

DC Circuits EET 121

Course Number:	EET 121	Phone:	419-267-1231
Class Days/Time:	MW 10am – Noon	Office:	E1102
Class Room:	E101	email:	mkwiatkowski@northweststate.edu
Instructor:	Mike Kwiatkowski	Office Hours:	MW: 3 – 5pm TR: 10:30am - Noon
Last Day to withdraw:	See website @northweststate.edu		

Course Description:

In this course the student will learn the fundamental principles of electricity with emphasis on DC (direct current) circuits. The concepts of Ohm's Law, the Power Formula, and Kirchoff's Laws will be applied to series, parallel, and series-parallel circuits. Electrical quantities will be defined and the behavior of resistors, inductors, and capacitors under DC conditions will be studied. Complex circuits will be analyzed using the theorems of superposition, and Thevenin and Norton equivalent circuits. The relationship between electricity and magnetism will also be introduced. These topics will be learned through text, presentations, various exercises, and hands-on labs.

This course follows the Ohio TAG (Transfer Assurance Guide) for DC Circuits, OET001.

Prerequisites: *MTH090 (proficiency in Algebra)*

Required Text:

Principles of Electric Circuits: Conventional Current Version – 9e Floyd, Prentice Hall

Required Supplies:

Online supplement: Computer with Internet connection, access to MyNSCC and WebCT

Lab Activity: Digital multimeter (DMM), safety eyewear, and other supplies TBD

Course Objectives:

After completing this course the student will be able to

1. Define electrical quantities such as voltage, current, and resistance and recognize common components.
2. Apply Ohm's Law, the Power Formula, and Kirchoff's Laws .
3. Analyze series, parallel, and series-parallel circuits using mesh and nodal techniques.
4. Analyze complex circuits using superposition, and Thevenin and Norton equivalencies.

5. Describe the behavior of resistors, capacitors, and inductors under DC conditions.
6. Specify the relationship between electricity and magnetism.

Course Grading and Policies:

Grading. There may be homework assignments in each chapter, at least eight (8) hands-on labs, and three (3) exams. The overall grade will be based on these scores along with class participation as follows:

Homework Assignments	25%
Hands on Labs	30%
Exams	40%
Participation/Attendance	5%
Total	100%

Final grade for the course is based on a ten point scale:

- A = 90% or above
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = below 60%

Class Participation.

The student is expected to actively participate in all scheduled activities and is responsible for completing assignments on time. This involves checking the course website and/or class e-mail often, at least daily. While it is understood some absences are unavoidable, missing class sessions seriously impairs the student's ability to learn course material. Studies have shown that students learn best and retain knowledge longer when exposed to new material in frequent short doses. "Cramming" for tests and quizzes is counter-productive for meaningful learning. Please stay current with textbook and classroom study.

Out of respect for others in class, please silence or turn off cell phones and music players. Also, workstation computers are not to be used during lectures unless permitted by the instructor.

Homework

Homework will be assigned for each chapter. There will be a declared due date for each assignment. For full credit consideration homework is due on this date. It may be turned in up to a week late after the due date for up to fifty percent (50%) of the homework value.

Exams.

There will be three (3) written exams. The exams will cover material from the immediately preceding units.

Withdraw Information.

Refund and withdrawal dates for this course can be found under the Calendars/Schedule link on the NSCC homepage (www.northweststate.edu). Select the semester and scroll down to the course number.

Withdrawing from a course can affect your financial aid eligibility. The student accepts full responsibility and consequences for withdrawing from classes.

ADA Information.

Any student who feels he/she may need an accommodation based on the impact of a disability should contact me privately to discuss specific needs. Also, please contact the Accessibility Services Office in office A105B or via phone at 419-267-1265 to coordinate reasonable accommodations arising from documented disabilities.

Academic Honesty.

Plagiarism of any type will not be tolerated, for further information, see the college catalog section of the Northwest State website, www.northweststate.edu. All work submitted in class not original to the student must be cited. This includes text, graphics, images, electronic photographs, and the like. ***No excuses.***

Student Responsibility.

