LASER TECHNOLOGY

DIVISION: Natural Sciences

The Division of Natural Sciences at Pasadena City College offers students opportunities to learn and grow as individuals, scientists, scholars, and well-informed citizens.

The Division encompasses a wide range of departments that serve students in the life sciences (anatomy, physiology, microbiology, biology, and plant sciences), the physical sciences (chemistry, astronomy, physics, laser technology, physical sciences), the geosciences (environmental studies, geography, and geology), and engineering. The Division offers introductory courses to students that satisfy the general education requirements for the College's associate degrees, as well as requirements for both the CSU and UC systems. These include CSU transfer degrees in biology, geography, geology, physics, and plant sciences, as well as certificates in biotechnology, geographical information systems, and laser technology. The Division also offers field study programs in biology, geography, and geology, including an annual summer geology field program in the western U.S.

- Laser Technology - Associate in Science, Certificate of Achievement (https://curriculum.pasadena.edu/academic-programs/laser-technology/laser-technology-as-certificate-of-achievement/)
- Laser Technology - Certificate of Achievement (https://curriculum.pasadena.edu/academic-programs/laser-technology/laser-technology-certificate-of-achievement/)

LASR 215 FUNDAMENTALS OF LIGHT AND LASERS
3 unit
Fundamental properties of light, including its interaction with and generation from materials. Review of essential components of optical systems, including lenses, mirrors, prisms, windows, sources, detectors, optoelectronics, polarizers, fibers, and gratings. Construction of basic optical test setups from industrial grade components and systems in the laboratory. Hands-on experiences with industrial equipment and tools. Total of 36 hours lecture and 54 hours laboratory.
Grade Mode: *Audit, Letter Grade, Pass/No-Pass*

LASR 230 INTRODUCTION TO OPTICAL DEVICES
3 unit
Exploration of principal tools used when working with lasers and other light sources, cameras and sensors Study of optical hardware and its constituent components; fundamentals of lasers to gain media, pump sources, and mirror cavities; investigation of camera components and essential chemistry. Hands-on experience with industrial hardware and tools. Total of 36 hours lecture and 54 hours laboratory.
Grade Mode: *Audit, Letter Grade, Pass/No-Pass*

LASR 245 QUALITY ASSURANCE OF PRECISION OPTICS
4 unit
Overview of relevant industry and manufacturing specifications for precision optics. Introduction to quality assurance (QA) practices required to identify, inspect, and measure optical components. Hands-on experience with industrial materials and quality assurance tools.Total of 54 hours lecture and 54 hours laboratory.
Grade Mode: *Audit, Letter Grade, Pass/No-Pass*

LASR 260 METROLOGY OF OPTICAL SYSTEMS
3 unit
Detailed review of the measurement techniques required to ensure that a fabricated assembly or system meets its procurement specifications. Design and application of optical metrology instrumentation such as interferometers and modulation transfer function measurement systems with emphasis on test applications required in optical engineering and manufacturing. Hands-on experience with industrial hardware and tools in the laboratory. Provides industrially relevant laboratory experience to measure precision optical components and optical systems. Focus on hands-on use of technical, industry-standard equipment. Total of 36 hours lecture and 54 hours laboratory.
Grade Mode: *Audit, Letter Grade, Pass/No-Pass*