
East Carolina University
Department of Industrial Technology
Study Guide (Syllabus)

ICEE 2020 Integrated Collaborative Engineering IV

General Information:

Credit Hours: (4) 3 lecture hours per week, 2 hours lab.

Catalog Description: Covers advanced engineering fundamentals of analysis and design of electrical circuits including amplification, resonance, and three phase power distribution. Lab covers design of electrical circuits, including use of electrical instrumentation.

Prerequisites: ICEE 2010

Corequisites: PHYS 2350

Other: N/A

Course Coordinator: Dr. Phil Lunsford

Resource Requirements:

Required Textbooks: • Hambley, Allan R. Electrical Engineering: Principles and Applications, 2nd Edition. Prentice Hall, 2002, ISBN 0-13-061070-4

Course Competencies:

Upon completion of this course each student will be able to:

1. Analyze AC and DC circuits including mathematical description of inductive and capacitive current and voltage.
2. Employ instrumentation and software to design, build and analyze AC circuits.
3. Understand the basic concepts of amplification and control applied to circuits.
4. Analyze three phase power distribution including power factors
5. Apply instrumentation and circuit simulation software to design and analyze circuits.

Professional Expectations:

In achieving the course competencies, each student is expected to:

- **Be Responsible:** The most important characteristic for a successful engineering career is to take responsibility for your assignments and produce results. Be prepared, complete reading, homework assignments, and projects on or before due dates and appear for and complete all quizzes, tests and the final exam. Don't be a burden on your class mates or your professor.
- **Build Teamwork and collaboration:** Work with your classmates to learn collaboratively and develop the teamwork essential for success in an engineering career.
- **Participate and be an Active Learner:** Be on time, ask questions, and participate positively in each class and lab session.
- **Develop professional work Habits:** Keep work area neat and clean, and use and take proper care of equipment.
- **Be Honest:** Cheating, plagiarism, etc. of any type are not allowed and are grounds for receiving an "F" in the course.
- **Be Prepared and Complete Assignments in a Timely Manner:** Be prepared for your classes and bring needed materials. Assignments must be completed and submitted for grading when they are due.

Computer Applications:

The course includes two software tools that are essential design components for success in engineering. The first solves and analyzes circuit problems from a mathematical and differential equation perspective. The second is used for design of circuit and instrumentation systems.

Laboratory Facilities and Equipment Usage:

This course employs an engineering lab for exercises in circuit design and analysis. Students will perform and receive grades on experiments that support course competencies. Open lab hours will give students maximum opportunity for completing experiments and assignments.

Course Outline:

Topics covered in this course include:

<u>Concepts in circuits analysis</u>	
1.	Circuit definitions
2.	DC and AC circuits analysis
3.	Capacitive and inductive circuits
4.	Series and parallel equivalent circuits
5.	Amplification and resonance
6.	Power distribution and three phase systems

Student Assessment:

Students will be evaluated based on the combination of class activities. The final grade will be assessed with the following criteria:

Grading		Assessment	
A	90% or better	Quizzes	10 %
B	80% or better	Exams	40 %
C	70% or better	Lab assignments	35 %
D	60% or better	Projects	15 %
F	Less than 60%	Total	100%

Assignments must be completed and submitted for grading when they are due.

ATTENDANCE: Required

DISABILITY POLICY: East Carolina University seeks to fully comply with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a covered disability must go to the Department for Disability Support Services, located in Brewster A-114, to verify the disability before any accommodations can occur. The telephone number 252-328-6799.