

MAYLAND COMMUNITY COLLEGE



ELN 131 10
01-07-07

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or
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Spruce Pine, NC 28777
828-765-7351 or 1-800-462-9526
mayland.cc.nc.us

**MAYLAND COMMUNITY COLLEGE
Welcomes You To:**

**ELN 131 10
Electronic Devices
Credit: 4 Contact: 6**

Course Description

This course includes semiconductor-based devices such as diodes, bipolar transistors, FETs, thermistors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment.

Prerequisites:

Corequisites : ELC 112, ELC131 or ELC 140

Instructor Information

Instructor: David Pittman
Office Location: 103b
Telephone Number: 765-7351 ext. 284
E-mail Address: dpittman@mayland.edu
Office Hours: Tuesdays & Thursdays 10:30 – 11:00
Wednesdays 4:00 – 5:00
Fridays 9:00 – 11:00

Course Information

Course meetings: Mondays, Wednesdays 1:00 – 3:50

Required Text(s): Paynter, Robert T., Introductory Electronic Devices and Circuits, 7th Edition, Prentice Hall Publishers, Inc., 2000.

LRC Resources: none

Required supplies: TI 36X calculator

Course Objectives/Competencies:

Electronic devices are components with *dynamic* resistance characteristics. That is, they are components whose resistance is determined by the voltage applied to them, or

by the current drawn through them. Electronic devices are somewhat complex devices that are used in virtually every type of electronic system. They are used extensively in communications systems (televisions, radios, and VCRs), digital systems (PCs and calculators), and industrial systems (robotics and process control systems). Our goal will be to gain a thorough understanding of these devices and their uses.

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	60%
Homework	20%
Lab	20%

Grading Scale:

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

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: February 13, 2007
End of conditional withdrawal: March 27, 2007

ACADEMIC WITHDRAWAL STATEMENT:

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.

ADA Statement

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	Atomic theory, doping, PN junctions.
Week 2	PN junction diodes, zener diodes.
Week 3	LED's, diode testing, transformers.
Week 4	Rectifiers, filters, regulators.
Week 5	Clippers, clampers, voltage multipliers.
Week 6	Varactor diodes, tunnel diodes, EXAM I.
Week 7	Bipolar junction transistor characteristics.
Week 8	Base, emitter, voltage-divider and feedback-bias circuits.
Week 9	Amplifier properties, classifications and decibels.
Week 10	Common-emitter amplifiers.
Week 11	emitter-follower, darlington and common-base amplifiers, EXAM II.
Week 12	Common base applications, AC load line.
Week 13	Class A, B and AB amplifiers.
Week 14	JFET operation and troubleshooting.
Week 15	MOSFET operation and troubleshooting.
Week 16	Amplifier frequency response, FINAL EXAM.