
Programming Languages - Certificate of Achievement

Units: 33-36

(State Code: 08225; TOP Code: 070710; Academic Plan: C008225D)

This sequence of courses provides students with comprehensive training in high demand programming languages and tools such as Visual Basic, C++, Java, SQL, and others. Students can choose between the Oracle Database Administration and the Cloud Computing tracks. Successful completion of the program will prepare students for an exciting career related to database administration, cloud computing, or software development.

PROGRAM STUDENT LEARNING OUTCOMES

1. Create a fully documented modular design with correct mathematical and logical operations suitable for implementation from a given program specification.
2. Create, deploy, and test a basic program with valid syntax and proper logical and mathematical functions using C++, Java, Visual Basic, or other programming languages.
3. Design and implement solutions to a general-purpose problem using advanced programming techniques in C++, Java, Visual Basic, or other programming languages.
4. Install, configure, and troubleshoot given problems for Windows or other operating systems.
5. Design and create a relational database using entity-relationship diagrams, normalization, SQL, PL/SQL, and Programming.
6. Design Infrastructure as a Service (IaaS) for cloud computing to provide computing instances, establish virtual private networks, and manage databases and storage.
7. Analyze performance metrics of cloud architecture to respond dynamically to information and computing workloads.
8. Employ complex data structures and algorithms, including sorting, searching, and recursion, to design and implement solutions to advanced computer science problems.

PROGRAM REQUIREMENTS

Requirements for the Programming Languages certificate of achievement may be met by completing 33-36 units of required courses with a grade of "C" or better.

REQUIRED COURSES (33-36 UNITS)

CS 101	(formerly CO SCI 103) INTRODUCTION TO COMPUTER SCIENCE	3
OR		
CIS 101	(formerly CO SCI 101) INTRODUCTION TO COMPUTERS AND THEIR USES	3
AND		
CS 111	(formerly CO SCI 108) PROGRAMMING IN VISUAL BASIC	3
CIS 219	(formerly CO SCI 186) INTRODUCTION TO ORACLE: SQL AND PL/SQL	3
CIS 111	(formerly CO SCI 134) SUPPORTING WINDOWS DESKTOPS	3
CS 102	(formerly CO SCI 107) PROGRAMMING LOGIC AND DESIGN (INTRODUCTION TO PROGRAMMING)	3
CS 103	(formerly CO SCI 104) MATHEMATICS FOR PROGRAMMERS	3
CIS 220A	(formerly CO SCI 187) ORACLE DBA PART 1A: ARCHITECTURE AND ADMINISTRATION	3
OR		
CIS 192	INTRODUCTION TO CLOUD COMPUTING	
CS 116	(formerly CO SCI 139) PROGRAMMING IN C++	3
OR		
CS 113	(formerly CO SCI 141) PROGRAMMING IN JAVA	
CS 211	(formerly CO SCI 138) ADVANCED VISUAL BASIC PROGRAMMING	3
CS 137	(formerly CO SCI 198) PROGRAMMING IN PL/SQL FOR ORACLE	3
OR		
CIS 193	DATABASE ESSENTIALS IN AMAZON WEB SERVICES	
CS 136	(FORMERLY CO SCI 136) INTRODUCTION TO DATA STRUCTURES	3
CIS 220B	(FORMERLY CO SCI 188) ORACLE DBA PART 1B: BACKUP AND RECOVERY	3
OR		
CIS 194	COMPUTER ENGINES IN AMAZON WEB SERVICES	