CS 201 : Computer Architecture

Review of Number Systems; Combinational System, Switching algebra and logic circuits, Karnaugh map, Logic gates, simplification of expressions, implementation using gates, One bit Adder, One bit ALU(add sub, AND, OR), Encoders, multiplexers, Tri-state logic gates, Sequential System, Latches and Flip-Flops, Registers, Counters, Half-adders, Full-adders. Introduction to Computer Design: Design levels, data paths, Registers, Busses. Instruction Set Design: Instructions Formats, Addressing Modes, Assembly Language, RISC Machine, Control Design. Hardwired and Microprogramming. Memory & I/O Memory organization, Cache Memory, Memory Management, I/O, Interrupts, DMA, Pipelining, Parallel Processor, Recent development in computer Architecture. Performance and Cost: Selecting Computers based on Benchmarks.

Text/Reference Books:

1. **Information System** : *A Management Perspective, Alter S. Pearson Education 2000*
2. **Data Processing Schaum's Outline Series**: *Martin M. Lipschuts,TMH 2001*
3. **Data Processing and Information Technology** *C.S. French, BPB Publication, 1996* .

CS 202 : Data Structure and Program Design

Basic Concepts of Data Representation: Abstract Data Types, Fundamental and Derived Data Types, Representation and Implementation, Different Data Structures, Algorithm Design and Comparison Algorithm. Array and Linked Lists: Representation of arrays and Linked Lists, Comparison of Array and Linked List. Stacks and Queues: Representation of Stack and Queues (Dynamic and Static), Operation on Stack and Queues, Applications of Stack and Queues. Trees: Representation of Trees (Static and Dynamic), Different types of trees, Operations on Trees, Tree Construction, Application of Trees. Searching And Sorting: Different method of Searching, Comparison of Different Searching Method, Different Methods of Sorting, Comparison of Different method of Representation, Operations of Graph, Minimal Spanning tree Algorithm, Shortest Path Algorithm. .

Text/ References Books:

1. **Data Structureand Program Design in C** : *R. Kruse, PHI, 1997*
2. **Data Structure using C and C++**: *Y. Langsam, M.J.Augenstien and A.M. Tanenbaum, Second Edition, 2000*

CS 203 : Object Oriented Programming

Introduce to Java, Java Buzzworld Data type and Variable, Operators, Control Statements, Arrays, Methods, Recursion, Constructors, This and Find keywords, Garbage collection, Object-Oriented Programming. Introduction Objects, Superclass's and Subclasses. Protected Members. Relationship between superclass Object and Subclass Objects. Constructors and finalizes in Subclasses. Encapsulation. Inheritance, Polymorphism, Packages and Interfaces, Example of Packages and Interfaces. Exception Handling and Multithreading, Exception Types, Uncaught Exceptions. Using Try and Catch Nested Try Statement, Throw, Throws, finally. Java Thread Model, Thread Priorities, Synchronization, Main Thread. Advance Java. Overview of JDBC, Applets, Servers, Java Beans, EJB. Different types of Drivers. Jar files. Java Security Tools.

Text/ Reference Books:

1. **The Complete Reference**: *Herbert Schmidt, TMH, Fifth Edition, 2002*
2. **How to program** : *Deitel & Deitel, Pearson Edition, Third Edition, 2001*
3. **Core Java Vol-I & II**: *(Sun Microsystems Press), Hortsman and Cornell, PEA, II And Edition, 2001*

CS 204 : Database Management System

Database: Concept, Comparative view, goals etc. Data Independence, Consistency, Security & Integrity. DBMS models: Hierarchical, Relational and Network; Structured Query Language and Programming Interface; Database design and architecture: DBMS Applications: ORACLE/DB2/Progress/any other; Introduction to Distributed Database, Concurrency control and recovery, Assorted Topics in Database.

Text / reference Books:

1. **Fundamental of Database System:** *Elemsari & Nava the, Forth Edition, AWP, 2002.*
2. **Database Management System:** *Ramkrishna, Third Edition, TMH, 2000*
3. **Database System a Practical approach to design implementation and Management:** *Thomas M. Connolly, Person Education Third Edition, 2002*

CS 205 : Object Oriented Analysis and Design

Introduction: Object oriented approach, its features & significance, S/W Complexity & its causes, S/W Crisis & the related issues need to be resolved. Modeling: Object Modeling: Objects & Classes, Links & Associations, Generalization & inheritance, Grouping Constructs, Advanced Objects Modeling Aggregation, abstract classes, multiple inheritance, Meta Data, Candidate Keys and Constraints. Dynamic Modeling: Events & states, operations, nested state diagram, concurrency. Functional Modeling: DFDS, specifying operation, constraints, Analysis and System design: Analysis: Object Modeling, Functional Modeling adding operations, iteration, System design: Subsystem, Concurrency, Allocation to processors and takes, management of data stores, control implementation, Boundary condition, Architectural framework, Object Design, Optimization, Implementation of control, Adjustment of inheritance, Design of associations, documentation, comparison of methodologies, Implementation: Using a programming language, using a database system, Programming styles: Object Oriented Style: Reusability, extensibility, robustness and Programming-in-the-language.

Text / Reference Books:

1. ***Object Oriented Modeling and Design:*** *J. Rum Baugh, PHI, 2003*
2. ***Object Oriented Analysis and Design:*** *G.Booch,2000*