Students are responsible for material assigned on this syllabus as well as for additional information announced in class. The instructor will not rely totally on material from the textbook. Students are expected to complete all assignments on time.

E-mail Communication.

Electronic-mail (e-mail) is a valuable communication tool and especially useful in distance learning and online education programs. The ease of sending e-mail however has encouraged the loss of writing etiquette and social courtesy. Good message composition has given way to fragments and absent punctuation. I encourage students to read *E-Mail Etiquette: The Do's and Don'ts* in hardcopy or online. **At a minimum, when sending e-mail messages please include in the subject line the class number and section.** For example, "EET121-001: Question on lecture".

Course Schedule.

The course schedule appears below. Please note that the schedule may change with updates posted via e-mail and/or the course website.

Unit	Week of	Topic	Assignment
1	8/18	<ul style="list-style-type: none"> • Introduction • Quantities and Units 	<ul style="list-style-type: none"> • Read syllabus • Read text Chapter 1 • View PowerPoint slides 1-1
	8/25	<ul style="list-style-type: none"> • Voltage, Current, and Resistance 	<ul style="list-style-type: none"> • Read text Chapter 2 • View PowerPoint slides 1-2 • Chapter 1 homework • Lab 1:
2	9/1	<ul style="list-style-type: none"> • Ohm's Law • Energy and Power • Power Formula 	<ul style="list-style-type: none"> • Read text Chapters 3, 4 • View PowerPoint slides 2-1 •
	9/8	<ul style="list-style-type: none"> • Series Circuits • Kirchoff's Voltage Law 	<ul style="list-style-type: none"> • Read text Chapter 5 • View PowerPoint slides 2-2 • Chapter 2 Homework • Lab 2:
3	9/15	<ul style="list-style-type: none"> • Parallel Circuits • Kirchoff's Current Law 	<ul style="list-style-type: none"> • Read text Chapter 6 • View PowerPoint slides 3-1 •
	9/22	No new material	<ul style="list-style-type: none"> • Lab 3: • Review for exam • Exam 1 Chapters 1-6
4	9/29	<ul style="list-style-type: none"> • Series-Parallel Circuits • The Wheatstone Bridge 	<ul style="list-style-type: none"> • Read text Chapter 7 • View PowerPoint slides 4-1
	10/6	<ul style="list-style-type: none"> • DC Voltage/Current Sources • Superposition Theorem 	<ul style="list-style-type: none"> • Read text Chapter 8 pp. 286-300 • View PowerPoint slides 4-2 • Lab 4:
5	10/13	<ul style="list-style-type: none"> • Thevenin's Theorem • Norton's Theorem 	<ul style="list-style-type: none"> • Read text Chapter 8 pp. 300-325 • View PowerPoint slides 5-1
	10/20	<ul style="list-style-type: none"> • Branch Current Analysis • Mesh/Loop Current Analysis 	<ul style="list-style-type: none"> • Read text Chapter 9 pp.341-359 • View PowerPoint slides 5-2 • Lab 5:
6	10/27	<ul style="list-style-type: none"> • Node Voltage Analysis 	<ul style="list-style-type: none"> • Read text Chapter 9 pp. 359-366 • View PowerPoint slides 6-1 • Lab 6:

	11/3	No new material	<ul style="list-style-type: none">• Review for exam• Exam 2 Chapters 7-9
7	11/10	<ul style="list-style-type: none">• Capacitors in DC Circuits• Inductors in DC Circuits	<ul style="list-style-type: none">• Read text Chapters 12, 13• View PowerPoint slides 7-1
	11/17	<ul style="list-style-type: none">• Electricity and Magnetism	<ul style="list-style-type: none">• Read text Chapter 10• View PowerPoint slides 7-2
8	11/24	<ul style="list-style-type: none">• Introduction to AC circuits• Residential Electric circuits	<ul style="list-style-type: none">• Read supplemental handouts• View PowerPoint slides 8-1• Lab 7:
	12/1	<ul style="list-style-type: none">• Industrial Electric circuits	<ul style="list-style-type: none">• Review for exam• Lab 8:
	12/8	Final Exam Week	<ul style="list-style-type: none">• Exam 3 Chapters 10,12,13