

# NorthCentral

## MISSOURI COLLEGE

### SYLLABUS

#### MF122 Basic Electricity 1 Spring Semester 2015

**Course Number:** MF122

**Instructor Information:**

**Name:** Jeffrey T. Blanton

**Phone:**

**Office:** Barton Campus Lager Building

**Email:** jblanton@mail.ncmissouri.edu

**Office Hours:** By Appointment

\*Faculty will respond to email/phone messages within 48 hours Monday-Friday. All email correspondence is through NCMC student email.

**Course Description:** This course is a hands-on study of the fundamental electricity principles and applications. Students will study electricity and its applications using resistors (simulated or Amatrol training modules), Ohm's law, series and parallel circuits, and combination circuits. This course will also include electrical wiring techniques, system installation, an introduction into raceways, conduit bending, disconnects, and over current protection.

**Prerequisites:** None

**Credit Hours:** 3

**Textbook and /or Supplementary Materials:**

Amatrol eLearning Systems, 1<sup>st</sup> edition Rev F; Amatrol Inc.

Current National Electric Code

Cotren Learning Series, Electrical Level One, edition 2008; Pearson Prentice Hall

**Student Learning Objectives:** *(Five to eight learning outcomes (what you deem important for students to know, think, do, or value upon completion of this course) are recommended.)*

<b>Student Learning Objective</b>	<b>Assessment Method</b>
Upon successful completion of this course the student will be able to:	Describe the assessment tool/s used to demonstrate each student learning outcome.
<b>1. Take basic measurements of resistance, current, and voltage in series and parallel circuits.</b>	<b>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by</b>

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<p><b>Continuance of Item No.1</b></p>	<p><b>direct observance of the instructor) and Final Exam</b></p>
<p><b>2. Calculate power requirements for circuits</b></p>	<p><b>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam</b>  <b>Completion of Amatrol online module exercise, quizzes, hands on training and labs, section tests, and Final Exam</b></p>
<p><b>3. Demonstrate an understanding of characteristics and inductance and capacitance.</b></p>	<p><b>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam.</b></p>
<p><b>4. Demonstrate an understanding of combination circuits (where series and parallel circuits are combined)</b></p>	<p><b>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam.</b></p>
<p><b>5. Select connect and troubleshoot transformers.</b></p>	<p><b>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam.</b></p>

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<p><b>6. Make basic conduit bends.</b></p>	<p>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam.</p>
<p><b>7. Size conduit and pull conductors.</b></p>	<p>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam</p>
<p><b>8. Select conductors, disconnects, and over current protection for different applications.</b></p>	<p>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested practical methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam</p>
<p><b>9. Use trouble shooting techniques to trouble shoot circuits.</b></p>	<p>Completion of Amatrol online module exercise, quizzes, labs, section tests, hands on training assessed by comparing work to known standards dictated by the specifications set forth in the National Electrical Code and IEEE approved and suggested methods for the design and construction of electrical systems (Satisfactory completion will thus be graded by direct observance of the instructor) and Final Exam</p>

**Course Outline/Major Topics Studied:**

1. Basic electrical circuits
2. Electrical measurement using test instruments
3. Circuit analysis
4. Inductance and capacitance
5. Combination circuits
6. Electrical wiring techniques
7. Wiring system installation

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8. Introduction to raceways
9. Basic conduit bending
10. Conductors disconnects and over current protection
11. Conduit sizing
12. Basic electrical schematics and construction drawings.
13. Basic troubleshooting methods and techniques

**Instructional Methods and Techniques:** *(Suggestions below)*

1. lecture
2. class discussion
3. small group work
4. individual/group work
5. learner presentation
6. guest speakers from profession

**Course Requirements:** *(List specifically what will be graded and how points will be awarded.)*

This course requires a minimum of two hours of out-of-class work for every one hour of faculty instruction.

The following activities will be utilized in determining final grades.

1. Hands on lab work, daily assignments, and attendance will constitute 40% of the final grade. Students will be allowed 1 absence without it affecting the final grade. After that the points deduction will be determined by dividing 100 by the total number of classes and deducting the accumulated sum from the 40% total share of this block.
2. Amatrol quizzes will constitute 20% of the final grade
3. Progress tests will constitute 20% of the final grade.
4. The final exam will constitute 20% of the final grade.

