# M.S. in Computer Engineering

## Degree Requirements

Students must complete 30 credits; 21 or more credits must be from ECE courses. They include two required computer engineering core courses, two more required courses for one of the five areas of specialization, and a master’s project or thesis. As a requirement for graduation, students must achieve a 3.0 cumulative GPA, not including the master's thesis or project. The master's thesis or project grade must be B or higher.

## M.S. in Computer Engineering (Master's project)

### Bridge Courses (undergraduate degree in computer science)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 353</td>
<td>Computer Organization and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ECE 395</td>
<td>Microprocessor Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>ECE 231</td>
<td>Circuits and Systems I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 684</td>
<td>Advanced Microprocessor Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 11

### Bridge Courses (undergraduate degree in electrical engineering)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CS 505</td>
<td>Programming, Data Structures, and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>or CS 506</td>
<td>Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>ECE 353</td>
<td>Computer Organization and Architecture</td>
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**Total Credits**: 11

### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CS 610</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>ECE 690</td>
<td>Computer Systems Architecture</td>
<td>3</td>
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</tbody>
</table>

**Total Credits**: 11

### Project

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ECE 700</td>
<td>Master's Project</td>
<td>3</td>
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</table>

**Total Credits**: 3

### Electives

Select six of the following: 18

### Areas of Specialization

Select two of the following: 6

#### Computer Architecture and Embedded Systems

<table>
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<tbody>
<tr>
<td>ECE 658</td>
<td>VLSI Design I</td>
<td></td>
</tr>
<tr>
<td>ECE 692</td>
<td>Embedded Computing Systems</td>
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#### Intelligent Systems

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<th>Course</th>
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<tbody>
<tr>
<td>ECE 605</td>
<td>Discrete Event Dynamic Systems</td>
<td></td>
</tr>
<tr>
<td>ECE 609</td>
<td>Artificial Neural Networks</td>
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#### VLSI System Design

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<tbody>
<tr>
<td>ECE 658</td>
<td>VLSI Design I</td>
<td></td>
</tr>
<tr>
<td>ECE 758</td>
<td>VLSI Design II</td>
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#### Computer Networking

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ECE 683</td>
<td>Computer Network Design and Analysis</td>
<td></td>
</tr>
<tr>
<td>ECE 637</td>
<td>Internet and Higher-Layer Protocols</td>
<td></td>
</tr>
<tr>
<td>or ECE 783</td>
<td>Computer Communication Networks</td>
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#### Seminar

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ECE 791</td>
<td>Graduate Seminar</td>
<td></td>
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**Total Credits**: 33

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1. Required for one semester.
# M.S. in Computer Engineering (Master's thesis)

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**Thesis**

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</thead>
<tbody>
<tr>
<td>ECE 701</td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
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</table>

**Electives**

Select five of the following: 15

**Areas of Specialization**

Select two of the following: 6

- **Computer Architecture and Embedded Systems**
  - ECE 658: VLSI Design I
  - ECE 692: Embedded Computing Systems

- **Intelligent Systems**
  - ECE 605: Discrete Event Dynamic Systems
  - ECE 609: Artificial Neural Networks

- **VLSI System Design**
  - ECE 658: VLSI Design I
  - ECE 758: VLSI Design II

- **Computer Networking**
  - ECE 683: Computer Network Design and Analysis
  - ECE 637: Internet and Higher-Layer Protocols

**Seminar**

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**Total Credits** 33

¹ Required for one semester.