### Masters Degrees

**How to Plan Your Program Of Study**

## Choose Your Major

1. Complete the core courses for your Major
2. Choose an area of specialty and take courses within your area.
3. Make sure the courses satisfy the graduation requirement of your program

### Masters of Science in Computer Science
- CS 7200

### Masters of Science in Computer Engineering
- CEG 7360

### Masters of Science in CyberSecurity
- CEG 6430, CEG 6420, CEG 6424, CEG 6750

## Choose An Area Of Specialty

### Software:
- CS 6370, CS 7100, CS 7120, CS 7140, CS 7200, CS 7220, CEG 6110, CEG 6120, CEG 6130, CEG 6180, CEG 6360, CEG 6910

### Hardware:
- CS 6230, CEG 6322, CEG 6324, CEG 6330, CEG 7020, CEG 7030, CEG 7040, CEG 7080, CEG 7350, CEG 7360, CEG 7370, CEG 7450, CEG 7470

### Intelligent Systems:
- CS 6840, CS 6850, CS 7800, CS 7810, CS 7820, CS 7830, CS 7840, CEG 6870, CEG 7050

### Data Analysis:
- CS 6700, CS 6710, CS 7700, CS 7720, CS 6800, CEG 7570

### Vision and Graphics:
- CEG 6500, CEG 6510, CEG 6520, CEG 7550, CEG 7590

### Mathematics of Computation:
- CS 6240, CEG 6270, CEG 6800, CEG 6810

### Secure Software/Hardware:
- CS 6290, CEG 6324, CEG 6330, CEG 6410, CEG 6422, CEG 6426, CEG 6440, CEG 7050, CEG 7070, CEG 7370, CEG 7380, CEG 7420, CEG 7450, CEG 7470, CEG 7560, EE 7400

## Graduate Areas of Specialty

### SOFTWARE
- CS 6370 Parallel Programming for Many-Core GPUs
- CS 7100 Advance Programming Languages
- CS 7120 Functional and Logic Programming
- CS 7140 Advanced Software Engineering
- CS 7200 Algorithm Design and Analysis
- CS 7720 Data Mining
- CEG 6110 Introduction to Software Engineering
- CEG 6120 Managing the Software Development proc.
- CEG 6130 Personal Software Development Process
- CEG 6180 Object Oriented Programming and Design
- CEG 6360 Distributed Computing and Systems
- CEG 6910 Technology-based Ventures

### HARDWARE
- CEG 6230 Introduction to Robotics
- CEG 6322 VLSI Design
- CEG 6324 Digital IC Design with PLDs & FPGAs
- CEG 6330 Microprocessor-based Embedded Systems
- CEG 7020 Low Power VLSI System Design
- CEG 7030 VLSI Testing & Design for Testability
- CEG 7040 VLSI Design Synthesis and Optimization
- CEG 7080 CMOS Mixed Signal IC Design
- CEG 7350 Computer Architecture
- CEG 7360 Embedded Systems
- CEG 7370 Distributed Computing
- CEG 7450 Advanced Computer Networks
- CEG 7470 Advanced Wireless Networks

### SECURE SOFTWARE/HARDWARE
- CS 6290 Cryptography & Data Security
- CS 7600 Trust Networks
- CS 7850 Privacy Aware Computing
- CS 7900 Analysis & Design of Human-Machine Cyber Security Systems
- CEG 6324 Digital Integrated Circuit Design with PLDs and FPGAs
- CEG 6360 Distributed Systems & Cloud Computing
- CEG 6410 Mobile Computing
- CEG 6422 Secure Computing Practices
- CEG 6426 Legal Aspects of Cyber Security
- CEG 6440 Android Internals ans Security
- CEG 6450 Sensor Networks and Systems
- CEG 7050 Trust in Integrated Circuit Design
- CEG 7370 Distributed Computing
- CEG 7380 Cloud Computing
- CEG 7420 Host Computer Security II
- CEG 7450 Advanced Computer Networks
- CEG 7470 Advanced Wireless Networks
- CEG 7560 Visualization for Cyber Security
- EE 7400 Information Theory
### INTELLIGENT SYSTEMS

<table>
<thead>
<tr>
<th>CS Courses</th>
<th>CEG Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 6840 Introduction to Machine Learning</td>
<td>CEG 6820 Low Power VLSI System Design</td>
</tr>
<tr>
<td>CS 6850 Foundations of AI</td>
<td>CS/C/EG 6970 Independent Study in CS/CEG (Nonthesis)</td>
</tr>
</tbody>
</table>