The instructor reserves the right to grade on a curve at his discretion.

**Grading Scale:**

- 90 to 100 = A  
80 to 89.99 = B  
70 to 79.99 = C  
60 to 69.99 = D  
59.99 and below = F

**Attendance and Class Participation:** *(Add your own attendance and class participation policies to the following.)*

All students are expected to take all examinations and submit all assignments on the scheduled date at the scheduled time unless prior permission has been obtained from the instructor. In the event of illness or emergency, the student may make up the examination by making arrangements with the instructor. No assignments will be accepted without the permission of the instructor. It is the responsibility of the student to contact the instructor to schedule any make up work or quizzes.

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Absences reduce the value of the learning experience and reduce the probability of passing the course as research indicates successful college students attend class regularly. NCMC strongly encourages students to attend classes on a regular basis as registration for any NCMC course presupposes that the student will attend all scheduled classes, laboratories, and clinicals. **Failure to attend class does not constitute an official standard withdrawal.** Students are responsible for withdrawing from classes.

After the published Add/Drop date, students are financially responsible for costs associated with classes from which they have withdrawn. Students are also financially responsible for the course under the Administrative Drop Policy.

Administrative Drop Policy:

- In an 8-week or full semester on-ground class, if a student fails to attend during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week class, if a student fails to attend during the **first six calendar days** of the semester, an administrative drop will occur.
- In an 8-week or full-semester online class, if a student does not complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week online class, if a student fails to complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first six calendar days** of the semester, an administrative drop will occur.
- Under these circumstances, students are financially responsible for 50% of tuition and course fees associated with classes from which they have been administratively dropped.

**Additional Information:** *(Use this section if applicable.)*

Both an electronic attendance and grade sheet will be maintained by the instructor to track attendance and all work grades

**Academic Dishonesty Policy:**

All members of the learning community at NCMC are expected to be honest. The College will not tolerate cheating or plagiarism on tests, examinations, reports, laboratory reports, and/or other assignments. Those who engage in such misconduct may be subject to disciplinary action that may result in expulsion. Any student who commits or attempts to commit an act of misconduct shall be subject to disciplinary sanctions. Acts of misconduct include, but are not limited to:

- Cheating - Cheating includes, but is not limited to, giving or receiving unauthorized assistance in taking quizzes or examinations; using inappropriate or unallowable sources during an examination or in preparing course assignments; obtaining or distributing tests or other academic information without permission; or falsifying data or any official college record.

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- Plagiarism - Plagiarism includes, but is not limited to, using by direct quotation or paraphrase the words or material of another person without properly crediting the author; presenting ideas or creations of another as one's own without consent or appropriate attribution.
- Deliberate alteration or destruction of the academic work or intellectual property of another member of the College community.

*(Add your own policy about academic dishonesty—what are the consequences for cheating in your class?)*

### **Special Accommodations:**

North Central Missouri College complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with documented disabilities who need special classroom accommodations must make their requests in writing to: Disability Support Services, Alexander Student Center, 1301 Main Street, Trenton, MO 64683 or call 660-359-3948, ext. 1405 for an appointment. Services provided can be found at:

[http://www.ncmissouri.edu/services/disability\\_services/default.aspx](http://www.ncmissouri.edu/services/disability_services/default.aspx)

If you have been approved for an accommodation, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately.

### **Early Alert:**

Success in this course is important. When the instructor believes that a referral to the Early Alert Program will help a student academically, information will be sent to appropriate college personnel. As a result, the student may be contacted by other faculty/staff in order to develop an intervention that will help in achieving educational goals. Please take advantage of these and other resources while at NCMC.

### **Communications:**

Students are required to use their NCMC student email account for any correspondence within the college. Students are also highly advised to check their email and SAIL accounts on a regular basis.

### **Finals:**

If an emergency occurs that prevents the administration of a final examination, the student's final course grade will be calculated based on the work in the course completed to that point in time and the faculty member's considered judgment. Final exams will not be rescheduled, and a grade of "I" will not be given as a result of the missed exam. This Finals policy does NOT apply to online courses.

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