Course Title	:	Introduction to Programming
Course Code	:	CDS205/CDS2205
No of Credits/Term	:	3
Mode of Tuition	:	Sectional Approach
Class Contact Hours	:	3 hours per week
Category in Major Prog.	:	Business Elective/Free Elective
Prerequisite	:	Nil

Brief Course Description

The course assumes no knowledge in computer programming. It introduces the students to the basic concepts and techniques of developing programs for problem solving. Object-oriented programming methodology is used throughout the course to teach the fundamentals of programming. In this course, students learn how to apply an integrated program development tool to design, implement, test, debug, and document programs. It establishes the foundation on which students are able to develop application programs in different high-level programming languages such as Java and C++.

Aims

This course is aimed at introducing students to the subject of computer programming and enabling them to develop computer programs for problem solving at a basic level.

Learning Outcomes

On completion of this course, students will be able to:

1. Explain the basic concepts of object-oriented programming and structured programming.
2. Apply simple programming constructs.
3. Use stepwise refinement to solve problems.
4. Develop methods.
5. Develop, debug and test application programs.

Measurement of Learning Outcomes

1. The first learning outcome is measured in tests and the final examination.
2. Students are required to develop a number of executable programs to evaluate if they can achieve the second learning outcome.

3. Students are expected to apply stepwise refinement methodology to develop programs for a number of problems. The ability of students to apply stepwise refinement methodology is also evaluated in tests and the final examination.
4. The programs developed by students must contain a number of methods in order to demonstrate the ability of students to develop methods. Students will be asked to write methods in tests and the final examination.
5. The fifth learning outcome is measured in a number of programming assignments.

Indicative Content

Fundamentals of Programming

Introduction to a program development tool such as JBuilder or Visual J++.NET
Primitive data types
Operators, precedence, and associativity
Operand evaluation order
Control structures
Methods

Basic Concepts of Object-Oriented Programming

Objects
Classes
Arrays
Strings

Program Development Process

Introduction to problem solving
Program design
Using a program development tool to implement programs
Program debugging
Program testing
Program documentation

Teaching Method

Concepts and techniques of application programming are covered in lectures; programming exercises are assigned to students in lab sessions.

Assessment

Class Attendance and Participation	5%
Class Exercises	15%
Assignment	20%
Mid-term Examination	30%

Final Examination   30%

Total   **100%**

Required/Essential Readings

Liang, Y. D., Introduction *to Java Programming with JBuilder*, 3rd ed., Prentice-Hall, 2003.

Recommended/Supplementary Readings

Arnold, K., Gosling, J., and Holmes, D., *The Java Programming Language*, 3rd ed., Addison Wesley, 2000.

Deitel, H. M. and Deitel, P. J., *C++: How to Program*, 4th ed., Prentice-Hall, 2003.

Stroustrup, B., *The C++ Programming Language*. Special ed., Addison-Wesley, 2000.