

COURSE CODE	COURSE TITLE	L	T	P	C
1152CS116	INFORMATION RETRIEVAL AND STORAGE MANAGEMENT	3	0	0	3

Course Category: Program Elective

A. Preamble:

Information Storage and Retrieval have highly developed into a sophisticated pillar of information technology, provides a variety of solutions for storing, managing, accessing, protecting, securing, sharing, retrieving and optimizing information.

B. Prerequisite Courses:

Sl. No	Course Code	Course Name
1	1151CS107	Data Base Management System
2	1151CS114	Data Warehousing and Data Mining

C. Related Courses:

Sl. No	Course Code	Course Name
01	1152CS120	Cloud Computing

D. Course Educational Objectives:

The Student should be made to

1. Identify the components of managing the data center and Understand logical and physical components of a storage infrastructure.
2. Evaluate storage architectures, including storage subsystems SAN, NAS, IPSAN, CAS
3. Understand the securing framework and managing storage infrastructure.
4. Understand the information retrieval models
5. Learn about document and text mining techniques.

E. Course Outcomes:

Upon the successful completion of the course, students will be able to:

CO No's	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Explain the basic concepts of storage systems	K2
CO2	Discuss and develop the storage system using network	K2
CO3	Summarize the security framework and storage infrastructure management	K2
CO4	Explain various information retrieval models.	K2
CO5	Apply document and text mining techniques.	K3

F. Correlation of Cos with Pos:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1															
CO2	L		M	M					M						L
CO3			M	L	M			H	M		L			M	L
CO4	L		M		H			H	M		H		M	M	L
CO5	L		M		H			H	M		H		M	M	M

H- High; M-Medium; L-Low

G. Course Content:

UNIT I INTRODUCTION TO STORAGE

9

Introduction to Information Storage Management – Data Centre Environment– Database Management System (DBMS) – Host – Connectivity –Storage-Disk Drive Components- Intelligent Storage System –Components of an Intelligent Storage System- Storage Provisioning- Types of Intelligent Storage Systems

UNIT II STORAGE NETWORKING

9

Fibre Channel: Overview – SAN and Its Evolution –Components of FC SAN –FC Connectivity-FC Architecture- IPSAN-FCOE-FCIP-Network-Attached Storage 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-Object-Based Storage Devices Content-Addressed Storage –CAS Use Cases.

UNIT III SECURING AND MANAGING STORAGE INFRASTRUCTURE

9

Information Security Framework –Storage Security Domains-Security Implementations in Storage Networking – Monitoring the Storage Infrastructure – Storage Infrastructure Management Activities –Storage Infrastructure Management Challenges.

UNIT IV INFORMATION RETRIEVAL

9

Boolean and vector-space retrieval models- Term weighting – TF-IDF weighting- cosine similarity – Preprocessing – Inverted indices – efficient processing with sparse vectors – Language Model based IR – Probabilistic IR –Latent Semantic Indexing – Relevance feedback and query expansion.

UNIT V DOCUMENT TEXT MINING

9

Information filtering; organization and relevance feedback – Text Mining –Text classification and clustering – Categorization algorithms: naive Bayes; decision trees; and nearest neighbor – Clustering algorithms: agglomerative clustering; k-means; expectation maximization (EM).

TOTAL: 45 Hours

H. Learning Resources

i.TEXT BOOKS:

1. EMC Corporation “Information Storage and Management: Storing, Managing, and Protecting Digital Information in Classic, Virtualized, and Cloud Environments”, John Wiley & Sons, 30-Apr-2012
2. Richard Barker, Paul Massiglia,” Storage Area Network Essentials: A Complete Guide to Understanding and Implementing SANs”, John Wiley & Sons, Nov-2002
3. Massimo Melucci, “Introduction to Information Retrieval and Quantum Mechanics”, Springer, 08-Dec-2015

i. Reference Books:

1. Robert Spalding, “Storage Networks: The Complete Reference”, Tata McGraw Hill, Osborne, 2003.
2. Marc Farley, “Building Storage Networks”, Tata McGraw Hill, Osborne, 2nd Edition, 2001.
3. Meeta Gupta, “Storage Area Network Fundamentals”, Pearson Education Limited, 2002.
4. Michael W. Berry, “Survey of Text Mining: Clustering, Classification, and Retrieval”, Springer Science & Business Media, 14-Mar-2013

1. Online resources

1. <http://www.infoplease.com/encyclopedia/science/information-storage-retrieval.html>
2. <http://whatis.techtarget.com/definition/ISRS-information-storage-and-retrieval-system>