



SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
 NAAC with "A" Grade – 3.32 CGPA Recognized under 2(f) & 12(B) of UGC Act 1956,
 Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
 Seetharampuram, W.G.D.T., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF INFORMATION TECHNOLOGY

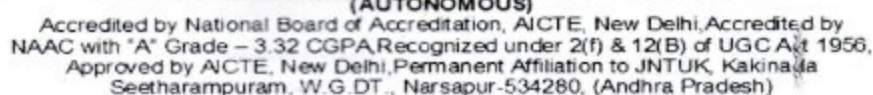
| Course Code | Course Title | Semester | Branch | Contact Periods /Week | Academic Year | Date of commencement |
|-------------|------------------------------|----------|--------|-----------------------|---------------|----------------------|
| 20IT4T03 | DATA BASE MANAGEMENT SYSTEMS | IV | IT | 5 | 2023-24 | 3-01-2024 |

COURSE OUTCOMES

| | |
|---|---|
| 1 | Explain the basic concepts of database management system and design an Entity-Relationship (E-R) model and convert E-R model to relational model. |
| 2 | Construct database using Relational algebra and SQL. |
| 3 | Apply Normalization techniques to normalize the database. |
| 4 | Discuss transaction management using different concurrency control protocols and recovery algorithms. |
| 5 | Illustrate different file organization and indexing methods. |

| UNIT | Out Comes / Bloom's Level | Topics No. | Topics/ Activity | Text Book/ Ref | Contact Hour | Delivery Method | |
|-------------------------|----------------------------------|------------|--|----------------|--------------|---------------------------|------|
| I | CO - 1 | | Introduction: | | | | |
| | | 1.1 | Database System Applications, | T2 | 1 | Chalk & Board | |
| | | 1.2 | Purpose of Database Systems. | T2 | 1 | | |
| | | 1.3 | View of Data - Data Abstraction, Instances and Schemas. | T2 | 1 | | |
| | | 1.4 | Data Models, Database Languages | T2 | 1 | | |
| | | 1.5 | Database Architecture, Database Users and Administrators | T2 | 1 | | |
| | | | Introduction to Database Design: | | | | |
| | | 1.6 | Database Design and ER Diagrams | T2 | 1 | Power point presentations | |
| | | 1.7 | Entities, Attributes and Entity sets | T2 | 1 | | |
| | | 1.8 | Relationships and Relationship sets | T2 | 1 | | |
| | | 1.9 | Additional features of ER Model, Conceptual Design with the ER Model | T3 | 1 | Assignment | |
| | | | Relational Model: | | | | Test |
| | | 1.10 | Introduction to the Relational Model - Integrity Constraints over Relations. | T3 | 1 | | |
| | | 1.11 | Enforcing Integrity constraints, querying relational data | T3 | 1 | | |
| 1.12 | Logical data base Design, Views. | T3 | 1 | | | | |
| Content beyond syllabus | | 1.13 | Distributed Databases: Architecture | T3 | 1 | | |

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|----|--------|-----|---|----|---|---------------|
| II | CO - 2 | | Relational Algebra: | | | Chalk & Board |
| | | 2.1 | Relational Algebra - | T3 | 1 | |
| | | 2.2 | Selection and Projection | T3 | 1 | |
| | | 2.3 | Set operations, Renaming, Joins, Division | T3 | 1 | |



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|--|------|--|----|-----------|---------------------------|
| | | Transaction Management: | | | |
| | 4.1 | The ACID Properties | T1 | 1 | Chalk & Board |
| | 4.2 | Transactions and Schedules | T1 | 1 | |
| | 4.3 | Concurrent Execution of Transactions- | T1 | 1 | |
| | 4.4 | Lock-Based Concurrency Control- 2PL | T1 | 1 | |
| | 4.5 | Serializability | T1 | 1 | |
| | 4.6 | Recoverability | T1 | 1 | |
| | 4.7 | Dealing With Deadlocks | T1 | 1 | |
| | 4.8 | Concurrency Control without Locking | T1 | 1 | |
| | | CRASH RECOVERY: | | | Power point presentations |
| | 4.9 | Introduction to ARIES | T1 | 1 | |
| | 4.10 | The Log - The Write-Ahead Log Protocol - Checkpoints | T1 | 1 | |
| | 4.11 | Recovering from a System Crash(ARIES) - Media Recovery. | T1 | 1 | Assignment Test |
| | 4.12 | - Query optimization using Heuristics and Cost Estimation | T1 | 1 | |
| | | Total | | 12 | |

Subject :

| Unit / Item No. | Topic | Book Reference | No. of periods |
|-----------------|-------|----------------|----------------|
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|-------------------------|--------|------|--|--------|------------------------------------|-----------|
| V | CO - 5 | | Overview of Storage and Indexing: | | | |
| | | 5.1 | Data on External Storage Directory File | T1, R1 | 1 | |
| | | 5.2 | Organization and Indexing- | | 1 | |
| | | 5.3 | Clustered Indexes | T1 | 1 | |
| | | 5.4 | Primary and Secondary Indexes | T1, R1 | 1 | |
| | | 5.5 | Index data Structures - | T1, R1 | 1 | |
| | | 5.6 | Hash Based Indexing | T1 | 1 | |
| | | 5.7 | Tree based Indexing | T1, R1 | 1 | |
| | | 5.8 | Comparison of File Organizations | T1, R1 | 1 | |
| | | | Tree Structured Indexing: | | | |
| | | 5.9 | Intuitions for tree indexes | T1, R1 | 1 | |
| | | 5.10 | Indexed Sequential Access Methods(ISAM), | T1, R1 | 1 | |
| | | 5.11 | B+ Trees: A Dynamic Index Structure | T1, R1 | 1 | |
| | | | | | | |
| | | 5.12 | Search, Insert, Delete | T1, R1 | 1 | |
| Content beyond syllabus | | 5.13 | Queries in IR systems | T1, R1 | 1 | |
| | | | | | Total | 13 |
| | | | | | Cumulative Proposed Periods | 62 |

Chalk
&
Board
Power point
presentations
Assignment
Test

TEACHING PLAN

| | Name | Signature with Date |
|----------------------------|------------------------|---------------------|
| i. Faculty | Mrs. R. Uma Aruna Devi | R. Uma Aruna Devi |
| ii. Module Coordinator | Dr. RVVSV Prasad | Dr. RVVSV Prasad |
| iii. Programme Coordinator | Dr. RVVSV Prasad | Dr. RVVSV Prasad |

Principal