Computer Science (Information Assurance Concentration), BS
Bachelor of Science, 2017-2018 Catalog Year
ESCSEIBS

<table>
<thead>
<tr>
<th>FALL-1</th>
<th>SPRING-2</th>
<th>FALL-3</th>
<th>SPRING-4</th>
<th>FALL-5</th>
<th>SPRING-6</th>
<th>FALL-7</th>
<th>SPRING-8</th>
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<tbody>
<tr>
<td>ENG 101 (3)</td>
<td>ENG 102 (3)</td>
<td>**LAB SCI</td>
<td>**LAB SCI</td>
<td>Upper</td>
<td>**TECH ELE</td>
<td>+CSE 465 (3)</td>
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<td>1st-Year Comp.</td>
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<td>(4) Sequence</td>
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<td>FSE 100 (2)</td>
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<td>MAT 267 (3)</td>
<td>MAT 343 (3)</td>
<td>IEE 380 (3)</td>
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<td>Option (4)</td>
<td>CALC III or</td>
<td>Applied Linear</td>
<td>Prob. &amp; Stats.</td>
<td>(3) Information Assurance</td>
<td>Computer and Network</td>
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<td>ASU 101 (1)</td>
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<td>CSE 259 Logic</td>
<td>Algebra</td>
<td>Ethics</td>
<td>Assurance (F)</td>
<td>Forensics (S)</td>
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<td>ELE (3)</td>
<td>**LAB SCI</td>
<td>MAT 243 (3)</td>
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<td>CSE 355 (3)</td>
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<td>Discrete Math</td>
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<td>CSE 205 (3)</td>
<td>CSE 310 (3)</td>
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<td>CALC II</td>
<td>Principles of</td>
<td>Object-Oriented</td>
<td>Data Struc. &amp;</td>
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<td>CSE 240 (3)</td>
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<td>CSE 360 (3)</td>
<td>CSE 485 (3)</td>
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<td>Intro. Software</td>
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<td>Intro. Software</td>
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<td>Programming</td>
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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
+ IA Concentration courses required CSE 310 and/or CSE 360 as a prerequisite.
Shaded courses designates critical requirements. Minimum ‘C’ grade required in all CSE major courses.
Bolded courses are offered in specific terms only.

Prerequisite

Cultural
Global
Historical
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 OR

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

Term 6
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 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.

Technical Elective: Upper Division Elective

HU/SB: Upper Division Humanities, Fine Arts & Design or Social & Behavioral Sciences

Term 7
CSE 465: Information Assurance - Concepts of information assurance (IA); basic IA techniques, policies, risk management, administration, legal and ethics issues.

CSE 485: Computer Science Capstone Project I - First course in capstone sequence for computer science majors emphasizing development process, technical skills, teamwork, and communication.

IA Core

IA Core

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.

IA Core

IA Elective

Technical Elective: Upper Division Elective