Instructor: Dr. John A. Jaszczak (jaszczak@mtu.edu)
Lecture: MWF 1:05 – 1:55 P.M.
Office Hours: M, W 2:00 to 3:00 P.M. or by appointment.

Course Description: A traditional course in electricity & magnetism at the intermediate level aimed toward physics majors. Topics covered will include vector calculus, electrostatics, solution of Laplace's equation, dielectrics, and magnetostatics.

Grades: Homework 30%, two midterm exams (20% each), Final exam (30%)
Homework assignments will be given approximately weekly, and are to be completed on an individual basis. Please click on the Homework page for requirements and tips.

Primary text Book: Introduction to Electrodynamics, D. J. Griffiths (Prentice Hall 1999).

Schedule: (approximate number of lectures)

- Ch. 1 Vector Analysis (6 lectures)
- Ch. 2 Electrostatics (7 lectures)
- Ch. 3 Special Techniques (11 lectures)
- Ch. 4 Electric Fields in Matter (13 lectures)
- Ch. 5 Magnetostatics (introduction) (4 lectures)

Assignments:

1. Due Aug. 29. Ch. 1 #1.2; 1.3; 1.4; 1.5; 1.6; 1.10
2. Due Sept. 8. Ch. 1 #1.12, 1.13, 1.15(a), 1.16, 1.19, 1.20 (prove rule iii using summation notation and compare to component proof on page 21), 1.21 (Use summation notation. For part (c) use the function from problem 1.15(a) only.)
3. Due Sept. 10. Ch. 1 #1.31, 1.35
4. Due Sept. 17. Ch. 1 #1.37, 1.38, 1.44c&d, 1.45, 1.46, 1.60(a)(b), 1.61(a-d), 1.62(a)
5. Due Sept. 24. Ch. 2 Use problem-solving techniques appropriate to the section of the book these are assigned in: #2.2, 2.6, 2.7, 2.8, 2.12, 2.17, 2.18, 2.22. Extra Credit: #2.28 (5 pts).
6. Due Sept. 29. Ch. 2 #2.25(parts a,c, and comparison to 2.2b); 2.30(b and c); 2.31
7. Due Oct. 3. Ch. 2: 2.32, 2.33, 2.34, 2.35, 2.39 (extra credit: #2.40 due Oct. 3; 5 pts)
   Hour EXAM I. Oct. 1.
8. Due Oct. 15. Ch. 3. #3.3, 3.6, 3.7ac (extra credit: b), 3.8, 3.12 and sketch field lines and equipotentials. Extra credit: 3.15.
10. Due Oct. 29. Ch. 3: #3.16, 3.18, 3.21, (extra credit: 3.23)
11. Due. Nov. 7. Ch. 3: # 3.28, 3.30, 3.31, (extra credit: 3.41); Ch. 4: # 4.4, 4.5, 4.8
   **EXAM 2. Nov. 18, 6-8 pm.**
12. Due. Nov. 24. Ch. 4: # 4.10, 4.11, (extra credit: 4.12); 4.15, 4.16, 4.17, 4.18
13. Due. Dec. 8. Ch. 4: #4.23, 4.26, 4.27
14. Due. Dec. 17. All EXTRA CREDIT: Ch. 5. #5.2a,b; 5.6; 5.75.10a

**Motion of charged particle in crossed E&B fields.**

MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Associate Dean of Students, at 2212. For other concerns about discrimination, you may contact your advisor, department chair, or the Affirmative Action office.

---

Back to Jaszczak's home page