**Computer Science (Information Assurance Concentration), BS**  
*Bachelor of Science, 2014-2015 Catalog Year*

ESCSEIBS

### Notes:
- **See CIDSE Advising Center or CIDSE Website** ([http://cidse.engineering.asu.edu/degreerequirementsbscs/](http://cidse.engineering.asu.edu/degreerequirementsbscs/)) for approved technical electives and approved lab science sequence courses.
- Shaded courses designate critical requirements. Minimum "C" grade required in all CSE courses.
- +IA Concentration courses required CSE 310 and/or CSE 360 as a prerequisite.
- **Bolded courses are offered in specific terms only**

**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

General Elective: *Elective cannot include CSE, MAT, PHY, BIO, CHM

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.

Lab Science: PHY 121 & 131 or CHM 113 & 116 or GLG 101 & 103 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 430: 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: 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 credit)

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