

Bergen Community College
Division of Mathematics, Science & Technology
Department of Computer Science, Engineering & Information Technologies

Course Syllabus
ELC 201 AC Circuit Analysis
revised 2021sp

Semester and year:
Course Number:
Meeting Times and Locations:

Instructor:
Office Location:

Office Hours:
Email Address:

The exact sequence and topics covered may be adapted to meet the requirements at hand; the right is reserved to make such adaptations. Test dates and other announcements will be made in class, and it is the responsibility of the student to keep informed.

COURSE TITLE: ELC 201 AC Circuit Analysis

PREREQUISITE: DC Circuit Analysis (ELC 101)

COURSE DESCRIPTION: This course introduces sinusoidal inputs and time response of RL, RC, and RLC circuits. Network theorems for AC-circuits are covered, as well as resonance, filters, and pulse response of reactive circuits. Lecture [3.00], Laboratory [3.00].

Credits: 4

COURSE OBJECTIVES:

1. To provide the student with the ac circuit knowledge and skills necessary for future course work in electronics. Assessment is through in-class practice exercises, class discussions, quizzes and tests, and homework.
2. To provide the student with laboratory experiences to help develop ac measurement and analysis skills necessary for future course work. Assessment is through laboratory reports, and demonstrating lab technique such as taking a particular instrument reading, hooking up a particular circuit, or performing a circuit simulation on the computer.

TEXTBOOK: *Loose-leaf w/ Connect Access for Grob's Basic Electronics 13th edition*
ISBN 9781264094189 Author: Michael E. Schultz, McGraw-Hill Education

COURSE CONTENT:

Textbook Chapters

<u>Chapter</u>	<u>Topic</u>
15	Alternating Voltage and Current
16	Capacitance
17	Capacitive Reactance
18	Capacitive Circuits
19	Inductance
20	Inductive Reactance
21	Inductive Circuits
22	RC and L/R Time Constants
23	Alternating Current Circuits
24	Complex Numbers for AC Circuits
25	Resonance
26	Filters
27	Three-Phase AC Power Systems

In class exercises, simulations, and hands on laboratory experiences are aimed at complementing the material in the text, and providing additional clarity and insight.

Tests	60% (best 3 out of 4 tests)
Laboratory Performance (experiments and lab reports)	20%
Other class participation and Homework	20%

CLASS PARTICIPATION AND ATTENDANCE:

As part of learning, and demonstrating your achievement of learning in this course, doing laboratory experiment assignments, laboratory report assignments, and participation in in-class practice exercises and class discussions, are required.

Therefore, attendance is required. It is understood, that there will be some rare times, when due to family obligations, work, serious illness or injury, and the like, that someone may miss a class or two, or a few minutes here and there. It is the student's responsibility to get notes, assignments, etc., in order to catch up with what was covered in class. If you miss part or all of a class, you have to leave early, be late, or absent, for some good reason, try to get as much of the material before the next class. If you have a classmate who takes good notes and is willing to share them with you in an emergency, this can come in handy. If you are still missing things ask me, I will give you the highlights, readings and other assignment information. While this won't make up for the class work you missed directly (the whole class can not be redone this way), it will help you to not be off pace when you get back to class. It will also help you to be ready for the next test. In order to prepare for, achieve, and demonstrate this achievement, attendance is required.

FINAL GRADE EVALUATION PLAN:

Your overall performance, in all the areas of this course, is part of this course. If you do your work as described here, in all the areas of the course, the following applies. This means you take the tests, do the labs, participate in the class work and you get your grade based on the weighting given below. What this also means, is that it is not acceptable to skip one of the elements of the class and expect to pass. For example, it is not acceptable to just come in for the tests and not participate in class activities. Likewise, it is not acceptable to just write the lab reports without participating with your lab group in doing the experiment. If you do your work the following applies:

Tests: Any test(s) missed will count for a zero on that test. Tests will be of equal weight. The last test will be cumulative, but will have the same weight as the others. The last test will be cumulative in this sense: there will likely be a greater percentage of material from the earlier chapters, compared to most of the other tests. No makeup tests will be given.

Quizzes may be given from time to time. These count toward your class work grade (they count less than a test). Their primary function is to give you some practice from time to time, and to let you know a little about how you're doing at learning the material, without having the full weight of a full test. (There are no makeup quizzes either.) Quizzes will usually be unannounced (except for the first one).

Laboratory work will be due as stated in class. **Laboratory Reports** will be due at different times for different experiments. For some of the shorter experiments, the report will be due in class the same day as the experiment is performed. For others you will have longer (usually these will be due the next time class meets, or else one week after the experiment is started).

Laboratory Experiments will sometimes involve your doing / demonstrating something, and showing the instructor. For example, your group may be asked to show a particular reading and how you take it, or you as an individual in that group may be asked to show how to hook up something in particular. Generally these labs are fun exercises, but do take care to learn what you need to know to be able to demonstrate these types of things.

Homework is due at the beginning of class on the day stated in class. Handing it in at the end of class, or after we have started to go over it, doesn't count as being on time. Unfortunately cutting class or coming in late to hand it in at the next class etc. doesn't count either.