

SEMICONDUCTOR PHOTONICS - GRADUATE CERTIFICATE (ONLINE)

While 20th-century technology was defined by the growth of electronics, the 21st century belongs to photonics. LEDs will light households powered by photovoltaic panels and filled with displays and cameras communicating by optical fiber to distant owners wearing virtual reality glasses. Laser 3D printing will transform manufacturing. New microscopes and telescopes will peer into the depths of living cells and distant galaxies.

Program Policies

This CU Boulder on Coursera program does not align with standard campus policies. Please refer to the Online Programs (<https://catalog.colorado.edu/online/>) section of the catalog for more information.

Requirements

Admission to a graduate degree-seeking program in the ECEE department is not required for students pursuing the certificate. Certificate credit hours may be applied towards a full master's degree, provided the student is admitted to the electrical engineering graduate program as a degree-seeking student.

The semiconductor photonics certificate is comprised of three specializations, each of which is comprised of 3–4 individual online courses, which deliver about one month of content.

To earn a graduate certificate (9 credits), students must complete the following required specializations/courses (listed below).

Optical Engineering Specialization

Code	Title	Credit Hours
ECEA 5600	Optical Engineering: First Order Optical System Design	1.0
ECEA 5601	Optical Engineering: Optical Efficiency and Resolution	1.0
ECEA 5602	Optical Engineering: Design High-Performance Optical Systems	1.0

Semiconductor Specialization

Code	Title	Credit Hours
ECEA 5630	Semiconductor Devices: Semiconductor Physics	1.0
ECEA 5631	Semiconductor Devices: Diode: pn junction and metal semiconductor contact	1.0
ECEA 5632	Semiconductor Devices: Transistor: Field Effect Transistor and Bipolar Junction Transistor	1.0

Active Optical Devices Specialization

Code	Title	Credit Hours
ECEA 5605	Active Optical Devices: LEDs and Semiconductor Lasers	1.2
ECEA 5606	Active Optical Devices: Nanophotonics and Detectors	1.2
ECEA 5607	Active Optical Devices: Displays	0.6