

ECE4371 Course Syllabus

ECE4371

Antenna Engineering Laboratory (0-0-3-1)

CMPE Degree

This course is Elective for the CMPE degree.

EE Degree

This course is Selected Elective for the EE degree. * (Selected Elective means this course is one of a few choices that are required for the degree.)

Lab Hours

3 supervised lab hours and 0 unsupervised lab hours

Course Coordinator

Durgin, Gregory David

Prerequisites

None

Corequisites

ECE 4370 Antenna Engineering

Catalog Description

Experimentation to develop a practical understanding of antennas and their properties.

Textbook(s)

No Textbook Specified.

Course Outcomes

Upon successful completion of this course, students should be able to:

1. Operate RF test and measurement equipment.
2. Design, simulate, build, and test an antenna.
3. Work on a team to obtain a technical result through experimentation
4. Identify a wide variety of basic antenna types.
5. Conduct basic antenna measurements such as impedance, pattern, and cross-polarization.

Student Outcomes

In the parentheses for each Student Outcome:

"P" for primary indicates the outcome is a major focus of the entire course.

"M" for moderate indicates the outcome is the focus of at least one component of the course, but not majority of course material.

"LN" for "little to none" indicates that the course does not contribute significantly to this outcome.

1. (P) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. (M) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

3. (M) An ability to communicate effectively with a range of audiences
4. (LN) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. (M) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. (P) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. (LN) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Topical Outline

- 1.RF Test & Measurement I: Signal Generator and Spectrum Analyzer U
- 2.RF Test & Measurement II: Network Analyzer Usage
- 3.Basic Antenna Range Measurements
- 4.Measure Parameters from Canonical Antenna Types
- 5.Measure Propagation Parameters Using RF Test & Measurement
- 6.Design, Build, Fabricate, and Test an Antenna