

MAYLAND COMMUNITY COLLEGE



ELC 131 10
8-15-07

PO Box 547
or
200 Mayland Drive
Spruce Pine, NC 28777
828-765-7351 or 1-800-462-9526

**MAYLAND COMMUNITY COLLEGE
Welcomes You To:**

**ELC 131 10
AC/DC Circuit Analysis
Credit: 5 Contact: 7**

Course Description

This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation software, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment.

Prerequisites: None

Corequisites : MAT 121

Instructor Information

Instructor: David Pittman
Office Location: 103b
Telephone Number: 765-7351 ext. 284
E-mail Address: dpittman@mayland.edu
Office Hours: Mondays & Wednesdays: 4:30 – 5:30
Tuesdays & Thursdays: 10:30 – 11:00

Course Information

Course meetings: Mondays & Wednesdays 10:00 – 1:20

Required Text(s): Foundations of Electronics, Meade, 4th edition

LRC Resources: none

Required supplies: TI 36X calculator, wire strippers, needle nose pliers

Course Objectives/Competencies:

The purpose of this class is to gain an understanding of the electrical and electronics fundamentals. Thorough knowledge of the fundamentals is critical to success in any facet of the electrical or electronics professions. This class will attempt to communicate

basic facts, concepts and principles while fostering the students ability to apply this knowledge to “real life” situations.

1. Overview of today’s electronic technology and the great opportunities afforded in this field.
2. Crucial terms and elemental concepts presented as the foundations for the topics addressed throughout the remainder of the course.
3. Essential circuit fundamentals will be presented, so the student can develop the ability to analyze various circuit configurations.
4. In the process of learning these fundamentals several passive devices will be studied; including resistors, inductors and capacitors.
5. Important test instruments and their uses will be covered.

Attendance Policy/Tardiness/Make-Up Work:

Prompt and continual attendance is required. All assignments are due ‘on time’. Students will receive a zero for any assignment not turned in on time. As for a missed exam, a makeup opportunity will not be allowed, except for authorized excuses (such as notes from a doctor or hospital, proof will be required).

Grading Criteria/Tests/Projects:

Tests	55%
Homework	20%
Lab	25%

Grading Scale:

A =>	90
90 > B =>	80
80 > C =>	70
70 > D =>	60
60 > F =>	0

Inclement Weather Procedures:

If we experience dangerous weather conditions do not risk your safety to attend class. Any classes that are missed due to weather will be made up, at a time that is satisfactory to all.

Academic Standards/Student Expectations/Ethics:

Do your own work. Be cordial to and respectful of your classmates. If you cheat on a test, copy someone's homework, or exhibit unethical behavior; you will be subject to one or more of the following: (1) No credit for the assignment/exam and/or (2) removal from the course. If you wish to contest any assertion of failure to meeting academic standards, you may exercise the due process options listed in the Student Handbook.

Withdrawal Dates:

End of Unconditional Withdrawal- 9-25-07

End of Conditional Withdrawal- 11-01-07

If a student has not been in contact with the instructor and has not attended class for a consecutive two-week period, an administrative withdrawal will be submitted by the instructor.

Any student requesting special accommodations for this course due to a disability should apply for services through the SOAR Office or the Counseling Center, which will document the disability. A counselor will then help determine which accommodations, if any, the student needs for success in this course.

Course Outline/Weekly Topics

Week 1	Basic concepts of electricity, electron theory, electrical quantities, TI 36X calculator, expectations.
Week 2	Electrical components, metric system, conductors, color code.
Week 3	Ohm's Law, polarity and voltage, work, energy, power
Week 4	Series circuits, Kirchoff's voltage law, designing circuits, EXAM I
Week 5	Parallel circuits, Kirchoff's current law, designing parallel circuits.
Week 6	Series-parallel circuits, voltage dividers, Wheatstone bridge.
Week 7	Basic Network theorems, EXAM II
Week 8	Basic AC quantities, period, frequency, phase, SIN, COS, TAN.
Week 9	The oscilloscope week., measuring period, frequency and amplitude
Week 10	Capacitance, electric field, energy storage, charge and discharge
Week 11	Capacitive reactance in AC, V and I relationships in series and parallel
Week 12	RC circuits in AC, phase angles, applications. EXAM III
Week 13	Inductance, Faraday's and Lenz's laws, L/R time constant.
Week 14	inductive reactance in AC, reactances in series and parallel.
Week 15	RLC circuit analysis, series RLC, parallel RLC, resonance
Week 16	Transformers, review, FINAL EXAM