Program Overview

Mason Engineering offers a Master of Science in Computer Engineering through its Department of Electrical and Computer Engineering.

Computer Engineering involves knowledge of hardware and software development. The students learn how to design new generations of computers, as well as embedded computing systems, such as those found in smartphones, cars, appliances, computer networks, smart factories, and the internet-of-things. The program covers the entire digital integrated circuit design process targeting Field Programmable Gate Arrays (FPGAs) and Application Specific Integrated Circuits (ASICs). It also encompasses the complete software development process targeting microcontrollers, microprocessors, multi-cores, and Graphics Processing Units (GPUs). It teaches students how to efficiently partition the system into software and hardware components, and develop high-performance interfaces between these two parts.

Our project-oriented courses and labs expose students to modern computer-aided design tools for hardware and software design. The students master the art of writing comprehensive technical reports and giving successful oral presentations. The graduates of our program are very successful in finding exciting and high-paying jobs in high-tech industry, business, and government, both locally and nationwide. They are also very well prepared to continue their education toward Ph.D. degrees in computer and electrical engineering, as well as other related fields.

The MS in Computer Engineering Program offers the following specialization areas: digital systems design, microprocessor and embedded systems, internet of things, digital signal processing, computer networks, and network and system security.

The Department of Electrical and Computer Engineering has an outstanding faculty of 28 full-time professors, 6 of whom are fellows of IEEE or other professional societies. The department offers more than 50 graduate-level courses in electrical and computer engineering. The program regularly consults with area employers to provide input on field trends, which leads to the offering of special topics courses designed to give our students an opportunity to earn a degree that is highly relevant in today’s environment.

Program Requirements

The MS in Computer Engineering requires a minimum of 30 graduate-level credits. Course work must represent a cohesive set of courses leading to comprehensive knowledge in one specialization area.

Core course options include two of the following:
- Operating Systems
- Computer Architecture
- Computer Network Architectures and Protocols
- Digital System Design with VHDL
- Sequential Machine Theory
Computer Engineering (M.S.)

Students then take 24 credits (or 6 credits of thesis and 18 credits of courses) from the array of course offerings in Electrical and Computer Engineering (ECE) or Computer Science (CS). Students may also take up to 50% of courses offered by other programs within the Volgenau School or the university with prior permission. Distance education option may be available for selected courses. Refer to our website for more information on program course offerings and details on program requirements.

Related Programs:
- Electrical Engineering, MS
- Computer Science, MS
- Digital Forensics and Cyber Analysis, MS
- Telecommunications, MS
- Electrical and Computer Engineering, PhD

Admission Requirements
In addition to meeting general university admissions requirements, MS in Computer Engineering applicants must have completed a baccalaureate degree in Computer Engineering, Electrical Engineering, or a closely related discipline from an accredited program with a reputation for high academic standards and have earned an average GPA of 3.00 or better over their 60 highest-level credits.

Required application materials include:
- Online application and non-refundable fee
- Transcripts showing all post-secondary study
- Professional and Educational Goals Statement
- Two letters of recommendation from professors or senior officials at place of employment
- Self-Evaluation
- GRE scores (for applicants who have not earned at least a Bachelor’s degree from a U.S. institution)
- Resume

Additional application materials, including English proficiency examination scores (e.g., TOEFL, IELTS), are required if the applicant holds a degree from an international institution and/or requires an F-1 or J-1 visa. Visit http://admissions.gmu.edu/grad for details.

Special admission programs are available for Volgenau School students and alumni.

Visit our website for details: http://ece.gmu.edu; Apply online: http://admissions.gmu.edu/grad/applynow