

## SEMESTER I

CODE	COURSE TITLE
18CMPC103	RELATIONAL DATABASE MANAGEMENT SYSTEM

Category	CIA	ESE	L	T	P	Credit
Core	25	75	100	5	-	4

### Preamble

- To prepare the students to understand how to design, manipulate and manage databases and encourage the usage of database management systems for effective data management.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the database Management System and trace its historical development.	K2
CO2	Analyse the relational database model in terms of its data structure which helps in understanding queries.	K3
CO3	Identify the entity- relationship model and understand the needs of normalization.	K3
CO4	Compare the file organization methods, access methods to store the data and evaluates the queries.	K3, K5
CO5	Apply the basic concepts of Data warehouse, Data Mining techniques and applications of database.	K4

### Mapping with Programme Outcomes

CO <sub>s</sub>	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	S	M	S	S
CO3	M	M	M	S	M
CO4	S	S	S	S	S
CO5	S	S	M	S	S

S-Strong; M-Medium

## Syllabus

### UNIT I (21 Hrs.)

Database Management System: Introduction – database system applications – purpose of database systems – view of data – database languages – relational databases – Data base users and administrator – History of Database systems.

### UNIT II (21 Hrs.)

Relational Databases: Relational model – Structure of relational databases – fundamental, additional, extended relational algebra operations – modifications of databases. SQL: Background – data definition – basic structure of SQL queries – set operations – aggregate functions – Embedded SQL – Dynamic SQL.

### UNIT III (21 Hrs.)

Database Design: Overview of the design process – E-R model – constraints – E-R diagrams – Database design for banking enterprise. Relational Database Design: Features of good relational designs – Normal form – Decomposition – more normal forms – modeling temporal data.

### UNIT IV (21 Hrs.)

Data Storage: Storage and file structure – magnetic disks – file organization – data dictionary storage. Query Processing: Overview – sorting – join operation – evaluation of expressions.

### UNIT V (21 Hrs.)

Data Analysis And Mining: Decision support systems – OLAP – Data warehousing – Data mining. Advance Data Types And New Applications: Motivation – spatial and geographic data – multimedia databases – mobility and personal databases.

## Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Silberschatz, Henry F.Korth, S.Sudarshan , Abraham	Database System Concepts	McGraw-Hill International Edition	2006, 5 <sup>th</sup> Edition

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Date.C.J.	An Introduction to Database System	Narosa Publishing House	2002, 3 <sup>rd</sup> Edition
2.	Bipin C. Desai	An Introduction to Database System	Tata MC Graw Hill Publications	2002, 1 <sup>st</sup> Edition
3.	Jeffrey D.Ullman	Principles of Database Systems	Galgotia Publications	2001, 2 <sup>nd</sup> Edition
4.	Naveen Prakash	Understanding DBMS	Tata MC Graw Hill Publications	1984

## Web Resources

- <https://books.google.co.in/books?id=Jsp9CwAAQBAJ&printsec=frontcover&dq=rdbms+books&hl=en&sa=X&ved=0ahUKEwj87s3Mv-vaAhXLbbwKHQvIAKoQ6AEINDAC#v=onepage&q&f=false>
- <http://maths-people.anu.edu.au/~steve/pdcn.pdf>
- <https://www.slideshare.net/venkat000/unit01-dbms-2>

## Pedagogy

- Lecture, PPT, Assignment, Group Discussion, Seminar

## SEMESTER I

CODE	COURSE TITLE
18CMPCP01	COMPUTER APPLICATIONS PRACTICAL I - MS OFFICE & ORACLE

Category	CIA	ESE	L	T	P	Credit
Core	40	60	-	-	90	3

## Preamble

- To impart knowledge of working with the word processing, work sheet management, presentation and database access.

## Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Implement the mechanics of word documents, mail merge and basic and statistical functions in MS-Excel.	K3
CO2	Apply the various technicalities to create power point presentation.	K4
CO3	Create and maintain database using Ms Access and SQL.	K4, K5

## Mapping with Programme Outcomes

CO <sub>s</sub>	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	M
CO3	S	S	S	S	S

S-Strong; M-Medium

## Syllabus

## **MS OFFICE**

1. Type a document (like-Speech of a chairman in AGM, Budget speech of finance minister) and perform the following:
  1. Right align and bold face
  2. Center align and italics
  3. Justify and change the font size
  4. Also insert footnote and end note for the same
  5. Change a paragraph into two column paragraph
  6. Insert page number at the bottom
  7. Insert date, time and heading in the header section
2. Using mail merge, send an invitation for opening a new branch.
3. Prepare a questionnaire for a research problem by using MS WORD – use word art, reference, borders and shading and insert a table relevant to your research problem.
4. Using EXCEL prepares a table for Students marks and performs the following functions (Total, Average, Percentage, conditional sum and show the results in chart).
5. Prepare an Excel sheet and apply the following statistical functions to analyze the data (Any one of the following)
  - a) Mean, Median, Mode
  - b) Standard Deviation
  - c) Time Series
6. Prepare a Break Even Chart using chart wizard.
7. Prepare a PowerPoint presentation for Product Advertisement Requirements:
  1. Using Hyperlink to all slides
  2. Different animation effect for text and pictures
  3. Fully automatic – timing – 2 minutes
8. Collect and create a database for maintaining the address of the policy holders of an insurance company with the following constraints:
  1. Policy number should be the primary key

2. Name should not be empty
3. Maintain at least 10 records
4. Retrieve the addresses of female policyholders whose residence is at Coimbatore

### SQL

1. Create table “student” with the following fields and insert the values.

Field Name	Field Type	Field Size
Student name	Character	15
Gender	Character	6
Roll no(Primary Key)	Character	10
Department	Character	15
Address	Varchar2	25
Percentage	Number	4 with 2 decimal places
Class	Character	8

#### QUERIES:

- a. Calculate the average percentage of students.
- b. Display the unique department names.
- c. Display the details of the student who got the highest percentage.
- d. Display the details of the students whose percentage is between 50 and 70.
- e. Display the details of the students whose percentage is greater than the percentage of the roll no =12CA01.
- f. Display the details of the student who got the first class.

2. Create a table “Product” with following fields and insert the values:

Field Name	Field Type	Field Size
Product No(Primary Key)	Number	6
Product Name	Character	15
Manufacturing Date	Date	15
Selling Price	Number	6 with decimal places
Quantity	Number	6 with decimal places
Total Amount	Number	8 with decimal places

#### QUERIES:

- a. Display the number of months between two dates.
- b. Select the records whose quantity is greater than 10 and less than or equal to 20.
- c. Calculate the entire total amount by using sum operation.
- d. Calculate the number of records whose selling price is greater than 50 with count operation.
- e. Display the details of the product in descending order of selling price.
- f. List the product manufacturing in months of January to June.

3. Create a table PAYROLL with the following fields and insert the values:

Field Name	Field Type	Field Size
Employee No(Primary Key)	Number	8
Employee Name	Character	8
Department	Character	10
Basic Pay	Number	8 with 2 decimal places
HRA	Number	6 with 2 decimal places
DA	Number	6 with 2 decimal places
PF	Number	6 with 2 decimal places
Net pay	Number	8 with 2 decimal places

**QUERIES:**

- a. Update the records to calculate the net pay.
- b. Arrange the records of employees in ascending order of their net pay.
- c. Display the details of the employees whose department is “Sales”.
- d. Calculate the number of employees whose Net pay is >10000 with Count Operation.
- e. Display the details of the employee earning the highest salary.
- f. Display the total salary of the employees whose department is “Production”.
- g. Remove the employee name of the department name sales.
- h. Find out how many employees are there in each department.

