

**PHYSICS 223**  
**PHYSICAL OPTICS**  
**(3.0 ; 3 credits)**

**Textbook:** Optics

By: Hecht & Zajac  
(Addison Wesley)

**Contents:**

**1. The wave theory of light**

Maxwell's equations, complex representation, phase and group velocity, coherence, superposition and polarization.

**2. Interference**

Wave splitting, interference fringes, dielectric films, multiple -beam interference, Fabry-Perot interferometer.

**3. Diffraction**

Kirchhoff's diffraction formula, Fresnel and Fraunhofer patterns for a single and double slit, Babinet's principle, diffraction gratings.

**4. Coherence**

Coherence function and degree of coherence, stellar interferometry, Imagery, lasers and holography.

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