



MERCER
COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

Course Number
IST 109

Course Title
Introduction to Programming

Credits
3

Hours:
Lecture/Lab/Other
2/2/0

Co- or Pre-requisite
Proficiency in basic algebra, MAT 037

Implementation
Semester & Year
Fall 2022

Catalog description:

Introduces fundamental programming structure, tools and documentation, including how to design interfaces and develop Task Object Event (TOE) and Object Properties and Settings charts, hierarchy charts, pseudocode, and flowcharts. Problem-solving techniques and program design using logic control structures of sequence, selection, iteration, arrays, and sequential files are emphasized in laboratory exercises using VB.NET.

General Education Category:
Goal 4: Technology or Info Literacy

Course coordinator:
Dr. Queen Okike. (609)570 3464, okikeq@mccc.edu

Required texts/other materials:

Text: An Introduction to Programming Using Visual Basic 11th Edition

ISBN-13: 9780135416037

Authors: David I. Schneider

Publisher: Pearson Addison Wesley

Optional: 1 Flash Drive/USB Drive

Course Student Learning Outcomes (SLO):

1. Demonstrate knowledge of programming tools [Support ILG# 2, 4, 10, 11; PLO #1, 2, 3, 6, 7]
2. Apply variables, input, and generate output [Support ILG# 2, 4, 10, 11; PLO #5, 6, 7]
3. Write programs decision structure [Support ILG# 2, 4, 10, 11; PLO #5, 6, 7]
4. Apply sub procedures and sub functions in programs [Support ILG# 2, 4, 10, 11; PLO #4, 5, 6, 7]
5. Generate loops to accomplish repetitive statements [Support ILG# 2, 4, 10, 11; PLO # 5, 6, 7]
6. Apply arrays to store and manipulate elements, edit and design databases [Support ILG# 2, 4, 10, 11; PLO #6, 7]
7. Explain and use of proper and Control their standard naming convention of Controls in Visual Basic [Support ILG# 2, 10; PLO #6]

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Institutional Learning Goal 10. Information Literacy: Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Institutional Learning Goal 11. Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.

Program Learning Outcomes for Information Systems (A.S.) and Certificate of Proficiency:

Database Administration Programs (PLO)

1. Transfer to a four-year college as a junior.
2. Describe, understand, and build computer information policies and procedures.
3. Comprehend business organizations and practices, and the role of information technology in Organizations.
4. Build, explain, comprehend, and employ network protocols and technology.
5. Create code, execute, and document a computer application.
6. Function successfully independently and in groups to set up and execute information Systems,
7. Write documentations and give oral presentations in technical or business settings

Units of study in detail – Unit Student Learning Outcomes:

Unit I: An Introduction to Computers and Problem Solving [Supports Course SLO # 1, 7]

Learning Objectives

The student will be able to...

- List the components of computer system and explain how they work together to produce information.
- Explain the program development cycle.
- Apply programming tools, which includes:
- Hierarchy chart /Top-down chart/HIPO (Hierarchy plus Input-Process-Output)/VTOC (Visual Table of Contents; pseudo code; flowcharts; and object properties and settings.

Unit II: Visual Basic Controls and Events [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to.

- Apply Visual Basic controls and event
- Create Visual Basic program various types of variable such as numbers and string.
- Create user-friendly Input and Output interface.
- Discuss relational and logical Operators, code programs using If Blocks, Select Case Blocks and Input via User Selection.
- Code Function Procedures, Sub Procedures, Part 1, Sub Procedures, Part II implementing Program Design.

Unit III Loop [Supports Course SLO #5]

Learning Objectives

The student will be able to:

- Explain Loop important structures in programming.
- Illustrate the use Loop to repeat a sequence of statements a number of times.
- Show how Do loop repeats a sequence of statements either as long as or until a certain condition is true.
- Explain, code, edit, debug and run Do Loops, For...Next Loops and List Boxes and Loops.

Unit IV Array [Supports Course SLOs # 6]

Learning Objectives

The student will be able to:

- Distinguish between Simple Variable and Array Variable.
- Create and use Arrays, use L I N Q with Arrays, Arrays of Structures and Two-Dimensional Arrays
- Code For Each Loops, Functions that Return Arrays.
- Search for an Element in an Array; Copy an Array; Split Method and Join Function; Passing an Array to a Procedure

Unit V Managing Text Files, List Boxes and Combo Boxes [Supports Course SLOs # 6]

Learning Objectives

The student will be able to:

- Read from and write to text files using StreamReaders, StreamWriters, and Structured Exception Handling.
- Explain and apply XML, Preliminaries, WriteAllLines Method, Sorting the Data in a Text File.
- Reorganize the Data in a C S V Text File, Set Operations, Search a C S V Text File and The OpenFileDialog Control.
- Create Excel and C S V Files.
- Apply List Boxes, Combo Boxes, Eight Additional Controls, Objects in Multiple-Form Programs and Graphics.

Evaluation of student learning: All course student-learning outcomes will be assessed by the following activities.

Tests/Quizzes	20%
Programming Structures (Units I-V)	50%
Midterm Examination on Unit I and Unit II	15%
Final Examination on Unit III	15%
Total	100%