ECE 459/559
Optical Fundamentals for Electrical Engineers
Fall Semester 2008

Instructor: Professor M. A. Neifeld
Office: ECE 502
Office Hours: MW 10:00-11:00

Lectures: MWF 11:00-11:50
Location: ECE 107

REQUIRED TEXT:


SUPPLEMENTAL TEXT:


PREREQUISITES: Students are expected to have taken ECE381 and ECE352 or their equivalents. It is also recommended that ECE340 be taken prior to taking ECE459/559. From these courses the student should have working knowledge of basic solid-state physics, electromagnetics, and linear systems theory.

GRADING: There will be 6 quizzes (roughly one every two weeks), two midterm exams, and one final exam. All quizzes will be announced approximately one week in advance and no make-up quizzes will be offered; however, one quiz grade may be dropped. No make-up exams will be given unless arrangements are made prior to the scheduled exam date. Homework will be assigned but not collected; quizzes will cover the homework material. Additional work will be required of graduate students in the form of (1) a written term project and (2) additional/advanced exam problems.

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<tr>
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<th>Undergraduate</th>
<th>Graduate</th>
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<tbody>
<tr>
<td>Quizzes (5)</td>
<td>25%</td>
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<tr>
<td>Midterms (2)</td>
<td>50%</td>
<td>40%</td>
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<td>Final Exam (1)</td>
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<tr>
<td>Term Project (1)</td>
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ECE459/559 Course Outline

Part I: Fields and Rays (Hecht)

1. Introduction/Motivation (1)
2. Maxwell’s Equations (2)
3. Reflection and Refraction (3)
4. Waveguides and Fibers (3)
5. Geometric Optics (4)
6. Polarization (2)
7. Materials and Nonlinearities (3)

Part II: Physical Optics (Hecht/Goodman)

1. Fourier Theory (2)
2. Diffraction (3)
3. Imaging (3)
4. Interference (2)
5. Holography (2)
6. Detectors and Sources (4)

ECE 459/559 Course Web Page: www.ece.arizona.edu/~ece459

Important Dates:

August 25           First day of class
September 1         Labor day (no class)
September 19        Last day to drop without record
October 17          Last day to drop with W
November 11         Veterans day (no class)
November 27-30      Thanksgiving recess (no class on 28th)
December 10         Last day of classes
December 15         Final Exam 11am-1pm