATION

Instructor Details

Instructor: Derek Reilley
Days/Time: ONL 00:00:00-00:00:00

Credit Hour(s): 3.00
Instructor Email: derek.reilley@colbycc.edu
Phone Number: 785-460-5431
Office Hours: 7:45 - 3:15

Required Text

None

Readings are built into the course.

Colby Community College Mission

Challenge students to adapt to a diverse society. **Create** opportunities for student growth. **Connect** student learning with professional experiences.

COLBY COMMUNITY COLLEGE POLICIES

Attendance

Colby Community College views class attendance as a mandatory activity. However, if students must be absent, the students should make arrangements in advance with the instructors. Students absent as official college representatives (athletics, activities, or scholarship fulfillment) are not counted absent but **MUST** make advance arrangements with instructors to complete all course work. Punitive grades cannot and will not be assigned if the absence is excused by the college. It is always the student's responsibility to notify instructors of any absence due to illness or any other reason.

Communication

Course communication will occur through Canvas Announcements, Canvas Inbox, and CCC student email accounts. Response to emails will occur within 24 hours during the week and 48 hours on the weekend.

Netiquette

This is a professional educational environment, and your emails should reflect that. Consequently, you should remember to type your first and last name at the close of every email so I know who I am replying to.

When posting on the Discussion Board in your online class, you should:

- Make posts that are on topic and within the scope of the course material
- Take your posts seriously and review and edit your posts before sending
- Be as brief as possible while still making a thorough comment
- Always give proper credit when referencing or quoting another source
- Be sure to read all messages in a thread before replying
- Don't repeat someone else's post without adding something of your own to it
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point
- Always be respectful of others' opinions even when they differ from your own
- When you disagree with someone, you should express your differing opinion in a respectful non-critical way
- Do not make personal or insulting remarks
- Be open-minded

Tech Support Information

- Canvas Support Hotline: 855-691-5024

You can access Canvas Support Information by selecting the help button on the left-hand menu.

- Colby Community College Support: support@colbycc.edu

Finals

In accordance with Colby Community College policy, students are required to be present for their final exam and/or complete any assessment during the time stated. **If you have a conflict with this time, you must obtain written permission two weeks prior from the Executive Vice President and the instructor to schedule a make-up exam.** Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the final exam schedule, and oversleeping are not viable reasons for rescheduling a final.

Syllabus Information Disclaimer

I reserve the right to change any information contained in this document, when necessary, with adequate notice given to the student. Notice shall be given in the classroom during class. No other notice is required. It is the students' responsibility to stay current with any changes, modifications, adjustments or amendments that are made to this document. Students should adhere to the attendance, cell phone, assignment, test and grading policies in the course syllabus.

Academic Integrity

Colby Community College (CCC) defines academic integrity as learning that leads to the development of knowledge and/or skills without any form of cheating or plagiarism. All CCC students, faculty, and staff, are responsible for upholding academic integrity.

CCC believes that successful students are independent critical thinkers who possess the work ethic and skills necessary to make a positive difference in their professions and communities. In order to maximize student success, CCC is committed to maintaining an honest academic environment and upholding academic integrity as a core value. All individuals across all course modalities are expected to practice academic integrity, which encompasses honesty, trust, respect, fairness, accountability, and responsibility.

Cheating is the giving, receiving, or use of unauthorized help on individual and/or group assignments. Cheating includes, but is not limited to:

The use of any unauthorized assistance in taking quizzes, tests, or examinations;

The use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;

Taking an examination for another student, or asking or allowing another person to take an examination for you;

Impersonating another student, or submitting someone else's work as your own, including allowing others to research and write assigned papers or do assigned projects, including the use of commercial term paper services;

The acquisition, without permission, of tests or other academic material belonging to a member of the College faculty or staff;

Sharing content without authorization;

Fabricating or falsifying data, and/or altering academic documents, including records, with or without the use of digital devices;

Unauthorized use of any electronic devices such as cell phones, computers, or other technologies to retrieve or send unauthorized information, including but not limited to, information regarding tests, quizzes, or examinations;

Submitting substantial portions of the same paper to more than one course without consulting with each instructor, and gaining permission to do so;

Engaging in any behavior specifically prohibited by a faculty member in the course syllabus or class discussion;

Participating in, or giving assistance to, acts of academic misconduct or dishonesty.

Plagiarism is using someone else's work as if it were one's own (without attribution), whether or not it is done intentionally. This includes, but is not limited to:

Using the exact language, without proper citation;

Using nearly the exact language, without proper citation;

Using ideas without citation showing they originated in another's work;

Omitting quotation marks when using language copied from another's work;

Failing to use citations for ideas or language taken from other authors, and,

The unacknowledged use of materials prepared by another person or agency engaged in the selling of papers or other academic materials, and,

Taking credit for a group project without contributing to it.

