201MECOM : OOPS USING C++

UNIT 1 - OOPS Fundamental - OOPS terminology, data abstraction, data hiding, encapsulation, class, object and methods, inheritance, polymorphism, merits & demerits of OO methodology.

UNIT 2 - C++ Basic - Structure of C++ character set, tokens, keywords, variables, constants, special characters, data types & sizes, operators, arithmetic, relational, logical, assignment, increment & decrement, conditional, bitwise, special extraction & insertion, operation, scope resolution, member dereferencing, memory management, operator manipulator, type cast, qualifiers, symbolic constant, operator precedence, reference variable, statements - assignment, if-else, nested if-else, for loop, while, do while, break, switch, continue, goto.

UNIT 3 - Functions in C++ - the main function, function prototype, call by reference, return by reference, inline functions, default argument, friend & virtual functions, introduction to pointers.

UNIT 4 - Classes and Objects - declaration of arrays & structure, specifying class & definition of class, class members, accessing class members, defining member functions, within class & outside class. Array within class, memory allocating for objects, array of objects, pointer to members.

Constructors & Destructors - Introduction to constructors, parameterized constructors, multiple constructors in a class, dynamic initialization of objects, copy constructors, destructors.

UNIT 5 - Operator overloading & Inheritance - Defining operator overloading, overloading, unary & binary operator, defining derived classes, inheritance type, this pointer, virtual functions.

File Input / Output : File handling in detail.

Reference :
1. Object Oriented Programming - Robert Lafore (Galgotia Publication)
2. Object Oriented Programming - E. Balgurusswami
Jiwaji University, Gwalior – MBA eCommerce - Session 2008-10

202ME-COM Software Engineering and Software Project management


Planning a Software Project: Project Plan, guidelines for Software planning, planning tasks, CPM/PERT, Gantt chart.


UNIT 3: Software Quality Assurance and Testing: Software quality assurance. Factors of software quality. SQA activities, s/w review basics, Documentation & issues. Verification and validation: white box and black box testing, unit testing, acceptance testing, system testing, integration testing.

Software Configuration Management: Fundamental of software configuration management (SCM) & its major elements.


Software Reliability: Definition and concept of software reliability, software errors, faults, software reliability metrics, repair and availability.

UNIT 5: Software Maintenance: Fundamental of software maintenance, types of software maintenance, strategies, and maintenance of object oriented system design.

CASE, tools and Environment: Concept, scope of CASE, classification of CASE tools, categories of CASE environment.

Communication & Business technical reports: Role of communication in s/w project management & its types. Various Types of Reports according to different phases of SDLC.

Reference:

4. Project Management –Harold Kerzner
203MECOM - DATABASE MANAGEMENT SYSTEM

UNIT 1: Introduction - Advantages of DBMS approach; Various views of data, database independence, schema & sub-schema; Primary concept of data models; Database languages; transaction management, database administration & user; Data dictionary; Overall system architecture.

ER Model: Basic concept, Design issues, Mapping constraints, Keys, ER diagram, Weak & Strong entity sets, Specialization & generalization, aggregation, inheritance, Design of ER schema, Reduction of ER schema to tables.

Domains, Relation & Keys: Domains, Relations, Kinds of relations, Relational databases.

Various types of keys: candidate, primary, alternate & foreign keys.

UNIT 2: Relation Algebra & SQL - The structure, Relational algebra with extended operations; Modification of database; Idea of relational calculus; Basic structure of SQL: Set Operations; Aggregate functions; Null values; Nested sub queries; Derived relations; Views; Modification of databases; Join relations; DDL in SQL; Database Integrity.; General idea; Integrity rules; Domain rules; Attribute rules; Relation rules; Database rules; assertions, Integrity & SQL.

UNIT 3: Functional Dependencies & Normalization - Basic definitions; Trivial & nontrivial dependencies; Closure set of dependencies & attributes; Irreducible set of dependencies; Introduction to normalization; Nonplus decomposition; FD diagram; First, second & third normal forms; Dependency preservation; BCNF; Multivalued dependencies and fourth normal form; Join dependencies and fifth normal form.

