Bridge Course for MCA Course

Note:

- ➢ Duration one week starting of 1st semester.
- ➢ Each lecture is one hour and 2 hours of practical work per day
- ➢ Total 4 hours theory and 2-hour practical per day
- ➢ Total duration in one day is 7 hours including lunch
- ➢ 5th day of the week is the evaluation of the bridge course
- ➢ Practical in C language.

Subjects:

1. Fundamentals of Computer Application
2. Fundamentals of Programming Lecture

Fundamentals of Computer Application

Lecture 1: Introduction to Computers

- Overview of Computers and Computing
- Historical Development of Computers
- Basic Components of a Computer System
- Introduction to Hardware and Software

Lecture 2: Understanding Operating Systems

- Role and Functions of an Operating System
- Common Operating Systems (e.g., Windows, macOS, Linux)
- File Systems and File Management

Lecture 3: Essential Software Applications

- Word Processing Software (e.g., Microsoft Word)
- Spreadsheet Software (e.g., Microsoft Excel)
- Presentation Software (e.g., Microsoft PowerPoint)

Lecture 4: Introduction to the Internet

- Basics of Computer Networks
- Internet Services and Protocols
- Web Browsers and Search Engines

Lecture 5: Basic Computer Security

- Understanding Cybersecurity
- Common Threats and Best Practices
- Password Management and Online Safety

Lecture 6: Introduction to Programming Concepts

- Basics of Programming
- Overview of Programming Languages
- Writing Simple Code (e.g., Hello World)

Lecture 7: Introduction to Data and Databases

- Understanding Data Types
- Basics of Databases and Database Management Systems
- Introduction to SQL (Structured Query Language)

Lecture 8: Computer Ethics and Future Trends

- Importance of Computer Ethics
- Ethical Considerations in Computer Use
- Future Trends in Computing (e.g., Artificial Intelligence, Internet of Things)

Fundamentals of programming lecture

Lectures 1 and 2
- Concept of programming language
- Classification of programming language
- Types of programming language
- Concept of assembler, interpreter, and compiler

Lectures 3 and 4
- Variables, Constant, literals, keywords, data types, and operators.

Lectures 5 and 6
- Control statements, loops, and array

Lectures 7 and 8
- Function, recursion, pointer

Lecture 9
- Basic principle of object-oriented programming

Lecture 1: Introduction to C Programming

- Overview of Programming Languages
- Introduction to C and its History
- Setting Up the Development Environment
- Basic Structure of a C Program
- Writing and Running Your First C Program

Lecture 2: Variables and Data Types

- Understanding Variables and Constants
- Basic Data Types (int, float, char)
- Declaration and Initialization
- Arithmetic Operations in C

Lecture 3: Control Structures

- Introduction to Control Structures
- Conditional Statements (if, else if, else)
- Switch-Case Statements
- Looping Statements (while, for, do-while)

Lecture 4: Functions

- Basics of Functions
- Function Declaration and Definition
- Function Parameters and Return Values
- Function Prototypes

Lecture 5: Arrays and Strings

- Introduction to Arrays
- Declaration, Initialization, and Accessing Arrays
- Strings in C (character arrays)
- String Handling Functions

Lecture 6: Pointers and Memory Management

- Understanding Pointers
- Pointer Arithmetic
- Dynamic Memory Allocation (malloc, free)
- Pointers and Arrays

Lecture 7: Advanced Control Flow

- Nested Loops and Nested Statements
- Break and Continue Statements
- Error Handling with Assertions
- Recap of Key Concepts
- Coding Exercises and Examples
- Q&A Session

Lecture 8: Strurcture & Union

- Basic of structure
- Basic of union
- Coding Exercises and Examples
- Q&A Session