# 8/12/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 2 September 2020

Term and Year of Implementation: Fall 2020

**Course Title:** Comprehensive Electrical Engineering

**BRCC Course Rubric:** ENGR 2953

**Previous Course Rubric**: ENGR 295

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 2-2-3

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 30-30-60

**Louisiana Common Course Number:**

**CIP Code:** 14.1001

**Course Description:** Introduces the student to the fundamental concepts of electrical engineering. Emphasizes elementary circuits, devices and systems. Not intended for electrical engineering majors.

**Prerequisites:**  MATH 2125 (or MATH 211) with a grade of C or better

**Co-requisites:** None

**Suggested Enrollment Cap:** 30

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

1. Comprehend the use of the following electrical elements: resistors, inductors, capacitors, voltage sources, current sources and switches.

2. Apply these electrical elements in an electrical network.

3. Distinguish between an electrical network’s responses when powered by direct current and when powered by alternating current.

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

1. Individual instructor-designed assignments will assess a portion of the learning outcomes and will be given as a portion of the total grade. Assignments will include written assignments, homework and quizzes; all assignments will be graded using an instructor-designed rubric.

2. Department-designed quizzes/tests will collectively assess a portion of the learning outcomes and will be administered during the semester as listed.

3. A department-designed comprehensive final exam will cover the learning outcomes and will be given at the end of the semester.

**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. Introduction (Units of Measurement, Systems of Units, Significant figures, powers of ten)

II. Voltage and Current

III. Resistance

IV. Ohm’s Law, Power, and Energy

V. Series DC circuits

VI. Parallel DC circuits

VII. Methods of analysis

VIII. Network Theorems

IX. Capacitors

X. Inductors

XI. Sinusoidal Alternating Waveforms

XII. The Basic Elements and Phasors

XIII. Series and Parallel AC circuits

XIV. Resonance