INT515:DATABASE SECURITY

L:3   T:0   P:0   Credits:3

Course Outcomes: Through this course students should be able to

- Designing and implementing security policies to protect the data of an organization, users, and applications from accidental, inappropriate or unauthorized actions

- Creating and enforcing policies and practices of auditing and accountability for inappropriate or unauthorized actions

- Learn how to implement a Virtual Private Database using views, roles, and application context

Unit I

Security architecture : overview of information security(cia), database security and levels, security methods, asset types and their values, menaces to databases, overview of some hands-on projects and case studies

Unit II

Operating system security fundamentals : operating system overview and security environment, the components of operating system security environment, authentication modes

Administration of users : creating Users, removing users, modifying users, default users, database links, linked servers and remote servers, creating sql server users, principles

Unit III

Profiles, password policies, privileges and roles : defining and using profiles, designing and implementing password policies, granting and revoking user privileges, creating, assigning and revoking user roles, permissions, logins and credentials, creating, assigning and revoking application roles

Unit IV

Security through Backup and Recovery : Backup types, Backup Options, Backup Strategies, Restoring and recovering databases, Database snapshots

Database Encryption : SQL Server encryption, Extensible Key Management (EKM), certificates and Transparent Data Encryption

Unit V

Virtual private databases : overview of virtual private databases, implementing vpd using views, implementing vpd using application context, row and column level security

Database auditing and monitoring strategies : auditing and monitoring overview, auditing and monitoring strategies, advantages of auditing, monitoring and overview of database security checklist

Unit VI

Vulnerabilities existing in database system : owasp top 10 web security vulnerabilities, sql injection, buffer overflows - dos and ddos

Text Books:

1. DATABASE SECURITY AND AUDITING: PROTECTING DATA INTEGRITY AND ACCESSIBILITY, 1/E by AFYOUNI HASSAN A., CENGAGE LEARNING

References:

1. BEGINNING MICROSOFT SQL SERVER 2008 ADMINISTRATION by CHRIS LEITER, DAN WOOD, MICHAEL CIERKOWSKI, ALBERT BOETTGER, WILEY