

COLLEGE OF ARTS AND SCIENCES

Course Syllabus

- DEPARTMENT:** Agricultural Sciences
- COURSE NUMBER/TITLE:** I T 134, Electronics Technology I
- CREDIT HOURS:** 3 (2-2 Format)
- SEMESTER/YEAR:** Spring 2005
- LOCATION/TIME:** Thomason, 209 T/Th 0011-1150
Thomason, 201 Th 1200-1150 (Lab)
- INSTRUCTOR:** Tom Higgins
- CONTACT:** Thomason 204, phone 294-1204
e-mail: thiggins@shsu.edu
Office hours: T/Th 0800 - 0930
T/Th 1400-1530
For an appointment call: 294-1204
- TEXT/REFERENCE:** Lecture: Electric Circuit Fundamentals, 7th ed. Thomas L. Floyd, Merrill Publishing Co., 2004
- Laboratory: Basic Electricity: A Text-Lab Manual, 7th ed. Paul B. Zbar & Gordon Rockmaker, Glencoe, 2001.
- COURSE DESCRIPTION:** This course is designed to provide a general knowledge of electrical and electronic applications. Emphasis is on electrical safety, power generation, DC circuits, metering instruments, and circuit-use applications. Laboratory experiences will include "hands-on" circuit construction and basic troubleshooting.

COURSE OBJECTIVES:

This course is designed to provide a general knowledge of electrical and electronic applications. Emphasis is on electrical safety, power generation, DC circuits, metering instruments, and circuit-use applications. Laboratory experiences will include "hands-on" circuit construction, soldering, and basic troubleshooting. Credit 3.

1. Describe the nature of electricity and the force that moves current around a closed loop.

2. Identify resistor values and select proper resistors for specific applications.
3. Describe the relationship of voltage, current, and resistance. Demonstrate the application of OHM's law.
4. Solve for missing voltage, current, resistance and power values in series, parallel, and series-parallel circuits.
5. Demonstrate knowledge of Kirchoff's law.
6. Properly measure voltage, current, and resistance using analog and digital meters.
7. Define the function and calculate the values of capacitors and inductors in series and parallel.
8. Describe the basic theory of magnetism, AC voltage, and alternating current.

COURSE OUTLINE:

- I. Introduction to Electricity
 - A. Quantities
 - B. Atomic structure
 - C. Charges
 - D. The volt
 - E. Resistance
 - F. Sources of electricity
 - G. Conductors and insulators
 - H. Resistors
 - I. Inductors
 - J. Capacitors

EXAM I

- II. Ohm's Law
 - A. Current, $I = V/R$
 - B. Voltage, $V = IR$
 - C. Resistance, $R = V/I$
 - D. Multiple and sub-multiple units
 - E. Power
 - F. Power dissipation

EXAM II

- III. Series Circuits
 - A. Series current
 - B. Series resistance
 - C. Series (IR) voltage drops
 - D. Voltage polarities
 - E. Total power
 - F. Aiding and opposing voltages
 - G. Analyzing series circuits

EXAM III

- IV. Parallel Circuits
 - A. Voltage drops
 - B. Branch currents
 - C. Parallel resistances
 - D. Parallel conductance
 - E. Total power

EXAM IV

- V. Series-Parallel Circuits
 - A. Series-parallel resistance
 - B. Analyzing series-parallel circuits
 - C. Wheatstone bridge
 - D. Chassis-ground connections

- VI. Voltage-Current dividers

EXAM V

- VII. Kirchoff's Laws

- VIII. Network Theorems

- IX. Introduction to Magnetism
 - A. Magnetic units
 - B. Induction
 - C. Alternating voltage and current
 - D. The 60-hz AC power line

EXAM VI

COURSE EVALUATION:

Each unit of study consists of daily activities, laboratory experiences and exams. Missed work and/or exams may be submitted or made-up at the discretion of the instructor; a grade reduction, determined by the instructor, shall be applied to any late work. Grading shall be according to the following:

Laboratory Assignments	20 %
Assignments/quizzes	10 %
Exams	<u>70 %</u>
Total:	100 %

Course letter grades will be assigned according to the following:

A	90 - 100 %
B	80 - 90 %
C	70 - 80 %
D	60 - 70 %

F

0 - 60 %

ATTENDANCE POLICY:

The University's attendance policy is stated in the current undergraduate catalog. The following statements describe the attendance policy for this class and are designed to benefit those with exemplary attendance.

Every student is expected to be present and *on time* for every class. Punctual students are normally annoyed by the disruption of those who continually walk into class late. The class roster will be checked daily.

If you are absent, whether excused or unexcused, you are still responsible for the material covered. *I will feel obligated to disseminate material and instructions one time only.* If you are absent, the responsibility for obtaining handouts and information is incumbent on you. You would be wise to establish relationships with fellow students for assuring that you are allowed to make copies of distributed documents or notes in order to remain well-informed and adequately prepared for exams.

Missed tests may be completed with the consent of and at a time designated by the instructor. Any accepted late work or assignments will be penalized 20 points (starting at close of class period) per late day or portion thereof. Daily Assignments (discussion, quizzes, homework, exercises) are considered in-class participation activities and will not be accepted after the fact.

You may bring drinks into the classroom (clean your own spills and discard empty containers prior to leaving), but **NO** food or tobacco in any form; **NO** food, drinks, or tobacco products are allowed in the lab. Please **de-activate** cell phones, pagers, and beeping calculators/watches

The purpose of this class is for each of you to learn as much as possible about the subject. Please keep distractions to a minimum and assist your classmates in this learning process.

ACADEMIC DISHONESTY:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. Any student determined to have engaged in dishonest conduct on exams or other assignments will receive a grade of zero for the assignment on the first of such events. If a second infraction occurs, the student will receive a grade of F for the course.

CLASSROOM RULES OF CONDUCT:

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

AMERICANS WITH DISABILITIES ACT:

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. **NOTE:** no accommodation can be made until you register with the Counseling Center.

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY:

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.