The Term Project Description
and
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ECEN 5645
Introduction to Optoelectronics
Fall 2015

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The project in this course will enable you to expand your horizons beyond those of the sections covered in the text as well as apply what you are learning to a real problem of interest. We will cover chapters 1 (Wave Nature of Light), 2 (Dielectric Waveguides and Optical Fibers) and 5 (Photodetectors and Image Sensors) of the text Optoelectronics: Principles and Practices as the semester goes on. Chapters 3 (Semiconductor Science and and Light Emitting Diodes) 4 (Stimulated Emission Devices: Optical Amplifiers and Lasers) are also of interest to those working in almost any area of contemporary optics. There is simply no time to cover all.

1 The What
Any of the 18 sections of chapter 3 or 19 sections of chapter 4 could provide the topic for a ten page single spaced paper that contains a minimum of 10 references to the primary literature, a minimum of 4 figures/pictures that may also be used in a 10 minute in class presentation on the topic and at least one set of original calculations to be be presented as figures and/or tables.

The How
The paper and presentation should be individual work. The paper and the presentation should include:

1. an explanation of the problem,
2. a description of the system/device/concept under question,
3. an analysis of the (model) system/device and or history of the development of the concept,
4. results of simulation and/or measurements used to verify analytical results, and
5. any conclusions to be drawn from the work,
The When: The Assignment

1. There will be a project proposal due on September 29, 2115.
2. A project progress report on the thirtieth class meeting due on November 3, 2115.
3. All presentations will take place in-class on December 8 and December 10. The papers are due the last day of the presentations (December 10). The distance learning students who cannot present in person will send in voiced over powerpoint presentations.

The presentations will all be powerpoint presentations of 10 minute duration with two minutes set aside for questions. The order of the presentations (as was determined by the random number generator in Mathematica - I saved the file if any one wishes to see) on December 8th will be:

(a) Jeremy Shugrue
(b) Isaac Khader
(c) Jordan Stone
(d) Evolene Premilieu
(e) David Miller
(f) Sakshi Singh

and the order on December 10th will be:

(a) Tiffany Huynh
(b) Ian Barry
(c) Tobias Bothwell
(d) Alec Herr
(e) Tinh Vo
(f) Imbert Wang

The Project Proposal

The project proposal should consist of a one page single spaced write up that should of course be prefaced with the title of your project. The write-up should include paragraphs on:

1. Why you are interested in the topic (system/device/concept),
2. What you already know about the topic,
3. What you plan to learn about the topic, and
4. Original calculations that you plan to include in your paper and presentation

After I have read your proposals, I will offer suggestions and possibly mandate alterations.

The Project Progress Report and Completion Schedule

The project progress report and completion schedule should consist of a three pages of single spaced write-up that should of course be prefaced with the title of your project. The write-up should:

1. An outline of the final project paper/presentation,
2. A summary of what you have completed to the present,
3. A list of steps whose completion is required in order to complete the project, and
4. A detailed schedule of on which date you plan to complete which of the steps.
The Final Project

To restate from above:

The project will consist of a ten page single spaced paper that contains a minimum of 10 references to the primary literature, a minimum of 4 figures/pictures that may also be used in a 10 minute in class presentation on the topic and at least one set of original calculations to be presented as figures and/or tables.

The paper and the presentation should include:

1. an explanation of the problem,
2. a description of the system/device/concept under question,
3. an analysis of the (model) system/device and or history of the development of the concept,
4. results of simulation and/or measurements used to verify analytical results, and
5. any conclusions to be drawn from the work,