## University Requirements (23-24)
- Writing, Rhetoric and American Cultures (WRA) 4
- Integrative Studies in Humanities (IAH) 8
- Integrative Studies in Social Sciences (ISS) 8
- Bioscience (one of the following):
  - BS 110, BS 111, ENT 205, MMG 201, MMG 301, PLB 105, PSL 250, ZOL 141 3-4

## College Requirements (32)
- CEM 141 General Chemistry 4
- CSE 231 Introduction to Programming I 4
- EGR 100 Introduction to Engineering Design 2
- MTH 132 Calculus I 3
- MTH 133 Calculus II 4
- MTH 234 Multivariable Calculus 3
- PHY 183 Physics for Scientists & Engineers I 4
- PHY 184 Physics for Scientists & Engineers II 4

## Major Requirements (41)
- CEM 161 Chemistry Laboratory I
- OR
  - PHY 191 Physics Laboratory for Scientists I 1
  - CSE 260 Discrete Structures in Computer Science 4
  - CSE 331 Algorithms and Data Structures 3
  - CSE 410 Operating Systems 3
  - ECE 201 Circuits and Systems I 3
  - ECE 202 Circuits and Systems II 3
  - ECE 203 Circuits and Systems Laboratory 1
  - ECE 230 Digital Logic Fundamentals 3
  - ECE 280 Electrical Engineering Analysis 3
  - ECE 302 Electronic Circuits 3
  - ECE 303 Electronics Laboratory 1
  - ECE 331 Microprocessors & Digital Systems 4
  - ECE 390 Ethics, Professionalism and Cont. Issues 1
  - ECE 480 Senior Design 4

*EGR 100 is required for all students matriculating at MSU beginning Fall Semester, 2008.

The requirements listed above apply to students admitted to the major of Computer Engineering beginning Fall, 2008. The Department of Electrical and Computer Engineering (ECE) constantly reviews program requirements and reserves the right to make changes as necessary. Students are encouraged to consult with their advisor to obtain assistance in planning an appropriate schedule. Students who have questions about Computer Engineering should contact the Electrical and Computer Engineering Department Advising Office, 2212 Engineering Building, phone (517) 355-5242.

## Major Electives (24)
Select at least 18 credits from the Core or Focus Track courses listed below, including at least 6 credits from the Core Electives and at least one course with a laboratory. The remaining six credits can be taken from the courses listed below, any 400-level Computer Science and Engineering (CSE) or Electrical and Computer Engineering (ECE) courses.

### Core Electives
- ECE 410 VSI Design (L) 4
- CSE 420 Computer Architecture 3
- *ECE 422 Computer Networks OR
- *ECE 442 Intro to Communication Networks 3

*Can’t use both CSE 422 & ECE 442 to satisfy core electives

### Focus Track Electives
#### Hardware
- ECE 402 Appl of Analog Integrated Circuits (L) 4
- ECE 411 Electronic Design Automation (L) 4
- ECE 412 Mixed-Signal Integrated Circuits (L) 4

#### Software
- ECE 366 Introduction to Signal Processing 3
- CSE 335 Object-oriented Software Design 3
- CSE 450 Translation of Programming Languages 3
- CSE 471 Media Processing & Multimedia Cmptng 3

### Recommended Electives
- ECE 305 Electromagnetic Fields & Waves I 4
- ECE 313 Control Systems 3
- ECE 404 Radio Frequency Electronic Circuits 4
- ECE 415 Computer Aided Manufacturing 3
- ECE 416 Digital Control 3
- ECE 457 Communication Systems 3
- ECE 458 Communication Systems Laboratory 1
- ECE 466 Digital Signal Processing & Filter Desn 3
- ECE 474 Principles of Electronics Devices 3

### Experiential Education Substitution
Students may use registered “out of classroom” experiences to waive one 400-level requirement outside of the major elective requirement. This is a combination of 3 or more experiences documented by pre-approved EGR/ECE credits (EGR 393, ECE 490/499).

### Other Electives (Variable)

Total Credits Required for Degree 128
## Computer Engineering

### Sample Program

#### Freshman Year

<table>
<thead>
<tr>
<th>Fall Credits</th>
<th>Spring Credits</th>
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<tr>
<td>WRA 1XX or ISS 2XX 4</td>
<td>WRA 1XX or ISS 2XX 4</td>
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<tr>
<td>Bioscience (AT) 3/4</td>
<td>CSE 231 4</td>
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<tr>
<td>CEM 141 4</td>
<td>MTH 133 4</td>
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<td>EGR 100 2</td>
<td>PHY 183 4</td>
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<td>MTH 132 3</td>
<td>Elective 2</td>
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Total 16/17

#### Sophomore Year

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<td>CSE 260 4</td>
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<tr>
<td>ECE 201 3</td>
<td>ECE 202/203 4</td>
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<tr>
<td>MTH 234 4</td>
<td>ECE 230 3</td>
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<td>PHY 184 4</td>
<td>ECE 280 3</td>
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<tr>
<td>PHY 191 or CEM 161 1</td>
<td>MTH 235 3</td>
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Total 16

#### Junior Year

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<th>Spring Credits</th>
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<td>ECE 302/303 4</td>
<td>CSE 410 4</td>
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<tr>
<td>ECE 331 4</td>
<td>CSE 331 3</td>
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<td>ISS 3XX 4</td>
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<td>Core Elect 3/4</td>
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<td>I 1</td>
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Total 15/16

#### Senior Year

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<th>Spring Credits</th>
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<tr>
<td>Core Elect 3/4</td>
<td>ECE 480 4</td>
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<tr>
<td>IAH 2XX 4</td>
<td>Elective 3</td>
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<tr>
<td>ECE 390 1</td>
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</table>

Total 16/17

### Program Objectives

The computer engineering program provides its graduates with a solid foundation on which they can build successful and sustainable careers. Within the first several years following graduation, graduates of the computer engineering program will:

1. **have accrued an understanding of the discipline**, built on an exposure to a broad range of computer engineering topics including the latest and emerging techniques and technologies.

2. **have established expertise within the discipline** originating with in-depth study in selected curricular areas emphasizing the solution to engineering problems using proper tools, practical approaches, and creative problem solving.

3. **be engaged in lifelong learning** in computer engineering, based on a strong foundation in the core sciences and mathematics.

4. **have an appreciation for the global and societal impact of the discipline** through an exposure to contemporary issues, and a knowledge and respect for ethical standards and professional responsibilities.

5. **have successfully utilized essential professional skills** such as teamwork and communications, both oral and written, within the context of engineering problem solving and design.

The computer engineering program is accredited by the Accreditation Board for Engineering and Technology (ABET).