Short Course Optical Engineering

Objective and Scope
Optical engineering is now commonplace in a variety of industrial systems and processes. The advent of novel electro-optics (photonics) devices such as laser diodes and LEDs coupled with advances in sensors and detectors have resulted in numerous commercial systems ranging from consumer items to precise optical metrological tools for inspections and measurement to 3D Additive Manufacturing. This course aims to introduce important basic concepts in Optical Engineering that would enable better understanding of the underlying principles of various optical systems for them to be suitably designed, fabricated, improved and modified. The course comprises three modules that highlight basic optical principles with emphasis on physical concepts with suitable applications and demonstrations.

Course Content

Module 1: Optical Design
Geometrical and paraxial optics, aberrations, Ray tracing software

Module 2: Optical Metrology
Wave Optics, interference, diffraction and polarization. Digital Holography, Transport of Intensity Equations and other system demos

Module 3: Photonics
Photons and Photoelectric effect; Lasers, LED and laser diodes; Quantum and thermal detectors, CCD and CMOS

Course cost: $1000
10% discount for OPSS and ACOP members
Course duration: one day

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Join OPSS: http://www.opssg.org/about-opss/join-opss

3D Profilometer    Lensless 3D Camera    Nanoimager    Polariscope
Systems that will be demonstrated during this course.