



VANITA VISHRAM WOMEN'S UNIVERSITY, SURAT
SCHOOL OF SCIENCE AND TECHNOLOGY
Department Of Computer Science
PhD Entrance Syllabus
Computer Science
Effective From A.Y 2023-24

Paper Title: PhD Entrance Syllabus Computer Science

Unit: 1: System Software and Operating Systems:

1. System Software
2. Basics of Operating system concepts
3. Process Management, Threads, CPU Scheduling
4. Deadlocks, Memory Management
5. Storage Management, File and Input/Output Systems
6. Security, Virtual Machines, Linux Operating Systems
7. Windows Operating Systems, Distributed Systems

Unit: 2: Computer Fundamentals:

1. Memory, Number System and computer architecture.
2. Introduction to s/w and its components
3. Single user and multi-user system.

Unit: 3: Database Management Systems:

1. Database System Concepts and Architecture
2. Relational database architecture and integrity constraints
3. SQL and PL/SQL
4. Triggers, cursors, package,
5. Functions and procedures.

Unit: 4: Computer Programming Skills & Data Structure:

1. Algorithms and Flowcharts, types of programming Languages.
2. Preprocessors and storage classes.
3. User defined functions, Recursion, structures and unions.
4. Arrays, Pointers and File systems.
5. OOPS Concepts: Classes and objects, constructors and destructors.
6. Procedure oriented Programming and object oriented programming.
7. Function and Operator overloading, inheritance and polymorphism.
8. Exception handling
9. Data Structures: Performance Analysis of Algorithms and Recurrences
10. Stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs

Unit: 5: Computer Networks & Internet:

1. Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching.
2. IPv4/IPv6, routers and routing algorithms (distance vector, link state).
3. TCP/UDP and sockets, congestion control.
4. Application layer protocols (DNS, SMTP, POP, FTP, HTTP).
5. Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.