

Cover Sheet: Request 12363

EEL3472C Electromagnetic Fields and Applications 1

Info

Process	Course Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Shannon Chillingworth schill@ece.ufl.edu
Created	2/28/2018 2:17:16 PM
Updated	4/4/2018 4:42:19 PM
Description of request	Update title and course description

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Electrical and Computer Engineering 011905000	Robert Fox	Updating title and course description	2/28/2018
EEL3472C_Fund_EM_UCC2_Syll.docx					2/28/2018
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by HWCOE Curriculum Committee 4/4	4/4/2018
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			4/4/2018
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Modify for request 12363

Info

Request: EEL3472C Electromagnetic Fields and Applications 1

Description of request: Update title and course description

Submitter: Shannon Chillingworth schill@ece.ufl.edu

Created: 2/28/2018 2:10:23 PM

Form version: 1

Responses

Current Prefix EEL

Course Level 3

Number 472

Lab Code C

Course Title Electromagnetic Fields and Applications 1

Effective Term Earliest Available

Effective Year Earliest Available

Requested Action Other (selecting this option opens additional form fields below)

Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? Yes

Current Course Title Electromagnetic Fields and Applications 1

Proposed Course Title Fundamentals of Electromagnetic Fields

Change Transcript Title? Yes

Current Transcript Title ELECTROMAGNETIC FLD 1

Proposed Transcript Title (21 char. max) Fund ElectroMAG FLDs

Change Credit Hours? No

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 0

Change Course Description? Yes

Current Course Description Transmission line equations, electrostatics, magnetostatics, time-varying fields, plane waves, introduction to antennas and waveguides. Laboratory.

Proposed Course Description (50 words max) Transmission lines, vector analysis, electrostatics, magnetostatics, time-varying fields, plane waves. Laboratory.

Change Prerequisites? No

Change Co-requisites? No

Rationale Updated course title and description more accurately reflect course content.

Fundamentals of Electromagnetic Fields

EEL3472C Sections

Class Periods: TBD

Location: TBD

Academic Term: TERM YEAR

Instructor

- Name: V.A. Rakov
- Email Address: rakov@ece.ufl.edu
- Office Phone Number: (352) 392-4242
- Office Hours: TBD

Teaching Assistants

Please contact through the Canvas website

- TBD
- TBD

Course Description

Transmission lines, vector analysis, electrostatics, magnetostatics, time-varying fields, plane waves. *Laboratory.*

Course Pre-Requisites / Co-Requisites

Prerequisite: EEL 3008, PHYSICS OF EE

Course Objectives

Students will learn fundamentals of electromagnetic fields, from waves guided by transmission lines to generalized Maxwell's equations and Poynting's theorem. The learning process will be facilitated by examples from the electric energy system practice and lightning research. Practical aspects, such as the electromagnetic skin effect, will be emphasized throughout the course.

Materials and Supply Fees

N/A

Professional Component (ABET)

This course consists of 4 credits of Engineering Science

Relation to Program Outcomes (ABET)

The ABET outcomes are:

Engineering Criteria

a - an ability to apply knowledge of mathematics, science, and engineering

EE Program Criteria

EE2 - knowledge of mathematics, basic and engineering sciences necessary to analyze and design complex systems

Required Textbook

- Title: FUNDAMENTALS OF APPLIED ELECTROMAGNETICS
- Author: ULABY and RAVAIOLI
- Publication date, edition, and publisher: 7TH EDITION, Pearson, 2015
- ISBN number: 0133356817

Recommended Materials

EEL 3472C Fundamentals of Electromagnetic Fields

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Course Schedule

Course Section	Number of Lectures	HA Due	Test	Chapter(s) in Text
Introduction	1	-	-	1
1. Transmission Lines- Transmission Line equations; sinusoidal waves; characteristic impedance; reflection and transmission; standing wave; attenuation and dispersion; non-sinusoidal waves.	7	01/29	02/02	2
2. Review of Vector Analysis- Vector addition and subtraction; dot and cross products; line and surface integrals; intro. to differential operators; Cartesian, cylindrical and spherical coordinates.	4	02/09	02/12	3
3. Electrostatics- Coulomb's and electric field intensity; the source equation; divergence; Gauss' law; Ohm's law; electrostatic energy and potential; gradient; capacitors; boundary condition on the normal electric field; laplace's and poisson's equations; laplacian; method of images	7	02/28	03/02	4
4. Magnetostatics- Biot-Savart law; curl; magnetic vector potential; ampere's circuital law; magnetic fields boundary conditions.	5	03/21	03/23	5
5. Time-Varying Fields- continuity equation; displacement current; faraday's law; boundary condition on the tangential electric field; inductance; maxwell's equations; skin effect; surface impedance	8	04/11	04/13	6, 5.7, 7.5
6. Electromagnetic Waves- free space wave equation; characteristics of plane waves; polarization; poynting's theorem; reflection at normal incidence.	5	04/23	-	7, 8
Review	1	-	-	1-8
Final Exam, Group 30D (NEB 202)	-	-	04/30 7:30 -9:30 a.m.	1-8

Attendance Policy, Class Expectations, and Make-Up Policy

No penalties for absence or tardiness. Cell-phone off policy. Laptops are OK, except for in-class tests. Excused absences are consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

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Evaluation of Grades:

Assignment	Percentage of Final Grade
Homework Sets (6)	18%
In-class tests (5)	50%
Lab	12%
Final Exam	20%
TOTAL	100%

Grading Policy:

Percent	Grade	Grade Points
≥90	A	4.00
≥86.67	A-	3.67
≥83.33	B+	3.33
≥80	B	3.00
≥76.67	B-	2.67
≥73.33	C+	2.33
≥70	C	2.00
≥66.67	C-	1.67
≥63.33	D+	1.33
≥60	D	1.00
≥56.67	D-	0.67
<56.67	E	0.00

A “C-” will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: A “C-” average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this

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assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.