



## Computer Engineering

ACTIVE TEACHING DISCIPLINES		
For Administrative Use Only – Please do <i>not</i> edit federal NCES information below		
CIP Code	Description	NCES Definition For more information on the NCES CIP taxonomy, see <a href="http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55">http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55</a>
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.
14.0901	Computer Engineering, General	A program that generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer hardware and software systems and related equipment and facilities; and the analysis of specific problems of computer applications to various tasks.

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 (ECE) Division in the Department of Electrical Engineering and Computer Science offers these programs for Computer Engineering:

- Computer Engineering BS
- Computer Engineering MSCpE
- Computer Engineering PhD

Education and research in computer engineering reflects the very broad nature of the field, which includes distributed systems and processes, networking, wireless networks, knowledge-based systems, modeling and simulation, computer architectures, software engineering, and intelligent systems. The BS Computer Engineering program is accredited by the Accreditation Board for Engineering and Technology (ABET). Four specialties are offered in

the Computer Engineering MSCpE program: Computer Architecture, Digital Systems, Knowledge-Based Systems, and Software Engineering. The ECE Division also works closely with the Computer Science (CS) Division in scheduling and offering courses, the other division in the department, and several CS faculty regularly teach courses for our computer engineering students. The department also benefits from close ties with units at UCF including 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 a service course to other engineering majors.

Teaching Computer Engineering at the undergraduate level typically requires an MS or PhD in Computer Engineering or one of the closely related disciplines noted below. Teaching CpE at the graduate level requires a PhD in Computer Engineering or one of the closely related disciplines noted below.

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 Computer 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 Science & Engineering
- Computer Science
- Engineering Science
- Systems Engineering
- Information Technology
- Robotics and Intelligent Systems

#### **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)*

- Nano- and Micro-Systems
- Cyber-Physical Systems
- Mathematics
- Physics
- Materials Science
- Civil Engineering
- Chemistry
- Biology

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

The Computer Engineering curriculum provides an integrated experience that includes a knowledge base comprised of the related disciplines of Electrical Engineering, Computer Science, Information Technology, Math, Physics, engineering core basics, 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.

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[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.