Consequences may include any and/or all of the following, depending on the facts in each individual case:

_____ The student will receive a zero for the assignment and the student will be reported to the Vice President of Academic Affairs.

_____ The student will receive a failing grade in the class, report to the Vice President of Academic Affairs, and will be removed from the class in which the offense occurred.

_____ The student will be reported to the Vice President of Academic Affairs and dismissed from the College.

A documentation copy of each Academic Integrity infraction will be housed with the Vice President of Academic Affairs and with the Registrar (as an electronic file).

Any questions about academic integrity may be referred to the Vice President of Academic Affairs.

Assessment

Colby Community College assesses student learning at several levels: general education, program, and course. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. An example of your work, a paper, some test questions, a presentation, or other work may be selected for assessment. This process will not affect your grade, will not require you do additional work and your evaluation will be confidentially handled. Results of these activities will be used to improve teaching and learning at Colby Community College.

Tutoring

Free tutoring is available to all students at Colby Community College. The Comprehensive Learning Center (CLC), located in the Library, provides support services for all learners, on-campus and online. To schedule an appointment, visit <https://hfdavismemoriamlibrary.setmore.com/>, email tutor@colbycc.edu or call 785-460-5480.

Tutoring is available in Student Support Services to eligible SSS participants. Please contact Student Support Services for qualifying program criteria at 785-460-5510, or by stopping by Student Support Services, located in the Student Union.

Online tutoring from ThinkingStorm is available to Colby Community College students 24/7 through their Canvas accounts. Every student can access up to 10 free hours of online tutoring each semester. For assistance with online tutoring, students may contact ThinkingStorm Support at care@thinkingstorm.com or by phone at 1-877-889-5996.

Copyright Disclaimer

Some of the videos, images, links, and written content in this class may include material found using commonly available search engines and attributable authorship not readily apparent. The works on this course have been created for non-profit, educational use. We reasonably believe the contents are within the fair use protection of existing copyright laws. If any copyright owner objects to the use of any work appearing in this site, please contact the instructor and we will remove the work and review the propriety of its continued use.

Accommodations for Students w/ Disabilities

According to the Americans Disabilities Act, it is the responsibility of each student with a disability to notify the college of his/her disability and to request accommodation. If a member of the class has a documented learning disability or a physical disability and is requesting special accommodations, he/she should contact disability services at disability@colbycc.edu.

Notice of Non-Discrimination

Colby Community College provides equality of opportunity to its applicants for admission, enrolled students, graduates, and employees. The College does not discriminate with respect to hiring, continuation of employment, promotion, tenure, other employment practices, application for admission or career services and placement on the basis of race, color, gender, age, disability, national origin or ancestry, sexual orientation or religion. For inquiries regarding the nondiscrimination policies, contact the Vice President of Student Affairs, Title IX and ADA Coordinator, Colby Community College, 1255 S. Range Ave., Colby, KS 67701 (785) 460-5490).

Accreditation

Higher Learning Commission
230 S. LaSalle St., Suite 7-500
Chicago, IL 60604-1411
(800) 621-7440

FAX (312) 263-4162

<https://www.hlcommission.org/>

Course Description

Power. Current. Voltage. Resistance. What does all of this mean? You will learn the basic electrical principles and laws associated with the electronics used in the field. The application of electrical fundamentals is an important component of both wind and solar PV systems. Additionally, there will be extensive coverage of charge controllers, inverters, grounding and bonding, and lock-out, tag-out requirements.

COURSE OUTCOMES AND COMPETENCIES

- Electrical Basics (3.1)
Upon completion of this unit, students will: Define the meaning of basic electrical parameters including electrical charge, current, voltage, power and resistance, and relate these parameters to their hydraulic analogies (volume, flow, pressure, hydraulic power and friction)

- Electrical Basics (3.2)
Upon completion of this unit, students will: Explain the difference between electrical power (rate of work performed) and energy (total work performed).

- Electrical Basics (3.4)
Identify basic electrical test equipment and its purpose, including voltmeters, ammeters, ohmmeters and watt-hour meters.

- Other Course Competencies:
Chapter 1
 - Understanding the role of electrons, conductors, and voltage
 - Looking at how electricity is generated
 - Exploring some electronic components
 - Connecting components together in circuits
 - Breaking it all down into units
 - Understanding Ohm's Law

Chapter 2

- Using common sense when working with electronic components
- Avoiding electrocution
- Keeping watch over static
- Working with AC current
- Wearing the right clothes for safety

Chapter 3

- Get the lowdown on resistors
- Quickly changing resistance with potentiometers
- Discovering how to pick the best capacitor for your circuit
- Decoding common markings on resistors and capacitors
- Delving into diodes, including the kind that light up
- The truth about transistors
- Understanding integrated circuits

Chapter 4

- Picking the perfect type of wire
- Powering up with batteries and solar cells
- Flipping switches
- Controlling output with logic gates
- Tuning signals with inductors and crystals
- Making sense of things with sensors
- Exploring how DC motors work

