Computer Science, BS  
Bachelor of Science, 2017-2018 Catalog Year  
ESCSEBS

FALL-1 | SPRING-2
---|---
ENG 101 (3)  
1st-Year Comp. | ENG 102 (3)  
1st-Year Comp.
FSE 100 (2)  
Intro to Engr. | **LAB SCI Option (4)

ASU 101 (1)  
ASU Experience | GENERAL ELECT (3)
MAT 265 (3)  
CALC I | MAT 266 (3)  
CALC II
MAT 243 (3)  
Discrete Math | MAT 267 (3)  
CALC III or CSE 259 Logic in Comp Sci
MAT 343 (3)  
Applied Linear Algebra | **LAB SCI (4)  
Sequence Part 1 of 2
**LAB SCI (4)  
Sequence Part 2 of 2

CSE 110 (3)  
Principles of Programming  
Java | CSE 205 (3)  
Object-Oriented Programming
CSE 120 (3)  
Digital Design | CSE 230 (3)  
Comp. Org. & Assembly Lang.  
Programming
CSE 240 (3)  
Programming Languages | CSE 245 (3)  
Intro. Software Engineering
CSE 259 (3)  
Java Programming | CSE 310 (3)  
Data Struct. & Algorithms
CSE 320 (3)  
Comp. Org.  
& Assembly Lang.  
Programming | CSE 330 (3)  
Operating Systems
CSE 340 (3)  
Prin. Prog. Lang | **TECH ELE (3)

HU/SB (3) | **LAB SCI (4)  
Sequence Part of 2

15 HOURS | 16 HOURS | 16 HOURS

FALL-3 | SPRING-4
---|---
H U/SB (3) | H U/SB (3)

FALL-5 | SPRING-6
---|---
HU/SB (3) | Upper Division  
HU/SB (3)

FALL-7 | SPRING-8
---|---
**CSE 4XX (3) | +CSE 4XX (3)
+CSE 4XX (3) | +CSE 4XX (3)
+CSE 4XX (3) | +CSE 4XX (3)

Notes:  
** See CIDSE Advising Center or CIDSE Website (http://cidse.engineering.asu.edu/degreerequirementsbscs/) for approved technical electives and approved lab science sequence courses.  
† CSE 301 requires FSE 100 as an additional prerequisite  
‡ CSE 340 requires CSE 230 as an additional prerequisite  
+ CSE 4XX courses require CSE 310 and/or 360 as prerequisites  
Shaded courses designate critical requirements.  
Minimum "C" grade required in all CSE major courses
Term 1
FSE 100: Introduction to Engineering - Introduces the engineering design process; working in engineering teams; the profession of engineering; engineering models, written and oral technical communication skills.
MAT 265: Calculus for Engineers I - Limits and continuity, differential calculus of functions of one variable, introduction to integration. Not open to students with credit in MAT 270
ASU 101-CSE: The ASU Experience
ENG 101: First-Year Composition
HU/SB: Humanities, Fine Arts & Design or Social & Behavioral Sciences

Term 2
CSE 205: Object-Oriented Programming & Data Structures - Problem solving by programming with an object-oriented programming language. Introduces data structures. Overview of computer science topics.
MAT 266: Calculus for Engineers II - Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series
ENG 102: First-Year Composition
Lab Science Option: choose from BIO, GLG, CHM OR PHY (see full list below in Term 3)

General Elective

Term 3
CSE 120: Digital Design Fundamentals - Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits
MAT 243: Discrete Mathematical Structures - Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.
MAT 267: Calculus for Engineers III - Vector-valued functions of several variables, partial derivatives, multiple integration
CSE 259: Logic in Computer Science - This course is a mathematically solid introduction to propositional logic, first order logic, logic programming, and their applications in computer science.
Lab Science: PHY 121/122 & PHY 131/132 or CHM113 & 116 or GLG 101/103 & GLG 102/104 or BIO 181 & 182
HU/SB: Humanities, Fine Arts & Design or Social & Behavioral Sciences

Term 4
CSE 240: Introduction to Programming Languages - Introduces the procedural (C/C++), applicative (LISP/Scheme), and declarative (Prolog) languages.
Lab Science: complete sequence from above
HU/SB: Humanities, Fine Arts & Design or Social & Behavioral Sciences

Term 5
CSE 301: Computing Ethics - Ethics for computing majors: history of computing, intellectual property, privacy, ethical frameworks, professional ethical responsibilities, and risks of computer-based systems.
CSE 310: Data Structures and Algorithms - Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting.
CSE 360: Introduction to Software Engineering - Software life cycle models; project management, team development environments and methodologies; software architectures; quality assurance and standards; legal, ethical issues
IEE 380: Probability and Statistics for Engineering Problem Solving - Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems
HU/SB: Humanities, Fine Arts & Design or Social & Behavioral Sciences
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Term 6
CSE 330: Operating Systems - Operating system structure and services, processor scheduling, concurrent processes, synchronization techniques, memory management, virtual memory, input/output, storage management, and file systems.
CSE 340: Principles of Programming Languages - Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms.
CSE 355: Introduction to Theoretical Computer Science - Introduces formal language theory and automata, Turing machines, decidability/undecidability, recursive function theory, and complexity theory.
CSE 4** Elective
HU/SB: Upper Division Humanities, Fine Arts & Design or Social & Behavioral Sciences

Term 7
CSE 485: Computer Science Capstone Project I - First course in capstone sequence for computer science majors emphasizing development process, technical skills, teamwork, and communication.
CSE 4** Elective
CSE 4** Elective
Technical Elective: Upper Division Elective
General Elective (2 credits)

Term 8
CSE 486: Computer Science Capstone Project II - Second course in capstone sequence for computer science majors continuing the development process, technical skills, teamwork, and communication.
CSE 4** Elective
CSE 4** Elective
Technical Elective: Upper Division Elective