



# अखिल भारतीय सूचना प्रौद्योगिकी संगठन

## All India Information Technology Association

### New Delhi

WORK RELATED TO MINISTRY OF INFORMATION TECHNOLOGY (GOVT. OF INDIA)

## MASTER DIPLOMA IN SOFTWARE ENGINEERING

**Eligibility :** Graduation

**Duration :** 1 Year

**Course Code :** MS-02

### Semester-I

#### Computer Organization

Introduction To Computers , Types Of Computer , History Of Computer , Generation Of Computer , PC & Its Components , Disk Defragmentor , Categories Of PC , Evolution Of Micro Processors , Registers Of Micro Processors , Basic Components Of Computer System , Input Output & Storage Units , Software , Types Of Software , Types Of Operating System , Categories Of OS , Example Of Utility Program , Programming Languages , Generations Of Programming Language , Application Software , User & Example Of Application Software , Viruses , Types Of Virus , Virus Detection & Prevention , Communication Process , Communication Protocols , Communication Channel/Media , Modem , Components Of LAN , Types Of Internet Connections , Internet & Its Advantages , Internet Services , WWW & Common Technologies of Internet

#### Operating System (Dos , Windows)

DOS :-- Disk Operating System(Dos) , Introduction , History & Versions Of Dos , Basic-Physical Structure Of Disk, Drive Name , Fat , File & Directory Structure And Naming Rules , Booting Process , Dos , System Files , Dos Commands Internal & External Dir, Md, Cd, Rd, Copy, Del, Ren, Vol, Date, Time, Cls, Path, Type Etc. , Chkdsk, Xcopy, Print, Diskcopy, Diskcomp, Doskey, Tree, Move, Label, Append, Format, Sort, Fdisk, Backup, Edit, Move.

Windows XP :-- Introduction To Window XP And Its Features , Hardware Requirements Of Windows , Window Structure, Desktop, Taskbar, Start Menu , Working , With Recycle Bin – Restoring A Delete File , Emptying The Recycle Bin , Managing Files, Folders And Disk Navigating Between Folders , Manipulating Files And Folders , Creating New Folder , Searching Files And Folder My Computer Exploring Hard Disk , Copying And Moving Files And Folder from One Drive To Another Formatting Floppy Drive , Windows Accessories-Calculator , Notepad , Paint, Wordpad , Character Map, Paint

Windows Fundamental :-- Windows is an operating system , XP Home Addition , XP Professional Addition , Active desktop , Multi user account , Data protection features , Playing MP3 Sound and XP , Windows desktop fundamental , Desktop , Taskbar , Icons , My computer , My Document , Recycle bin , Folder



## अखिल भारतीय सूचना प्रौद्योगिकी संगठन All India Information Technology Association New Delhi

WORK RELATED TO MINISTRY OF INFORMATION TECHNOLOGY (GOVT. OF INDIA)

### Computer Application (MS Word , MS Excel , MS Power Point)

Office package :- Word processor Software , Spreadsheet software , Presentation software , Database Management software

MS Office :- Introduction to Ms Office , Introduction to Ms Word , How to Start , Components of Ms Word , File Menu , Edit Menu , View Menu , Insert Menu , Format Menu , Tools Menu , Table Menu , Window Menu , Help Menu

MS Excel :- Introduction to MsExcel , Calculations , Formula , Functions , Insert Row/Columns , Create Chart , Format Sheet

Tools Menu :- Goal Seek , Scenario , Auditing

Data Menu :- Sort , Filter , Advance Filter , Sub total , Forms , Validations , Table , Consolidate , Pivot table , Window , Help

MS Power Point :- Introduction , Insert New Slide , Format Slide , Slide Show

### Object Oriented Programming (C & C++)

Introduction to programming concept :- Types of programming language , Low level language , High level language , Types of language processor , Header file

Structure of programming language :- Program structure :- Comment , Define columns & Rows

Data type in C :- Introduction to data type , Variables , Input statement

Operators and expression :- Arithmetic operators , Increment and Decrement operator , Relational operator , Logical operator , And operator , Or operator , Not operator , Conditional operator

Decision control structure :- Introduction to Decision Making statement , The switch statement

loop control structure :- Introduction , For loop , While loop , Do while loop , Loop termination

Arrays :- Introduction to arrays

Function :- Introduction to function , Types of function

Structure :- What is Structures , Structure in c , The dot operator , Arrays of Structure

Introduction to C++

Overviews of C++ :- Object oriented Programming, concept , Advantage & ,usage of C++ . Classes and objects :classes structure and classes, union and classes, Friend function ,Friend classes, Inline function ,Scope resolution operator, Static class members, Static data members function, passing object to function, Returning objects , Object assignment.

Constructor & Destructor :- Constructor and destructor: Introduction constructor , parameterized constructor , multiple constructor in a class , constructor with default argument , copy constructor , copy constructor , Default argument ,destructor.

Operator overloading :- function & operator overloading: function overloading , overloading constructor function finding the address of an overloading function , operator overloading: creating a member operator function , Creating prefix and postfix form of the increment & decrement operator , overloading the shorthand operation (i .e. +=,-=etc) , operator overloading restrictions , operator overloading using friend function , overloading loading Some special operators , overloading [ ],(),-,comma operator , overloading <<.

