Computer Engineering BS Degree
Curriculum Chart 2013-2014

Math Courses
- MATH 19A Calculus
- MATH 19B Calculus
- MATH 21 Linear Algebra
- MATH 23A Multivariable Calculus
- EE 103/L Signals & Systems
- AMS 10 Math Methods for Engineers I
- AMS 20 Math Methods for Engineers II
- CMPE 16 Discrete Math
- CMPE 107 Stochastic

Core Courses
- CMPE 12/L Computer Systems & Assembly Language
- CMPE 13/L Computer Systems & C Prog.
- CMPE 110 Computer Architecture
- CMPS 12B/M Data Structures
- CMPS 101 Abstract Data Types & Algorithms
- CMPE 107/L Logic Design
- CMPE 110/L Logic Design
- CMPS 122/L/L High Speed

Science Courses
- PHYS 5A/L Mechanics
- PHYS 5B/M Waves
- CMPE 110/L Micro Systems
- PHYS 5C/N Electricity & Magnetism

Concentrations (choose one)
- Systems Programming
  - CMPS 111 OS
  - CMPS 115 Software Methodology
  - CMPE 150/L Intro to Computer Networks
  - One of the following:
    - CMPS 104A Compilers
    - CMPE 113 Parallel Programming
    - CMPE 156/L Network Programming
  - Elective Upper Division or graduate elective from Approved List

- 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
    - CMPE 242, Feedback Control
  - Third course from above or any one of the following:
    - CMPE 110 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

- Computer Systems
  - CMPS 109 Advanced Programming
  - CMPS 115 Software Methodology
  - Elective Upper Division or graduate elective from Approved List
  - CMPS 109 Advanced Programming
  - CMPS 115 Software Methodology
  - Elective Upper Division or graduate elective from Approved List

- Networks
  - CMPE 150/L Intro to Computer Networks
  - CMPE 151/L Advanced Networks
  - Elective Upper Division or graduate elective from Approved List

Digital Hardware
- CMPE 125/L Logic Design w/ Verilog
- CMPE 156/L Network Programming
- One of the following:
  - CMPE 122 Intro VLSI
  - CMPE 222 Advanced VLSI
  - CMPE 173/L High Speed
  - Elective 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
- CMPE 123A CE Design Project I OR CMPE 129A Capstone Project I:
  - CMPE 195 Senior Thesis
  - Submission of approved thesis

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

* Preferred
# Satisfies the DC requirement
### Approved List of Upper Division Electives

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- AMS 114 Dynamical Systems
- AMS 118 Estimation & Control Stochastic Processes
- AMS 147 Computational Methods and Applications
- CMPE 108 Data Compression
- CMPE 112 Computer and Game Console Architecture
- CMPE 113 Parallel Programming (or CMPS 113)
- CMPE 115 Solid Mechanics
- CMPE 118/L Intro to Mechatronics
- CMPE 122 VLSI Digital System Design
- CMPE 125/L Logic Design with Verilog
- CMPE 131 Human-Computer Interaction
- CMPE 141 Feedback Control Systems (or EE 154)
- CMPE 150/L Intro. to Computer Networks
- CMPE 151/L Advanced Computer Networks
- CMPE 153 Digital Signal Processing (or EE 153)
- CMPE 156/L Network Programming
- CMPE 161 Mobile Sensing and Interaction
- CMPE 167/L Sensor and Sensor Technologies
- CMPE 177 Applied Graph Theory & Algorithms
- CMPE 193 Field Study
- CMPE 198 Independent Study/Research
- CMPS 102 Analysis of Algorithms
- CMPS 104A Compiler Design I
- CMPS 104B Compiler Design II
- CMPS 111 Operating Systems
- CMPS 112 Comparative Prog. Langs.
- CMPS 115 Software Methodology
- CMPS 122 Computer Security
- CMPS 128 Distributed Systems and More
- CMPS 129 Data Storage Systems
- CMPS 130 Computational Models
- CMPS 140 Artificial Intelligence
- CMPS 142 Machine Learning and Data Mining
- CMPS 146 Game AI
- CMPS 177 Applied Graph Theory & Algorithms
- CMPS 190X Methods of Cryptography
- EE 130/L Optoelectronics & Photonics
- EE 135/L Electro. Fields and Waves
- EE 145/L Properties of Materials
- EE 151 Communications Systems
- EE 171/L Analog Electronics
- EE 172 Advanced Analog Circuits
- EE 175/L Energy Generation and Control
- TIM 206 Optimization Theory and Appl.

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.

*Requires prior 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

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

STUDENT’S NAME: ____________________  FACULTY ADVISOR: ____________________

STAFF ADVISOR: ____________________