Course Code	18CSE455T	Course Name	DATABASE SECURITY AND PRIVACY	Course Category	E	Professional Elective		L	T	P	C
								3	0	0	3

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	CSE			Data Book / Codes/Standards	Nil

Course Learning Rationale (CLR): The purpose of learning this course is to:

- CLR-1 : Understand the fundamentals of security relates to information
- CLR-2 : how security is maintained in information systems
- CLR-3 : Understand the concept of security models in database
- CLR-4 : Implementation of virtual private dtabase
- CLR-5 : Learn the procedures of database auditing
- CLR-6 : Implementation of data mining algorithms for PPDM

Course Learning Outcomes (CLO): At the end of this course, learners will be able to:

PLO columns: 1 Engineering Knowledge, 2 Problem Analysis, 3 Design & Development, 4 Analysis, Design, Research, 5 Modern Tool Usage, 6 Society & Culture, 7 Environment & Sustainability, 8 Ethics, 9 Individual & Team Work, 10 Communication, 11 Project Mgt. & Finance, 12 Life Long Learning, 13 PSO-1, 14 PSO-2, 15 PSO-3

CLO	Description	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLO-1	Acquire the knowledge of information system and information security	2	80	85	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-2	Able to manage the security of information system as well as database	2	75	80	H	H	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-3	Able to design and develop the security model in database	2	85	80	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-4	Able to implement VPD in various database	2	80	75	H	H	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-5	Able to audit the database activities, users, security	2	75	85	H	-	-	H	-	-	-	-	-	-	-	-	-	-	-
CLO-6	Apply the security mechanism in PPDM using various algorithms	2	80	85	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Duration (hour)			9	9	9	9	9
S-1	SLO-1	Security Architecture: Introduction	Administration of Users-Introduction	Database Application Security Models: Introduction-	Auditing Database Activities-introduction	Privacy Preserving Data Mining Techniques: Introduction
	SLO-2	Information Systems	Authentication	Types of Users	Oracle Database Activities	Data Mining Techniques:
S-2	SLO-1	Database Management Systems	Creating Users	-Security Models	Oracle Database Activities	Privacy Preserving Data Mining Algorithms
	SLO-2	Information Security Architecture	SQL Server User	Application Types	Creating DLL Triggers with Oracle	Privacy Preserving Data Mining Algorithms
S-3	SLO-1	-Database Security	Removing, Modifying Users	-Application Security Models	Creating DLL Triggers with Oracle	General Survey-Data Mining Techniques
	SLO-2	Asset Types and value	Default users	Data Encryption	Auditing Database Activities with Oracle	Randomization Methods
S-4	SLO-1	Security Methods	Remote Users	Virtual Private Databases: Introduction	Auditing Database Activities with Oracle	Randomization Methods
	SLO-2	Operating System Security Fundamentals: Introduction	Database Links	-Overview of VPD	Auditing Server Activity with SQL Server 2000	Group Based Anonymization
S-5	SLO-1	Operating System Overview	Linked Servers	Implementation of VPD using Views	Auditing Server Activity with SQL Server 2000	Group Based Anonymization
	SLO-2	Security Environment	Remote Servers	Application Context in Oracle	Auditing Server Activity with SQL Server 2000	Distributed Privacy Preserving Data Mining
S-6	SLO-1	Security Components	Practices for Administrators and Managers-	Implementing Oracle VPD-	Auditing Server Activity with Oracle	Distributed Privacy Preserving Data Mining
	SLO-2	Authentication Methods	Profiles, Password Policies, Privileges and Roles: Introduction	Implementing Oracle VPD	Auditing Server Activity with Oracle	Curse of Dimensionality
S-7	SLO-1	User Administration	Defining and Using Profiles	Viewing VPD Policies	Security and Auditing	Application of Privacy Preserving Data Mining
	SLO-2	Password Policies	Designing and Implementing Password Policies	VPD using views	Security and Auditing	Application of Privacy Preserving Data Mining
S-8	SLO-1	Vulnerabilities	Best Practices	Application contexts using Data Dictionary	Casestudy: projest security and auditing	Casestudy: on PPDM
	SLO-2	Vulnerabilities	Granting and Revoking User Privileges	Policy manager implementation	Casestudy: projest security and auditing	Casestudy: on PPDM

S-9	SLO-1	Email Security	Creating, Assigning and Revoking User Roles	Policy Manager Implementing Row and Column level Security with SQL Server	Casestudy: projest security and auditing	Casestudy: on PPDM
	SLO-2	Internet security	Best practices	Policy Manager Implementing Row and Column level Security with SQL Server	Casestudy: projest security and auditing	Casestudy: on PPDM

Learning Resources	1. HassanA.Afyouni,"DatabaseSecurityandAuditing",ThirdEdition,CengageLearning,2009. 2. RonBenNatan,"ImplementingDatabaseSecurityandAuditing",ElsevierDigitalPress,2005	3. Charu C. Aggarwal, Philip S Yu, "Privacy Preserving Data Mining": Models and Algorithms, Kluwer Academic Publishers, 2008

Learning Assessment

Bloom's Level of Thinking	Continuous Learning Assessment (50%								Final Examination (50% weightage)	
	CLA – 1 (10%)		CLA – 2 (15%)		CLA – 3 (15%)		CLA – 4 (10%)#		Theory	Practice
	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice		
Level 1	Remember Understand	40 %	-	30 %	-	30 %	-	30 %	-	30%	-
Level 2	Apply Analyze	40 %	-	40 %	-	40 %	-	40 %	-	40%	-
Level 3	Evaluate Create	20 %	-	30 %	-	30 %	-	30 %	-	30%	-
	Total	100 %		100 %		100 %		100 %		100 %	

CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers

Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
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