ECE 441 Syllabus
Fall 2014

Instructor: Dr. Mohammad R. Sayeh
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Office Hours: Monday - Friday – 2:00 to 3:00
Lecture: MWF, 1:00 – 1:50 p.m., ENGR A-322
Lab: TBA, ENGR E-205

Grading/Evaluation:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Exams (3)</td>
<td>60%</td>
</tr>
<tr>
<td>Labs (4)</td>
<td>20%</td>
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</tbody>
</table>

A: 90-100; B: 80-89; C: 65-79; D: 55-64; F: 0-54

Catalog Data: ECE 441: Photonics I. Credit 4. Ray optics, wave optics, beam optics, polarization of light, statistical optics, photons and atoms, Prerequisites: ECE375 with a grade of C or better.


Goals: This course introduces undergraduate students to fundamentals of Photonics.

Topics:
1. Ray tracing (4 classes)
2. Wave optics (4 classes)
3. Electromagnetic waves (5 classes)
4. Gaussian beams (5 classes)
5. Polarization of light (6 classes)
6. Optical resonance (6 classes)
7. Partially coherent light (6 classes)
8. Photon optics (6 classes)

Laboratory projects:
1. Intensity modulation using polarizers and wave retarders (1 week)
2. Measurement of Gaussian beam complex curvature (1 week)
3. Construction of a Michelson’s interferometer to be used for displacement and wavelength measurement (1 week)
4. Laser light frequency spectrum measurement (1 week)