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| Title | Database Systems |
| Code | CMP-370 |
| Credit Hours | 3 |
| Category | Computing |
| Prerequisite | None |
| Co-Requisite | None |
| Follow-up | CMP-473: Database Administration |
| Course Description | <p>Topics: File Systems and Databases: Introduction, A File system Critique, Database Systems, Database Models. Introduction to RDBMS: Logical view of Data; Entities and Attributes, Tables and their Characteristics, Keys; Integrity Rules. Relational Algebra: Relational Database Operators, System Catalog. Entity Relationship (E-R) Modeling: Basic Modeling Concepts, Data Models, The Entity Relationship (E-R) Model. Normalization of Database Tables: Objectives, Forms, Normalization and Database Design, Denormalization, Structured Query Language (SQL): Introduction, DDL Commands, DML Commands, DCL Commands, Complex Queries and SQL Functions, Procedural SQL; Triggers, Stored procedures. Database Design: The System Development Life Cycle (SDLC), The Database Life Cycle (DBLC), Database Design Strategies, Transaction Management and Concurrency Control: Introduction, Transaction Properties and Types, Concurrency Control Issues, Database Recovery Management. DDBMS: Evolution, Components, Distributed processing and distributed databases, Distributed database transparency features. Distributed database design, Data fragmentation, Data replication, Data allocation, Client-server versus DDBMS, C.J. Date's 12 commandments for distributed databases.</p> |
| Text Book(s) | Carlos Coronel, Steven Morris, Database Systems: Design, Implementation & Management, 12 th Ed., Cengage Learning, 2016. ISBN-10: 1305866797 |
| Reference Material | <ol style="list-style-type: none"> 1. Jeffrey A. Hoffer, Ramesh Venkataraman, Heikki Topi, Modern Database Management, 12th Edition, Pearson, 2015. ISBN-10: 0133544613 2. Thomas Connolly, Carolyn Begg, Database Systems: A Practical Approach to Design, Implementation and Management, 6th Edition, Pearson, 2015. ISBN-10: 1292061189 3. Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, 7th Edition, Pearson, 2016. ISBN-10: 1292097612 4. C. J. Date, An Introduction to Database Systems, 8th Edition, Pearson, 2004. ISBN-10: 0321189566 5. Michael McLaughlin, Oracle Database 11g PL/SQL Programming (Oracle Press) 1st Edition, McGraw-Hill Education, 2008, ISBN: 0071494456 |