Course Name	DATABASE CONCEPTS AND DESIGN		Course Code	ITEC-211		
Credit Hours	3		Contact Hours	Lecture	Lab	Total
				2	2	4
Offered as	☐ University Requirement ☒ College Requirement ☐ Program Requirement ☒ Core ☐ Elective ☒ ITEC ☒ COMP ☒ CNET					
Level	3		Prerequisite	NIL		

Course Description:

This course aims to discuss the basic concepts and designs of the database. It covers topics such as database system architecture, data model, levels of abstraction, data independence, and concurrency control. It focuses on how to design databases for given problems, and how to use database effectively, including ER modelling, key and participation constraints, weak entities, class hierarchies, aggregation and conceptual DB design using the ER model. Relational model: creating and modifying relation using query language, enforcing integrity constraints, ER to relational and view. Schema refinement and normal forms: Functional dependencies, reasoning about functional dependencies, normal forms, decompositions, and normalization. Relational Queries: Relation algebra operation and commercial query languages. Students will be trained on one of the software tools like Oracle, Sybase, MySql, DB2 etc.

Upon completion, the student will be able to:

- Understand and discuss the concepts of database design
- Design a conceptual data model and logical database model, convert the logical database designs to physical designs and develop the physical database
- Evaluate a set of query using relational algebra operations
- Be able to execute a set of query using query language

Assessment Methods	☒ Midterm Exam	15%	☒ Assignment	10%	☒ Mini-Project	15%
	☒ Lab Exam	20%	☒ Final Exam	40%		

TextBook:

- Elmasri, R., Navath,S., and Navath, B.,"Fundamentals of Database Systems". 7th Edition, Pearson, 2016 ISBN 10:0-13-397077-9 | ISBN 13:978-0-13-397077-7.

Reference Materials:

- Carlos Coronel, Steven Morris, Peter Rob. “Database Systems: Design, Implementation, and Management”. Eleventh Edition, Course Technology Cengage Learning, 2015.