Cape Cod Community College

Departmental Syllabus

Prepared by the Department of Natural Sciences and Applied Technology
Date of Departmental Approval: August 28, 2017
Date approved by Curriculum and Programs: October 11, 2017 **Effective: Fall 2018**

1. **Course Number: ENR205 / ENR205L**
   Course Title: Circuit Theory II / Circuit Theory II Laboratory

2. **Description:** This is the second of two courses that begin a student's preparation for a career in electronics and related fields. The course is structured for those interested in expanding their background into the world of electronics. The course focus is on AC and polyphase circuit analysis, Laplace and Fourier transforms, the s-Domain, and Bode diagrams.

3. **Student Learning Outcomes** (instructional objectives, intellectual skills)**:**
   Upon successful completion of this course, students are able to do the following.
   - Demonstrate an understanding of AC sinusoidal circuit analysis and power calculations.
   - Demonstrate an understanding of AC polyphase and magnetically coupled circuits.
   - Perform complex frequency and Laplace circuit transforms accurately.
   - Demonstrate an understanding of AC circuit analysis and the s-Domain.
   - Demonstrate an understanding of Frequency Response in a Bode Diagram.
   - Perform Fourier circuit analysis accurately.
   - Utilize multimeters and oscilloscopes to measure electrical quantities safely and accurately.
   - Successfully apply computer-based circuit simulation to AC electric circuits.

4. **Credit(s):** 4 credits (3 class hours / 2 laboratory hours)

5. **Satisfies General Education Requirement:** No

6. **Prerequisite(s):** ENR204 (Circuit Theory and Analysis 1)

7. **Semester(s) Offered:** Spring

8. **Suggested General Guidelines for Evaluation**: The course grade will be based on homework assignments; class work and participation; quizzes; one-hour exam(s); laboratory work and reports; and a final examination. Specific course grading procedures and make up policies are detailed in a student handout.

9. **General Topical Outline:**
   1. Sinusoidal steady-state analysis.
   2. AC circuit power analysis.
   3. Polyphase circuits.
   4. Magnetically coupled circuits.
   5. Complex frequency and Laplace transform.
   6. Circuit analysis and the s-Domain.
   7. Frequency response: Bode Diagram.
   8. Fourier circuit analysis.