RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Computer Science & Information Technology, VII-Semester

Departmental Elective CSIT- 702 (A) Information Storage & Management

Objectives:
1. To introduce data creation, the amount of data being created, the value of data to a business, challenges in data storage and data management,
2. To introduce solutions available for data storage, Core elements of a data center infrastructure, role of each element in supporting business activities

Course Outcomes: After the completion of this course, the students will be able to:
1. To Understand the Concept of Information Storage and Data centre Environment.
2. To understand about Data Protection.
3. To Understand Fiber Channel SAN.
4. To describe the different backup and recovery topologies and their role in providing disaster recovery and business continuity capabilities.
5. To Understand Cloud Computing.

UNIT I
Introduction to Storage Technology: Data proliferation, evolution of various storage technologies, Overview of storage infrastructure components, Information Lifecycle Management, Data categorization.

UNIT II
Storage Systems Architecture: Intelligent disk subsystems overview, Contrast of integrated vs. modular arrays, Component architecture of intelligent disk subsystems, Disk physical structure components, properties, performance, and specifications, RAID levels & parity algorithms, hot sparing, Front end to host storage provisioning, mapping and operation.

UNIT III
Introduction to Networked Storage: JBOD, DAS, NAS, SAN & CAS evolution and comparison. Applications, Elements, connectivity, standards, management, security and limitations of DAS, NAS, CAS & SAN.

UNIT IV
Hybrid Storage solutions; Virtualization: Memory, network, server, storage & appliances.Data center concepts & requirements, Backup & Disaster Recovery: Principles Managing & Monitoring: Industry management standards (SNMP, SMI-S, CIM), standard framework applications, Key management metrics (Thresholds, availability, capacity, security, performance).

UNIT V
Information storage on cloud :Concept of Cloud, Cloud Computing, storage on Cloud, Cloud Vocabulary, Architectural Framework, Cloud benefits, Cloud computing Evolution, Applications & services on cloud, Cloud service providers and Models, Essential characteristics of cloud computing, Cloud Security and integration.

Recommended Books:
1. G. Somasundaram & Alok Shrivastava (EMC Education Services) editors; Information Storage and Management: Storing, Managing, and Protecting Digital Information; Wiley India.
2. Ulf Troppens, Wolfgang Mueller-Friedt, Rainer Erkens, Rainer Wolafka, Nils Haustein; Storage Network explained : Basic and application of fiber channels, SAN, NAS, iSESI, INFINIBAND and FCOE, Wiley India.
3. John W. Rittinghouse and James F. Ransome; Cloud Computing : Implementation , Management and Security, CRC Press, Taylor Frances Pub.
4. Nick Antonopoulos, Lee Gillam; Cloud Computing : Principles, System & Application, Springer.
5. Anthony T. Velete, Toby J.Velk, and Robert Eltenpeter, Cloud Computing : A practical Approach, TMH Pub.
6. Saurabh , Cloud Computing : Insight into New Era I

List of Experiments:

1: Logging into and Navigating Navisphere Manager Lab

      Part 1: Logging into the Navisphere Manager Lab Exercise

      Part 2: Navigating the Navisphere Manager User Interface

2: Enable/Disable Navisphere Classic CLI andConfiguring NTP

      Part 1: Enabling and Disabling Navisphere Classic CLI

      Part 2: Configuring NTP

3: Storage Management - Allocating and Assigning LUNs

      Part 1 : Using the Storage Allocatation Wizard to assign LUNs.

      Part 2 : Manually Bind LUNs.

4: Configuring SnapView Snapshots

5: Configuring SnapView Clones

6: Configuring Full and Incremental SANCopy

7: Creating Synchronous and Asynchronous

8: Expanding LUNs and Migrating LUNs

      Part 1 : Expanding LUNs with Stripe Expansion

      Part 2: Expanding LUNs with Concatenation Expansion

      Part 3: Migrating LUNs

Case Study:
1. NAS
2. SAN
3. IP-SAN
4. Virtulization