Computer Engineering BS Degree
Curriculum Chart 2011-2012

Core Courses
- CMPE 12/L Micro Systems
- CMPE 12/L Computer Systems & Assembly Language
- CMPE 100/L Logic Design
- CMPE 80E Engineering Ethics (or other approved Ethics course)

Math
- MATH 19A Calculus
- AMS 10* Math Methods for Engineers I
- OR
- MATH 21** Linear Algebra
- MATH 24** Differential Equations
- CMPE 16 or 16H Discrete Math
- CMPE 107 Stochastic
- CMPE 123A Multivariable Calculus
- EE 103 Signals & Systems

Science
- PHYS 5A/L or 6A/L Mechanics
- OR
- CMPE 9 Statics, Dynamics, and Biomechanics (recommended for Robotics and Control concentration)

Concentrations
(choose one)

System Programming
- CMPS 111 OS
- CMPS 115 Software Methodology
- CMPE 150/L Intro to Computer Networks
- Elective Upper Division or graduate elective from Approved List

Robotics and Control
(CMPE 9: Statics, Dynamics, and Biomechanics recommended)
- CMPE 118/L Introduction to Mechatronics
- EE 154 Feedback Control Systems
- Two of the following:
  - CMPE 153, Digital Signal Processing
  - CMPE 167/L, Sensing & Sensor Technologies/Lab
  - AMS 114, Intro to Dynamical Systems OR CMPE 240, Intro to Linear Dynamical Systems
  - CMPE 215, Models of Robotic Manipulation
  - CMPE 242, Applied Feedback Control

Computer Systems
- CMPS 111 OS
- CMPE 125/L Logic Design w/ Verilog
- CMPE 150/L Intro to Computer Networks
- Elective Upper Division or graduate elective from Approved List

Networks
- CMPS 111 OS
- CMPE 150/L Networks
- CMPE 155/L Network Programming
- CMPE 151/L Network Administration OR Upper division or graduate elective from Approved List

Digital Hardware
- EE 171/L Analog Electronics
- CMPE 174 Tools for Digital Systems Design
- CMPE 173/L High Speed
- Elective Upper Division or graduate elective from Approved List

- CMPE 125/L Logic w/ Verilog

Elective
- Upper Division or graduate elective from Approved List

Computer Engineering Design Project I:
CMPE 123A

Computer Engineering Design Project II:
CMPE 123B or CMPE 195: Senior Thesis

Project portfolio (http://www.ce.ucsc.edu/portfolio), exit survey, and interview

* Preferred
** Preferred

* May substitute with CMPS 5J AND CMPS 11

http://ua.soe.ucsc.edu :: advising@soe.ucsc.edu :: (831) 459-5840 :: 9/26/2011
### Approved List of Upper Division Electives

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPE 108 Data Compression</td>
<td>CMPS 109 Advanced Programming</td>
<td>CMPS 111 Operating Systems</td>
<td>CMPE 113 Parallel Programming</td>
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<tr>
<td>CMPE 112 Computer and Game Console Architecture</td>
<td>CMPS 114 Comparative Prog. Langs.</td>
<td>CMPS 115 Software Methodology</td>
<td>CMPE 118/L Intro to Mechatronics</td>
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<tr>
<td>CMPE 125/L Logic Design with Verilog</td>
<td>CMPS 122 Computer Security</td>
<td>EE 130/L Optoelectronics &amp; Photonics</td>
<td>CMPE 125/L Logic Design with Verilog</td>
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<tr>
<td>CMPE 131 Human-Computer Interaction</td>
<td>CMPS 129 Data Storage Systems</td>
<td>EE 135/L Electro. Fields and Waves</td>
<td>CMPE 131 Human-Computer Interaction</td>
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<tr>
<td>CMPE 150/L Intro. to Computer Networks</td>
<td>CMPS 130 Computational Models</td>
<td>EE 145/L Properties of Materials</td>
<td>CMPE 150/L Intro. to Computer Networks</td>
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<tr>
<td>CMPE 151 Network Administration</td>
<td>CMPS 132 Computability and Complexity</td>
<td>EE 151 Communications Systems</td>
<td>CMPE 151 Network Administration</td>
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<tr>
<td>CMPE 156/L Network Programming</td>
<td>CMPS 140 Artificial Intelligence</td>
<td>EE 153 Signal Processing</td>
<td>CMPE 156/L Network Programming</td>
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<tr>
<td>CMPE 167/L Sensor and Sensor Technologies</td>
<td>CMPS 142 Machine Learning and Data Mining</td>
<td>EE 154 Feedback Control Systems</td>
<td>CMPE 167/L Sensor and Sensor Technologies</td>
</tr>
<tr>
<td>CMPE 173/L High Speed Digital Design</td>
<td>CMPS 146 Game AI</td>
<td>EE 171/L Analog Electronics</td>
<td>CMPE 173/L High Speed Digital Design</td>
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<tr>
<td>CMPS 102 Analysis of Algorithms</td>
<td>CMPS 161/L Visualization &amp; Computer Animation</td>
<td>EE 175/L Energy Generation and Control</td>
<td>CMPS 102 Analysis of Algorithms</td>
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<tr>
<td>CMPS 104A Compiler Design I</td>
<td>CMPS 164/L Game Engines and Game Engines Lab</td>
<td>TIM 206 Optimization Theory and Appl.</td>
<td>CMPS 104A Compiler Design I</td>
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<tr>
<td>CMPS 104B Compiler Design II</td>
<td>CMPS 180 Database Systems</td>
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<td>CMPS 104B Compiler Design II</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; BME 80G/PHIL80G/ CHEM80G Bioethics in the 21st Century: Science, Business, and Society.

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

**STUDENT'S NAME:** ______________________________ **FACULTY ADVISOR:** ______________________________

**STAFF ADVISOR:** ______________________________

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