MAJOR IN ELECTRICAL ENGINEERING, LASERS AND OPTICAL ENGINEERING CONCENTRATION

The Electrical and Computer Engineering (ECE) department is the premier place to prepare for a successful career in lasers and optics – a field that advances the science of light. Lasers hold the potential for generating a limitless form of clean energy, and they are used for everything from improving cancer detection to creating powerful computer chips. Plans are underway to build a new $150 million laser facility at CSU. That means you will gain skills and knowledge from professors who are driving innovation at one of the most powerful laser facilities in the world.

Electrical and Computer Engineering (ECE) courses and research span a range of disciplines that include:
• Biomedical Engineering
• Communications and Signal Processing
• Computer Engineering
• Controls and Robotics
• Electromagnetics and Remote Sensing
• Lasers and Photonics

Career Opportunities

A field of endless possibilities, electrical engineering career paths are largely dependent on personal interests. Electrical engineering alumni hold positions ranging from a designer at a start-up company to a research scientist for the U.S. Naval Research Laboratory. In addition to being one of the most lucrative college majors, for the past decade electrical engineering has ranked among the top 10 majors in demand for bachelor's, master's, and doctoral degrees, according to the National Association of Colleges and Employers. Almost every industry recruits electrical engineering graduates, such as aerospace, biomedical, energy, robotics, manufacturing, and automotive.

Learning Objectives

The ECE program educational objectives are designed and implemented around the following three principal attributes: mastery, innovation, and leadership.

Graduates of the ECE program will be able to:

1. Identify, formulate, and solve engineering problems in lasers and optical systems by applying principles of electrical engineering, science, and mathematics.
2. Apply the engineering design process to develop electrical engineering solutions for lasers and optical systems, balancing technical objectives with broader considerations including public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Recognize ethical and professional responsibilities in lasers and optical systems and make informed judgments, considering their impact in global, economic, environmental, and societal contexts.
5. Function effectively on teams, collaborating on tasks related to lasers and optical systems, to establish goals, task plans, and to meet task objectives.
6. Develop and conduct appropriate experimentation, analyze results, and use principles of electrical engineering to draw conclusions.
7. Acquire and apply new knowledge in advancing lasers and optical systems, leveraging appropriate electrical engineering learning strategies.