

Core Course CC-110 Database Management System - I

Course Introduction:

This course introduces students to information of data, working of related data to gain knowledge. Students also will design the real life application

Objectives:

Students would be able-

- 1) To understand the concept, role and importance of Database.
- 2) To recognize the elements of Database for real applications.
- 3) To identify the key relationship between the Database components.
- 4) To comprehend the type of relational model to apply according to the scenery of applications.
- 5) To be aware of the real functions of Database Management Software.
- 6) To normalize the Tables to remove the anomaly existing in the Database.
- 7) To deal with every tiny elements of the Database.

No. of Credits: 3

Theory Sessions per week: 4

Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	Database System and Data Models	10 hours
	<ul style="list-style-type: none"> • Data and Information <ul style="list-style-type: none"> ○ Data Vs. Information 	1 hrs
	<ul style="list-style-type: none"> • Database <ul style="list-style-type: none"> ○ Introduction of the Database and the DBMS ○ Role and Advantage of DBMS ○ Types of Database 	3 hrs
	<ul style="list-style-type: none"> • Database Systems <ul style="list-style-type: none"> ○ The Database System Environment ○ DBMS Functions 	3 hrs
	<ul style="list-style-type: none"> • Data Model Basic Building Block <ul style="list-style-type: none"> ○ The Hierarchical Model ○ The Network Model ○ The Relational Model 	3 hrs
2	The Relational Database Model	10 hours
	<ul style="list-style-type: none"> • A logical view of Data <ul style="list-style-type: none"> ○ Tables and Their characteristics 	1 hrs
	<ul style="list-style-type: none"> • Keys 	1 hrs
	<ul style="list-style-type: none"> • Integrity Rules 	1 hrs

	<ul style="list-style-type: none"> • Concept of Functional Dependency 	1 hrs
	<ul style="list-style-type: none"> • Relational Set Operators 	2 hrs
	<ul style="list-style-type: none"> • The Data Dictionary and The System Catalog 	1 hrs
	<ul style="list-style-type: none"> • Relationship within the Relational Database <ul style="list-style-type: none"> ○ The 1 : M Relationship ○ The 1 : 1 Relationship ○ The M : N Relationship 	3 hrs
3	Entity Relationship Modeling	10 hours
	<ul style="list-style-type: none"> • The Entity Relationship Model <ul style="list-style-type: none"> ○ Entities ○ Attributes ○ Relationships ○ Connectivity and Cardinality ○ Existence Dependence ○ Relationship Strength ○ Weak Entities ○ Relationship Participation ○ Relationship Degree ○ Recursive Relationship ○ Composite Entities 	7 hrs
	<ul style="list-style-type: none"> • Developing an ER diagram 	3 hrs
4	Normalization of Database Tables	10 hours
	<ul style="list-style-type: none"> • The need of Normalization 	2 hrs
	<ul style="list-style-type: none"> • The Normalization process <ul style="list-style-type: none"> ○ Conversion to First normal form ○ Conversion to Second normal form ○ Conversion to Third normal form 	8 hrs

Textbook:

Database System Concepts (First Edition: 2008)

Publisher: Cengage Learning

By Peter Rob and Carlos Coronel

Chap-1(1.1, 1.2, 1.6), chap-2(2.5(2.5.1, 2.5.2, 2.5.3)),

Chap-3(3.1, 3.2, 3.3, 3.4, 3.5, 3.6), chap-4(4.1, 4.2), chap-5(5.2, 5.3)

Reference Books:

1. Introduction to Database Management Systems (First Edition 2006)

Publisher: Tata McGraw-Hill

By ISRD Group

2. An Introduction to Database Systems (Eighth Edition 2006)
Publisher : Pearson
By C. J. Date, A. Kannan & S. Swamynathan

3. An Introduction to Database Systems
Publisher: Pearson
By : ITL Education Solutions Limited.