

MARTIN COMMUNITY COLLEGE
BCI COURSE SYLLABUS
Semester/Year: BCI Spring 2011

COURSE NUMBER: ELC 112 (01)

INSTRUCTOR: Mr. Baker

COURSE TITLE: DC/AC Electricity

CLASSROOM: P6

CREDIT HOURS: 5

CLASS HOURS: 8:00-11:00 AM
12:30-3:30 PM

CONTACT HRS/WK: 9 (3 class, 6 lab)

CLASS DATES: Jan 5 - Feb 11, 2011

PREREQUISITES: None

COREQUISITES: None

COURSE DESCRIPTION: This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.

PROGRAM LEARNING OUTCOMES:

1. Use electrical test equipment including voltmeters, ohm meters, and amp meters to measure voltage, trouble-shoot, analyze and repair electrical apparatus found in residences such as receptacles, light switches, circuit breakers, special purpose outlets.
2. Install and maintain equipment which consists of conduit, service and lighting panels found in commercial related businesses such as schools, malls, stores, theaters, restaurants, and churches.
3. Select, install, and maintain equipment found in industrial settings such as motors, motor starters, transformers, and PLCs. Interpret, write and modify ladder logic diagrams used by control equipment and PLCs in industrial manufacturing processes.

COURSE LEARNING OUTCOMES:

1. Incorporate the laws of electron theory and use its principals to solve electrical problems concerning voltage, amperage and resistance.
2. Identify series, parallel and series parallel combination circuits.
3. Apply ohms law and utilize test instruments to verify, trouble shoot and repair electrical devices using the principles of electron theory.

REQUIRED TEXTBOOKS:

Textbook: Kubala, Thomas S. (2006). *Electricity one: Devices, circuits, and materials (8th ed.)*. Albany, N. Y.: Delmar.
ISBN #: 9780766819177

SUPPLEMENTAL RESOURCES:

Supplies/Materials; Basic Calculator, pen, pencil, and scratch paper

!!!Special Safety Notice!!!

Due to the nature of this class, working with Electricity creates the possibility of being **Shocked**. All project work must be de-energized while being installed on the board. Once the project is installed, then and only then may it be energized for testing.

LEARNING/TEACHING METHODS:

Lecture, individual/group discussion, written tests and hands on projects, outside reading assignments

ASSESSMENTS/METHODS OF EVALUATION:

1. Outside reading assignment= 5% of final grade. The Quality Enhancement Program. The QEP (Quality Enhancement Program) reading assignments will be evaluated in the following manner:

A = 100 to 90 Points for 300 words or more with 5 or less misspellings

B = 89 to 80 Points for 300 words or more with 7 or less misspellings

C = 79 to 70 Points for 300 words or more with 9 or less misspellings

D = 69 to 60 Points for 300 words or more with 11 or less misspellings

F = 59 to 0 Points for less than 300 words or more than 300 words with 12 or more misspellings

F = 0 for any form of plagiarism

2. Projects= 40%
3. Tests= 40%
4. Final Exam= 15%
5. Total= 100%

GRADING POLICY:

Grading Scale:

A (90 to 100)

B (80 to 89)

C (70 to 79)

D (60 to 69)

F (below 60)

READING ASSIGNMENT:

Each student is required to use reading materials other than the assigned text book to do research to write one to two paragraphs with a minimum of 300 words which discusses, the electrical and or electronics technology field. The assignment can be current or new developments and methods or future concepts of electrical technology. The source of the assignments can come from trade publications, internet articles, news papers or any other reliable source which explains current and future concepts of the electrical industry. The assignment will count five percent of the final grade for the course.

COURSE OUTLINE:

COURSE HOURS: This is a blocked course and meets from; January 5 to February 11 which is approximately 5 weeks.

TIMELINE FOR COVERING TOPICS

WEEK 1: Introduction to DC and AC principles, OHM's Law, and Electron Theory. Chapter 1 & 2

Assignment: Application of Ohm's law to solve voltage, resistance and amperage problems. Series Circuits, Parallel Circuits.

Chapter 3 & 4

Assignment: Analyze, trouble-shoot and solve series and parallel circuit problems.

WEEK 2: Series-Parallel Circuit Combinations.

Chapter 5

Assignment: Use Ohm's Law to trouble-shoot and solve series and parallel combination circuit problems.

WEEK 3: Electrical Energy and Power.

Chapter 6

Assignment: Apply mathematical problems to solve work to energy ratios.

WEEK 4: Batteries.

Chapter 7

Assignment: Analyze name plate data on batteries to calculate amp-hour and volt capacity.

WEEK 5: Conductor and wire sizes.

Chapter 8

Assignment: Use CSA of conductor to compute AWG sizes.

STUDENT ATTENDANCE POLICY: ELC 112 is a 9 contact hour course. An F will be given once absenteeism exceeds 20 percent of class contact hours. For ELC 112, two contact hours is the 20 percent point. The rule is established by MCC's attendance policy and is stated in the 2009-2011 Career Catalog.

Students must be present in at least one class during the census (10%) of a course in order to be considered enrolled in the class. If a student has not attended at least one class by the ten percent census date, the instructor will administratively withdraw the student.

Tardiness: If the student is not in class at its scheduled start time, it is a tardy. Three times tardy is equal to one hours absence and if a student misses full hour(s) or more, absenteeism will be accumulate for each hour missed and a tardy for the portion of next hour.

Early Departure: If a student leaves class early, each hour he is out of class attendance. The preceding paragraph explains the instructor's definition of tardiness and early departure.

Students will be counted absent form the date they registered for each course.

REQUEST FOR EXCUSED ABSENCES FOR RELIGIOUS OBSERVANCES*

***In compliance with G.S. 115D-5, MCC policy permits a student to be excused, with the opportunity to make-up any test or other missed work, a minimum of two excused absences per academic year for religious observances required by the student's faith. The policy limits the excused absences to a maximum of two days per academic year.**

Students who wish to be excused for a Religious Observance required by their faith must complete and submit a request form to the instructor(s) prior to the census date of each class. The ***Request for Excused Absences for Religious Observances*** form can be picked up from Student Services. This does not supersede the college-wide attendance policy as outlined in the college catalog or syllabus, with the exception of a reasonable accommodation for the make-up of missed course work.

Please check with Ms. White or your Case Manager for any Questions about the above statement.

COURSE POLICIES: Classroom conduct and safety policy

1. No horseplay
2. Safety glasses will be worn at all times while in project installation area.
3. NO sleeping or laying head down on desk. If you are too tired to stay awake in class you will have to leave the classroom and receive an absence for that period.
4. DO NOT sit on or put your feet on desk tops.
5. Students are to remain silent while the instructor is talking or another student is answering a question for the instructor.
6. NO tobacco products of any kind will be consumed in the classroom.
7. DO NOT throw any object or objects in the classroom or while in the vocational area.
8. Keep your work area clean and put objects back in the store room when finished at the end of the day.
9. You are expected to bring your books, notes and paper/pencils to class each day.
10. **Students will not make threatening or intimidating comments or gestures to the Instructor or students. If you are threatened by another student notify the instructor and the student making the threat will be dealt with according to BCI student conduct rules. Threatening the instructor by word or deed will result in the immediate removal of the student by BCI personnel.**

If you cannot reach your instructor, you may contact Mr. Watkins (coordinator)

If you have a need for a disability-related accommodation, please notify your case manager.