Inheritance :- Base class access control , protected member , Protected base class Inheritance , Inheritance multiple base class , constructors , destructors & Inheritance , when constructor &



# अखिल भारतीय सूचना प्रौद्योगिकी संगठन

## All India Information Technology Association

### New Delhi

WORK RELATED TO MINISTRY OF INFORMATION TECHNOLOGY (GOVT. OF INDIA)

destructor function are expected , Passing parameter to base class constructors , granting access , Virtual functions & Polymorphism: virtual function , pure virtual function , early Vs , late binding. The C++ input /output system basic :- C++ stream , the basic stream classes: C++ Predefined stream , formatted I/o: formatting using the ios member , setting the format flags , clearing format flags , an overloaded form of self

## Semester-II

### Business Computing (Oracle / SQL)

Oracle Product details , Different data base model , RDBMS components –Kernel , Data dictionary , client /server computing and oracle , Overview of oracle architecture –oracle files , system and user process , Oracle memory , system data base object , protecting data.

Oracle data type , working with tables , data Constraints , column level & table level constraints , defining different constraints on the table defining integrity constraints in the ALTER TABLE command , Select Command , logical operator , Range Searching , Pattern Matching , Oracle Function , Grouping data from table in SQL , Manipulation Data in SQL Joining Multiple Tables(Equi joins ) , Joining a Table to self (Self joins) , Sub queries Union , intersect & Minus clause , creating view Renaming the column of a view , granting permissions –updating , Selection , Destroying view.

### Java Programming

Introduction of Java :- What is Java? , How to Get Java , A First Java Program , Compiling and Interpreting Applications , The JDK Directory Structure

Data types and Variables :- Primitive Data types ,Declarations , Variable Names , Numeric Literals , Character Literals , String , String Literals , Arrays , Non-Primitive Data types ,The Dot Operator

Operators and Expressions :- Expressions Assignment Operator , Arithmetic Operators Relational Operators Logical Operators Increment and Decrement Operators Operate -Assign operators (+ = , etc.) The Conditional Operator Operator Precedence Implicit Type Conversions The Cast Operator

Control Flow Statements :- Statements , Conditional (if) Statements , Data types and Variables 3 , Adding an else if , Conditional (switch) Statements , while and do-while Loops , for Loops , A for Loop Diagram , Enhanced for Loop , The continue Statement , The break Statement

Methods :- Methods , Calling Methods , Defining Methods , Method Parameters , Scope , Method Parameters

Object-Oriented Programming :- Introduction to Object-Oriented Programming , Classes and Objects , Fields and Methods , Encapsulation , Access Control , Inheritance , Polymorphism

Objects and Classes :- Defining a Class , Creating an Object , Instance Data and Class Data , Methods , Constructors , Access Modifiers , Encapsulation

Using Java Objects :- Printing to the Console , StringBuilder and StringBuffer , Methods and Messages toString , Parameter Passing , Comparing and Identifying Objects , Destroying Objects

Inheritance in Java :- Inheritance , Inheritance in Java , Casting , Method Overriding , Polymorphism , Super class



## अखिल भारतीय सूचना प्रौद्योगिकी संगठन All India Information Technology Association New Delhi

WORK RELATED TO MINISTRY OF INFORMATION TECHNOLOGY (GOVT. OF INDIA)

Packages :-- The import Statement , Static Imports , Casting , CLASSPATH and Import , Defining Packages , Package Scope

Exception Handling :-- Exceptions Overview , Catching Exceptions , The finally Block , Exception Methods , Declaring Exceptions , Defining and Throwing Exceptions , Errors and RuntimeExceptions

Input/Output Streams :-- Overview of Streams , Bytes vs. Characters , Converting Byte Streams to Character Streams , File Object , Binary Input and Output , PrintWriter Class , Reading and Writing Objects , Basic and Filtered Streams

Collection Framework :-- The Collections Framework , The Set Interface , Set Implementation Classes , The List Interface , List Implementation Classes , The Map Interface , Map Implementation Classes

Inner Classes :-- Inner Classes , Member Classes , Local Classes , Anonymous Classes , Instance Initializers , Static Nested Classes

Introduction to Threads :-- Non-Threaded Applications , Threaded Applications , Creating Threads , Thread States , Runnable Threads , Coordinating Threads , Interrupting Threads , Runnable Interface , ThreadGroups

Interfaces and Abstract Classes :-- Separating Interface and Implementation , UML Interfaces and Realization , Defining Interfaces , Implementing and Extending Interfaces , Runnable Threads , Abstract Classes

Serialization :-- Object Serialization , Serializable Interface , Serialization API , ObjectOutputStream and ObjectOutputStream , The Serialization Engine , readObject and writeObject , Externalizable Interface

## Data Communication & Networking

Overview of computer networks and Internet, the OSI model TCP/IP , Ethernet Token Ring and Wireless and the methods they use of connecting , Data Link Layer Responsibilities , Internet Protocols , TCP IP Segment, IP Packet and Data Link Frame Formats , Wireless and Mobile networks , Application used in every day network related task.

### Admin Office New Delhi:

#### All India IT Association

B-1041, 3rd Floor, Sector 7, Near Palam Extension, Dwarka, New Delhi - 110075

Ph : +91 11 47350202, 47541212 | Help line : 91 999 39 500 00

Fax : +91 11 47350203, Email : [president@aiita.org](mailto:president@aiita.org)

### Admin Office Indore :

#### All India IT Association

18/3, Pardeshipura Nr. Electronic Complex, Indore (M.P.) INDIA

Ph: +91 731 4055550, 4055551, 4222242, 4222252, 4299909, 4288812

Fax : +91 731 2573779 | Email: [info@aiita.org](mailto:info@aiita.org)