

Curriculum for Computational Engineering

Required Courses

Engr 115: Introduction to Engineering (2)
Engr 237: Vector Mechanics/Statics (3)
Engr 245: Programming for Engineers and Scientists (3)
Engr 345: Data Structures and Algorithm Development (3)
Engr 351: Digital System Modeling Analysis, Simulation and Design (3)
Engr 358: Machine Organization and Assembly Language (3)
Engr 320: Circuit Theory (3)
Engr 361: Discrete Mathematics for Engineers (3)
Engr 365: Engineering Economics and Ethics (3)
Engr 375: Engineering Probability and Statistics (3)
Engr 462: Numerical Methods for Engineers (3)
Engr 463: Advanced Engineering Mathematics (3)
Engr 476: Visualization and Animation (3)
Engr 477: Parallel and Distributed Programming (3)
Engr 484: High Performance Computing: Architecture, Algorithms and Technologies (3)
Engr 496: Senior Project Design I (3)
Engr 497: Senior Project Design II (3)

Total required courses: 50

Additional Required Courses for BSCE

Chem 211: General Chemistry I (3)
Chem 215: Chemistry Lab I (2)
Math 211: Calculus I (4)
Math 252: Calculus II (4)
Math 273: Calculus III (4)
Math 320: Linear Algebra (3)
Math 325: Differential Equations (3)
CS 324: UNIX Operating System (3)
Phy 291: Calculus Physics I (5)
Phy 292: Calculus Physics II (5)
Engl 367: Technical Writing (3)

Total additional required courses: 39

Elective Courses for BSCE

In addition to the above courses, students must take 12 credit hours of elective in engineering with the approval of their advisors. Students can take courses in the areas of computational embedded systems, data mining or computational computer vision. However, a student may take any other engineering courses in consultation with his/her advisor. For example, students can take the sequence Engr 378: Linear Systems Analysis: Computer Based Approach, Engr 388: Dynamics, Engr 427: Control Systems Design and Engr 490: Embedded Systems Simulation and Design to concentrate in embedded system area.

Engr 331: Introduction to Electronics Simulation (3)
Engr 378: Linear Systems Analysis: Computer Based Approach (3)
Engr 388: Dynamics (3)
Engr 398: Thermodynamics (3)
Engr 401: Advanced Electronics, (3)

Engr 427: Control Systems Design, (3)
Engr 473: Artificial Neural Networks, (3)
Engr 474: Machine Learning Algorithms, (3)
Engr 475: Image Processing, (3)
Engr 485: Computer Vision (3)
Engr 480: Mechatronics, (3)
Engr 490: Embedded Systems Simulation and Design, (3)