### DATA ANALYSIS

<table>
<thead>
<tr>
<th>CS Courses</th>
<th>CEG Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 6700 Introduction to Data Base Management Syst.</td>
<td>CEG 7570 Pattern Recognition</td>
</tr>
<tr>
<td>CS 6710 Introduction to Data Mining</td>
<td>CS 7700 Advanced Data Base Systems</td>
</tr>
<tr>
<td>CS 6800 Web Information Systems</td>
<td>CS 7720 Data Mining</td>
</tr>
</tbody>
</table>

### MATHEMATICS OF COMPUTATION

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<th>CS Courses</th>
<th>CEG Courses</th>
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<tbody>
<tr>
<td>CS 6240 Coding Theory</td>
<td>CS 6830 Systems Simulation</td>
</tr>
<tr>
<td>CS 6270 Optimization Theory</td>
<td>CS 7060 Numerical Analysis I</td>
</tr>
</tbody>
</table>

### VISION & GRAPHICS

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<tr>
<th>CS Courses</th>
<th>CEG Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 6500 Computer Graphics</td>
<td>CEG 7590 Medical Image Analysis and Visualization</td>
</tr>
<tr>
<td>CS 6510 3-D Modeling and Computer Animation</td>
<td>CEG 7550 Computer Vision</td>
</tr>
</tbody>
</table>

### RESEARCH AND INDEPENDENT STUDY

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<tr>
<th>CS Courses</th>
<th>CEG Courses</th>
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</thead>
<tbody>
<tr>
<td>CS 7950 MS Thesis Research in CS</td>
<td>CS/C/EG 7920 Independent Study in CS/CEG (Thesis)</td>
</tr>
<tr>
<td>CS 7960 Cyber Security Capstone Project</td>
<td>CEG 7950 MS Thesis Research in CEG</td>
</tr>
</tbody>
</table>

### Graduate Courses

- CS Courses:
  - CS 6240 Coding Theory
  - CS 6270 Optimization Theory
  - CS 6280 Combinatorics and Graph Theory
  - CS 6290 Cryptography & Data Security
  - CS 6370 Parallel Programming for Many-Core GPUs
  - CS 6700 Introduction to Data Base Management Syst.
  - CS 6710 Introduction to Data Mining
  - CS 6800 Web Information Systems
  - CS 6830 Systems Simulation
  - CS 6840 Introduction to Machine Learning
  - CS 6850 Foundations of AI
  - CS 7060 Numerical Analysis I
  - CS 7070 Numerical Analysis II
  - CS 7100 Advance Programming Languages
  - CS 7120 Functional and Logic Programming
  - CS 7140 Advanced Software Engineering
  - CS 7200 Algorithm Design and Analysis
  - CS 7220 Compatibility and Analysis
  - CS 7600 Trust Networks
  - CS 7700 Advanced Data Base Systems
  - CS 7720 Data Mining
  - CS 7800 Information Retrieval
  - CS 7810 Knowledge Representation and Reasoning
  - CS 7820 Advanced Semantic Web

- CEG Courses:
  - CEG 6110 Introduction to Software Engineering
  - CEG 6120 Managing the Software Development proc. 
  - CEG 6130 Personal Software Development Process
  - CEG 6180 Object Oriented Programming and Design
  - CEG 6230 Introduction to Robotics
  - CEG 6260 Matrix Computation
  - CEG 6322 VLSI Design
  - CEG 6324 Digital IC Design with PLDs & FPGAs
  - CEG 6330 Microprocessor-based Embedded Systems
  - CEG 6360 Distributed Computing and Systems
  - CEG 6430 Computer Networks and Security
  - CEG 6410 Mobile Computing
  - CEG 6420 Host Computer Security
  - CEG 6422 Secure Computing Practices
  - CEG 6424 Security Attacks and Defenses
  - CEG 6450 Sensor Networks and Systems
  - CEG 6500 Computer Graphics
  - CEG 6510 3-D Modeling and Computer Animation
  - CEG 6520 Scientific Visualization
  - CEG 6750 Information Security
  - CEG 6910 Technology-based Ventures
  - CEG 6870 Introduction to Intelligent Control Syst.