ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Programming in C / C++ Language (3577)

Level: PGD (CS) **Semester: Spring, 2014**
Total Marks: 100 **Pass Marks: 40**

ASSIGNMENT No. 1
(Units 1-4)

Note: All questions are compulsory. Each question carries equal marks.

Q.1 a) Write a simple program in C/C++ demonstrating the functions of relational operators.
b) Differentiate between syntax errors and logical errors.

Q.2 a) How can you use pseudo code and flow charts to solve different problems related to programming? Explain.
b) Explain the purpose and advantages of using comments in C/C++ Language.

Q.3 Explain the difference between the following:
a) Editor and the Compiler
b) Source program and the Object program

Q.4 a) Differentiate between Input and Output in C/C++ language. Which libraries and keywords are required for Input and Output in a C/C++ program?
b) Write a simple program in C/C++ demonstrating the functions of assignment and logical operators.

Q.5 a) Write a program in C/C++ using nested if statement for calculating the average marks and grades of 5 subjects.
b) Write a program in C/C++ using switch statement for calculating the average marks and grades of 5 subjects.

ASSIGNMENT No. 2

(Units 5-8)

Total Marks: 100 **Pass Marks: 40**

Q.1 a) What are preprocessor directives? Explain the concept of header files.
b) What are the main differences between functions and macros? Explain.

Q.2 a) What is the difference between break and continue statements? Explain with the help of suitable example.
b) For what purpose functions are used? Explain the structure of functions with the help of an example.

Q.3 a) Write a program that prints the squares of all the numbers from 1 to 20.
b) What is the difference in execution sequence of the body of a do-while loop and a while loop? Explain with examples.

Q.4 a) How single dimensional, two-dimensional and three-dimensional arrays are initialized?
b) How these arrays can be passed as arguments? Explain by using an example.

Q.5 a) What is a pointer? Why are pointers used? What is an indirection operator?
b) How pointer variables are defined? How values are supplied to pointer variables?

3577/3423 Programming In C/C++ Language

Recommended Book: The Wait Group's Turbo C Programming for the PC and Turbo C++ by Robert Lafore

Course Outline:

Unit 1: Introduction to Computer Program
Computer Program concepts, High Level Languages, 4GL, Editor, Compiler, Source Program, Object Program

Unit 2: Computer Program Engineering
Introduction, Problem Solving Techniques (pseudo code, flowchart), Qualities of Good Program, Program Life Cycle

Unit 3: C Building Block
Constant, Variable, Data Types, Operators, Expression, C Program Structure, Input and Output, Debugging Procedures, Errors (Logical, Syntax)

Unit 4: Decision Making
Simple Decision (if-then-else), Complex Decision (Case Structure/Nested Decision)

Unit 5: Loops
for, while, do while

Unit 6: Functions
Function concept, A Simple function program, Function with value return, Function with arguments, Recursion

Unit 7: Arrays & Strings
Introduction, Single and Multidimensional, Organizing Array Elements, Strings Introduction, String Constant, String Variable, String I/O functions (gets() and puts()), An array of String

Unit 8: Pointers & Structures
Overview, Pointer Types, Pointers & arrays, Double indirection, Introduction, Declaring a structure, Accessing structure elements, Entering data into structures, Initializing structures, Array of structures.

Unit 9: Introduction to Object Oriented Programming
Advantages of Object Oriented Approach, Objects, Classes, Inheritance, Reusability, Creating New Data Types, Polymorphism, Overloading.