



## COURSE INFORMATION

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Credits	4

## DESCRIPTION

Study of current flow, direct current circuits, and concepts of power. The introduction of currents and impedances using circuit analysis and problem solving techniques.

## COURSE OBJECTIVES

At the completion of this course students should be able to:

- 1) Use scientific notation to represent numeric values
- 2) Use metric notation to represent measured and calculated electrical values
- 3) Describe the characteristics of electrical current flow
- 4) Identify the value of passive components by color code and other markings
- 5) Use Ohm's law and Watt's law to calculate values of voltage, current, resistance, and power in an electrical circuit
- 6) Describe the characteristics of resistors and resistor applications
- 7) Identify and design series, parallel, and series-parallel electrical circuits
- 8) Use circuit theorems and conversions in circuit design and analysis
- 9) Describe the principles of magnetism and electromagnetism (Starts in DC and continues in AC)

## COURSE OVERVIEW

This course introduces the concepts of electricity, direct current (dc) flow and resistive electrical circuits. It covers scientific notation and metric conversions; electrical components and their schematic symbols; the electrical quantities of resistance, voltage, current, power, magnetism and electro-magnetism plus their units of measurement; Ohm's law, Watt's law, and other circuit theorems. The analysis of series, parallel and series-parallel circuits with text and Multisim circuit simulation software will be covered in this course. Capacitive, inductive, filter electrical circuits and transformers will be covered in the EET106 course offered in the Spring 2013 semester.

Please note the course recommends the purchase and downloading to your personal pc of the Multisim Software to perform the assigned lab experiments from the lab manual accompanying the Floyd text. This software is a onetime purchase and can be used with the ETEC106 course as well. Instructions for this purchase requirement will be provided and assistance with starting it up on your pc will be available as well. A link to Multisim provided below. Note: an Apple version was not





available as of Spring 2014. Apple has iCircuit which works just as well. Electronic Tech students will be using Multisim in the advanced courses with Steve Shen and Steve Stiff.

Although not defined as a pre-requisite, the ability to perform basic algebra (Math 90 or higher is a pre-requisite) will be an essential component for a student to be successful in this course!

The online Moodle course shell includes PowerPoint presentations and short video presentations (webcasts) to supplement reading materials. An internet connection with reasonable (DSL) bandwidth is recommended. If you haven't worked in Moodle please review the UMOOnline 101 link on the right hand side of the class home page.

## REQUIRED TEXTS/MATERIALS

Principles of Electronic Circuits; Ninth Edition; Thomas Floyd; Pearson Prentice Hall; 2010 (the text and lab manual are bundled)

Scientific Calculator (recommend TI 84-Titanium, TI 86, or TI 89)

Multisim circuit simulation software – to purchase and download visit

<http://www.studica.com/us/en/National-Instruments/multisimstudentedition.html>

## ASSESSMENT/GRADING POLICIES

90 - 100 = A

80 - 89 = B

70 - 79 = C

60 - 69 = D

## GRADING SUMMARY

25% Homework Assignments

50% Exams

25% Lab Manual Assignments

## TOPICAL OUTLINE

1. Quantities and Units
2. Voltage, Current, and Resistance
3. Ohm's Law
4. Power and Energy
5. Series Circuits
6. Parallel Circuits
7. Series Parallel Circuits
8. Circuit Theorems and Conversions
9. Magnetism and Electromagnetism (started in the end of DC and the beginning of AC)





## DISABILITY ACCOMMODATIONS POLICY

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications.

