

Jim Bethel

1-1

bethel@ecn.purdue.edu

765-494-6719

CIVL Rm 411

<http://engineering.purdue.edu/~bethel>

Syllabus

notes

HW

Q+A

<http://goxemote.ics.purdue.edu> - Matlab

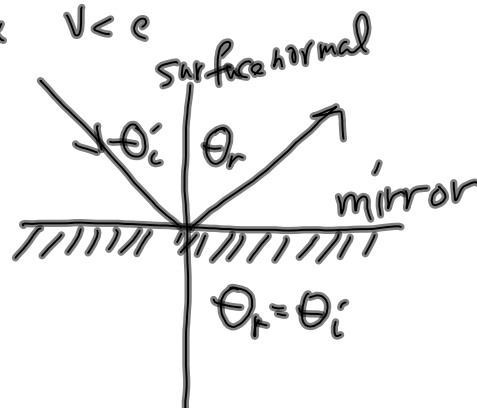
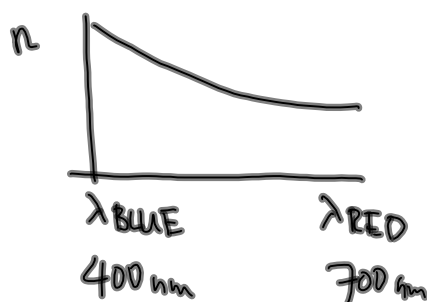
LPS (erdas Imagine)

Photoshop

Jan 8-4:20 PM

C: speed of light (vacuum)

V: speed " " in medium

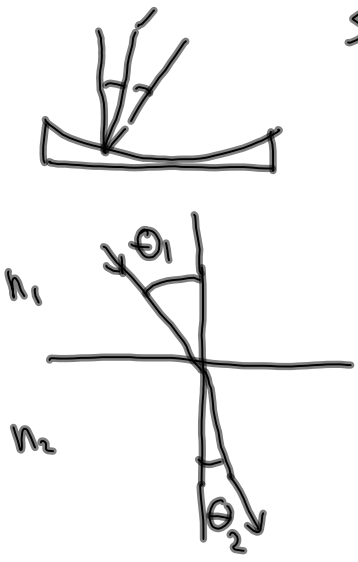
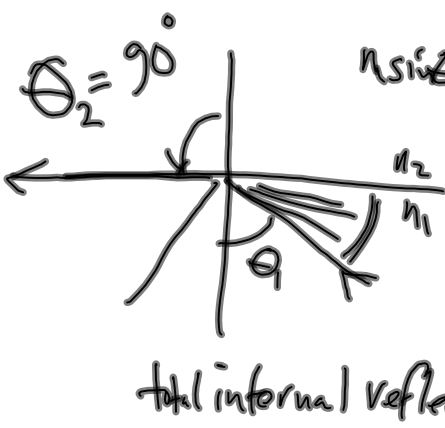
 $n = \frac{c}{v}$  refractive index  $v < c$  $n > 1.00$ 

1-2

Jan 8-4:21 PM

1-3

Snell's Law:  $n_1 \sin \theta_1 = n_2 \sin \theta_2$

$\theta_2 = 90^\circ$

$n_1 \sin \theta_c = n_2, \sin \theta_c = 1$

$\theta_c = \sin^{-1}\left(\frac{n_2}{n_1}\right)$

critical angle

total internal reflection

Jan 8-4:21 PM

1-4

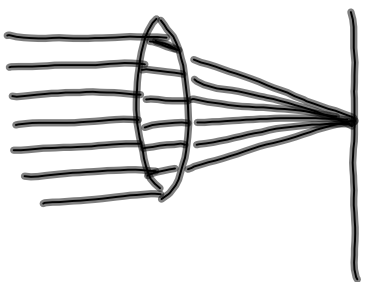
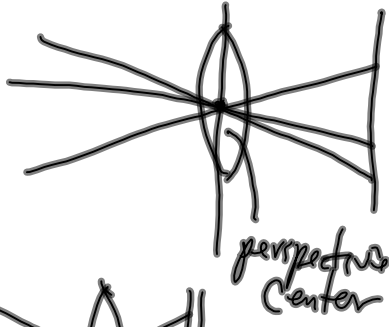

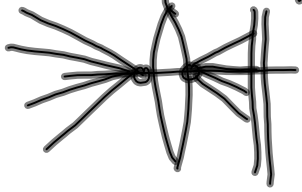





image formation by a lens.

actually 2 perspective centers,

AT refers to object space node

focal length refers to image space node

perspective center

Jan 8-5:35 PM

Image Defects (Aberrations) (Seidel) 1-5

1. Spherical
2. Coma
3. astigmatism
4. field curvature

$S_1$  distortion

ideal  $\alpha = \alpha'$

in practice  $\alpha \neq \alpha'$

Jan 8-5:39 PM