COMPUTER SCIENCE

1- Computer Hardware and Architecture: Fundamentals,number systems, combinational and sequential circuits, Organization of Digital computer, Storage Systems, I/O devices, Elements of Microprocessors land microcomputers, Parallel computing and super computers.

2- System Software: Operating system" Fundamentals and services, O .S. Process concepts, memory managements, file and I/O management, protection and security. anti-virus,device drivers, Machine and assembling language, Compilers, Interpreters, Linkers, Loaders, LINUX and shell programming.

3- Programming Concepts: Programming languages, Algorithms, Flowcharts, concepts of C-language including file processing Numerical Methods.

4- Data Structures: Fundamentals, Linear and Non-linear Arrays, Stacks, Queues, linked Lists, Multilinked Lists, Sorting, searching, Matris inversion, time land space complexity, practical problems.

5- Computer Communication and Networks: Computer networks, protocols, OSI and TCP/IP reference model,X.25 frame-relay, Data transmission, Encoding Schemes, Multiplexing, Layering technologies, Transmission media LAN and WAN technology and Network security.

6- System analysis and Design: Information science concepts, system concepts, Evaluation and scope of software engineering, software requirement analysis, software design process, software testing and debugging.

7- Database Management system: Fundamentals, Relational model, language & systems (SQL & PL/SQL), Data base design, Transaction concepts, Data protection, concurrency control & recovery techniques , Design methods and concepts of CODBMS Distributed database, Data mining & data ware housing.

8-OOPS and Applications: Object oriented programming concepts, object oriented analysis and design, JAVA and C ++ programming language concepts & design methods, application software, Visual programming techniques.

9- Discrete Mathematical structure: Mathematical logic, set theory, graph theory, Overview of theory of computation. Lattices and Boolean algebra.

10- Computer graphics: Fundamentals. 2-D & 3-D representations, Geometrical transformation, Curves and Surfaces, fractals, Solid modeling , Animation and applications.

11- Soft Computing: Fuzzy sets, Fuzzy measures, Fuzzy systems and applications, Artificial intelligence concepts, Al search techniques, AI Knowledge representation, AI Symbolic and statistical reasoning, Expert systems, Artifcial Neural network concepts. ANN algorithm, neuronal dynamics and synaptic cognitive science concepts, problem solving and rationality of cognitive science, Genetic algorithms and natural languages.

12- Digital Signal Processing: Fundamentals Discrete time system, Z-Transforms, realization of Digital system, digital filters and its applications.

13- Web Technologies and Multimedia systems: Fundamentals, web browsers, protocols, Searching and download technologies, web servers and securities, web design and mark-up languages, Designing of dynamic functionality in web pages, Scripting languages, middleware architecture and cyber laws. Multimedia technology concepts, Authoring tools, Internet applications.

14- Simulation and Modeling: Fundamentals, modeling techniques and its types,Mathematical representations, approximation, practical representation of useful models, simulation techniques, Contineous and discrete systems, Queuing systems, Simulation application Software.