

## **Fundamentals of Electromagnetic Fields**

EEL 3472C (4 credits)

**Class Periods:** Monday, Wednesday, and Friday – Period 7 – 1:55 PM to 2:45 PM

**Location:** New Engineering Building (NEB) 202

**Academic Term:** Spring 2020

### **Instructor**

- **Name:** D. A. Kotovsky
- **Email Address:** [dakotovsky@ufl.edu](mailto:dakotovsky@ufl.edu)
- **Office:** New Engineering Building (NEB) 425
- **Office Hours:** Friday, 3 PM to 4 PM, NEB 425

### **Teaching Assistants**

Patrick Roberts (Benji) [benjiroberts@ufl.edu](mailto:benjiroberts@ufl.edu)

Brooke Sapolsky [bsapolsky@ufl.edu](mailto:bsapolsky@ufl.edu)

### **Course Description and Objective**

Basic electrical components essential to engineering will be studied from a physical perspective. We will be learning the principles behind common circuit elements such as resistors, capacitors, inductors, transformers, and transmission lines. In doing so, students will become familiar with the design of simple circuit components, and will build a foundation of physical intuition to understand the principles of more complex circuit interactions.

### **Course Pre-Requisites / Co-Requisites**

EEL 3008 (Physics of Electrical Engineering) or equivalent

### **No Required Textbook !!!**

#### **Suggested Textbook**

- Cheng, D. K., Field and Wave Electromagnetics
- Griffiths, D. J., Introduction to Electrodynamics
- Haus, H. A. and J. R. Melcher, Electromagnetic Fields and Energy

Available on MIT Open Courseware:

<https://ocw.mit.edu/resources/res-6-001-electromagnetic-fields-and-energy-spring-2008/>

### **Materials and Supply Fees**

No additional course materials or supplies are needed.

### **Homework**

Homeworks will be posted weekly online to Canvas, and will be due at the beginning of class each Monday. Each homework set will include a small set of problems to help develop understanding of the material taught in class. Homework will be graded on the bases of completion and quality of effort.

### **Exams**

There will be a total of three exams, two mid-terms and one final, comprehensive exam during Finals Week. The first mid-term exam is tentatively planned for the week of Feb. 17-21, and the second mid-term for the week of April 6-10.

## **Grading**

Final course letter grades be determined by a combination of exam, homework, and lab scores. The highest two scoring exams (out of three) will count each for 35% of the final grade. Homework and lab scores will each count for 15% of the final grade.

### **Final Course Letter Grades:**

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
90 - 100	A	4.00
87 - 89	B+	3.33
80 - 86	B	3.00
77 - 79	C+	2.33
70 - 76	C	2.00
67 - 69	D+	1.33
60 - 66	D	1.00
0 - 59	E	0.00

**More information on UF grading policy may be found at:**

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

### **Professional Component (ABET)**

In contribution to meeting the professional components of an ABET-accredited degree, this course consists of 3 credits of Engineering Science.

### **Relation to Program Outcomes (ABET)**

Engineering Criteria

- 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

EE Program Criteria

- EE2 - knowledge of mathematics, basic and engineering sciences necessary to analyze and design complex systems
- EE3 - knowledge of advanced mathematics including linear algebra, complex variables and discrete mathematics

### **Attendance Policy, Class Expectations, and Make-Up Policy**

Attendance is not explicitly required; however, homework assignments must be turned in by the beginning of class on the day that they are due, and exams will be taken in-class. Laptops with all sounds disabled may be used in class, provided they do not distract other students. Requests to re-schedule an exam must be brought to the instructor's attention at least 1 week before the scheduled exam date. 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.

### **Students Requiring Accommodations**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.disability.ufl.edu>) 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 asked 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 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](mailto: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/>.

**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](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

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