



DISCIPLINE DESCRIPTION

OPTICS AND PHOTONICS

ACTIVE TEACHING DISCIPLINES

For administrative use only; please do *not* edit federal NCES information below.

CIP Code	Title	Definition
14.1003	Laser and Optical Engineering.	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of optical systems, lasers and related electronic devices. Includes instruction in wave theory and mechanics, electromagnetic applications, linear and non-linear optics, photon detecting, laser beam properties, directed energy, harmonic generation, optical systems, shielding and the design and implementation of related systems and equipment.

Note: More information on the National Center for Education Statistics (NCES) Classification of Instructional Programs (CIP) taxonomy is available at <https://nces.ed.gov/ipeds/cipcode/>.

The qualifications described below represent commonly accepted good practices for teaching in the discipline(s) represented in the unit.¹

Section 1. General description of the unit, including academic programs and course offerings²

The College of Optics and Photonics is one of the world's leading institutions in optics and photonics education and research. The college offers a comprehensive interdisciplinary educational program covering all aspects of optics, photonics, and lasers leading to baccalaureate, master's, and doctoral degrees. The faculty specialize in a number of related areas, including biophotonics, fiber optics, imaging and display, integrated and nanophotonics, laser science and technology, and nonlinear and quantum optics. The college and its research arm, the Center for Research and Education in Optics and Lasers (CREOL), benefit from close partnerships with such entities as the Advanced Materials Processing and Analysis Center, the Burnett School of Biomedical Science, the Florida Solar Energy Center, the Institute for Simulation and Training, and the NanoScience Technology Center.

Section 2. Qualifying degree(s) for each discipline taught in the unit³

A terminal degree in the teaching discipline qualifies a faculty member to teach throughout the broad scope of the teaching discipline at the undergraduate and graduate levels.⁴

The doctoral degree (e.g., PhD) with a major in optics and photonics represents the terminal degree in the discipline.

Section 3. Broadly related discipline(s) for each discipline taught in the unit

Specialization qualifies a faculty member to teach throughout the broad scope of the teaching discipline (typically five or more courses on distinct topics).

Faculty members with degrees in any of the following disciplines may be qualified to teach throughout the broad scope of the college's offerings, according to the level of their degree (master's for undergraduate, doctoral for graduate):

- Electrical and electronics engineering
- Engineering physics and applied physics
- Laser and optical engineering
- Optics and optical sciences
- Physics

Section 4. Selectively related discipline(s) for each discipline taught in the unit

Specialization qualifies a faculty member to teach a restricted set of courses in the teaching discipline (typically four or fewer courses on distinct topics).

Faculty members with degrees in any of the following disciplines may be qualified to teach courses related to their area of specialization, according to the level of their degree (master's for undergraduate, doctoral for graduate):

- Ceramic sciences and engineering
- Chemistry
- Materials science
- Mathematics
- Mechanical engineering
- Nuclear engineering

Section 5. Justification for use of faculty members with "other" teaching qualifications and additional information⁵

The college considers other teaching qualifications in conjunction with or in lieu of academic credentials on a case-by-case basis. This is acceptable in special cases in which evidence of a faculty member's exceptional industry experience, research, or other qualifications can be documented, and in which those qualifications are directly applicable to the course or courses being taught.

1. The unit chair or director, in consultation with unit faculty members, is responsible for identifying and articulating commonly accepted good practices in each of the unit's teaching disciplines and for providing appropriate justification as needed. In the case of an emerging discipline for which common collegiate practice has not yet been established, a compelling case must be made, as necessary, to substantiate the claims presented.

2. Please provide a general description of the unit's course and program offerings at the undergraduate and graduate levels (e.g., degree and certificate programs, minors, unit contributions to interdisciplinary core courses). This section may also be used to provide other pertinent information about the unit and the discipline(s) it represents (e.g., discipline accreditation, faculty research emphases).

3. For each discipline taught in the unit, please list those degrees that are regarded by the respective disciplinary community as terminal degrees in the discipline and thus qualify a faculty member to teach throughout the broad scope of that discipline at the undergraduate and graduate levels. In most fields, a terminal degree is the commonly accepted highest degree in the given field of study. In such instances, the terminal degree is usually considered to be the academic (or research) doctorate (e.g., Doctor of Philosophy). However, some academic fields have, through custom, recognized terminal degrees that are not doctorates (e.g., Master of Fine Arts). Note that terminal degrees in other disciplines may also be appropriate for teaching in the discipline, but such credentials should be listed as broadly or selectively related degrees, as appropriate.

4. A nonterminal master's degree in the teaching discipline qualifies a faculty member to teach throughout the broad scope of the teaching discipline at the undergraduate level but not at the graduate level.

5. Please use this section to provide justification that helps to make the case for special circumstances that apply to the unit, including the use of faculty members qualified to teach by “other” means. Typically, the statements provided in this section should be of a general nature and should not address specific individuals. (Justification for specific individuals is typically handled separately during the teaching certification process.) Please cite appropriate authorities as needed to justify the unit’s practices (e.g., discipline accreditation guidelines, governmental regulations).

When a faculty member cannot be qualified to teach on the basis of academic credentials (i.e., degrees, coursework) alone, qualifications other than academic credentials (or combined with academic credentials) that are appropriate for teaching particular courses may be taken into consideration. Such consideration of other teaching qualifications in conjunction with or in lieu of academic credentials must be made on a case-by-case basis. These cases should be exceptional, and the evidence provided of other demonstrated competencies and achievements must be compelling. They should also show significant evidence of professional progress as related to the faculty member’s teaching assignment.