

**University of Portland (UP)
School of Engineering**

EE 301 – Electromagnetic Fields – 3 cr. hrs.

Spring 2017

Tentative Course Outline Sheet

Course Purpose: The purpose of this course is to introduce the students to the basic definitions, concepts and laws that are essential in understanding the characteristics and propagation of electromagnetic waves.

**Student
Outcomes:**

At the successful completion of this course, the student is expected to gain the following skills:

- Understand the fundamental differences between Lumped-circuit versus distributed-circuit analysis;
- Understand transmission-line fundamentals;
- Understand the Smith chart and its applications;
- Analyze and design impedance-matching networks;
- Become familiar with Maxwell's equations; and
- Understand the properties of uniform plane electromagnetic waves.

Instructor:

Aziz S. Inan, Ph.D.
Office#: Shiley Hall 215
Phone#: 503-943-7429, Fax#: 503-943-7316
E-mail: ainan@up.edu
Personal website: <http://faculty.up.edu/ainan/>

Lecture Hours:

MWF 11:25-12:20 (Location: Shiley Hall 124)

Office Hours:

M 13:30-15:30; T 12:30-13:30; W 14:30-15:30; & F 13:30-14:30

<p><i>"I prefer death to lassitude. I never tire of serving others,"</i> by Leonardo da Vinci (1452–1519)</p>

Textbook:

Engineering Electromagnetics and Waves by Inan² Said
(Pearson, 2015, ISBN 978-0-13-266274-1)

Course Content:

Lumped vs Distributed Electrical Circuits (Chapter 1)
Digital Signals Traveling on Transmission Lines (Chapter 2)
Steady-State Waves on Transmission Lines (Chapter 3)
Smith Chart and Impedance Matching (Chapter 3)
Maxwell's Equations (Chapter 7)
Electromagnetic Waves (Chapter 8)

Prerequisites:

EE 261, MTH 301, and PHY 205.

Grading Policy:

The total numerical grade is computed based on the following percentages:

- 2% for contemporary issues
- 18% for homework
- 50% for the two midterm exams (25% each) and
- 30% for the final exam

The final letter grade in the course is assigned based on the following total numerical grade intervals out of a total of 100 points:

90–100	A ⁻ -A	(Excellent Performance)
80–89	B ⁻ -B ⁺	(Good Performance)
70–79	C ⁻ -C ⁺	(Average Performance)
60–69	D ⁻ -D ⁺	(Poor Performance)
<60	F	(Inadequate Performance)

Typically, the numerical average of the total numerical grades is assigned to about a B⁻ grade.

Exam Dates:

The exam dates are tentatively set as follows:

Midterm exam #1 – Friday, February 17, 2017

Midterm exam #2 – Friday, April 7, 2017

Final exam* – Tuesday, May 2, 2017, 10:30-12:30

*Comprehensive and mandatory for all the students.

☹-Class Dates:

Monday-Friday, March 13 through 17, 2017 (Spring Break)

Friday & Monday, April 14 & 17, 2017 (Easter Break)

Tuesday, April 11, 2017 (Founder's Day Presentations*)

*Attendance expected.

Homework:

Weekly homework will be assigned. Solutions for each homework assignment will be provided on the due date. Homework assignments are mandatory, that is, every student is expected to do the homework assignments on time to qualify for consideration to receive a passing grade in the course.

Sorry, but, no late homeworks will be accepted!!☹

Therefore, no late homeworks will be expected!!☹

Contemporary Issues

Assignment:

Due Friday, April 7, 2017. This assignment is worth 10 points (about 2% of the total class grade).

The purpose of this assignment is to help students become more aware of contemporary issues related to electrical engineering that can affect their careers and lives. To receive credit for this assignment, you need to attend at least one professional meeting or lecture where a contemporary issue related to electrical engineering is presented and write a short summary of the presentation.

A list of pre-approved events will be posted at <http://faculty.up.edu/hoffbeck/ContemporaryIssues.html>

If you plan to attend a presentation that is not listed on the website, please contact your instructor before the event to see if it will be approved for this assignment.

The summary should be approximately one page long, and should include the following items:

1. Your name
2. The title, date, and location of the event
3. Name of the speaker, and his/her affiliation (company or university)
4. Summary of the presentation discussing the main points and what you learned from the presentation.

UP's code of Academic Integrity:

Academic integrity is openness and honesty in all scholarly endeavors. The University of Portland is a scholarly community dedicated to the discovery, investigation, and dissemination of truth, and to the development of the whole person. Membership in this community is a privilege, requiring each person to practice academic integrity at its highest level, while expecting and promoting the same in others. Breaches of academic integrity will not be tolerated and will be addressed by the community with all due gravity (taken from the University of Portland's Code of Academic Integrity).

The complete code may be found in the 2016-2017 University of Portland Student Handbook and as well the Guidelines for Implementation. It is each student's responsibility to inform him or herself of the code and guidelines.

Assessment Disclosure:

Student work products for this course may be used by the University for educational quality assurance purposes.

Accommodation for Disability:

If you have a disability and require an accommodation to fully participate in this class, contact the Office for Students with Disability (OSWD), located in the University Health Center (503-943-7134), as soon as possible.

Diversity & Green Dot Statement:

All persons should be safe to express their opinions in my class, regardless of their race, religion, political philosophy, gender, sexual orientation, or disability. In addition, I encourage anyone to speak up on behalf of themselves or others, if the classroom environment becomes uncomfortable for any reason.

Tuesday, January 17, 2017 marks Benjamin Franklin's 311th birthday!



What is special about my 311th birthday in 2017?

Answer: If my 311th birthday expressed as 01-17-2017 is split as 0117 and 2017, 2017 is the 306th prime number where one-third of the reverse of half of 306 yields 0117! Further, half of 306 equals the Franklin number coined by A. Inan!