MASTER OF SCIENCE IN THE FIELD OF COMPUTER ENGINEERING

The master of science in the field of computer engineering degree program provides students with the latest knowledge and skills training to address contemporary advances in computer systems architecture and networking. It also addresses the rapidly growing use of multi-core processors, real-time embedded systems, VLSI and ASIC design modules, digital signal processors, and networked computing platforms. Students learn sophisticated computer architecture and integrated circuit design techniques using industry-standard computer-aided design tools and choose between two areas of focus: computer architecture and high-performance computing, and MEMs, Electronics, and Photonics.

Specific admission requirements are shown on the Graduate Program Finder (http://www.gwu.edu/all-graduate-programs).

Visit the program website (http://www.ece.seas.gwu.edu/master-science-computer-engineering) for additional information.

REQUIREMENTS

The following requirements must be fulfilled: 30 credits, including 15 credits in required courses and 15 credits in elective courses. Thesis and non-thesis options are available. Students should contact the department concerning these options.

Students also are required to attend five colloquia during their time in the program and, upon completion of each colloquium, submit to the department an attendance form (https://www.ece.seas.gwu.edu/undergraduate-resources) signed by the academic advisor.

Students select one of the areas of focus leading to the Master of Science degree including computer architecture and high-performance computing, and MEMs, electronics, and photonics.

### Computer Architecture and High-Performance Computing

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 6005</td>
<td>Microcomputer Systems Architecture</td>
<td></td>
</tr>
</tbody>
</table>

At least five of the following courses:

- ECE 6105 Introduction to High-Performance Computing
- ECE 6120 Advanced Microarchitectures
- ECE 6125 Parallel Computer Architecture
- ECE 6130 Big Data and Cloud Computing
- ECE 6140 Embedded Systems
- ECE 6150 Design of Interconnection Networks for Parallel Computer Architectures
- ECE 8150 Advanced Topics in Computer Architecture

### MEMS, Electronics, and Photonics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 6030</td>
<td>Device Electronics</td>
<td>4</td>
</tr>
</tbody>
</table>

4 of the following:

- ECE 6213 Design of VLSI Circuits
- ECE 6214 High-Level VLSI Design Methodology
- ECE 6215 Introduction to MEMS
- ECE 6216 RF/VLSI Circuit Design
- ECE 6218 Advanced Analog VLSI Circuit Design
- ECE 6221 Introduction to Physical Electronics
- ECE 6240 VLSI Design and Simulation
- ECE 6245 Micro and Nano Fabrication Technology
- ECE 6250 ASIC Design and Testing of VLSI Circuits
- ECE 6260 Introduction to Nanoelectronics

### Electives

15 credits in elective courses; normally, no more than two courses taken outside the Department of Electrical and Computer Engineering may be counted toward the requirements for the degree.

Additional requirements are found on the Department of Electrical and Computer Engineering Master’s Degree requirements (https://www.ece.seas.gwu.edu/masters-program-degree-requirements) webpage.