NEW GRADUATE COURSE FOR SPRING 2014

Thursday: 4 to 7 pm

OPTICAL INFORMATION PROCESSING - ESE560

Optical information processing is an enabling technology for rapid signal processing of two-dimensional spatial objects at the speed of light. Practical implementations include real time processing of SAR imagery data, fingerprint detection, associated memory and holography. The course gives students a firm background of the fundamental theory of optical information processing. In particular, the course introduces the student to the scalar treatment of diffraction, and its applications to the study of imaging techniques, using coherent and incoherent optical processors. The student should have a good understanding of Fourier transforms techniques, complex algebra and be conversant in the principles of linear system theory.

Course Outline:

- Two dimensional Fourier transform
- Geometrical optics and scalar diffraction theory
- Fresnel and Fraunhofer diffraction
- Coherent optical systems
- Optical imaging systems
- Wavefront modulation
- Optical information processing
- Holography


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