

## STORAGE AREA NETWORKS

(Honors)

<b>Course Code</b>	20IT6601C	<b>Year</b>	III	<b>Semester</b>	II
<b>Course Category</b>	Honors	<b>Branch</b>	IT	<b>Course Type</b>	Theory
<b>Credits</b>	4	<b>L-T-P</b>	4-0-0	<b>Prerequisites</b>	Computer Networks
<b>Continuous Internal Evaluation :</b>	30	<b>Semester End Evaluation:</b>	70	<b>Total Marks:</b>	100

Course Outcomes		
Upon Successful completion of course, the student will be able to		
CO1	Identify key challenges in managing information and analyze different storage networking technologies and virtualization	L2
CO2	Explain components and the implementation of NAS	L3
CO3	Describe CAS architecture and types of archives and forms of virtualization	L3
CO4	Illustrate the storage infrastructure and management activities	L3

Syllabus		
Unit No	Contents	Mapped CO
I	<p><b>Storage System:</b> Introduction to Information Storage: Information Storage, Evolution of Storage Architecture, Data Center Infrastructure, Virtualization and Cloud Computing.</p> <p><b>Data Center Environment:</b> Application Database Management System (DBMS), Host (Compute), Connectivity, Storage, Disk Drive Components, Disk Drive Performance, Host Access to Data, Direct-Attached Storage, Storage Design Based on Application</p>	CO1
II	<p><b>Data Protection - RAID:</b> RAID Implementation Methods, RAID Array Components, RAID Techniques, RAID Levels, RAID Impact on Disk Performance, RAID Comparison.</p> <p><b>Intelligent Storage Systems:</b> Components of an Intelligent Storage System, Types of Intelligent Storage Systems.</p> <p><b>Fibre Channel Storage Area Networks - Fibre Channel:</b> Overview, The SAN and Its Evolution, Components of FC SAN.</p>	CO2,CO5
III	<p><b>IP SAN and FCoE:</b> iSCSI, FCIP,</p> <p><b>Network-Attached Storage:</b> General-Purpose Servers versus NAS Devices, Benefits of NAS, File Systems and Network File Sharing, Components of NAS, NAS I/O Operation, NAS Implementations, NAS File-Sharing Protocols, Factors Affecting NAS Performance</p>	CO3,CO5
IV	<p><b>Introduction to Business Continuity:</b> Information Availability, BC Terminology, BC Planning Life Cycle, Failure Analysis, Business Impact Analysis, BC Technology Solutions,</p> <p><b>Backup and Archive:</b> Backup Purpose, Backup Considerations, Backup Granularity, Recovery Considerations, Backup Methods, Backup Architecture, Backup and Restore Operations, Backup Topologies, Backup in NAS Environments</p>	CO4, CO5
V	<p><b>Local Replication:</b> Replication Terminology, Uses of Local Replicas, Replica Consistency, Local Replication Technologies, Tracking Changes to Source and Replica, Restore and Restart Considerations, Creating Multiple Replicas.</p> <p><b>Remote Replication:</b> Modes of Remote Replication, Remote Replication Technologies.</p> <p><b>Securing the Storage Infrastructure:</b> Information Security Framework, Risk Triad, Storage Security Domains. Security Implementations in Storage Networking</p>	CO1

## Learning Resources

### Text Books

1. EMC Education Services, "Information Storage and Management", Wiley India Publications, 2009. ISBN: 9781118094839

### References

1. Paul Massiglia, Richard Barker, "Storage Area Network Essentials: A Complete Guide to Understanding and Implementating SANs Paperback", 1st Edition, Wiley India Publications, 2008

### E- Resources and other Digital Material

NPTEL VIDEO LECTURES