# 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 2

**BRCC Course Rubric:** ELEC 1226

**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 5 - 11: Pull and Junction Boxes, Conductor Installations, Cable Tray, Conductor Terminations and Splices, Grounding and Bonding, Circuit Breakers and Fuses, and Control Systems and Fundamental Concepts. Successful completion of this course requires passing the NCCER Level 2 Electrical Modules 5 – 11 Exams with a 70% or higher. This course requires a lab fee.

**Prerequisites:**  ELEC 1216

**Co-requisites:** None

**Suggested Enrollment Cap:** 15

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

1. Describe the different types of pull and junction boxes and their applications, how mandrels, swabs, and brushes are used to prepare conduit for conductors, methods to hang and secure cable trays, and the operation of a circuit breaker and fuses.

2. Calculate the probable stress or tension in cable pulls and size conductors and jumpers according to certain specifications.

3. Explain the purpose of grounding and bonding, the function of the grounding electrode system, the function of the main and system bonding jumpers in the grounding system, the necessity of overcurrent protection devices in electrical circuits, and how mechanical and solid-state contactors operate.

4. Distinguish between a short circuit and a ground fault and between grounded systems and equipment grounding.

5. Demonstrate how to properly select, install, and support pull and junction boxes, install a pull line for a cable-pulling operation, select and join two cable tray sections together, terminate conductors using different types of terminals and connectors, insulate selected types of wire splices, and connect and test control circuits.

**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 5 - 11 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. Pull and Junction Boxes

A. Introduction to Pull and Junction Boxes

B. Conduit Bodies and Fittings

C. Installing Pull and Junction Boxes

II. Conductor Installations

A. Introduction to Conductor Installations

B. Planning and Setting Up Conductor Installations

C. Cable-Pulling Equipment and High-Force Cable Pulling

D. Supporting Conductors and Pulling Cable

III. Cable Tray

A. Introduction to Cable Trays

B. Installation and Design

C. Pulling Cable and Safety

IV. Conductor Terminations and Splices

A. Introduction to Conductor Terminations and Splices

B. Stripping, Wire Connections Under 600V, and Heat-Shrink Insulators

C. Terminating Cable

D. Taping Electrical Joints and Motor Connection Kits

V. Grounding and Bonding

A. Introduction to Grounding and Bonding

B. Grounding Equipment

C. Three-Point Testing

VI. Circuit Breakers and Fuses

A. Introduction and Circuit Breaker Ratings

B. Ground Fault Circuit Protection and Fuses

C. Overcurrents and Sizing Fuses

D. Safety and Coordination

VII. Control Systems and Fundamental Concepts

A. Introduction and Magnetic Contactors

B. Relays

C. Protective Enclosures and Remote Control Switching

D. Troubleshooting