

CA Photonics and Laser Technology

This program provides foundational hands-on skills and training in industry-relevant science and engineering principles of the field of photonics and laser technology (PALT). PALT is involved with the generation and harnessing of light and other forms of radiant energy. Photonics involves state-of-art use and applications of lasers, optics, fiber-optics, and electro-optical devices in diverse fields of technology " alternate energy, manufacturing, health care, telecommunication, environmental monitoring, homeland security, aerospace, solid state lighting, and many others. The applications of photonics and lasers in creating and enabling technologies are extremely broad. From an educational standpoint, this means that photonics courses in a postsecondary college curriculum in related technologies can qualify graduates for a far wider variety of jobs and increase the global competitiveness of the workforce.

Career Opportunities

Rapid growth in the number and complexity of photonics and photonics-enabled technologies has caused the demand for technicians to exceed supply. There are more than a dozen fields that utilize Photonics enabled technologies. Some example include: aerospace technology (LiDAR system), manufacturing (laser welding, drilling and 3D printing), construction (site topography, materials inventory, distance measuring and alignment, three-dimensional analysis to track the progress of construction), transportation (monitoring exhaust emissions, navigation with optical gyroscopes) and environmental technology (monitoring air quality and particulate emission from exhaust stacks). The primary occupations for students skilled in basic photonics and laser technology relates to middle-skill jobs in operation and maintenance of optics and photonics equipment and technology involving titles like Mechanical Technicians, Technical Associate, Manufacturing, Thin Film Technician and Calibration Technology Specialist.

Program Learning Outcomes

Students completing this program will be able to:

1. Apply knowledge of math, science, and engineering to identify, formulate, and solve optics and photonics problems.
2. Communicate effectively and work well in situations that require teamwork.
3. Design and perform tests or experiments, analyze and interpret data, and prepare a report summarizing the results of the tests or experiments.

4. Use techniques, skills, and modern engineering and computer tools necessary for optics and photonics engineering practice.

Major: Core Requirements

Complete Core Courses, 18 units

Units

Course ID	Course Name	Units
PALT 401	Introduction to Photonics and Laser Technology	2 units
PALT 402	Geometrical Optics	4 units
PALT 403	Optics and Photonics Modeling and Design	3 units
PALT 404	Wave Optics	4 units
PALT 405	Introduction to Laser Technology	3 units
PALT 406	Components and Devices in Photonics and Laser Technology	2 units

