# 11/6/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 3 September 2020

Term and Year of Implementation: Spring 2021

**Course Title:** Electrical Level 2 Part 1

**BRCC Course Rubric:** ELEC 1216

**Previous Course Rubric**:

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 2-8-6

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 30-120-150

**Louisiana Common Course Number:**

**CIP Code:** 46.0302

**Course Description:** Covers the National Center for Construction Education and Research (NCCER) Electrical Level 2 Modules 1 - 4: Alternating Current (AC), Motors: Theory and Application, Electric Lighting, and Conduit Bending. Successful completion of this course requires passing the NCCER Level 2 Electrical Modules 1 – 4 Exams with a 70% or higher. This course requires a lab fee.

**Prerequisites:**  ELEC 1119

**Co-requisites:** None

**Suggested Enrollment Cap:** 15

**Learning Outcomes.** *Upon successful completion of this course, the students will be able to:*

1. Calculate the peak and effective voltage or current values for an AC waveform and the phase relationship between two AC waveforms.

2. Describe the relationship between voltage and current in different types of AC circuits, inductive and capacitive reactance and how each is affected by frequency, and basic transformer action.

3. Describe the various types and applications of motors, motor enclosures, and motor components.

4. Describe the characteristics of light, the advantages and disadvantages of different kinds of lamps and lighting fixtures, and the relationship of Kelvin temperature and the color of light produced by a lamp.

5. Demonstrate the proper procedures to connect the terminals for a dual-voltage motor, install various lighting fixtures and their associated lamps, and bend conduit according to certain specifications.

**Assessment Measures.** Assessment of all learning outcomes will be measured using the following methods:

1. Practical demonstrations and skills performances.

2. Homework assignments, quizzes, and tests.

3. NCCER Electrical Level 2 Modules 1 - 4 Exams.

**Information to be included on the Instructor’s Course Syllabi:**

* ***Disability Statement*:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
* ***Grading:*** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class”.
* ***Attendance Policy*:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
* ***General Policies*:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
* ***Cheating and Plagiarism*:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
* ***Safety Concerns:*** In some courses, this may be a major issue. For example, “No student will be allowed in the lab without safety glasses”. General statements such as, “Items that may be harmful to one’s self or others should not be brought to class”.
* ***Library/ Learning Resources:*** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. Alternating Current (AC)

A. Introduction to AC

B. Sine Wave Generation and Terminology

C. AC Phase Relationships

D. AC Circuits

E. Capacitance

F. Transformers

II. Motors: Theory and Application

A. Introduction to Motors

B. Types of Motors

C. Motor Enclosures, Frame Designations, Ratings, and Nameplate Data

D. Motor Connections and Motor Installation

III. Electric Lighting

A. Introduction to Lighting

B. Ballasts and Lighting Fixtures

C. Lighting Fixture Installation

IV. Conduit Bending

A. Introduction to Conduit Bending

B. Mechanical Bending

C. Electric Conduit Benders and Hydraulic Conduit Benders

D. Bending Techniques