

THE UNIVERSITY OF TEXAS AT DALLAS



Physical Optics

EE 6317

Spring 2008 Assignment 5

Due Date:

July 2, 2008

Reading:

Eugene Hecht, *Optics*, Fourth Edition, Chapters 5 and 6

Reference Material:

Dr. Cantrell's slides on geometrical optics

Problems:

Please write your answers to the following problems on engineering paper. No credit will be given for work handed in on other types of paper.

1. Hecht, problem 5.13
2. Hecht, problem 5.15
3. Hecht, problem 5.16
4. Hecht, problem 5.17
5. Hecht, problem 5.19
6. Hecht, problem 5.21
7. Hecht, problem 5.28
8. Hecht, problem 5.35
9. Hecht, problem 5.37

10. Consider an optical system consisting of two thin lenses with a stop between the lenses. The origin of coordinates is at the stop, the diameter of which is 2 cm. The properties are as follows:

Lens	Position (z)	Diameter	Focal length	n
1	-1 cm	3 cm	3 cm	1.5000
2	+1.5 cm	3 cm	2 cm	1.5000

- Find the remaining cardinal points (principal points and nodal points) of the system.
- Find the positions and diameters of the entrance and exit pupils.
- Make a scale drawing of the system, showing the cardinal points and the entrance and exit pupils.