## Computer Engineering BS Degree
### Curriculum Chart 2013-2014

### Core Courses
- AMS 0* Math Methods for Engineers I
- AMS 10* Math Methods for Engineers II
- CMPE 100/L Logic Design
- CMPE 107 Stochastic
- CMPE 110 Computer Architecture
- CMPE 121/L Micro Systems
- CMPE 122/L Computer Systems & Assembly Language
- CMPS 12B/M Data Structures
- CMPS 101 Abstract Data Types & Algorithms
- EE 101/L Electronics
- CMPE 185# Tech Writing
- CE 80E Engineering Ethics (or other approved Ethics course)

### Math
- MATH 19A Calculus
- MATH 19B Calculus
- MATH 21 Linear Algebra
- MATH 23A Multivariable Calculus
- EE 103/L Signals & Systems

### Science
- PHYS 5A/L Mechanics
- PHYS 5B/M Waves
- PHYS 5C/N Electricity & Magnetism
- CMPE 9 Statics, Dynamics, and Biomechanics (recommended for Robotics and Control concentration)

### Systems Programming
- CMPS 111 OS
- CMPS 115 Software Methodology
- CMPE 150/L Intro to Computer Networks
- CMPS 104A Compilers
- CMPE 113 Parallel Programming
- CMPS 156/L Network Programming

**Elective**
- Upper Division or graduate elective from Approved List

**One of the following:**
- CMPE 115 Solid Mechanics
- CMPE 153 Digital Signal Processing
- AMS 114, Dynamical Systems
- CMPE 240, Intro to Linear Dynamical Systems
- CMPE 264 Image Analysis & Computer Vision

**Third course from above or any one of the following:**
- CMPE 118/L Mechatronics/Lab
- CMPE 167/L Sensing & Sensor Technologies/Lab
- CE 141 Feedback Control Systems

### Robotics and Control
- Any two of the following:
  - CMPE 115 Solid Mechanics
  - CMPE 153 Digital Signal Processing
  - AMS 114, Dynamical Systems
  - CMPE 215, Models of Robotic Manipulation
  - CMPE 240, Intro to Linear Dynamical Systems
  - CMPE 264 Image Analysis & Computer Vision

**Elective**
- Upper Division or graduate elective from Approved List

### Computer Systems
- CMPS 109 Advanced Programming
- CMPS 111 OS
- CMPS 115 Software Methodology
- CMPE 125/L Logic Design w/ Verilog
- CMPS 125/L Advanced Programming
- CMPS 129A Capstone Project I:
- CMPE 129B Capstone Project I & II
- CMPE 129C Capstone Project I, II & III

**Elective**
- Upper Division or graduate elective from Approved List

### Networks
- CMPE 145/L Intro to Computer Networks
- CMPS 150/L Networks
- CMPS 151/L Advanced Networks
- CMPS 156/L Network Programming
- CMPS 111 OS

**Elective**
- Upper Division or graduate elective from Approved List

### Digital Hardware
- CMPE 125/L Logic Design w/ Verilog
- CMPE 171/L Analog Electronics
- CMPE 122 Intro VLSI
- CMPE 222 Advanced VLSI
- CMPE 173/L High Speed

**One of the following:**
- CMPE 115 Solid Mechanics
- CMPE 153 Digital Signal Processing
- AMS 114, Dynamical Systems
- CMPE 215, Models of Robotic Manipulation
- CMPE 240, Intro to Linear Dynamical Systems
- CMPE 264 Image Analysis & Computer Vision
- CMPE 242, Feedback Control

**Elective**
- Upper Division or graduate elective from Approved List

### Capstone (choose one)
- CMPE 123A CE Design Project I & II
- CMPE 129A, 129B and 129C Capstone Project I, II & III
- CMPE 195 Senior Thesis

**Exit Requirements:**
- Portfolio
- Exit survey
- Exit interview

* Preferred
# Satisfies the DC requirement

**Submission of approved thesis**
### Approved List of Upper Division Electives

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<th>Fall</th>
<th>Winter</th>
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<thead>
<tr>
<th>AMS 114 Dynamical Systems</th>
<th>CMPS 102 Analysis of Algorithms</th>
<th>CMPS 180 Database Systems</th>
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<tr>
<td>AMS 147 Computational Methods and Applications</td>
<td>CMPS 104A Compiler Design I</td>
<td>CMPS 181 Database Systems II</td>
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<td>CMPE 108 Data Compression</td>
<td>CMPS 104B Compiler Design II</td>
<td>CMPS 183 Hypermedia and the Web</td>
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<td>CMPE 112 Computer and Game Console Architecture</td>
<td>CMPS 109 Advanced Programming</td>
<td>CMPS 190X Methods of Cryptography</td>
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<tr>
<td>CMPE 115 Solid Mechanics</td>
<td>CMPS 111 Operating Systems</td>
<td>EE 130/L Optoelectronics &amp; Photonics</td>
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<td>CMPE 113 Parallel Programming</td>
<td>CMPS 112 Comparative Prog. Langs.</td>
<td>EE 135/L Electro. Fields and Waves</td>
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<td>CMPE 118/L Intro to Mechatronics</td>
<td>CMPS 115 Software Methodology</td>
<td>EE 136 Engr. Electromagnetics</td>
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<td>CMPE 122 VLSI Digital System Design</td>
<td>CMPS 116 Software Design Project</td>
<td>EE 145/L Properties of Materials</td>
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<td>CMPE 125/L Logic Design with Verilog</td>
<td>CMPS 122 Computer Security</td>
<td>EE 151 Communications Systems</td>
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<td>CMPE 131 Human-Computer Interaction</td>
<td>CMPS 129 Data Storage Systems</td>
<td>EE 152 Introduction to Wireless Communications</td>
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<td>CMPE 141 Feedback Control Systems</td>
<td>CMPS 130 Computational Models</td>
<td>EE 153 Signal Processing</td>
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<tr>
<td>CMPE 150/L Intro. to Computer Networks</td>
<td>CMPS 132 Computability and Complexity</td>
<td>EE 154 Feedback Control Systems</td>
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<td>CMPE 151 Network Administration</td>
<td>CMPS 140 Artificial Intelligence</td>
<td>EE 171/L Analog Electronics</td>
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<td>CMPE 156/L Network Programming</td>
<td>CMPS 142 Machine Learning and Data Mining</td>
<td>EE 172 Advanced Analog Circuits</td>
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<td>CMPE 161 Mobile Sensing and Interaction</td>
<td>CMPS 146 Game AI</td>
<td>EE 175/L Energy Generation and Control</td>
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<td>CMPE 173/L High Speed Digital Design</td>
<td>CMPS 161/L Visualization &amp; Computer Animation</td>
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<td>CMPE 177 Applied graph Theory/Algor.</td>
<td>CMPS 164/L Game Engines and Game Engines Lab</td>
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**Or Any 5-Credit CS, CE, or EE Graduate Course:** At most, one elective may be substituted by an upper-division individual or field study (CMPE, CMPS, EE 193 or 198) with approval.

### Approved List of Ethics Courses

- CMPE 80E Engineering Ethics
- PHIL 22 Intro to Ethical Theory: Contemporary Moral Issues
- PHIL 24 Intro to Contemporary Ethics
- PHIL 28 Environmental Ethics

- Watch for CEFULs: CE Faculty-Undergraduate Lunches, regularly scheduled throughout the year, CE’s free lunch program

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I have discussed the BS/MS program with my advisor.

**STUDENT’S NAME:** ______________________  **FACULTY ADVISOR:** ______________________

**STAFF ADVISOR:** ______________________

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