Robotics Engineering BS Degree
Curriculum Chart 2013-2014

**Math**
- MATH 19A Calculus
- MATH 19B Calculus
- MATH 23A Multivariable Calculus
- AMS 10* Math Methods for Engineers I
- CMPE 16 or 16H Discrete Math
- CMPE 107 Stochastic
- EE 103/L Signals & Systems
- AMS 20 Math Methods for Engineers II
- MATH 21 Linear Algebra
- OR
- CMPE 8 Robot Automation (Not required, strongly recommended for freshmen)

**Programming**
- CMPE 12/L Computer Systems & Assembly Language
- CMPE 13/L Computer Sys. & C Prog.
- CMPS 12B/M Data Structures
- CMPS 101 Abstract Data Types & Algorithms

**Science and Mechanics**
- PHYS 5A/L Mechanics
- CMPE 9 Statics, Dynamics, and Biomechanics
- PHYS 5C/N Electricity & Magnetism
- CMPE 115 Solid Mechanics

**Digital Electronics**
- CMPE 100/L Logic Design
- EE 101/L Electronics
- CMPE 121/L Micro Systems

**Robotics**
- CMPE 118/L Introduction to Mechatronics
- CE 141 Feedback Control Systems
- CMPE 167/L Sensors
- Advanced Robotics Elective (choose one)
  - CMPE 215, Models of Robotic Manipulation
  - CMPE 240, Linear Dynamical Systems
  - CMPE 242, Applied Feedback Control
  - CMPE 264, Image Analysis and Computer Vision

**Breadth**
- CMPE 80E Engineering Ethics (or approved course)
- CMPE 185# Tech Writing
- Upper Division or Graduate Elective from Approved List

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

**Exit Requirements**
- Portfolio ([www.ce.ucsc.edu/portfolio](http://www.ce.ucsc.edu/portfolio))
- Exit survey
- Exit interview

* Preferred
* May substitute with CMPS 5J AND CMPS 11
# Satisfies the DC requirement
## Approved List of Upper Division Electives

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
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<tbody>
<tr>
<td>AMS 114 Intro to Dynamical Systems</td>
<td>AMS 198 Independent Study/Research</td>
<td>AMS 147 Computational Methods and Applications</td>
<td>AMS 231 Nonlinear Control Theory</td>
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<td>CMPE 108 Data Compression</td>
<td>CMPS 102 Analysis of Algorithms</td>
<td>CMPE 110 Computer Architecture</td>
<td>CMPS 104A Compiler Design I</td>
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<tr>
<td>CMPE 112 Computer and Game Console Architecture</td>
<td>CMPS 104B Compiler Design II</td>
<td>CMPE 113 Parallel Programming (or CMPS 113)</td>
<td>CMPS 109 Advanced Programming</td>
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<td>CMPE 125/L Logic Design with Verilog</td>
<td>CMPS 111 Operating Systems</td>
<td>CMPE 125/L Intro to Computer Networks</td>
<td>CMPS 122 Computer Security</td>
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<td>CMPE 131 Human-Computer Interaction</td>
<td>CMPS 128 Distributed Systems and More</td>
<td>CMPE 150/L Advanced Networks</td>
<td>CMPS 129 Data Storage Systems</td>
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<tr>
<td>CMPE 177 Applied Graph Theory &amp; Algorithms</td>
<td>CMPS 130 Computational Models</td>
<td>CMPE 153 Digital Signal Processing (or EE 153)</td>
<td>CMPS 140 Artificial Intelligence</td>
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<tr>
<td>CMPE 156/L Network Programming</td>
<td>CMPS 142 Machine Learning and Data Mining</td>
<td>CMPE 161 Mobile Sensing and Interaction</td>
<td>CMPS 146 Game AI</td>
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<tr>
<td>Or Any 5-Credit CS, CE, or EE Graduate Course</td>
<td>CMPE 193 Field Study</td>
<td>Or Any 5-Credit CS, CE, or EE Graduate Course</td>
<td>CMPS 161/L Visualization &amp; Computer Animation</td>
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<td>Requires prior approval</td>
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## 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/CHM80G 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:** _____________________________