HOSTOS COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS

MAT 200       Modern Programming C++

CREDIT HOURS:  3.0

EQUATED HOURS: 3.0

CLASS HOURS: 3.0

PREREQUISITE: MAT 160


DESCRIPTION: This course provides an introduction to problem solving methods and algorithm development through the study of the program, structures and data structures of Programming language.

EXAMINATIONS: A minimum of four partial tests and a comprehensive final examination.

GRADES: A, A′, B′+, B, B′, C+, C, D, I, F.
MAT 200

COURSE OUTLINE

I. OVERVIEW OF PROGRAMMING:

1. What is a program?
2. What is a computer?
3. What is a programming language?
4. What is Pascal?

II. THE PROBLEM SOLVING PROCESS:

1. Analysis
2. General solution – Algorithms
3. Particular solution – the program
4. Test and use

III. THE SYNTAX AND SEMANTICS OF A PROGRAMMING LANGUAGE:

1. Identifiers
2. Data Types
3. Data Storage
4. The Assignment Statement

IV. PROGRAM CONSTRUCTION:

1. The Write Statement
2. The Read Statement
3. Overall Structure – Headings, Declarations, Statements
4. Formatting
5. Block Design
6. Precedence Rules
7. Top-down design
8. Documentation

V. CONDITIONS AND BOOLEAN EXPRESSIONS:

1. The Boolean variable
2. The \texttt{IF} statement
3. The \texttt{IF THEN-ELSE} statement
4. Noted IF statement
5. Applications
6. Testing and debugging
VI. LOOPING:

1. The looping control structure
2. The **While** statement
3. Loops using the **While** statement
4. The **For .... Do** statement

VII. PARAMETERS:

1. Var/Value parameters
2. Local/Global variables
3. Scope rules

VIII. PROCEDURES:

1. Top-down structured design with procedures
2. Procedure declaration
3. Procedure call
4. Parameters
5. External files

IX. FUNCTIONS, REAL NUMBERS AND OTHER CONTROL STRUCTURES:

1. Functions
2. Recursion
3. The **Repeat** statement
4. The **Case** Statement

X. DATA TYPES AND STRUCTURES:

1. Arrays
2. Records
3. Files
4. Sets