CIDSE COMPUTER SCIENCE
DEFICIENCY PREREQUISITES COURSES

COURSES ARE FOR NON-COMPUTER SCIENCE BACHELOR DEGREE HOLDERS. FOR GRADUATE STUDENTS ONLY.
Lower division courses may be taken at local community colleges. Please visit www.aztransfer.com for course equivalencies.

CSE 110 PRINCIPLES OF PROGRAMMING WITH JAVA (3)
Concepts of problem solving using Java, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility.
Lecture and lab.
Prerequisite: None

CSE 120 DIGITAL DESIGN FUNDAMENTALS (3)
Number systems, conversion methods, binary and compliment arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lectures and lab.
Prerequisite: Computer literacy recommended.

CSE 205 OBJECT-ORIENTED PROGRAM AND DATA STRUCTURES (3)
Problem solving by programming with an object-oriented programming language. Introduction to data structures. Overview of computer science topics.
Prerequisite: CSE 110 or instructor approval.

CSE 220** PROGRAMMING FOR COMPUTER ENGINEERING (3)
Introduces procedure programming languages (C/C++) and hardware descriptive language (VHDL).
Prerequisites: CSE 120 or EEE120; and CSE 205.

CSE 230 COMPUTER ORGANIZATIONS AND ASSEMBLY LANGUAGE PROGRAMMING (3)
Register-level computer organization. Instruction set architecture. Assembly language.
Processor organization and design. Memory organization. IO programming, Exception/interrupt handling.
Prerequisites: CSE 100 or CSE 110; and CSE 120 or EEE 120.

CSE 240** INTRODUCTIONS TO PROGRAMMING LANGUAGES (3)
Introduction the procedural (C/C++), applicative (LISP/Scheme), and declarative (Prolog) languages. Lecture, lab.
Prerequisite: CSE 205.

MAT 243 DISCRETE MATH STRUCTURES (3)
Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.
Prerequisites: MAT 210, MAT 251, MAT 265, or MAT 270.

**CSE 220 or CSE 240 Acceptable
CSE 230  COMPUTER ORGANIZATIONS AND ASSEMBLY LANGUAGE PROGRAMMING (3)
Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling.
Prerequisites: CSE 100, CSE 110, CSE 120, or EEE 120.

CSE 310  DATA STRUCTURES AND ALGORITHMS (3)
Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing and external sorting.
Prerequisite: CSE 220 or CSE 240; and MAT 243.

CSE 340  PRINCIPLES OF PROGRAMMING LANGUAGES (3)
Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms.
Prerequisites: CSE 230 and CSE 310.

CSE 355  INTRODUCTION TO THEORETICAL COMPUTER SCIENCE (3)
Introduction to formal language and automata, Turing machines decidability/undecidability, recursive function theory, and complexity theory.
Prerequisite: CSE 310.

CSE 360  INTRODUCTION TO SOFTWARE ENGINEERING (3)
Software life cycle models; project management, team development environments and methodologies; software architectures; quality assurance and standards; legal, ethical issues.
Prerequisite: CSE 220 or CSE 240.

CSE 430  OPERATING SYSTEMS (3)
Operating system structure and services, processor scheduling, concurrent processes, synchronization techniques, memory management, virtual memory, input/output, storage management, file systems.
Prerequisites: CSE 230 or EEE 230; and CSE 310.