COMPUTER ENGINEERING - BS

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering (Note: not all programs listed are offered in Qatar). The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall | Semester Credit Hours
--- | ---
CHEM 107 | General Chemistry for Engineering Students | 3
CHEM 117 | General Chemistry for Engineering Students Laboratory | 1
ENGL 103 | Introduction to Rhetoric and Composition | 3
ENGR 102 | Engineering Lab I - Computation | 2
MATH 251 | Engineering Mathematics I | 4

Semester Credit Hours | 16

Spring | Semester Credit Hours
--- | ---
ENGR 214/ | Experimental Physics and Engineering Lab II - Mechanics | 2
PHYS 216 | II - Mechanics | 1
MATH 151 | Engineering Mathematics II | 4
PHYS 206 | Newtonian Mechanics for Engineering and Science | 3

Select one of the following: 3-4

CHEM 107 | Fundamentals of Chemistry II | 3


Semester Credit Hours | 15-16

Total Semester Credit Hours | 31-32

1 A grade of C or better is required.

2 Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

3 Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses and cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) courses.

4 BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

5 For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall | Semester Credit Hours
--- | ---
CSCE 120 | Program Design and Concepts | 3
ECEN 248 | Introduction to Digital Systems Design | 4
MATH 251 | Engineering Mathematics III | 3
PHYS 207 | Electricity and Magnetism for Engineering and Science | 3
PHYS 217/ | Experimental Physics and Engineering Lab | 2
ENGR 217 | III - Electricity and Magnetism | 3

Spring | Semester Credit Hours
--- | ---
CSCE 221 | Data Structures and Algorithms | 4
CSCE 222/ | Discrete Structures for Computing | 3
ECEN 222 | | 3
ECEN 214 | Electrical Circuit Theory | 4
ECEN 303 | Random Signals and Systems or Principles of Statistics I | 3
MATH 308 | Differential Equations | 3

Semester Credit Hours | 17

Third Year

Fall | Semester Credit Hours
--- | ---
CSCE 313 | Introduction to Computer Systems | 4
CSCE 350/ | Computer Architecture and Design | 4
ECEN 350 | | 4
CSCE 481 | Seminar | 1
ECEN 314 | Signals and Systems | 3
MATH 311  Topics in Applied Mathematics I 3
Select one of the following: 3
ENGL 210  Technical and Professional Writing
COMM 205  Communication for Technical Professions
COMM 243  Argumentation and Debate

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<th>Semester Credit Hours</th>
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**Spring**

CSCE 331  Foundations of Software Engineering 4
CSCE 462  Microcomputer Systems 1 3
or ECEN 449  or Microprocessor Systems Design
ECEN 325  Electronics 1 4
ECEN 454  Digital Integrated Circuit Design 1 3
University Core Curriculum [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/ 3

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**Fourth Year**

**Fall**

Senior design 1,6 3
University Core Curriculum [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/ 3
Area elective 7 6
Engineering elective 8 3
High Impact Experience 9 0
CSCE 399  or ECEN 399  High-Impact Experience or High Impact Professional Development

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**Spring**

Senior Design 1,6 3
University Core Curriculum [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/ 6
Area elective 7 6

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<th>Semester Credit Hours</th>
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**Total Semester Credit Hours** 97

6 6 hours chosen from either (ECEN 403 and ECEN 404) or (CSCE 483 and an additional 3 hours of Area electives.)
7 Area electives chosen in consultation with academic advisor.
8 Three hours of course work to be approved by academic advisor.
9 All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CSE or ECE advising office.

**Total Program Hours 128**