



Electrical Engineering

ACTIVE TEACHING DISCIPLINES		
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CIP Code	Description	NCES Definition For more information on the NCES CIP taxonomy, see http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55
14.0101	Engineering, General	A program that generally prepares individuals to apply mathematical and scientific principles to solve a wide variety of practical problems in industry, social organizations, public works, and commerce. Includes instruction in undifferentiated and individualized programs in engineering.
14.1001	Electrical and Electronics, Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical and electronic systems and their components, including communication systems, control and autonomous systems, nano- and micro-systems, electro-optical systems; and the analysis of problems such as various circuits, communication, control, electrooptics, electromagnetics, energy and power generation and delivery, robotics, and signal processing.

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

Please provide a general description of unit, including programs and course offerings [2]

The Electrical and Computer Engineering Division in the Department of Electrical Engineering and Computer Science offers these programs for Electrical Engineering:

- Electrical Engineering BS
- Electrical Engineering MSEE
- Electrical Engineering PhD

Education and research in electrical engineering reflects the very broad nature of the field, which includes communications, controls/robotics, digital signal processing, electromagnetics, power electronics and electronics, electro-optics, solid state and microelectronics, and very

large-scale integration (VLSI). The BS Electrical Engineering program is accredited by the Accreditation Board for Engineering and Technology (ABET). Several specialties are offered in the Electrical Engineering MSEE program: Communications, Controls and Robotics, Digital Signal Processing, Electro-Optics, Electromagnetics, Power Electronics, Power Systems, Solid State and Micro-/Nano-electronics, and VLSI Design. The ECE Division also works closely with the Computer Science (CS) Division in scheduling and offering courses, the other division in the department. The department benefits from close ties with units at UCF including the Mechanical, Materials, & Aerospace Engineering Department; the Industrial Engineering & Management Systems Department; the College of Optics and Photonics; the Institute for Simulation and Training; the Florida Space Institute; and the Nanoscience Technology Center. Several engineering core courses are taught by Electrical and Computer Engineering faculty as service courses to other engineering majors. Teaching Electrical Engineering at the undergraduate level typically requires an MS or PhD in Electrical Engineering or one of the closely related disciplines noted below. Teaching Electrical Engineering at the graduate level requires a PhD in Electrical Engineering or one of the closely related disciplines noted below.

Electrical engineering graduate courses with content in the interdisciplinary areas (especially research, independent study, and dissertation courses) require expertise in that area; for example, in the materials science area the appropriate qualification is a PhD in Materials Science, and in the nano and/or bio-science areas, the appropriate qualification is a PhD in Chemistry or Biology.

All engineers, by nature of their training and education, are applied physicists and applied mathematicians; however, it is appropriate to have PhD faculty in Physics and Mathematics teach engineering courses where course content requires advanced expertise in Physics and Mathematics.

Terminal degree(s) for each discipline taught in the unit [3]

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

PhD Electrical Engineering

Broadly related discipline(s) for each discipline taught in the department

Specialization qualifies a person to teach throughout the broad scope of teaching discipline (approximately five or more courses on distinct topics)

- Electrical Engineering
- Electronic Engineering
- Computer Engineering
- Electro-optics

- Robotics and Intelligent Systems
- Nano- and Micro-Systems
- Cyber-Physical Systems
- Systems Engineering
- Engineering Science
- Energy Systems and Power Engineering
- Engineering

Selectively related discipline(s) for each discipline taught in the department

Specialization does not qualify a person to teach distinct topics throughout the broad scope of the teaching discipline but does qualify to teach a more restrictive set of courses in the discipline (approximately four or fewer courses on distinct topics)

- Computer Science
- Computer Science & Engineering
- Information Technology
- Optical Science
- Materials Science
- Civil Engineering
- Physics, Photon Physics
- Mathematics
- Chemistry
- Biology

Justification for use of faculty with 'other' teaching qualifications and additional faculty teaching qualifications information [5] [6]

The Electrical Engineering curriculum provides an integrated experience that includes a knowledge base that is comprised of the related disciplines of Computer Engineering, Computer Science, Information Technology, Math, Physics, engineering core, computing, design experience and basic sciences. Experiences in any/all of these related disciplines both in academia and industry may/will be accepted for clinical instructors.

[1] The unit chair/director, in consultation with unit faculty, has responsibility for identifying and articulating commonly accepted good practices in each teaching discipline taught in the unit 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 provided as necessary to substantiate the claims made.

[2] Please provide a general description of the unit course and program offerings at the undergraduate and graduate levels (e.g., degree and certificate programs, minors, departmental contribution 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] List those degrees for each discipline taught in the unit 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 both 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, Master of Social Work). Note that terminal degrees from other disciplines may be appropriate for teaching in the discipline as well, but such credentials should be listed as broadly or selectively related degrees, as appropriate.

[4] A non-terminal master's degree in the teaching discipline qualifies a person to teach throughout the broad scope of the teaching discipline at the undergraduate level, 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 your unit including the use of faculty qualified to teach by 'other' qualifications and other special situations. Typically the statements provided in this section should be of a general nature, and not address specific individuals. (Justification for specific individuals is typically handled separately during the teaching certification process.) As appropriate, please cite to appropriate authorities to justify departmental practices (e.g., discipline accreditation guidelines, state regulations).

[6] When a faculty member cannot be qualified to teach on the basis of academic credentials (degree(s) and course work) alone, qualifications other than academic credentials (or combined with credentials) may be appropriate for teaching particular courses. Consideration of other teaching qualifications either in conjunction with or in lieu of academic credentials must be made on a case-by-case basis. Such cases should be exceptional and the evidence of other demonstrated competencies and achievements provided must be compelling. It should also show substantial and significant evidence of professional progress as related to the faculty member's teaching assignment.