4. Create a Table Publisher and Book with the following fields:

Field Name	Field Type	Field Size
Publisher Code (Primary Key)	Character	5
Publisher Name	Character	15
Publisher City	Character	12

Publisher State	Character	10
Title of Book	VarChar	15
Book Code	Character	5
Book Price	Number	5

**QUERIES:**

- Display the details of the book with the title “DBMS”.
  - Show the details of the book with price>300.
  - Show the details of the book with publisher name “Kalyani”.
  - Select the bookcode, booktitle, publisher with city “Delhi”.
  - Select the bookcode, booktitle, bookprice and sort by book price.
  - Count the number of books of publisher “sultan chand”.
5. Create a Table Bank Customer with the following fields:

Field Name	Field Type	Field Size
Account No(Primary Key)	Number	6
Branch Name	Character	15
Customer Name	VarChar	20
Balance Amount	Number	10
Loan Number	Number	7
Loan Amount	Number	6
Deposit Amount	Number	(8, 2)

**QUERIES:**

- Display the records of Deposit and Loan.
- Find the number of loans with amount between 10000 and 50000.
- List in the alphabetical order the names of all customers who have a loan at the Coimbatore branch.
- Find the maximum account balance at the Coimbatore branch.
- Update deposits to add interest at 5% to the balance.
- Arrange the records in descending order of the loan amount.
- Create a table deposit form the source table name Bank customer.

**Pedagogy**

- Demonstration

## SEMESTER II

CODE	COURSE TITLE
18CMPC207	OBJECT ORIENTED PROGRAMMING

Category	CIA	ESE	L	T	P	Credit
Core	25	75	70	5	-	4

### Preamble

- The Student will be able to develop an application by using Object Oriented Programming with C++ and Java.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify the features of object oriented design.	K2
CO2	Recognize the controlled structure with emphasis on data types, array processing and functions.	K2, K3
CO3	Design C++ programs that make appropriate use of object-oriented facilities such as classes, objects, constructors and destructors.	K5
CO4	Understand the Java language and the implementation of Java program.	K2, K3
CO5	Apply the OOPS concepts like classes, objects, inheritance and emphasis on the creation of Java package.	K3, K4

### Mapping with Programme Outcomes

CO <sub>s</sub>	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	S	S	S
CO5	S	S	M	S	S

S- Strong; M-Medium



## Syllabus

### UNIT I

(15 hrs.)

Evaluation of Programming Paradigm- Elements of Object Oriented Programming- Data Encapsulation and Abstraction classes- Inheritance- Derived Classes- Polymorphism-Operator overloading- Friend functions- Polymorphism- Virtual Functions- Merits and demerits of OOP- Applications of C++- Structure of C++ program.

### UNIT II

(15 hrs.)

Data types - Character set- Token, Identifiers and Keywords - Variables- Operators and Expressions- Control flow- IF, IF..Else, Nested If..Else, For loop, While..loop, Do..while loop, Break Statement, Switch statement, Continue Statement and Goto statement. Arrays- Operations on Arrays- Multidimensional Arrays- Strings- String manipulations. Functions- Function components- Library functions- Inline functions.

### UNIT III

(15 hrs.)

Classes and Objects - Class specification - class objects- Accessing class members - Defining Member Functions - Data Hiding- Friend functions and Friend Classes. Constructor- Parameterized Constructors- Destructors- Constructor Overloading- Order of Constructor and Destructor- Copy Constructor.

### UNIT IV

(15 hrs.)

JAVA Evolution: Java features - Java and C++ - Java Environment. Overview of Java Language: Introduction – simple Java program – more of Java – An application with two classes – Java program structure – implementation a Java program – Java virtual machine – command line arguments.

### UNIT V

(15 hrs.)

Classes, object and methods: Introduction – Defining a class – Fields declaration – methods declaration – creating object – accessing class members. Inheritance: Extending a class. Packages: putting classes together - Introduction – Java.API packages – using system packages – Naming conventions – creation packages – Accessing a packages – adding a class to a package – Hiding classes – static import.

### Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Balagurusamy.E.	Object Oriented Programming with C++	Tata McGraw Hill Publishing Company Ltd	2010, 4 <sup>th</sup> Edition
2.	Balagurusamy.E.	Programming with JAVA A PRIMER	Tata McGraw Hill Publishing Company Ltd	2002, 2 <sup>nd</sup> Edition

### Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Ravichandran.D.	Programming with C++	Tata McGraw Hill Publishing Company Ltd	2003, 2 <sup>nd</sup> Edition
2.	Herbert Schildt	C++ The Complete Reference	Tata McGraw Hill Publishing Company Ltd	2008, 4 <sup>th</sup> Edition
3.	Venugopal K.R., Rajkumar., T.Ravishanker	Mastering C++	Tata McGraw Hill Publishing Company Ltd	2007, 1 <sup>st</sup> Edition
4.	Herbert Schildt	Java the Complete Reference	Tata McGraw Hill Education Private Limited-New Delhi	2011, 1 <sup>st</sup> Edition
5.	Jain V.K	Java Object Oriented Programming	Cyber tech publications	2002, 1 <sup>st</sup> Edition

## Web Resources

- <https://www.slideshare.net/PayelGuria/class-and-objects>
- <https://www.tutorialspoint.com/cplusplus/index.htm>
- <https://beginnersbook.com/2017/08/cpp-data-types/>
- <https://www.javatpoint.com/variable-datatype>
- <https://books.google.co.in/books?id=e4T6DiT4JA0C&printsec=frontcover&dq=oops+basic+concepts&hl=en&sa=X&ved=0ahUKEwi8O6xvuvaAhVK6bwKHRkkAjoQ6AEITTAH#v=onepage&q&f=false>

## Pedagogy

- Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER II

CODE	COURSE TITLE
18CMPCP02	COMPUTER APPLICATIONS PRACTICAL II - TALLY & OBJECT ORIENTED PROGRAMMING

Category	CIA	ESE	L	T	P	Credit
Core	40	60	-	-	90	4

### Preamble

- To enable the students to acquire skills for Accounting Creation, Report Generation and taxation in Tally and develop an Object Oriented Programming Applications.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Implement the Accounting concepts, tools and techniques that reverberating business transactions by using Tally.	K3, K4, K5
CO2	Evaluate the object oriented programming to develop solutions for smoothest business transactions.	K3, K5
CO3	Manage, Collect, Synchronize and Calculate data with the help of Tally and C++.	K3

### Mapping with Programme Outcomes

CO <sub>s</sub>	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	M	S	S

S-Strong; M-Medium

**TALLY**

1. Company creation- creating the ledgers under appropriate predefined groups.

Create Ledgers

Create the ledgers under appropriate predefined groups.

Cash a/c	Computer sales a/c
Buildings a/c	Machinery a/c
Furniture a/c	Commission Received a/c
Printer purchase a/c	Commission Paid a/c
Rent received a/c	Salary a/c
Rent paid a/c	Indian Bank a/c
Wages a/c	Sales returns a/c
Capital a/c	Depreciation a/c

Purchase returns a/c

John &co. a/c (purchased goods from this company)

Ram agency a/c (sold goods from this company).

2. Voucher Creation – Voucher entry – Types of Vouchers – Alteration of Vouchers – Deletion/Cancellation of Vouchers – Creating new Voucher types.
3. Prepare Trial Balance, Profit & Loss A/c Balance Sheet (with minimum of any 5 adjustments).
4. Inventory Masters – Stock Group Creation, Display and alteration – Stock Categories Creation, Display and Alteration- stock items Creation, Display and Alteration.
5. Prepare a Fund Flow/Cash Flow statement and give your opinion.
6. Analyze the performance of an organization by using Ratio (Minimum 5 Ratios are essential).

**C++**

1. Pay Roll calculation (Using simple program).
2. Find out EOQ, Minimum Level, Maximum Level, Re-order level (Using simple program).
3. Write a c++ program to calculate working capital using class and objects (member function should write inside and outside the class).
4. Program to calculate contribution, P/V Ratio, BEP and Margin of safety using Functions.

5. Calculate Simple Interest and compound interest using inline functions.
6. Calculate Depreciation – by using constructors and Destructors.
7. Write a C++ program to calculate the sum and product of two complex numbers using operator overloading.
8. Write a C++ program to prepare cost sheet using inheritance.

### **Pedagogy**

- Demonstration