CA Advanced Optics and Photonics Technology

This program provides advanced hands-on skills and training in industry-relevant science and engineering principles of the field of Photonics and Laser technology (PALT). PALT deals with the generation, harnessing, sensing and manipulation of light and other forms of radiant energy (solid state lighting, lasers, lamps, LED's etc.) through various mechanical, optical, and electrical systems. This field plays a vital role in driving the innovation in many industries. For example, applications of optics and photonics occur in sectors like optical data communications, imaging, health, aerospace, military, environment, entertainment and lighting and displays. They also occur in manufacturing sectors like life sciences, health care, transportation, security and safety.

Career Opportunities

Photonics and lasers technology relates to generating and harnessing light and other forms of radiant energy. This technology can be applied to numerous other fields of technology and entertainment, including personal devices (displays, touchscreens), alternative energy (Solar), manufacturing (3D and laser additive manufacturing), health care, telecommunication, environmental monitoring, homeland security, aerospace, solid-state lighting, and many others. Due to the diverse applications of this technology, the optics and photonics job opportunities available to all students with optics and photonics skills are varied. The primary occupations for students skilled in optics and photonics relates to the development and operation of optics and photonics equipment and technology and job titles include Laser and/or Photonics Technicians.

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, 27 units		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
PALT 407	Optical Coating Technology	3 units
PALT 408	Optical Fibers	3 units
PALT 409	Advanced Photonics Technology	3 units