

## MIDTERM PROJECT

Each member of PHY431 will participate in a specific project. The project output will be treated as equivalent to a second midterm examination. Its purpose is to familiarize you with various optical devices and systems. The project results will be reported in class on November 16 and 21. No written report is required. *The overall goal is to explain an optical system at a level that can be understood by the entire class.*

Here's how it works:

- A. Each topic will be researched by 3-member teams. You can indicate topical preferences on the separate page just handed out (in decreasing order); clearly, there is no way to guarantee that you'll get your top choices. I will generate the groups from your inputs and announce them at the next class meeting. I will also distribute some material to get you started.
- B. You are expected to use a variety of informational sources: textbooks, journal articles, popular accounts, vendor/manufacturer publications, to mention a few.
- C. The report will be prepared in a 5-page graphic format, i.e. powerpoint-like, suitable for an 8-minute in-class presentation. You must be present at your group's presentation even if you are not giving the talk. Each member of a group will receive the same grade: all members are expected to contribute equally.
- D. One or all members of the group may participate in the presentation. The grade will not depend on the quality of the delivery but on the quality of the information presented. The audience will have 2 minutes for short questions following the talk, which can be answered by any member of the team.
- E. The 5 slides should follow a standard format:
  1. Title, participants, 3-sentence synopsis describing the topic.
  2. Qualitative description of the subject: what it does, how it does it, why it's useful, how you use it, what variants exist, etc. A general picture of the object would be helpful here. Introduce terminology if needed later.
  3. Quantitative description. If an optical system, describe and illustrate its operation. Use concepts discussed in class, e.g., ray optics, lens formulae, .. This section must contain a mathematical description: this means actual

numbers and equations! Include discussion of performance criteria, i.e., how accurate, sensitive, etc. This part will be heavily weighted in determining the grade. You will probably need to use two pages for this section.

4. References. They must include at least one book and one journal article, plus any technical notes or catalog descriptions used. The URL of any WWW information must be cited.

To facilitate the presentations, please give me your talk (it can be powerpoint, word, or pdf) by email, flash-memory, or CD before noon on your presentation day. I'll load them in sequence on my laptop; there is no need to bring your computer to class. No audio please! I will distribute the entire set of presentations to the class before the end of the semester.