# 11/11/2020

# 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 1

**BRCC Course Rubric:** ELEC 1119

**Previous Course Rubric**:

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 3-12-9

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 45-180-225

**Louisiana Common Course Number:**

**CIP Code:** 46.0302

**Course Description:** Covers the National Center for Construction Education and Research (NCCER) Electrical Level 1 Modules 1 - 12: Orientation to the Electrical Trade, Electrical Safety, Introduction to Electrical Circuits, Electrical Theory, Introduction to the National Electrical Code, Device Boxes, Hand Bending, Raceways and Fittings, Conductors and Cables, Basic Electrical Construction Drawings, Residential Electrical Services, and Electrical Test Equipment. Successful completion of this course requires passing the NCCER Level 1 Electrical Modules 1 – 12 Exams with a 70% or higher. This course requires a lab fee.

**Prerequisites:**  CORE 1003

**Co-requisites:** None

**Suggested Enrollment Cap:** 15

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

1. Explain electrical safety issues, series and parallel circuits, voltage, current, and resistance.

2. Perform calculations using Kirchoff's Laws and Ohm's Law.

3. Interpret electrical drawings and the structure of the National Electrical Code (NEC).

4. Demonstrate the appropriate method to mount a device box, to make hand and saddle bends, to cut, ream, and thread conduit, to install and terminate a raceway system, to install a conductor in a raceway system, and to measure voltage, current, and resistance using various electrical test equipment.

5. Explain the grounding requirements and proper installation rules for a residential electrical service.

**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 1 Modules 1 - 12 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. Orientation to the Electrical Trade

A. Introduction

B. Career Opportunities in the Electrical Field

C. Your Training Program

D. Responsibilities of the Employee

E. Responsibilities of the Employer

F. Safety

II. Electrical Safety

A. Electrical Hazards

B. Ladders, Lifts, and Lifting

C. General Construction Safety Topics

D. Fall Protection and Hazard Assessment

III. Introduction to Electrical Circuits

A. Introduction to Electrical Theory

B. Ohm's Law; Schematics; Measurements

C. Power Equations

IV. Electrical Theory

A. Resistive Circuits

B. Applying Ohm's Law to Resistive Circuits

C. Kirchoff's Law

V. Introduction to the National Electrical Code (NEC)

A. Introduction to the NEC

B. Navigating the NEC

VI. Device Boxes

A. Introduction to Device Boxes

B. Sizing Outlet Boxes

C. Installing Boxes

VII. Hand Bending

A. Introduction to Hand Bending

B. Offset and Saddle Bends

C. Joining Conduit

VIII. Raceways and Fittings

A. Introduction to Raceways and Conduit

B. Metal Conduit

C. Fittings, Fasteners, and Supports

D. Wireways and Cable Trays

E. Construction Methods

IX. Conductors and Cables

A. Introduction to Conductors

B. Specialty Conductors

C. Installing Conductors in Conduit Systems

X. Basic Electrical Drawings

A. Introduction to Construction Drawings

B. The Drawing Set

C. Analyzing Drawings

D. Specifications

XI. Residential Electrical Services

A. Introduction to Electrical Service

B. Sizing Electrical Service

C. Grounding

D. Installation

E. Electric Heating and Pools

XII. Electrical Test Equipment

A. Introduction to Electrical Test Equipment

B. Voltmeter

C. Ohmmeter

D. Ammeter and Multimeter

E. Megohmmeter and Other Instruments