List of New Courses Introduced in the Academic Year 2016-2017
EVEN SEM

S.No	Course Code	Name of the Course
1	SCS4202	Object Oriented Analysis and Design Lab
2	SCS1613	Distributed Database
3	SCS1614	Advanced Database Technologies

SCS4202	OBJECT ORIENTED ANALYSIS AND DESIGN LAB	L	T	P	Credits	Total Marks
		0	0	4	2	100

SUGGESTED LIST OF EXPERIMENTS

1. Study experiment – Object Oriented Concepts
2. Study of UML diagrams – aim and scope of diagrams.
3. Study of CASE tools – ArgoUML, Rational ROSE, Altova UML
4. Practicing on the methods of identifying classes
    a. Understand – what is a class?
    b. Structure of Class – relate UML representation to programming
    c. Identifying classes for project – application of CRC method, Noun Phrase Approach.
5. Understanding relationships
    a. Association
    b. Realization
    c. Generalization
    d. Aggregation
6. Practicing Class diagrams
    a. Designing Classes
        i. refining attributes and designing methods.
        ii. roles, multiplicity, qualifier.
    b. components
7. Identifying Use cases – scenario based approach
8. Understanding use cases
    a. identifying regular flow and alternative flow of events
    b. identifying constraints, pre and post conditions
9. Activity diagrams – components, understanding difference between flow chart and activity diagram.
10. Interaction diagrams – sequence diagrams, collaboration diagrams.
11. Deployment Diagram – scenarios of application.
    a. Student Information System
    b. Online Ticket Reservation system
    c. Employee Payroll system

d. Online Banking Application
e. ATM processing
f. Stock Maintenance
g. Library Management System

SCS1613	DISTRIBUTED DATABASE	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 9 Hrs.
Introduction of Distributed Databases-Features of Distributed Databases-Distributed databases versus Centralized Databases- Principles-- Levels Of Distribution-Transparency-Reference Architecture- Types of Data Fragmentation-Integrity Constraints in Distributed Databases- Architectural Issues- Alternative Client/Server Architecture.

UNIT 2 9 Hrs.
Global Queries to Fragment Queries- Equivalence Transformations for Queries- Distributed Grouping and Aggregate Function Evaluation- Parametric Queries- Optimization of Access Strategies- Framework for Query Optimization- Join Queries- General Queries- Introduction to Distributed Transactions.

UNIT 3 9 Hrs.
Management of Distributed Transactions- Framework for Transaction Management-Supporting Atomicity of Distributed Transactions- Concurrency Control for Distributed Transactions- Architectural Aspects of Distributed Transactions- Concurrency Control- Foundation of Distributed Concurrency Control- Distributed Deadlocks-Concurrency Control based on Timestamps- Optimistic Methods for Distributed Concurrency Control.

UNIT 4 9 Hrs.
Reliability- Basic Concepts- Reliability and concurrency Control- Determining a Consistent View of the Network-Detection and Resolution of Inconsistency- Checkpoints and Cold Restart- Distributed Database Administration-Catalog Management in Distributed Databases-Authorization and Protection

UNIT 5 9 Hrs.
Database Integration- Scheme Translation- Scheme Integration- Query Processing Query Processing Layers in Distributed Multi-DBMSs- Query Optimization Issues- Transaction Management Transaction and Computation Model- Multi database Concurrency Control- Multi database Recovery- Object Orientation And Interoperability-Object Management Architecture - Distributed Component Model.

Max. 45 Hrs.

COURSE OUTCOMES
On completion of the course, student will be able to:
CO1 : Illustrate various principles of distributed database.
CO2 : Classify the concurrency control techniques.
CO3 : Demonstrate the framework for distributed transaction management.
CO4 : Describe the emerging issues involved in distributed database.
CO5 : Explain the query processing and optimization issues in distributed multidatabase.
CO6 : Implement distributed component model.

TEXT / REFERENCE BOOKS
Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti, McGraw-Hill 2.
Principles of Distributed Database Systems, M. Tamer Ozsu, Patrick Valduriez - Pearson Education.
Fundamental of Database Systems; Elmasri & Navathe; Pearson Education; Asia.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks: 100 Exam Duration: 3 Hrs.
PART A: 2 Questions from each unit, each carrying 2 marks 20 Marks
PART B: 2 Questions from each unit with internal choice, each carrying 16 marks 80 Marks

SCS1614	ADVANCED DATABASE TECHNOLOGIES	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 9 Hrs.
Data base system Architecture - Query Optimization Techniques - Transaction Management: Transaction Processing Concepts - Concurrency Control - Recovery Techniques -Database Security.

UNIT 2 9 Hrs.
Architecture- Query evaluation - Query optimization - parallelizing Individual operations. Distributed DBMS: Architecture - storing data - Cataloguing - Query processing -Transactions Concurrency and Recovery

UNIT 3 9 Hrs.
Active Database Concepts and Triggers -Temporal Databases - Spatial Databases - Deductive Databases - XML Databases: XML Data Model - Geographic Information Systems - Genome Data Management

UNIT 4 9 Hrs.
Object Databases - Advantages and disadvantages compared to Relational Databases - Abstract data types, Objects identity and reference types-Inheritance Database design for ORDBMS ODMG data model and ODL OQL. MULTIMEDIA DATABASES: Nature of Multimedia data and applications Data management issues - Components of Multimedia database management system.

UNIT 5 9 Hrs.
Big Data - Introduction - Technologies - Reference Architecture - Hadoop - Introduction Hadoop Distributed File System - Design of HDFS - HDFS Concepts - Interfaces for Hadoop File System - Map Reduce - A weather Data set - Analyzing the data with Hadoop -Anatomy of Map Reduce Job Run

Max. 45 Hrs.

COURSE OUTCOMES:

On completion of the course, student will be able to
CO1 : Explain and evaluate the fundamental theories and requirements that influence the design of modern database systems.
CO2 : Assess and apply database functions and packages suitable for enterprise database development and database management.
CO3 : Critically evaluate alternative designs and architectures for databases and data warehouses.
CO4 : Discuss and evaluate methods of storing, managing and interrogating complex data
CO5 : Explain and critically evaluate database solutions for data exchange.
CO6 : Analyze the background processes involved in queries and transactions, and explain how these impacts on database operation and design.

TEXT / REFERENCE BOOKS

Raghu Ramakrishnan and Johannes Gehrke, “Database Management Systems”, 3rd Edition McGraw Hill Publications.
Korth . H.Fand A.Silberschatz, “Database system concepts”, 3rd Edition, McGraw Hill Publications.
Ramez Elmasri & B.Navathe: Fundamentals of Database Systems, V Ed., AddisonWesley, 2008.
Stenfno Ceri and Gieusppe pelagatti, “ Distributed database- principles and systems”,Third Edition.
O’Reilly, “ Hadoop - The Definitive Guide “,O'Reilly Media
B.Prabakaran, “Multimedia Database Management Systems”, Kluwer Academic Publishers.
http://www.oracle.com/technetwork/topics/enlarch/articles/info-mngt-big-data-re-arch-1902853.pdf

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