HAILEY COLLEGE OF COMMERCE
UNIVERSITY OF THE PUNJAB, LAHORE

Course Title: <u>Programming Fundamentals</u>

Course Code: <u>BEC-116</u>   Credit Hours: <u>03</u>

Program: <u>BS E-Commerce</u>   Semester: <u>02</u>

1.0 Introduction of the Course (100-150 words)

Programming is an increasingly important skill, whether you aspire to a career in software development, or in other fields. This course is the first in Programming, extend to any language you might want to learn. This course is designed for students with no prior programming experience. This course is for learners who have an interest in learning how to program, for people with no programming experience or for people with some experience who would like to gain solid fundamentals and a deeper understanding of how to program effectively. The course introduces the fundamental concepts of structured programming. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging.

2.0 Pre-Requisites Course (s) or Other Requirements/Skills:

BEC-114 Introduction to Information Technology

3.0 Course Learning Outcomes

After the completion of this course, it is expected that students who will involve themselves in the knowledge base working of the course will be capable to

1. Enabling Knowledge: The process of designing algorithmic solutions to computable problems; the syntax and control structures of a programming language, which enable you to code these algorithmic solutions using standard coding conventions

2. Critical Thinking and Analysis: Ability to analyze the requirements for solving simple algorithmicproblems and implantation

3. Problem Solving: Ability to design and implement programs to solve simple algorithmic computingproblems, based on analysis of the requirements.

4. Communication: Ability to explain key concepts of algorithmic design.

5.0 Course Contents:

Unit-I: Introduction

1.1 Program and it Sequential Execution

1.2 Common Life Example of Program Software and Programs

Unit-II: Introduction to IDE

2.1 First program Compilation

2.2 Primitive Data Type

2.3 Variables with Data Types and their Ranges

Unit-III: Input and Output

3.1 Input/output Functions and Streams

3.2 Formatting the Output and Escape SequenceUsing expressions

3.3 Arithmetic Expressions

3.4 Scope of Variables

3.5 Programs of Area & Perimeter Computation,Quadratic Formula

Unit-IV: Control Structures Selection

4.1 Logical Operators

4.2 Simple Conditional Statements; IF …. Then…. Else

4.3 Compound Conditional StatementsTruth Table Implementation

Nested IFs and 4.4 Switch statement Short Circuiting

Unit-V: Control Structures Repetitive

5.1 Repetition Structure (Loops)

5.2 For Loop, While Do and Do While LoopsNested Loops

5.3 Nested Control Structures (Selective & Repetitive)

Unit-VI: Modular Approach

6.1 Reusability through Functions

6.2 Built-in Functions and Header FilesCommonly Used Built-in Function

6.3 User Defined Functions

6.4 Parameter Passing by ValueReturn Statement

Unit-VII: Arrays

7.1 Introduction to Arrays

7.2 Linear Array Manipulation

7.3 Multidimensional Arrays

Unit-VIII: String Handling

8.1 Char Arrays

8.2 String Input and Output

8.3 String Comparison

8.4 Substring Finding

Unit-IX: Simple User-Defined Data Types

9.1 Struct and its Usage

9.2 Array of Records

9.3 Dynamic Memory Allocation

9.4 Pointers to Records

9.5 Linear Linked List of Records

9.6 Deallocation of Memory

Unit-X: File handling

10.1 Sequential and Random-Access Files

10.2 Creating and Deleting Files

10.3 File Modes

10.4 Reading and Writing into Files

6.0 Teaching-Learning Strategies

Lectures, lab work, discussions, presentations, quiz & assignments

7.0 Assignments- Types and Number with calendar

8.0 Assessment and Examinations: As per University Rules

9.0 Textbooks

In the detail course outline, one may mention chapters of the textbook with the content topic(s).

1. Problem Solving with C++ by Walter Savitch 7th Edition, Addison-Wesley ISBN 0321531345.
2. The C Programming Language by Kernighan and Ritchie 2nd Edition Prentice Hall

10. Tools
10.1 Software

- ➢ Visio 4.5 Technical
- ➢ Microsoft Word for Documentation