

DEPARTMENT OF COMPUTER SCIENCE

Syllabus for M.Sc (IT)

I M.Sc (IT) / I Semester

C++ And Data Structures

UNIT I

Principles of Object Oriented Programming(OOP) - Software Evaluation - OOP Paradigm - Basic Concepts of OOP - Benefits of OOP - Application of OOP.

UNIT II

Introduction to C++ - Tokens - Keywords - Identifiers - Variables - Operators - Manipulators - Expressions and Control Structures - Pointers - Functions - Function Prototyping Parameters Passing in Functions - Values Return by Functions - Inline Functions - Friend and Virtual Functions.

UNIT III

Classes and Objects - Constructors and Destructors - Operator overloading - Type of Constructors - Function Overloading – Inheritance – Types of Inheritance – Virtual Functions and Polymorphism.

UNIT IV

Definition of a data structure – Primitive and Composite data types - Asymptotic notations – Arrays – Operations of Arrays – Order lists – Stacks – Applications of Stack – Infix to Postfix Conversion – Recursion – Queues – Operations of Queues.

UNIT V

Singly linked list – Operations – Doubly linked list – Operations – Trees and Graphs : Binary tree – Tree traversal; Graph – Definition – Types of Graphs – Traversal (BFS & DFS) – Dijkstra`s algorithm.

Books for Study

1. E. Balagurusamy - Object Oriented programming with C++ - TMH.
2. Robert Lafore - Object Oriented Programming in Microsoft C++ - Galgotia.
3. E. Horowitz and S.Shani Fundamental of data structure in C++, Galgotia Pub.
4. Horowitz, S.Shani and S.Rajasekaran, Computer algorithms, Galgotia Pub. Pvt Ltd 1998.

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VISUAL PROGRAMMING

UNIT I

Customizing a Form - Writing Simple Programs - Toolbox - Creating Controls - Name Property - Command Button - Access Keys - Image controls - text Boxes - Labels - Message Boxes - Grid- Editing Tools - Variables - Data Types - String-Numbers.

UNIT II

Displaying Information - Determinate Loops - Indeterminate Loops - Conditions - Built in Functions - Functions and Procedures.

UNIT III

Lists - Arrays - Sorting and searching - records -Control Arrays - Combo Boxes - Grid Control -Projects with multiple forms - DoEvents and Sub Main - Error Trapping.

UNIT IV

VB Objects - Dialog Boxes - Common Controls - Menus - MDI Forms - Testing , Debugging and Optimization - Working with graphics- Monitoring Mouse activity.

UNIT V

File handling - File System Controls - File System Objects -COM/OLE - automation -DLL Servers - OLE Drag and Drop.

BOOKS FOR STUDY

1. Gary Cornell – Visual Basic 6 from the Ground up – Tata McGraw Hill –1999
2. Noel Jerks - Visual Basic 6 (the complete reference) – Tata McGraw Hill 1999

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DISTRIBUTED DATABASE MANAGEMENT SYSTEM

UNIT I

Features of distributed Vs centralized databases -- Why Distributed databases – distributed database management systems (DDBMSs) – review of databases – review of computer networks – level of distribution transparency - reference architecture for distributed databases – types of data fragmentation – distributed transparency for read only applications - distributed transparency for update applications - distributed database access primitives – integrity constraints in distributed databases – framework for distributed database design – the design of database fragmentation – allocation of fragments .

UNIT II

Equivalence transformation for queries – Transforming Global Queries in to Fragment Queries – Distributed Grouping and Aggregate Function Evaluation – Parametric Queries – Optimization of Access Strategies - A Framework for Query Optimization – Join Queries – General Queries. A Framework for Transaction Management – Supporting Atomicity of Distributed Transactions – Concurrency Control for Distributed Transactions – Architectural Aspects of Distributed Transactions.

UNIT III

Foundations of Distributed Concurrency Control –Distributed Deadlocks- Concurrency Control based on Timestamps-Optimistic Methods for Distributed Concurrency Control-Reliability –Basic concepts Non Blocking Commitments Protocols-Reliability and Concurrency Control –Determining a Consistent View of the Network-Detection and Resolution of Inconsistency- Checkpoints and Cold Restart-Distributed Database Administration-Catlog Management in Distributed Databases –Authorization and Protection.

UNIT IV

Distributed object Database Management Systems-Fundamental Objects Concepts and Models-Objects –Abstract Data types –Composition (Aggregation)-Class-Collection-Subtyping and inheritance- Object Distribution Design- Horizontal Class Partitioning- Vertical Class Partitioning- Path Partitioning – Class Partitioning Algorithms-Allocation-Replication.

UNIT V

Alternative clients / Server Architectures-Cache Consistency- Object Identifier Management- Pointer Swizzling Object Migration-Distributed Object Storage- Object Query Processor Architectures- Query Processing Issues – Query Execution-Correctness Criteria-Transaction Models and Object Structures- Transaction Management in Object DDBMSs-Transactions as Objects- Conclusion- Bibliographic Notes-Exercises.

BOOKS FOR STUDY:

1. Stefano Ceri, Giuseppe Pelagatti –Distributed Databases Principles and Systems-Mc Graw Hill.
2. M.Tamer Ozsü, Patrick Valduriez- Distributed Database Systems- Prentice Hall- Second Edition

I M.Sc(IT) – Semester I
OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT- I:

System Development – Object Basics – Development Life Cycle – Methodologies
– Patterns – Frameworks – Unified Approach – UML

UNIT- II

Use-Case Model – Object Analysis – Object relations – Attributes – Methods –
Class and Object responsibilities – Case Studies.

UNIT- III

Design Processes – Design Axioms – Class Design – Object Storage – Object
Interoperability – Case Studies.

UNIT- IV

User Interface Design – View layer Classes – Micro-level Processes – View
Layer Interface – Case Studies.

UNIT- V

Quality assurance Test – Testing Strategies – Object orientation on testing – Test
Cases – Test Plans – Continuous testing – Debugging Principles – System
Usability – Measuring User Satisfaction – Case Studies.

BOOKS FOR STUDY:

1. Ali Bahrami – Object Oriented Systems Development - McGraw Hill
International Edition –1999.
2. Grady Booch – Object Oriented Analysis and design – Addison Wesley
3. R.S. Pressman – Software Engineering – Fourth Edition – McGraw Hill
International Edition –1997

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VB Lab

- 1) Building Simple Applications.
- 2) Working with Intrinsic Controls and ActiveX controls.
- 3) Application with multiple forms.
- 4) Application with Dialogs.
- 5) Application with Menus.
- 6) Application with Data Controls.
- 7) Application using Common Dialogs.
- 8) Drag and Drop Events.
- 9) Database management.
- 10) Creating ActiveX Controls.