Transactions, Concurrency & Recovery - Basic concept; ACID properties; Transaction state; Implementation of atomicity & durability; Concurrent executions; Basic idea of serializability; Basic idea of concurrency control; Basic idea of deadlock; Failure classification; Storage structure types; Stable storage implementation, data access; Recovery & Atomicity- log based recovery; deferred database modification, immediate database modification, checkpoints.

Distributed Databases - Basic idea; distributed data storage; Data replication; Data fragmentation-horizontal, vertical & mixed fragmentation.


Type definition of composite and reference type, using.

% type user defined subtype, expressions and operators, PL/sql control structures.

SQL within PL/SQL (SQL statements, DML in PL/SQL: SELECT, INSERT, UPDATE, DELETE, WHERE, GRANT, REVOKE AND Privileges, Transaction control COMMIT, ROLLBACK, Savepoints, Procedure, Triggers).

UNIT 5: Storage Structure & File Organization - Overview of physical storage media; Magnetic disk performance & optimization; Basic idea of RAID: Organization of records in files; Basic concepts of indexing; Ordered Indices; Basic idea of B-tree & B+ tree organization.

Network & Hierarchical Models - Basic idea; Data structure diagram; DBTG model; implementation, Tree structure diagram; implementation techniques; Comparison of the three models.

Reference:
2. An Introduction to Database System : C.J. Date (5th Ed.) (Addison Wesley)
4. An Introduction to Database Systems : B.C. Desai (Galgotia Publishers)
5. Oracle 8 - PL/SQL programming by TM Human
Jiwaji University, Gwalior – MBA eCommerce – Session 2008-10

244MECOM – Visual Basic

UNIT 1: A profile of VB - Menus, Tool Bar Buttons, Tool Box, Form, Project, Controls, Properties, Programming window, Programming Essentials - General Procedures, Sub Procedures and function-desigining. Calling & passing controls as arguments, Constant & variable: Declaration, Scope and types.

UNIT 2: Designing a project - start up form, Properties and Program design, Managing multiple forms.
Flow of control - decisions - if statement, Else if clause, Select case structure, Nested decisions. Loops - Do loops, For loops.

UNIT 3: Arrays, Declaring arrays, Multidimensional & dynamic arrays, User defined types - Recorded structures, With statement array of records.

UNIT 4: Input & Output Procedures - Defining a Menu, Control Arrays, Input Techniques - Validating & Formatting the Input, Moving the focus, Menu choices out put techniques - Calculation & Display, Drawing chart.

UNIT 5: Visual basic controls: - Intrinsic Controls, Custom control, Common dialog control, Printer object, Object, Classes and Collections - Developing classes & Collection MDI form, OLE controls, Data base connections, Data manager programme, Data control, Bound controls.

Reference:

1. Foundation of Visual Basic - Douglas Hergert.
205MECOM: MANAGERIAL ECONOMICS


References:
206ME-COM-NETWORKING CONCEPTS & DESIGN


UNIT 2-The medium access sublayer - ALOHA- pure aloha, slotted aloha, LAN protocols (CSMA, collision free etc.), LAN standards- comparison if Token bus, Token ring & CSMA/CD.


UNIT 4-Internetworking - Bridges & Gateways, Remote Procedure Call (RPC), Client-server Model.

Network Security - Cryptography, Secret Key Algorithm, Public Key Algorithm, Data Encryption standard DES, Authentication protocol, Digital signatures, Secret Key signatures, Public Key signatures.

UNIT 5-Concepts in protocol design, Network architecture & protocols, state diagrams, petri nets, flow control techniques such as centralized flow control, distributed flow control, comparison, or flow control techniques, Deadlocks such as Protocol deadlocks and Buffer deadlocks.

References:

1. Computer Networks- by Andrew S. Tanenbaum (3rd edition)- PHI publications
3. Computer Networks by Ahuja.