

PROGRAMMING FUNDAMENTALS

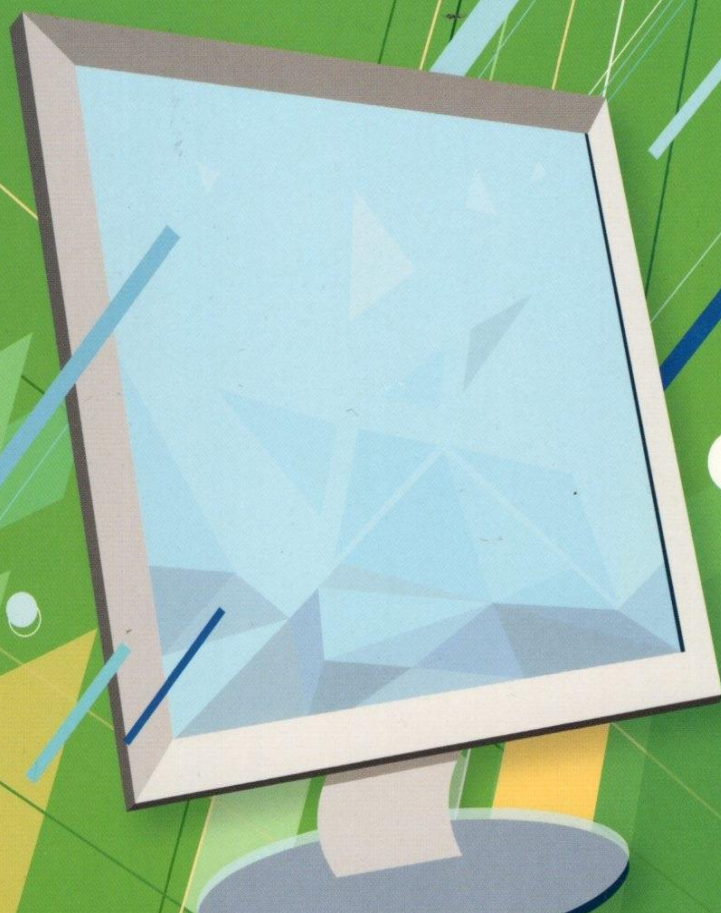
5th Edition

Authors

Arturo L. Jacinto, Jr.
Florida Valencia Ortiz

Series Editor

Jaime D.L. Caro, Ph. D.



IMPORTANT REMINDERS

THESE MATERIALS WILL STRICTLY BE FOR REFERENCE/INSTRUCTION PURPOSES ONLY. THE CONTENTS OF THESE MATERIALS SHOULD NOT IN ANY MANNER BE SHARED OR DISTRIBUTED AS RIGHTS TO ITS ACCESS IS SOLELY GIVEN TO THE REQUESTING CLIENT. PLEASE USE PROPER CITATION/ATTRIBUTION WHEN USING THESE MATERIALS.

TABLE OF CONTENTS

Lesson 1: The Evolution of Programming Languages 3

First Generation: Machine Languages
Second Generation: Assembly Languages
Third Generation: High-Level Languages
Fourth Generation: Declarative Languages
Fifth Generation: AI

Lesson 2: Overview of Programming Paradigms 13

Imperative Programming
Functional Programming
Logic Programming
Object-Oriented Programming
Concurrent and Distributed Programming

Lesson 3: Software Development Life Cycle 23

Introduction to Software Life Cycle
Requirements Analysis
System Design
Construction
Testing and Validation
Maintenance

Lesson 4: Data Types and Data Structures 35

Constants and Variables
Elementary Data Types
Structured Data Types

Lesson 5: Operations and Expressions 47

Arithmetic Expressions
Relational Expressions
Logical Expressions
Assignment Statements
Expressions with Mixed Operator Types

Lesson 6: Using Pseudocodes and Statement-Level Control Structures 59

Introduction to Pseudocodes
Statement-Level Control Structures
Compound Statements and Blocks

Lesson 7: Program Flow of Control 67

Sequential Flow of Control
Unconditional Branching

Lesson 8: Handling Conditions 75

Selection Control Structure
One-Way Selection Statement
Two-Way Selection Statement
Multi-Way Selection Statement

Lesson 9: Handling Repetitions 87

Counter-Controlled Loops
Condition-Controlled Loops

Lesson 10: The Computing Profession 97

Programming Ethics
Computer Program Patenting
Career Options
Other Issues in Programming

