

Advance Database Management Systems					
Credit Hours:	2	Course Code:	COSC-3127	Prerequisites:	Database Systems
Course Learning Outcomes(CLOs):					
After the completion of this course the student should be able to:				Domain	BT Level
1. Understanding advance data models, technologies, and approaches for building distributed database systems.				C	2
2. Applying the models and approaches in order to become enabled to select and apply appropriate methods for a particular case.				C	3
3. To develop a database solution for a given scenario/ challenging problem in the domain of distributed database systems.				C	3
* BT= Bloom’s Taxonomy, C=Cognitive Domain, P=Psychomotor Domain, A=Affective Domain					
#	SDG	Relevant CLOs			
1	SDG 4: Quality Education	CLO 1: Understanding advance data models, technologies, and approaches for building distributed database systems.			
2	SDG 9: Industry, Innovation and Infrastructure	CLO 3: To develop a database solution for a given scenario/ challenging problem in the domain of distributed database systems.			
Course Contents:					
Introduction to advance data models such as object relational, object oriented, File organizations concept, Transactional processing and concurrency control techniques, Recovery techniques, Query processing and optimization, Database Programming (PL/SQL, T-SQL or similar technology), Integrity and security, Database Administration (Role management, managing database access, views), Physical database design and tuning, Distributed database systems, Emerging research trends in database systems, MONGO DB, NO SQL (or similar technologies), Big Data Analytics, Database Recovery.					
Teaching Methodology:					
Lectures, Power Point Slides, Interactive Sessions, Extra Material, Projects, Presentations					
Course Assessment:					
Sessional, Midterm Exam, Quizzes, Assignments, Presentation, Final Exam					
Reference Material:					
1. Database Systems: Design, Implementation & Management by Thomas Connolly and Steven Morris, Cengage Learning, 13 th Edition, 2018; ISBN-10: 1337627909					
2. Modern database management by Jeffrey A. Hoffer, Ramesh Venkataraman and Heikki Topi, Pearson, 11 th Edition, 2012; ISBN-10: 0132662256.					
3. Database system concepts by Abraham Silberschatz, Henry Korth and S. Sudarshan, McGraw-Hill Education, 6 th Edition, 2010; ISBN-10: 0073523321					

Advance Database Management Systems - Lab					
Credit Hours:	1	Course Code:	COSC-3227	Prerequisites:	Database Systems
Course Learning Outcomes(CLOs):					
After the completion of this course the student should be able to:				Domain	BT Level
1. Understanding advance data models, technologies, and approaches for building distributed database systems.				C	2
2. Applying the models and approaches in order to become enabled to select and apply appropriate methods for a particular case.				C	3
3. To develop a database solution for a given scenario/ challenging problem in the domain of distributed database systems.				C	3
* BT= Bloom’s Taxonomy, C=Cognitive Domain, P=Psychomotor Domain, A=Affective Domain					
#	SDG	Relevant CLOs			
1	SDG 4: Quality Education	CLO 1: Understanding advance data models, technologies, and approaches for building distributed database systems.			
2	SDG 9: Industry, Innovation and Infrastructure	CLO 3: To develop a database solution for a given scenario/ challenging problem in the domain of distributed database systems.			
Course Contents:					
Basics of T-SQL programming, Declaring variables and Parameters, User defined functions, Creating scalar user defined functions using SQL server, Inline table valued functions, Multi statements table valued functions, Altering Functions, Dropping Functions, Stored Procedures, Stored Procedures vs Functions, Executing stored procedures, Dropping Stored procedures, Modifying stored procedures, Triggers, DML Triggers, DDL Triggers, Dropping a Trigger, Disabling and Enabling a Trigger, Calling Procedures within Triggers, Configuring Server and Database security, Creating Logins, Creating and Managing database Users, Creating Schemas, Creating Roles, Granting Permissions, Revoking Permissions, Creating user accounts, Granting permission, Assigning membership to roles, Managing Transactions, Transaction management modes, Transaction Isolation models, Data Import and Export, Importing from a text file, Exporting to a spreadsheet, Backup and Restore configuration, Replication, Replication Architecture, Database Mirroring, Mirroring Prerequisites, Endpoint Firewall Rules, Database Mirroring Monitor. Log shipping, Steps to configure log shipping, Using SQL Server Management Studio, Using Transact SQL					
Teaching Methodology:					
Lectures, Power Point Slides, Interactive Sessions, Extra Material, Projects, Presentations					
Course Assessment:					
Sessional, Midterm Exam, Quizzes, Assignments, Presentation, Final Exam					
Reference Material:					
1. Database Systems: Design, Implementation & Management by Thomas Connolly and Steven Morris, Cengage Learning, 13 th Edition, 2018; ISBN-10: 1337627909					
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