McLennan COMMUNITY COLLEGE

OSA
CIS / Application Development
McLENNAN COMMUNITY COLLEGE

2023-2024

Degree Description

Focuses on programming fundamentals from a beginning level to intermediate.

Marketable Skills

1. Understand and apply computing terminology and concepts used in the workplace- Critical Thinking/Communication.
2. Apply fundamentals of computer programming in structured design concepts- Critical Thinking/Communication.
3. Configure, use, and troubleshoot computer operating systems and/or application software Critical Thinking.
4. Use the Internet to locate, transfer, research and publish information at a level appropriate for the academic and work environment. Critical Thinking/Communication.

COSC 1336 Programming Fundamentals I	3 hours
COSC 1337 Programming Fundamentals II	3 hours
COSC 2336 Programming Fundamentals III ***or*** ITSE 1311 Beginning Web Programming ***or*** ITSE 1331 Introduction to Visual BASIC Programming	3 hours
MATH 1314 College Algebra ***or*** MATH 2412 Pre-Calculus Mathematics ***or*** MATH 2413 Calculus I	3 hours
	12 hours

Total hours: **12 hours**

Course Descriptions

COSC 1336 Programming Fundamentals I

Introduces the fundamental concepts of structured programming and provides a comprehensive introduction to programming for computer science and technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing and debugging. This course assumes computer literacy. Semester Hours 3 (3 lec)

COSC 1337 Programming Fundamentals II

This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software. Prerequisite: COSC 1336 with a minimum grade of C. Semester Hours 3 (3 lec)

COSC 2336 Programming Fundamentals III

Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), searching, sorting, recursion, and algorithmic analysis. Programs will be implemented in an appropriate object oriented language. (This course is included in the Field of Study Curriculum for Computer Science.) Prerequisite: COSC 1337 or COSC 1320 with a minimum grade of C. Semester Hours 3 (3 lec)

ITSE 1311 Beginning Web Programming

Skill development in Web page programming, including mark-up and scripting languages. Semester Hours 3 (2 lec/2 lab)

ITSE 1331 Introduction to Visual BASIC Programming

Introduces computer programming using Visual BASIC. Emphasizes the fundamentals of structured design, development, testing, implementation and documentation. Includes language syntax, data and file structures, input/output devices, and files. Prerequisite: COSC 1336. Semester Hours 3 (2 lec/2 lab)

MATH 1314 College Algebra

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Graphing calculator required. Prerequisite: TSI math complete or MATH 0311. Semester Hours 3 (3 lec)

MATH 2412 Pre-Calculus Mathematics

In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Prerequisite: MATH 1314 with a minimum grade of C, or passing score on non-credit equivalency exam for MATH 1314, or consent of division chair. Semester Hours 4 (4 lec)

MATH 2413 Calculus I

Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. Graphing calculator required. Prerequisite: MATH 2412 with a minimum grade of C, or both MATH 1314 and MATH 1316 with minimum grades of C, or passing score on non-credit equivalency exam for MATH 2412, or consent of division chair. Semester Hours 4 (4 lec)
