

WWU ENGR 356 - Electronics I
Winter 2020

Professor: Larry Aamodt, PhD, PE
Office: CSP-265 (Computer Science / Math office area)
Phone: (509) 527-2058 office (509) 529-8264 home
e-mail: larry.aamodt@wallawalla.edu
class webpage: people.wallawalla.edu/~larry.aamodt

Textbook: Microelectronic Circuits, 8th ed by Adel Sedra and Kenneth Smith

Prerequisite: ENGR 228 Circuit Analysis

General Description: A study of characteristics and applications of discrete solid-state electronic devices including diodes, BJT and MOSFET transistors, integrated devices such as operational amplifiers, and typical circuits such as amplifiers that these devices are used in. Circuit design, modeling, and analysis methods including biasing, small signal analysis, large signal analysis, and frequency dependant models will be covered.

Goals:

- Understand operation of diodes and transistors
- Be able to design typical amplifiers for low to mid frequencies
- Understand operation of operational amplifiers (op-amps) and their use
- Be able to model and analyze amplifier circuits
- Construct, test, and debug typical amplifier circuits

Handouts: Occasionally there will be handouts that extend or clarify material covered in the textbook. Unless stated otherwise, **you are expected to treat these handouts as part of the textbook, i.e. read and understand them.**

Class notes: Material may be presented in lecture that is not in the book. Take note of it. This material is fair game for tests.

Homework: Homework is due at the start of class on the day it is due. Late work should be avoided and typically will not receive full credit.

Hand written solutions are to be neatly printed on engineering paper using standard engineering format (see problem solution format handout).

Your work: I expect everything you turn in for grading to be your work and represent your understanding of the material. Homework, labs, or tests that include work that is not your own will receive a score of zero. The only exception is a group or team assignment. At the instructors discretion, cheating will be rewarded with an F as the final grade for the class.

(your work continued) Recognizing that a cooperative study session may enhance understanding, here is my expectation. In general, sharing ideas and strategies verbally will be acceptable in the context of a study group but sharing written work is not. Validating your answers with the group after all members of the group have successfully completed a problem may be acceptable. A rule of thumb is that you need to be responsible for your own work meaning that you understand what you did, you could reproduce it on your own if asked, and you did not copy the solution from someone else or a solution manual..

Lab: Lab meets on Tuesday or Thursday at 2pm in CSP-314 (the Analog Lab).

Lab Book: You will need a bound lab notebook (supplied).

Grade composition: Homework & quizzes - 20%
Labs - 25%
Midterms - 15% ea
Final Exam (comprehensive) - 23%
Class participation & Lab Clean Up - 2%

Final Exam: Monday, March 16, 10-11:50am

Missed quizzes and exams will receive a score of zero and cannot be made up.
(Contact me prior to test time if illness prevents attendance)

Help: Out of class help from the instructor is available for those who attend class and thoroughly read the text and handouts (translation: please attend class regularly). If you have questions please come by my office, send email, or call me at the office or home (note the phone numbers at the top of the syllabus). I'm eager to help you but can only do so if you contact me.

Web Site: I have a web page for this class, found at people.wallawalla.edu/~larry.aamodt, that I will use for posting information. Homework assignments will be posted there as well as reference material or links to additional reference material. Occasionally an assignment or lab needs clarification after it is handed out. Check the web page to see if additional information or changes have been posted.

Special needs: Students who have disabilities and desire special accommodation must determine the required accommodation in consultation with Disability Support Services (527-2366) and must also inform the instructor of this class.

Walla Walla University (WWU) is a Seventh Day Adventist institution of higher education

WWU Integrity policy:

www.wallawalla.edu/academics/academic-administration/academic-policies/academic-integrity-policy/

WWU Emergency information

WWU is committed to having a safe campus. Emergency information is at:
www.wallawalla.edu/campus-life/student-life/campus-security

WWU Disability accommodations

In addition to phone number 527-2366, see:
www.wallawalla.edu/?id=4318

WWU Title IX sex discrimination and sexual misconduct policy

WWU prohibits all forms of sex discrimination and sexual misconduct including, but not limited to, sex-based intimidation and harassment, sexual harassment, domestic violence, dating violence, stalking and sexual violence. If you have been subjected to, or are aware of, an instance of sex discrimination or sexual misconduct, you are highly encouraged to report it to the Title IX coordinator, through the Title IX webpage, or by calling (509) 527-2141. The University has resources to help.

Title IX coordinator email address: erika.sanderson@wallawalla.edu

Title IX web page:

www.wallawalla.edu/resources/human-resources-payroll/titleix/

Relationship of this class to the WWU core themes

Excellence in Thought

This class helps students develop ability to perform design that requires excellence in thought.

Generosity in Service

Course content does not directly address generosity in service although as an engineering professional there are opportunities to contribute professional service to the community.

Beauty in Expression

There is beauty in carefully crafted documentation that is clear, concise, and complete. Such is required in this class.

Faith in God

A life with inner peace comes through faith in God.

Religious accommodation

Consistent with Washington state policy, WWU reasonably accommodates a student for an absence of up to two days per academic year for reasons of faith or conscience, observance of religious holidays, or participation in an organized activity conducted by a religious denomination, church, or organization. The full policy and request form can be found on the WWU website.