

INST-1550—APPLIED BASIC AC CIRCUITS 4CREDITS

SYLLABUS

CATALOG DESCRIPTION

The course covers the alternating current theory including inductive reactance/capacitive reactance in series/parallel RLC circuits. It also covers AC generator and motor theory, three phase power, and transformer theory. The students are expected to perform measuring and troubleshooting on these circuits.

Prerequisites: INST1150

Semester Offered: Spring, Fall

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Use basic test equipment to measure electrical components and analyze circuit values from actual circuits.
2. Use an oscilloscope, function generator, digital multimeter among other types of equipment.

3. Explain the difference between AC and DC.
4. Calculate and measure the instantaneous values of the AC sine wave, including the RMS, peak, and peak-to- peak voltage values.
5. Analyze AC circuits which contain combination of resistance, capacitance and inductance.
6. Explain and demonstrate knowledge of transformer action.
7. Calculate current, voltage, and power relationships at the input and output of both ideal and actual transformer circuits.
8. Explain AC generator and motor fundamental theory.
9. Calculate three phase power characteristics, such as phase to phase and phase to ground voltages/current.