



IT 350 Database Management

Course Number Course Name	IT 350 Database Management
Credit Value (Breakdown of theory and lab credits)	(3,2T+1S)
Catalog Course Description	You will study current trends in data management, studying topics which include database theory and architecture, normalization, query languages, security and Web applications, focusing primarily on a study of database structures and design, hierarchical and relational models, and database access using Oracle SQL. Prerequisite: IT 250.
Student Learning Outcomes/Objectives /Competencies of the Course	<ul style="list-style-type: none"> • What is a DBA?: Why Learn Database Administration? The Management Discipline of Database Administration, Database, Data, and System Administration, DBA Tasks, Types of DBAs, Environments: Production, Test, QA, etc, The Impact of Newer Technology, DBA Certification • Create the Database Environment: Defining the Organization's DBMS Strategy, Installing the DBMS, Upgrading DBMS Versions and Releases, Database Standards and Procedures, DBMS Education • Data Modeling and Normalization: Data Modeling Concepts, The Components of a Data Model, Discovering Entities, Attributes & Relationships, Conceptual, Logical & Physical Data Models, Normalization, Additional Data Modeling Issues • Database Design: From Logical Model to Physical Database, Database Performance Design, Denormalization, Views, Data Definition Language, Temporal Data Support • Application Design: Database Application Development & SQL, Defining Transactions, Locking, Batch Processing • Design Reviews: What is a Design Review, Types of Design Reviews, Design Review Output, Additional Considerations • Database Change Management: Change Management Requirements, Types of Changes, DBMS Software, Hardware Configuration, Logical and Physical Design, Applications, Physical Database Structures, Impact of Change on Database Structures • Data Availability: Defining Availability, Cost of Downtime, Availability Problems, Ensuring Availability • Performance Management: Defining Performance, Monitoring vs. Management, Service Level Management, Types of Performance Tuning, Performance Tuning Tools, DBMS Performance Basics • System Performance: The Larger Environment, DBMS Installation and Configuration Issues, Types of Configuration, Memory Usage, Data Cache



	<p>Details, Database Logs, Locking and Contention, The System Catalog, System Monitoring</p> <ul style="list-style-type: none"> • Database Performance: Techniques for Optimizing Databases, Partitioning, Raw Partitions, Indexing, Denormalization, Clustering, Interleaving Data, Free Space, Compression, File placement and allocation, Page size (Block size), Database Reorganization • Database Security: Data Breaches, Database Security Basics, Granting & Revoking Authority, Authorization Roles & Groups, Other Database Security Mechanisms, Encryption SQL Injections Attacks, Auditing, External Security, DBMS Fixpacks & Maintenance • Introduction to object oriented database • Steps to develop a web based database application
<p>College-Wide Student Learning Outcomes</p>	<p>IT 350 learning objectives align with the following NNMC College Wide Goals:</p> <ol style="list-style-type: none"> 1. Communication 2. Critical Thought

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