Chapter 5

- Understanding the role of schematics
- Getting to know the most common symbols
- Using component polarity

- Diving into some specialized components
- Having fun with schematics from around the world

Chapter 6

- Seeing a circuit for what it is
- Looking at a basic circuit
- Arranging circuits in series and parallel
- Lowering your voltage with a voltage divider circuit
- Taking the measure of current
- Teaming up resistors and capacitors
- Working with transistors
- Amplifying even better with an op amp
- Keeping things simple with ICs

Chapter 7

- Understanding the basics of multimeters
- Keeping yourself (and your multimeter) safe
- Using a multimeter to measure all kinds of things
- Going digital or analog
- Setting up your multimeter
- Making five basic tests to get started
- Testing resistors, diodes, and other components

Chapter 8

- Exploring how microcontrollers work
- Getting into a microcontroller's guts

COURSE POLICIES

Assignments and Tests

When you first view your class, look over class requirements, assignments, and other class content to ensure that you wish to remain in the class. If you decide to drop the class, do NOT post in Canvas at all, as that counts as attendance per College policy, and you will be charged a portion of tuition for dropping after attending/posting.

The student is expected to have assignments done when the instructor determines they are due. The instructor determines acceptance of late assignments. There are no written examinations in this class. Submitting timely work and participating determine the final grade.

METHOD OF EVALUATION

Your grade will be based on the following:

Items	Points / Percentage
Thread Discussions	15%
Paper Assignments	10%
Module Quizzes	20%
Learning Outcome Quizzes	20%
Mid-Term	15%
Final Exam	20%

Grade Scale

Your grade will be based on the following:

Grade	Percentage
A	90 - 100
B	80 - 89

Grade	Percentage
C	70 - 79
D	60 - 69
F	0 - 59

CLASS SCHEDULE

Due Date	Assignment	Type	Points
12/9	Syllabus Practice Quiz	Quiz	15
12/9	Class Introductions	Discussion	100
12/10	Chapter 1 Threaded Discussion	Discussion	100
12/11	Chapter 1 Quiz	Quiz	100
12/11	Chapter 1 Paper	Assignment	100
12/12	Chapter 2 Threaded Discussion	Discussion	100
12/13	Chapter 2 Quiz	Quiz	100
12/13	Chapter 2 Paper	Assignment	100
12/14	Chapter 3 Threaded Discussion	Discussion	100
12/15	Chapter 3 Quiz	Quiz	100
12/15	Chapter 3 Paper	Assignment	100
12/16	Chapter 4 Threaded Discussion	Discussion	100
12/17	Mid-Term Exam	Quiz	100
12/18	Chapter 5 Threaded Discussion	Discussion	100
12/19	Chapter 5 Paper	Assignment	100

Due Date	Assignment	Type	Points
12/19	Chapter 5 Quiz	Quiz	100
12/20	Chapter 6 Threaded Discussion	Discussion	100
12/21	Chapter 6 Quiz	Quiz	100
12/21	Chapter 6 Paper	Assignment	100
12/22	Chapter 7 Threaded Discussion	Discussion	100
12/23	Chapter 7 Paper	Assignment	100
12/23	Chapter 7 Quiz	Quiz	100
12/24	Chapter 8 Threaded Discussion	Discussion	100
12/26	Learning Outcome 1 Assessment Quiz	Quiz	100
12/26	Learning Outcome 2 Assessment Quiz	Quiz	100
12/27	Learning Outcome 3 Assessment Quiz	Quiz	100
12/28	Final Exam	Quiz	100

Late assignments Policy:

1. Late assignments will be docked 15% if not approved prior to the assignment due date via email only.
2. After the last assignment due date for module 4, no late work will be accepted for Modules 1-4 and a zero will be recorded into the gradebook.
3. All assignments will be due at 11:59 pm CENTRAL TIME on the Assignments tab and calendar.
4. Modules 5-8 assignments will be docked 15% if not approved prior to the assignment due date via email only. The students will have one day only to complete late work for Modules 5-8 with the 15% penalty. After one day, a mandatory zero will be recorded in the gradebook.
5. There is no extra credit in this class.
6. A student should print the syllabus the first day they login so they have the instructor's email and phone number in--case they are unable to login to the course. The student will then be able to contact the instructor. Not being able to login to access the course email, is not an excuse

since you have should of printed the course syllabus that has the instructors contact information.

7. If a student is unable to login to canvas, they will not be able t o email the instructor with the online canvas course email. The students should immediately email the instructor from the printed syllabus email and put in a helpdesk ticket at support@colbycc.edu
8. If the student emails the instructor saying they cant login and wants the instructor to let them complete late work, if the instructor never received an email from the student (saying they can't login) prior to the assignment due date, the student will be denied.