Course Title: Database Management System			
Course Code: UDS 106	**No. of credits:** 3	**L-T-P:** 20-16-18	**Learning hours: 45**
			L: Lectures**; T:** Tutorials**; P:** Practicals
Pre-requisite Course Code and Title (if any): None			
Department: Natural and Applied Sciences			
Course Coordinator: Dr. Adwitiya Sinha		**Course Instructor:**	
Contact Details:			
Course Type: Major		**Course Offered in:** Semester 2	

Course Description

This course explores the foundational concepts of database system and its components. This includes modelling of real-world systems using Entity Relationship Diagrams (ERDs). Subsequently, the students will learn to transform these ER models into relational logical schemas, by employing diverse mapping algorithms. The practical knowledge of Structured Query Language (SQL) commands and relational algebraic expressions will be emphasized for efficient query processing. Additionally, the curriculum covers the simplification of databases through the normalization process, with keys and functional dependencies. A crucial aspect of the course involves addressing issues related to atomicity, consistency, isolation, durability, transactions, and concurrency within databases. Overall, the course will help the students to acquire the skills for navigating the intricacies of designing databases, implementing, and managing robust systems.

Course Objectives

- To understand the basic concepts of database systems and components
- To learn usage of entity relationship diagrams using various mapping algorithms
- To apply SQL commands and relational algebraic expressions for query processing
- To manage databases using normalization process using functional dependencies
- To address security issues in databases to safeguard against unauthorized access