COMPUTER ENGINEERING B.S.

General Education Requirements

I. Required Skills and Competencies 16 cr
___ ENG 106 Writing Intensive First Year Seminar OR
ENG 110 Advanced Placement Writing (3 cr)
May need ENG 050 Basic Writing first, based on test results
___ HCS 100 Intro to Human Communication (3 cr)
___ MAT 211 Calculus I (4 cr)
If necessary, student may need MAT 175 Pre-Calculus first.
___ HIS 105 Historical Foundations of Global Cultures (3 cr) AND
___ HIS 106 Thinking Historically in a Global Age (3 cr)

II. Categories of Knowledge 34 cr
A: Language/Numbers for Rational Thinking (3 cr)

B: Literary, Artistic & Cultural Traditions (9 cr)

C: Biological & Physical Sciences (10 cr)*
___ PHY 205 Intermediate Physics

D: Political, Economic & Geographic Science (6 cr)

E: Social & Behavioral Science (6 cr)

III. Library Skills: Complete via College/Advanced Writing

Computer Science Major Core Requirements 43 cr
___ CSC 107 Computer Science I Lab (1 cr) (Majors)
___ CSC 110 Computer Science I (4 cr)
___ CSC 111 Computer Science II (4 cr)
___ CMPE 220 Computer Organization (4 cr)
___ CMPE 310 Design & Analysis of Algorithms (4 cr)
___ CMPE 320 Operating Systems (4 cr)
___ CMPE 322 Microcontrollers and Interfaces (4 cr)
___ CMPE 410 Real -Time and Mobile Development (4 cr)
___ CMPE 420 Digital and Reconfiguralbe Computing (4 cr)
___ CMPE 498 Engineering Research Methods (2 cr)
___ CMPE 499 Engineering Design and Development (2 cr)
___ CSC/CMPE Elective (3 cr) *
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Computer Science or Engineering Elective is any computer science, computer engineering, or software engineering course at the 300-level or above. Check with your advisor or the department for the frequency of related courses.

Mathematics Requirements 23 cr
___ MAT 211 Calculus I (4 cr)
___ MAT 212 Calculus II (4 cr)
___ MAT 213 Calculus III (4 cr)
___ MAT 225 Discrete Mathematics (4 cr)
___ MAT 313 Statistics I (4 cr)
___ MAT 322 Differential Equations (3 cr)

Physics Requirements 20 cr
___ PHY 205 Intermediate Physics I (3 cr)
___ PHY 123 Physics I Lab (1 cr)
___ PHY 206 Intermediate Physics II (3 cr)
___ PHY 125 Physics II Lab (1 cr)
___ PHY 311 Quantum (4 cr)
___ PHY 326 Semiconductor Devices (4 cr)
PHY 335 Electronics (4 cr)

Total Graduation Requirements 125 cr

GPA Needed to Declare: 2.0
To declare or retain this major, a student must earn a ‘C’ or better in CSC 110
Computer Science I.

Students pursuing this major should have strong academic skills, have
strong math, logic, and reasoning skills; and background in science. To complete
the program in 4 years, students must begin their first semester with MAT 211:
Calculus I. Students requiring remedial mathematics should complete this work
prior to beginning their first semester.

Helpful Hints for Advising:
Semester I CSC 110 Computer Science I (3 cr)
CSC 107 Computer Science I Lab (1 cr)
Calculus I (4 cr)*****
Two Gen Ed courses (6 cr)

Semester II CSC 111 Computer Science II (4 cr)
MAT 225 Discrete Mathematics (4 cr)****
Two General Education Classes (6 cr)

An alternative to this program that does not include the rigorous math and science
requirements is the embedded systems concentration in computer science.

Students who enroll in computer engineering may complete a physics minor
by completing two additional course requirements. Students may complete a
mathematics dual-major by completing (2) 300 level or 400 level courses, and (2)
400 level course.

**** Depending on math placement.
*****Students not qualified to take Calculus I may be required to first complete
MAT 175 Pre-Calculus

A 4-year template is available at www.ship.edu/undeclared