Textbooks and/or Resource Materials

Course Description and Prerequisites
Topics covered include: vector analysis, electrostatic and magnetostatic fields, Maxwell’s equations and electromagnetic wave propagation and applications.

Prerequisites: ELEE 2305 (Electrical Circuits I), MATH 2415 (Calculus III) and PHYS 2426 (Physics II)

Learning Objectives/Outcomes for the Course
To understand theories, concepts, and ideas of electromagnetics, and then can relate them to economically important electromagnetics applications. Students will also exercise mathematical vector analysis skills.

At the end of the semester, it is expected that students should be able to:
1. Understand and implement vector analysis including vector algebra, coordinate systems and transformation, and vector calculus to electromagnetics problems.
2. Understand electrostatic fields, electric fields in materials space, and analyze electrostatic boundary-value problems, and electrostatics applications.
3. Understand magnetostatic fields, magnetic forces, materials and devices, and analyze magnetostatic problems and applications.
4. Understand Maxwell’s equations, electromagnetic wave propagation, and analyze electromagnetic problems and applications.

Learning Objectives for Core Curriculum Requirements
To learn basic principles of electromagnetics, including:
  a. Fundamental definitions and conventions
  b. Fundamental laws governing electromagnetics
  c. Analysis of electrostatics and applications
  d. Analysis of magnetostatics and applications
  e. Analysis of Maxwell’s equations, wave propagation and applications

This course satisfies a core curriculum requirement and matches the following outcomes set by the Texas Higher Education Coordinating Board (THECB) outcomes: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Social Responsibility, and Personal Responsibility.

Grading Policies
1. Examinations (Closed book; related formulas will be provided) 80%
2. Quizzes + Attendance 10%
3. Homework 10%

The grades for this course will be assigned according to the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>&gt;= 80</td>
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<tr>
<td>B</td>
<td>70 - 79</td>
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<tr>
<td>C</td>
<td>60 - 69</td>
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<tr>
<td>D</td>
<td>50 - 59</td>
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<tr>
<td>F</td>
<td>&lt; 50</td>
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**Contents/Calendar:** Subject to change as the semester progresses.

<table>
<thead>
<tr>
<th>Part 1: Vector Analysis (6)</th>
<th>Exam 1: 5%</th>
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<tbody>
<tr>
<td>1. Vector Algebra</td>
<td>9:25-10:40</td>
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<tr>
<td>2. Coordinate Systems and Transformation</td>
<td>September 19th, 2018 (Wednesday)</td>
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<td>3. Vector Calculus</td>
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<thead>
<tr>
<th>Part 2: Electromagnetics &amp; Applications (8)</th>
<th>Exam 2: 25%</th>
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<tr>
<td>4. Electrostatic Fields</td>
<td>9:25-10:40</td>
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<tr>
<td>5. Electric Fields in Material Space</td>
<td>October 17th, 2018 (Wednesday)</td>
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<tr>
<td>6. Electrostatic Boundary-Value Problems</td>
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<tr>
<td>7. Electrostatics Applications</td>
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<tr>
<th>Part 3: Magnetostatic Fields &amp; Applications (6)</th>
<th>Exam 3: 25%</th>
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<tbody>
<tr>
<td>8. Magnetostatic Fields</td>
<td>9:25-10:40</td>
</tr>
<tr>
<td>9. Magnetic Forces, Materials and Devices</td>
<td>November 7th, 2018 (Wednesday)</td>
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<tr>
<td>10. Magnetostatic Applications</td>
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<tr>
<th>Part 4: Waves and Applications (8)</th>
<th>Exam 4: 25%</th>
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<tr>
<td>11. Maxwell’s Equations</td>
<td>9:25-10:40</td>
</tr>
<tr>
<td>12. Electromagnetic Wave Propagation</td>
<td>December 5th, 2018 (Wednesday)</td>
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<tr>
<td>13. Electromagnetics Applications</td>
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**Requirements:**

**Homework:** Approximately one homework per week. Students are allowed and encouraged to discuss homework assignments and work together. However, the material you turn in should be your own work in your own writing. I will check that you attempt all problems. The solution will be posted on the BlackBoard right after the deadline.

**Quizzes:** There will be approximately one 15-minute quiz per week.

**Examinations:** Four exams. If you cannot make the specified exam time, please notify me before the exam to make alternate arrangements.

**Calendar of Activities**
Include in this section a table or list that provides information for students regarding important dates, assignments or activities. The UTRGV academic calendar can be found at [https://my.utrgv.edu/home](https://my.utrgv.edu/home) at the bottom of the screen, prior to login. Some important dates for fall 2018 include:

- **August 27** First day of classes
- **August 30** Last day to add a course or register for fall 2018
- **September 3** Labor Day – NO classes
- **November 14** Last day to drop a course; will count toward the 6-drop rule
- **November 22 - 24** Thanksgiving Holiday – NO classes
- **December 6** Study Day – NO classes
- **December 7 - 13** Final Exams
- **December 14 – 15** Commencement Exercises
UTRGV Policy Statements

The UTRGV disability accommodation, mandatory course evaluation statement and sexual harassment statement are required on all syllabi. Additional policy statements are optional, such as those covering attendance, academic integrity, and course drop policies.

**STUDENTS WITH DISABILITIES:** Required on all syllabi. Do not modify.

Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) as soon as possible to schedule an appointment to initiate services. Accommodations can be arranged through SAS at any time, but are not retroactive. Students who suffer a broken bone, severe injury or undergo surgery during the semester are eligible for temporary services.

**Pregnancy, Pregnancy-related, and Parenting Accommodations**

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) are encouraged to contact Student Accessibility Services for additional information and to request accommodations.

**Student Accessibility Services:**

**Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu. **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.

**MANDATORY COURSE EVALUATION PERIOD:** Required on all syllabi. Do not modify.

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available on or about:

- **Module 1** October 4 – 10
- **Module 2** November 29 – December 5
- **Full Fall Semester** November 15 – December 5

**ATTENDANCE:** Recommended on all syllabi; may be modified by the instructor as long as it is not inconsistent with UTRGV policy.

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

**SCHOLASTIC INTEGRITY:** Recommended on all syllabi.

As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism (including self-plagiarism), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

**SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:** Required on all syllabi. Do not modify.

In accordance with UT System regulations, your instructor is a “Responsible Employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this
course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct and discrimination.

**COURSE DROPS:** Recommended on all syllabi; may be modified by the instructor as long as it is not inconsistent with UTRGV policy.

According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

**STUDENT SERVICES:** Recommended on all syllabi.

Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Students Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor's office hours. University Resources include the Learning Center, Writing Center, Advising Center and Career Center. The centers provide services such as tutoring, writing help, critical thinking, study skills, degree planning, and student employment. Locations are:

- **Learning center:** BSTUN 2.10 (Brownsville) or ELCTR 100 (Edinburg)
- **Writing center:** BLIBR 3.206 (Brownsville) or ESTAC 3.119 (Edinburg)
- **Advising center:** BMAIN 1.400 (Brownsville) or ESWKH 101 (Edinburg)
- **Career center:** BCRTZ 129 (Brownsville) or ESSBL 2.101 (Edinburg)

who take the same class for the third time.