

Graduate Programs in Computer Engineering

UMBC

AN HONORS
UNIVERSITY
IN MARYLAND



Thrice-named the #1 up-and-coming national university by *U.S. News and World Report*, UMBC offers an exceptional and affordable education.

UMBC has continually proven itself to be a leader in science and engineering education. The Computer Science and Electrical Engineering Department is made up of 39 full-time faculty members and 15 research professors who dedicate themselves to teaching as they pursue their own research in the field.

According to the Department of Education's National Center for Education Statistics, UMBC ranks fourth among U.S. research universities in the production of IT degrees and certificates.

Currently, the department boasts over 250 graduate students from around the globe. Recent graduates have gone on to work at top companies such as Google and Microsoft, government organizations like NASA, and defense companies like Northrop Grumman.

M.S. in Computer Engineering

Students pursuing a Master's of Science (M.S.) in Computer Engineering can choose from a thesis and non-thesis option. The thesis option requires the completion of a thesis that must be defended with an oral examination and approved by the student's master's thesis committee. In addition, thesis M.S. students must complete 30 credit hours, including 3 core courses and 6 credit hours of research. The non-thesis option requires the completion of a scholarly paper. In addition, non-thesis M.S. students must complete 33 credit hours including 3 core courses and 3 credits of ENEE 698. Both options must be completed within 5 years and students must maintain a minimum G.P.A. of 3.0.

Ph.D. in Computer Engineering

Students pursuing a Doctorate of Philosophy (Ph.D.) in Computer Engineering are required to complete 33 credit hours, including 3 core courses, 2 focused electives, and 18 credit hours of doctoral dissertation research. Ph.D. students must pass the comprehensive portfolio, the preliminary examination and admission to candidacy before completing and defending their dissertation. In addition, Ph.D. students must complete a minimum of three years of full-time study, with at least one year at UMBC. The program must be completed within 4 years after admission to doctoral candidacy and students must maintain a G.P.A. of 3.0.

Core Courses

CMSC 611: Advanced Computer Architecture

CMPE 640: Advanced VLSI Design

CMPE 650: Digital Systems Design

In addition to the core courses, a wide range of elective and special topics courses are offered in areas such as: FPGA and multi-technologies implementations, Computer Systems, architecture, design and test, sensor networks, Analog and digital systems, VLSI design and testing, bioelectronic systems.

The Computer Engineering graduate program is research active. Faculty members receive funding from organizations such as the Department of Defense, NASA, NSA, NSF and NIST to support their research projects.

Research Areas

- VLSI design and test: defect-based testing, mixed signal design and test, test structure design for process variations, TRUST for ICs.
- VLSI arithmetic algorithms and security: security at all levels, data, networks, architecture.
- Mixed-signal VLSI: mixed-signal VLSI design, intelligent sensor interfacing, imaging systems, sensor networks.
- Distributed real-time, and embedded systems: distributed real-time, fault tolerant, wireless, and embedded systems.
- Energy efficient and high performance systems: architecture, application and chip design for many core systems, ultra low power DSP for biomedical apps, efficient hardware for communications and DSP.
- Bioelectronics: novel energy conversion systems using bioelectronics design and theory, optimization methods for physical circuit design, low-voltage and biologically inspired computing, sensor-processor integration, and wireless networking and communications.

To Apply Visit <http://www.csee.umbc.edu/programs/graduate/application-process/> OR send an email to gradDirector@csee.umbc.edu