

OPTICAL ENGINEERING (OEN)

OEN 200 Geometric & Instr Optics (3 Credits)

Basic principles of geometric optics, refraction, and reflection will be discussed. Gaussian optics, of axially symmetrical systems and other related topics as well as simple optical instruments such as magnifying lenses, compound microscopes, refr

OEN 200L Geometric & Instr Optics Lab (1 Credits)

This is a course in intermediate geometric optics, that provides students with state-of-the-art, laboratory exercises and equipment that will allow them to do fundamental experiments using lasers, fiber optic systems and diodes. This course, compleme

OEN 201 Physical and Instrumental Optics (3 Credits)

This course is the second half of OEN 200 with, more detailed discussion of topics such as, interference and interferometers, Fresnel and, Fraunhofer diffraction, spectroscopic, instrumentation, electro-optic effects and, elements of quantum and nonlin

OEN 201L Physical and Instrumental Optics Lab (1 Credits)

This laboratory is designed to complement the, topics discussed in OEN 201 and students, are advised to take these courses concurrently.

OEN 290 Optical Engineering Seminar I (1 Credits)

This course provides an introduction to, contemporary topics in optical engineering,, including contemporary technical topics and, professional topics, and emerging areas for, employment and career advancement.

OEN 297 Summer Research I (3 Credits)

Undergraduate research supervised by a faculty, member. Development of the skills of research, including preparations, design and execution of, experiments, data analysis.

OEN 320 Optical Systems Analysis (3 Credits)

Development of tools and techniques for, engineering of optical systems. Study of, specifications, system design and analysis,, tradeoffs and optimization, manufacturing.

OEN 340 Lasers and Photonics (3 Credits)

Condensed matter physics including issues in solid, state physics, laser physics, laser light, laser, components and systems and measurements are, covered in this course.

OEN 340L Laser and Photonics Lab (1 Credits)

This course is the study of laser and photonics in, a laboratory setting.

OEN 360 Introduction to Optical Materials (3 Credits)

Contact the department for specific course, information.

OEN 360H Introduction to Optical Materials Honors (3 Credits)

Contact the department for specific course, information.

OEN 380 Introduction to Quantum Optics (3 Credits)

This course will introduce students to theoretical, concepts and experimental evidence of quantum, phenomena that allows them to gain a fundamental, understanding of a number of novel semiconducting, and photonic systems. Students completing this, cou

OEN 390 Optical Engineering Seminar II (1 Credits)

This course provides an introduction to, contemporary topics in optical engineering,, including contemporary technical topics with, relevance to modern practice. The course is, comprised of three four week modules and one, three week module. The individ

OEN 397 Summer Research II (3 Credits)

Undergraduate research supervised by a faculty, member. Further development of the skills of, research including preparations, design and, execution of experiments, data analysis.

OEN 460 Optical Communications I (3 Credits)

Study of optical communication components and, applications to communications systems, including, fiber attenuation and dispersion and noise and, coherent communications.

OEN 460L Optical Communication I Laboratory (1 Credits)

Study of optical communication components and, applications to communications systems in a, laboratory setting.

OEN 461 Optical Communications II (3 Credits)

Further discussion of coherent communications, as, it relates to distribution networks for, fiber-to-the- premises (FTTP) and optical sensing.

OEN 461L Optical Communications II Laboratory (1 Credits)

This laboratory is designed to complement the, topics discussed in OEN 461. Students are advised, to take these courses concurrently.

OEN 471 3D Printing & Laser Processing (3 Credits)

This course introduces students to the basic, principles and theory of 3-Dimensional printing, and laser processing for various applications. , The course provides classroom lectures on the, optical engineering principles, computer aided, design (CAD) tec

OEN 471H Honors 3D Printing/Laser Processing (3 Credits)

This course introduces students to the basic, principles and theory of 3-Dimensional printing, and laser processing for various applications. , The course provides classroom lectures on the, optical engineering principles, computer aided, design (CAD) tec

OEN 490 Sr Seminar (1 Credits)

This course provides an introduction to various, aspects of engineering practice, engineering, ethics, and career opportunities through invited, lectures.

OEN 498 Sr Project ! (3 Credits)

In this course, students plan and design capstone, engineering projects incorporating realistic and, diverse constraints of technical, budgetary, and, social aspects. Both written reports and oral, presentations are required.

OEN 499 Sr Project II (3 Credits)

This course is the implementation phase of, capstone projects designed in OEN 498., Demonstration of the final working project is, required along with a written report and oral, presentation.