**East Tennessee State University • Department of Engineering Technology**
**ENTC 2310-001 • Electrical Principles • Fall 2012**


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| **Instructor** | Mr. Garth Ghearing |
| **Classroom** | 223 Wilson Wallis Hall |
| **Class times** | Monday and Wednesday 9:20-11:20am |
| **E-mail** | ghearingg@etsu.edu |
| **Phone** | (423) 439-7825 |
| **Office** | 111A Wilson Wallis Hall |
| **Office Hours** | MW 11:30am-12:30pm & Fri 9:20am-12:30pm |
| **Class Homepage** | https://elearn.etsu.edu/d2l/ |


## I Course Description, Credit Hours, and Prerequisites

ENTC 2310 Electrical Principles (4 credits) Prerequisite(s): MATH 1720.
Introduction to electricity, DC circuits, power, DC meters, conductors, insulators, capacitance, magnetism, and electromagnetic induction AC circuits, reactance, impedance, AC power, power factor, and resonance. Lecture and lab.

## II Course Objectives

Upon completion of the course, the student will have developed and demonstrated a clear understanding of the following:

- The properties of materials used in electronic circuits.
- The DC and AC characteristics of passive electronic components including conductors, resistors, capacitors, inductors, and transformers.
- The principles of analysis, design, and measurement of basic DC and AC circuits.
- The principles of analysis, design, and measurement of magnetism and electromagnetic induction.
- The elements, design, and use of basic electronic measurement instrumentation.
- The components, characteristics, and design of resonant circuits.
- The safe use of laboratory equipment and procedures for data collection and presentation.

## III Texts and Materials

There are no printed texts required for this class.

There is no equipment required for this class. However, since you're saving money by not purchasing a textbook, it might behoove you to get some minor hardware of your own. Sharing multimeters and breadboards with the rest of the university can be a pain. Buying your own can save you the hassle of blown fuses, lost components, and the like.

Again, there are no purchasing requirements, but if you have a few bucks to make your life easier, you might pick up a digital multimeter for anywhere from a few dollars to a few hundred. You might also want to get a solderless breadboard of your own.

We have access to electronic versions of textbooks through the database at Sherrod Library and those new-fangled interwebs that I keep hearing about. We will be using Volumes I and II of Kuphaldt's Lessons in Electric Circuits. They are available free under the Design Science License at http://openbookproject.net/electricCircuits/ and at http://www.allaboutcircuits.com/. You can view them online or download them in either .html or .PDF format. Please don't print them. That's a lot of paper.

If you need a physical book to hold, Ugly's Electrical Reference Book is usually around ten bucks and is a very good reference for almost all things electrical. It isn't required, but will come in handy in classes and life. I always have mine with me.
If you still need more references, the library's database (http://ezproxy.etsu.edu:2048/login?url=http://www.engnetbase.com) has handy books like:

> Comprehensive dictionary of electrical engineering / Phillip Laplante, editor-in-chief
> ISBN 0-8493-312805 (alk. paper)
> ISBN 3-540-64835-6 (alk. paper)
> 1.Electric engineering – Dictionaries. I. Laplante, Phillip A.
> TK9.C575 1999621.3'03-dc21
>
> The electronics handbook / edited by Jerry C.Whitaker.—2nd ed.
> p. cm.—(Electrical engineering handbook series; v. 34)
> Includes bibliographical references and index.
> ISBN 0-8493-1889-0 (alk. paper)
> 1. Electronic circuits–Handbooks, manuals, etc. I. Whitaker, Jerry C. II. Series.
> TK7867.E4244 2005 621.381—dc22 2004057106

## IV Attendance Policy

Attendance may be taken at any time during each class meeting. Show up and you might learn something.

**Students are responsible for the material covered in all class sessions as well as all assignments.**

## V Evaluation and Grading

| **Required Tasks** | **Point Value** |
|---|---|
| Labs | 10 points |
| Quizzes | 20 points |
| Mid-Term Exam | 25 points |
| Final Exam | 25 points |
| Total Course Points | 100 points |

**Minimum Score to Receive**

**A = 90** **B+ = 87** **B = 83** **B- = 80** **C+ = 77**

**C = 73** **C- = 70** **D+ = 67** **D = 60** **F = Below 60%**

## VI Attachment Link for Academic Misconduct, Disabilities, Counseling, Dates, Tutoring, etc.

http://www.etsu.edu/reg/academics/syllabus.aspx