

<b>Department</b>	Electrical and Computer Engineering
<b>Course Number</b>	<b>EE 335</b>
<b>Course Title</b>	Electromagnetic Theory II
<b>Course Designation</b>	Elective
<b>University Catalog Description</b>	Semesters offered: S; Prerequisites: EE 334 -- Introduction This course provides the student the opportunity to gain more depth in EM field topics such as Maxwell's equations, plane wave propagation, radiation and antennas, and the use of the Smith Chart.
<b>Faculty Coordinator</b>	Dr. Todd Kaiser
<b>Prerequisite by Topic</b>	Sources of electric and magnetic fields, boundary conditions of electric and magnetic fields.
<b>Textbook</b>	Ulaby: Fundamentals of Applied Electromagnetics, 5 <sup>th</sup> Ed. Pearson-Prentice Hall, 2007
<b>Course Objectives</b>	To produce graduates who have an in-depth understanding of energy propagation with plane waves and a thorough understanding of transmission lines and the use of the Smith's Chart.
<b>Course Learning Outcomes</b>	At the conclusion of EE 335, students are expected to : 1) Understand Maxwell's Equations for time varying fields 2) Understand plane wave propagation 3) Understand the difference between TE and TM waves in terms of polarization. 4) Understand Snell's first and second laws. 5) Extend plane wave propagation in unbounded media to plane wave propagation in transmission lines. 6) Compare the definition of impedance in unbounded media to the propagation in transmission lines. 7) Use the Smith Chart for impedance calculations and impedance matching. 8) Use bounce diagrams to describe the transient behavior of transmission lines with resistive loads. 9) Understand electromagnetic radiation 10) Understand transmitting and receiving antennas
<b>Topics Covered</b>	1) Wave transmission and reflection of plane waves under both normal and oblique incidence. 2) TEM propagation in transmission lines and waveguides. 3) Impedance calculations. 4) Standing waves. 5) Smith Charts 6) Finite difference method 7) Far field radiation of dipoles. 8) Arrays of dipoles.
<b>Class/Laboratory Schedule</b>	EE 335 meets three times /week for 50
<b>Professional Component (Criterion 5)</b>	This course strongly supports the use of field theory for use in antenna design and communications.
<b>ECE Program Outcomes</b>	EE 335 supports following Program Outcomes: a. An ability to apply knowledge of mathematics, science, and engineering. e. An ability to identify, formulate, and solve engineering problems. g. An ability to communicate effectively. i. A recognition of the need for, and an ability to engage in life-long learning. k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
<b>Total Credit Hours</b>	3
<b>Prepared by</b>	Todd Kaiser 5/2009