

**LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS, ENGINEERING, and COMPUTER SCIENCE**

**MAC109 INTRODUCTION TO VISUAL PROGRAMMING
3 credits; 4 hours (3 lecture, 1 lab)**

This course introduces Windows and GUI concepts and applications through objects and programming. Students will learn to develop real-world Windows applications through an event-driven language, such as Visual Basic. Additionally, students will learn basic programming concepts such as arithmetic operations, logical operations, and interactive structures.

Prerequisite: BTC100 or BTC101, CSE099, ENA/ENG099, MAT096, MAC101

Instructional Objectives:

1. To familiarize the students with the following terms: microprocessor, variable, constant, string data, numerical data, and program.
2. To enable the students to write modules that include program with decisions and loops.
3. To introduce the students to programs that accept data from the keyboard or from a data file.
4. To enable the students to utilize arrays in a program.
5. To enable the students to perform complex calculations and format the output.
6. To introduce algorithms that use nested loops and process two dimensional arrays.
7. To introduce the concept of character strings.
8. To enable students to write object-oriented and event driven programs.
9. To introduce the students to sequential and random access file.
10. To enable the students to use random-numbers to do simulations, and to create graphics on the screen.

Performance Objectives:

1. To define: microprocessor, variable, constant, string data, numerical data, and program.
2. To develop program modules that include decisions and loops.
3. To write a program that accepts data from the keyboard or from a data file.
4. To utilize arrays in a program.
5. To perform complex calculations and format the output.
6. To develop an algorithm and write a program that uses nested loops to process two-dimensional arrays.
7. To utilize character strings within their programs.
8. To write structured programming subroutines.
9. To utilize sequential and random access files.
10. To use random-numbers to do simulation, create graphics on the screen.

Grading Standards:

Quizzes(2-4)	20%
Assignments: Writing and Debugging (4-8 Programs)	30%
Class Participation and Homework	10%
Midterm	15%
Final	25%

Total

100%

Book:

Visual Basic 2010 How to Program (5th Edition), by (Paul & Harvey) Deitel & Deitel; Publisher: Prentice Hall, Copyright: 2011, Format: Paper; 639 pp

Published: 2011

ISBN-10: 0-13-215213-4

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Course Syllabus:

Week 1

Introduction to Computers, the Internet and Visual Basic

Week 2

Fundamentals of Programming in Visual Basic, Visual Basic Objects, Visual Basic Events

Week 3

More Fundamental of Programming in Visual Basic, Numbers, Strings

Week 4

More Fundamental of Programming in Visual Basic, Input and Output, Built-in Functions

Week 5

General Procedures

Week 6

Decisions – Relational and Logical Operators, If Blocks

Week 7

More Decisions – Select Case Blocks

Week 8

Repetition – Do Loops – Processing List of Data with Do Loops

Week 9

More Repetition – For...Next Loops

Week 10

Sequential Files

Week 11

Additional Controls and Objects

Week 12

Database management (An Overview)

Week 13

Final Exam