COMPUTER SCIENCE (CSCI)

CSCI 110  Fundamentals of Computer Science
3.5 Units (Degree Applicable, CSU, UC)
Lecture: 54  Lab: 27
Prerequisite: MATH 71 or MATH 71B or MATH 71X
Advisory: Eligibility for ENGL 1A

Computer hardware and software. General computer organization and information representation. Binary and hexadecimal number systems. Algorithm design and problem-solving techniques. Introduction to programming using a high level language such as C++, Java, or Python.
Course Schedule

CSCI 140  C++ Language and Object Development
4 Units (Degree Applicable, CSU, UC, C-ID #: COMP 122)
Lecture: 54  Lab: 54
Prerequisite: CSCI 110

For computer science, mathematics, engineering and other science students. C++ programming and object-oriented paradigm. Control structures, functions, arrays, pointers and strings, classes and data abstraction, C++ object programming, operator overloading, inheritance, virtual functions and polymorphism, stream input and output, templates, exception handling, file processing. Data structures in C++, string processing and recursion.
Course Schedule

CSCI 145  Java Language and Object Oriented Programming
4 Units (Degree Applicable, CSU, UC)
Lecture: 54  Lab: 54
Prerequisite: CSCI 110

Java language and object-oriented programming (OOP) with Java as well as general concepts and techniques of computer programming. Topics include: Java expressions, flow control, methods and program structure, Java classes, overloading, object references, inheritance, Java library packages, exceptions, file input/output (I/O), applets, graphical user interface (GUI), and event handling. A course for computer science, engineering, mathematics, and other science students.
Course Schedule

CSCI 150  Assembly Language/Machine Architecture
3.5 Units (Degree Applicable, CSU, UC)
Lecture: 54  Lab: 27
Prerequisite: CSCI 110
Advisory: CSCI 140 or CSCI 145

Organization and operation of real computer systems at the assembly language level using the Intel 80x86 family of processors; mapping statements and constructs in a high-level language onto sequences of machine instructions; internal representations of simple data types and structures; numerical computation, noting various data representation errors and potential procedural errors; investigation of basic principles of operating systems; and programming language translation process.
Course Schedule

CSCI 190  Discrete Mathematics Applied to Computer Science
4 Units (Degree Applicable, CSU, UC)
Lecture: 72
Prerequisite: MATH 71 or equivalent

A study of set theory, propositional and predicate calculus, modular arithmetic, counting techniques, combinatorics, mathematical induction, recursion, binary search trees, graphs, and finite probability. For students in computer science, engineering, mathematics and other sciences.
Course Schedule

CSCI 220  Data Structures I
3.5 Units (Degree Applicable, CSU, UC)
Lecture: 54  Lab: 27
Prerequisite: CSCI 140 or CSCI 145

Abstract data types and running time analysis tools. Linear data structures including sets, stacks, queues, and linked lists. Trees, binary search trees, heaps, and priority queues. Many procedures are discussed using an algorithmic language and selected problems are programmed in a higher level language.
Course Schedule

CSCI 230  Data Structures II
3.5 Units (Degree Applicable, CSU, UC)
Lecture: 54  Lab: 27
Prerequisite: CSCI 220

Basic searching/sorting algorithms, hashing, graphs, memory/disk management, indexing, B-trees, advanced tree structures and analysis.
Course Schedule