

Piedmont Technical College Course Syllabus

COURSE INFORMATION

Course Prefix/Number: EET 112

Title: AC Circuits

Responsible Division: Engineering and Industrial Technology

Last Day to Withdraw from this Course: For the last date to withdraw from this course, consult the current *Student Calendar*.

Course Description:

For course, credit hour, pre-requisite(s) and co-requisite(s) information, visit the Detailed Course Information page: www.ptc.edu/courses/EET112.

Textbook and Other Materials:

For textbook information and additional required and/or supplemental materials, visit the [college bookstore](http://www.ptc.edu/bookstore) (www.ptc.edu/bookstore).

Proctored Examinations:

Proctored examinations for distance learning courses taken at non-PTC campuses may require a proctoring fee for each exam taken.

COURSE POLICIES

Course policies are available online through the *Academic Catalog* and *Student Handbook*. Visit the [Course Policies page](http://www.ptc.edu/syllabus/policies) (www.ptc.edu/syllabus/policies) for a detailed list of important policies and more information.

GRADE POLICY

Detailed grading policy information can be found on the [Grading Policy webpage](http://www.ptc.edu/grading-policy) (<http://www.ptc.edu/grading-policy>). Final grade appeal information is available in the [Academic Catalog](http://www.ptc.edu/catalog/) (<http://www.ptc.edu/catalog/>).

ACCOMMODATIONS

Accommodations for ADA:

Information is available on the [Student Disability Services webpage](http://www.ptc.edu/ada) (<http://www.ptc.edu/ada>).

RATIONALE

Why do I need this course?

For a person going into any aspect of the electrical profession, a strong foundation in direct and alternating current is essential. Direct current electricity is covered in EET 111 and serves as a very necessary background for this course. Anyone wishing to take EET 112 without having taken EET 111 and related math courses can be tested by the Electronics Engineering Technology Department. These two courses are necessary before taking any of the higher level courses. A good basis in these two courses then allows the student to branch out into any of the electrical trades such as industrial electronics technician, tester, or maintenance electrician. Without these fundamentals, the students prospect of a future in the field of electrical/electronic is DIM! Alternating current (commonly identified as AC) plays an important role in electricity. In fact, it is used more extensively than direct current (DC) because it has a wider range of practical applications. Alternating current is utilized so extensively that it is almost impossible to avoid using it or at least being affected by it. For example, each time you plug in your electric shaver, toaster, or drill you are using alternating current. When you turn on your radio or television set, the music or voice information that you hear is produced by alternating current. Even when you drive down a city street you are still under its influence since the traffic signals that you obey and the street lights which illuminate your way all rely on alternating current for operation.

PROGRAM INFORMATION

For program information including required courses, program learning outcomes, gainful employment information and advisement information, refer to the Academic Program webpage. Go to [Academics](http://www.ptc.edu/academics) (<http://www.ptc.edu/academics>), select your program, and then select Credentials Offered.

COURSE STUDENT LEARNING OUTCOMES

Upon successful completion of this course and/or clinical, each student will be able to:

- Define capacitance, inductance and the terms associated with magnetism.
- State how an alternating current is generated and draw a diagram which illustrates an AC generator.
- Define the terms which describe an AC wave and demonstrate by graphing.
- Define frequency, period and phase relationships.
- Define reactance and impedance.
- Calculate reactance and impedance and describe the relationship to frequency.
- Define real, apparent and reactive power.
- Define power factor.
- Calculate AC power and power factor.
- Apply vector algebra to circuit analysis using both the polar and rectangular forms.

GENERAL EDUCATION COMPETENCIES

Piedmont Technical College General Education Competencies for All Graduates:

This course may address one or more of the following General Education Competencies (assessment will be stated when applicable):

Communicate effectively.

Assessment:

Laboratory assignments

Apply mathematical skills appropriate to an occupation.

Assessment:

Homework and laboratory projects

Employ effective processes for resolving problems and making decisions.

Assessment:

Laboratory assignments

Demonstrate the basic computer skills necessary to function in a technological world.

Assessment:

Modeling circuits using multisim. Use of Microsoft products for presentation and laboratory analysis

To validate proficiency in the general education competencies, students in some programs will be tested using Work Keys.