Course Title and Code	IT 332 Advanced Database

I. Course Identification and General Information:

Course Title	Advanced Databases	Course Code	IT 332	Pre-requisite	IT 131
Department	Information Technology	Course Level	7	Credit Hours	4(3+1)

II. Course Description/Topics: The following course topics will be covered.

The course will provide the foundational knowledge concepts, principles, techniques and tools of Databases and Database Management Systems. It intends to introduce more advanced topics in databases like: Physical DB Design (Storage, Indexes, and Query Processing), backup and recovery mechanisms, Database administration, Distributed Database concepts, transaction management, security in database environments, Data Warehousing and Mining, Big Data and Parallel and Distributed database (topics such as role of NoSQL, Map-reduce, Hadoop platform etc.).

III. Course Outcomes: Summary of the main learning outcomes for students enrolled in the course.

- When asked, in writing, students will be able to identify the principles of advanced databases etc.
- When asked, in writing, students will be able to understand the basic elements of indexing in database with it classified types and functionalities
- When asked, in writing, students will be able to understand way of query processing and its optimization.
- When asked, in writing, students will be able to identify the concept of transaction in database system with it different states and types.
- When asked, in writing, students will be able to identify the practical access control mechanisms of file.
- When asked, in writing, students will be able to understand data warehousing and mining algorithm categories, techniques.
- When asked, in writing, students will be able to analyze the benefits of distributed databases with is types and architectures systems and chose the best plan for query processing based on volume of information processing needed at different site.
- When asked, in writing, students will be able to understand the free database technique i.e. NOSQL and differentiate it with other databases and learn it type.

IV. Required Text:

- Fundamentals of Database Systems, (7th Edition, 2015) edition, (June 18, 2015), by Ramez Elmasri, Shamkant B. Navathe, Pearson; 7 978-0133970777.

V. References:

- Database System Concepts, 6/E edition, Henry F. Korth, McGraw-Hill, 2011.
- An Introduction to Database Systems, 8/E, Date, Addison-Wesley, 2004.