KENNESAW STATE UNIVERSITY

SOUTHERN POLYTECHNIC COLLEGE OF ENGINEERING AND ENGINEERING TECHNOLOGY
DEPARTMENT OF ENGINEERING TECHNOLOGY

SYLLABUS

ECET 3410: HIGH FREQUENCY SYSTEMS

FALL 2021

Course Information

Lecture meeting time: ***Monday & Wednesday 5^{00}-6^{15}pm***
Modality: Face-to-Face **Q-216** (Face-to-Face), **Microsoft Teams** (Online)

Lab meeting time: ***Monday or Wednesday 6^{30}-9^{15}pm***
Modality: Face-to-Face **Q-336** (Face-to-Face), **Microsoft Teams** (Online)

Instructor Information

Name: **Jeff Wagner**
Email: **jeffwagner@kennesaw.edu**
Office: **Q-224**
Phone #: **404-791-5427** ← The preferred method of communication is Text Message / Phone Call.

Office Hours: ***Monday & Wednesday 2^{15} - 3^{00}pm & 4^{00} - 5^{00}pm***

Office Hours will be held face-to-face during Fall 2021.

Course Description

A study of electronic transmission systems. The course includes the detailed study of rf transmission lines with a concentration on their fundamental principles, specifications, operation, and practical applications. The course also includes the study of the fundamental principles of wireless communications.

Prerequisites: **ECET 2110** Credit Hours: **4**

Learning Outcomes

Students who successfully complete this course will be able to:

- Demonstrate an understanding of the terms relating to and the basic characteristics of high-frequency systems.
- Calculate voltages, currents, and impedance of RF transmission lines.
- Describe the behavior of DC transients on transmission lines.
- Use the Smith chart to solve for transmission line performance parameters.
- Implement stub matching on a transmission line using the Smith chart.
- Calculate parameters associated with plane wave propagation.
- Describe waveguide operation and calculate parameters associated with waveguide operation and selection.

Course Materials

Required Text:	**Electronic Transmission Technology** (2nd Edition) – **Sinnema**
Required Equipment:	A **calculator** capable of performing **complex # calculations**.
	A **compass** (for drawing accurate circles).
	In addition to an internet-connected computer/laptop, you must also have access to a **printer** in order to printout any handouts or assignments and a **scanner** (or cellphone with camera) for submitting required assignments electronically via D2L.

Course Requirements and Assignments

During the Fall 2021 semester, this course is being offered as a traditional on-campus course that consists primarily of face-to-face instructional components.

Lecture Sessions (Lectures)

The **lecture** portion of this course will be presented in a traditional (face-to-face) format that will take place in the assigned classroom (Q-216) during the regularly-scheduled lecture time blocks (Monday & Wednesday 5^{00} – 6^{15} pm).

Students are **required** to physically attend all of the lecture sessions. At the current time, there are no plans to either stream the live lecture sessions via Microsoft Teams or to record and post the lectures for viewing online asynchronously.

Lab Sessions (Lab Experiments, Lab Assignments, and the Final Project)

Lab Experiments are measurement-based experiments that will be conducted in a face-to-face format in the assigned lab room (Q-336) and will take place immediately after the lecture sessions during their regularly-scheduled laboratory time blocks (either Monday or Wednesday 6^{30} - 9^{45} pm). These experiments will typically include discussions regarding the measurements being performed and the results of those measurements.

Students are **required** to physically attend all of these scheduled (face-to-face) lab experiments.

Most of the lab experiments will require each individual student to perform some after-lab calculations based on the measured values and then to submit a brief report that summarized the results of those calculations.

Lab Assignments are "take-home" assignments that will be provided to the students via D2L and completed by the students on an individual basis. Lab assignments do not require on-campus attendance.

A **Final Project** will also be assigned for the lab towards the end of the semester. Details relating to the project will be provided later in the semester.

Course/Policy Changes

Although this course has was designed for 100% face-to-face instruction, it has been modified for hybrid offering (online & face-to-face) in order to compensate for the safety restrictions implemented due to the Covid-19 pandemic. Since it hasn't been offered in this format before, unforeseen problems may arise. Furthermore, the Covid-19 situation on campus could change at any time, also causing unexpected problem. In either case, policy changes may be required to overcome these problems. If so, students will be notified of any such changes as soon as possible.

Evaluation and Grading Policies

The overall **LECTURE** grade will be based on the following weighted components:

IN-Class Exams	**70%** of overall lecture course grade ← Three equally-weighted exams.
Final Exam	**30%** of overall course grade

OVERALL GRADE SCALE

90% - 100%	**A**
80% - 89%	**B**
70% - 79%	**C**
60% - 69%	**D**
0% - 59%	**F**

I will round up overall course grades if the decimal portion is ≥ 0.5,
for example, an overall grade of 89.6 will be assigned an A, but 79.2 will be assigned a C.

The overall **LABORATORY** grade will be based on the following weighted components:

Lab Experiments/Assignments	**80%** of overall lab course grade
Lab Final Project	**20%** of overall lab course grade

OVERALL GRADE SCALE

90% - 100%	**A**
80% - 89%	**B**
70% - 79%	**C**
60% - 69%	**D**
0% - 59%	**F**

I will round up overall course grades if the decimal portion is ≥ 0.5,
for example, an overall grade of 89.6 will be assigned an A, but 79.2 will be assigned a C.

Other Course Policies

Other policies may be provided in D2L.

Institutional Policies

Federal, BOR, & KSU Course Syllabus Policies

KSU Student Resources

This link contains information on help and resources available to students:
KSU Student Resources for Course Syllabus

Detailed Schedule of Events

A "tentative" schedule has been provided in a separate module within D2L. This schedule has been provided in order to present an overview of the various topics that will covered throughout the semester. Although every effort will be made to adhere to this schedule, it should only be considered as a prediction of the events to come.