

PHOTOMETRY AND OPTICS FOR ARCHITECTURAL LIGHTING - MICRO- CREDENTIAL

This program provides broad foundational knowledge of architectural lighting terminology, technology and practices, combined with specialized knowledge and experience with the measurement of light in a photometric lab and with the optical design of luminaires. Students apply the knowledge gained to collect and analyze data from a goniophotometer and integrating sphere, design several optical components and produce luminous intensity data files for simulated luminaires using optical design software.

Eligibility

Professional community in architectural lighting, some of whom may be enrolled as CU students in related Continuing Education courses. (Not available to students in the general CU Boulder student population.)

Delivery Mode

Hybrid of in-person and online delivery

Credit Status

Noncredit

Academic Level

Professional

Time to Completion

Varies

Fee

Yes

Requirements

Students must complete at least 16 hours of instruction and exercises to achieve the foundational knowledge required for the credential and an additional 12 hours of skills-based exercises that demonstrate skills in photometric measurement, data analysis and the optical design of luminaires. These hours may be achieved through the annual Rocky Mountain Lighting Academy's Short Course or through the AREN 5510, AREN 5520 and AREN 5530 course sequence.

Criteria

The photometry and optical design focus of this credential establishes new skills in measurement, data analysis and the use of optical design software, building on a familiarity with the fundamental metrics used as architectural lighting design targets and the products and systems used for architectural lighting.

Learners who complete this micro-credential can:

- Describe the relevance of photometric and radiometric quantities to human responses to light such as visual performance, color and aesthetic perceptions, and melanopic response.

- Identify important performance characteristics of lighting products and systems.
- Measure point illuminance values with a laboratory goniometer and calculate luminous intensity distribution, zonal lumens, and total lumen output.
- Measure spectral irradiance data with an integrating sphere and calculate the total lumen output and spectral power distribution of a lamp.
- Design luminaire optical components and produce luminous intensity photometric data files fusing optical design software.

Skills

- IES data files
- Lamp photometry
- Luminaire optics
- Luminaire photometry
- Optical design
- Photometry