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| **Department of Software Engineering**  **Mehran University of Engineering and Technology, Jamshoro** |

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| **Prescribed List of Practicals** | | | | | |
| **Name of Teacher** | | | Mr. Sajjad Ali | |  |
| **Course Name** | | | Programming Fundamentals | **Course Code** | SW 112 |
| **Batch** | 23-SW | | | **Year** 1st | **Semester** 1st |
| **Credit Hours** | | 3 hours/week | | **Total Marks** | 50 |
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| **S.No.** | **Lab Hand-out Title** | **Learning Outcome** | **Credit Hours** |
| 1 | Installation of Turbo C++, Dev-C++ IDEs, Basic C++ Program structure and Programming syntax | To become familiar with basic programming constructs of C++. Compiling and execution of C++ programs.  To learn how to use Turbo C++ and Dev-C++ IDEs to create console-mode applications.  Source code and Object code,  Language Translators | **3** |
| 2 | C++ Primitive datatypes.  Variables and constants. | To become familiar with C++ Primitive data types, such as int, char, float etc.  Variable declaration, definition and initialization. Variable names / Identifiers.  Output with cout : single character and other data types. Input with cin: Single character, word and multiword.  Escape Sequences. |  |
| 3 | Demonstration of operators in C++ | To demonstrate the working of various operators such as Arithmetic, Relational, Logical and Bitwise operators.  To understand operator precedence. | **3** |
| 4 | Working with iterative structures | To understand Control Structures (Iterative statements/Loops) such as for, while, and do-while loop. | **3** |
| 5 | Working with conditional statements | To know how to compare the given data values. How to define the logical expressions. Writing code using if and switch statements. | **3** |
| 6 | C++ User Defined Data Types (Structures and Enumeration) | Declaring, Defining and initializing structure.  Applications of structure datatype | **3** |
| 7 | Demonstration of Functions in C++ | Functions and how to define and implement them in a program. | **3** |
| 8 | Implementation of arrays | Declaring, Defining and initializing the arrays.  To learn how to traverse arrays using loops. | **3** |
| 9 | To become familiar with Pointers | Learning C++ pointers, and pointer variables and how to define and use pointers in programs | **3** |
| 10 | Introduction to Object Oriented Programming | To become familiar with OOP, Objects and Classes. | **3** |
| 11 | Oriented Programming inheritance | Implementing the concepts of inheritance | **3** |
| 12 | Oriented Programming Polymorphism | and Polymorphism. Learning about (Method Overloading) and (Method Overriding) Operator overloading | **3** |
| 13 | Demonstration of Strings | C++ String class and built-in methods of String class and their use for string manipulation |  |
| 14 | Demonstration of Streams and Files | To Understand basic File I/O, and Streams.  To understand the Hierarchy of classes to deal with Input and Output streams. | **3** |
| 15 | Basic Graphic Programming in C++ | Introduction to Graphics in C++. Writing graphics programs with [graphics.h](https://web.stanford.edu/class/archive/cs/cs106b/cs106b.1126/materials/cppdoc/graphics-h.html). creating basic shapes like circle, rectangle, line, ellipse, and display text. | **3** |

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| Signature | | |
| *Signature of Teacher* |  | *Dated*: |
| *Remarks of DMRC* |  | *Dated*: |
| *Signature of Chairman* |  | *Dated*: |