E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

Re-accredited **(3rd Cycle)** with Grade **A+** & **CGPA 3.51** by NAAC

DEPARTMENT OF INFORMATION TECHNOLOGY

CBCS With OBE

BACHELOR OF SCIENCE

PROGRAMME CODE - I

COURSE STRUCTURE

(w.e.f. 2022 – 2023 Batch onwards)

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI –14.
(An Autonomous Institution – Affiliated to Madurai Kamaraj University)
Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC

DEPARTMENT OF INFORMATION TECHNOLOGY – UG
CBCS with OBE

COURSE STRUCTURE - SEMESTER WISE
(w.e.f. 2022 – 2023 Batch onwards)

Semester	Part	Course Code	Title of the paper	Teaching Hrs.(per week)	Duration of Exam(hrs.)	Marks Allotted			Credits
						CIA	SE	Total	
3	I	22OU1TA3	Part I - Tamil	6	3	25	75	100	3
	II	22OU2EN3	Part II - English	6	3	25	75	100	3
	III	22OUIT31	**Core 5** – RDBMS	4	3	25	75	100	3
	III	22OUIT32	**Core 6** – Data Structure and Algorithms	4	3	25	75	100	4
	III	22OUIT3P	**Core Lab 7** – RDBMS Lab	3	3	40	60	100	3
	III	22OUITGEIT3	**GEC III :** E-Commerce	5	3	25	75	100	5
	IV	22OUITSE3P	**SEC** – PHP and MySQL Lab	2	3	40	60	100	2
4	I	22OU1TA4	Part I - Tamil	6	3	25	75	100	3
	II	22OU2EN4	Part II - English	6	3	25	75	100	3
	III	22OUIT41	**Core 8** – Computer Graphics	4	3	25	75	100	4
	III	22OUIT4P	**Core Lab 9** – Computer Graphics Lab	3	3	40	60	100	3
	III	22OUIT42	**Core 10** – Computer Organization	4	3	25	75	100	3
	III	22OUITGECOM4	**GEC IV**: Commerce – Financial and Cost Accounting	5	3	25	75	100	5
	IV	22OUITSE4P	**SEC** – Tally Lab	2	3	40	60	100	2

GEC : Generic Elective Course

SEC : Skill Enhancement Course

DSEC : Discipline Specific Elective Course

AECC: Ability Enhancement Compulsory Course

IDC : Inter Disciplinary Course

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
III	Core	22OUIT31	RDBMS	3	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

Course Objectives:

1. To understand and use data manipulation language to query, update, and manage a database.
2. To develop an understanding of essential RDBMS concepts such as database security, integrity, and concurrency.
3. To design and build a simple database system using E-R Model.
4. To describe the importance of and process of data normalization.
5. To understand the transactions and concurrent executions of transactions and identify the issues and supporting mechanisms of RDBMS.

Course Content:

Unit – I Introduction: Purpose of Database System – View of Data – Database languages – Relational Databases – Database Design –Data Storage and Querying – Transaction management -Database Architecture- Data mining and information retrieval- Specialty data bases Database Users and Administrators Database System.

Unit – II Relational Model: Structure of Relational Databases – Database Schema –Keys- Schema Diagrams- Relational Query Languages - Relational Operations **SQL:** Overview of the SQL Query-SQl Data Definition – Basic Structure of SQL queries – Additional basic operations-Set Operations –Null values– Aggregate Functions – Nested Sub queries–Modification of Database .

Unit – III Database Design and The E-R Model: Overview of the Design Process – The Entity-Relationship Model – Constraints – Entity-Relationship Diagrams – Entity-Relationship Design Issues – Weak Entity sets – Extended E-R Features.

Unit – IV Relational Database Design: Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Functional-Dependency Theory – Decomposition using Multivalued Dependencies.

Unit – V Storage and File Structure: Overview of Physical Storage media – Magnetic Disks – RAID – Tertiary Storage – File Organization – Organization of Records in Files – Data-Dictionary Storage.

Book for Study:

Abraham Silberschtz. Henry Korth, F.& Sudarshan,S.,(2013). *Database System Concepts*. McGraw-Hill International Edition. Sixth Edition.

Chapters:

Unit I	:	Chapter 1 (1.1 to,1.12)
Unit II	:	Chapters 2, 3
Unit III	:	Chapter 7 (7.1 to 7.3,7.5,7.7,7.8)
Unit IV	:	Chapter 8(8.1 to 8.4, 8.6)
Unit V	:	Chapter 10(10.1 to 10.7)

Books for Reference:

1. Date.C.J. (2003). *An Introduction to Database Systems*. Pearson Education Publication. New Delhi. Seventh Edition.

2. Gogan Varshney. (2010). *Database Management Systems*. Global Vision Publishing House. New Delhi First Edition.

3. Ivan Bayross. (2009). *Database Concepts and System*. SPB publications. Chennai. Third Edition.

4. JeffreyHoffer,A.,MaryPrescott.B. & Fred McFadden,R. (2003). *Modern DataBase Managemen*. Dorling Kindersley Private limited. New Delhi. Seventh edition.

5. Ramakrishnan and Gehrke.(2003). *Database Management System*. McGraw Hill. New York. Third Edition.

Web Resources / E-Books:

1. https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxlaW1yYWxpa3lvc2hpdHN1fGd4OjVkMDk1OTc0YTZkYTAzOTM.

2. https://lc.fie.umich.mx/~rodrigo/BD/An%20Introduction%20to%20Database%20Systems%20 8e%20By%20C%20J%20Date.pdf.

3. https://lc.fie.umich.mx/~rodrigo/BD/An%20Introduction%20to%20Database%20Systems%20 8e%20By%20C%20J%20Date.pdf

4. https://github.com/pforpallav/school/blob/master/CPSC404/Ramakrishnan%20- %20Database%20Management%20Systems%203rd%20Edition.pdf.

Pedagogy

Chalk and Talk, PPT, Group discussion, OHP presentations, Quiz, On the spot test, Youtube Links, Open book test and Virtual Labs.

Activities to be given

- Group Discussion
- Quiz
- PPT

Course Learning Outcomes (CLOs):

Upon successful completion of the Course, the students will be able to

CLO	Course Outcomes Statement	Knowledge According to Bloom's Taxonomy (Up to K Level)
CLO 1	Understand the methodology of conceptual modeling through Entity Relationship model	K1 to K3
CLO 2	Clarify the program-data independence, data models for databasesystems, database schema and database instances	K1to K3
CLO 3	Develop the ER-models to represent simple database application scenarios	K1 to K4
CLO 4	Describe a simple database applications using normalization	K1 to K3
CLO 5	Apply the concepts of storage and file structure	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: Total Hours (60 Hrs.)

Unit	Course Content	Hrs.	Mode
I	Purpose of Database System – View of Data – Database languages – Relational Databases – Database Design –Data Storage and Querying – Transaction management -Database Architecture- Data mining and information retrieval- Specialty data bases Database Users and Administrators Database System.	12	Chalk & Talk, PPT
II	Relational Model: Structure of Relational Databases – Database Schema –Keys- Schema Diagrams- Relational Query Languages - Relational Operations SQL: Overview of the SQL Query- SQl Data Definition – Basic Structure of SQL queries – Additional basic operations- Set Operations –Null values– Aggregate Functions – Nested Sub queries–Modification of Database .	12	Chalk & Talk, Spot test, Exercise, Assignment, PPT, Video material.
III	Database Design and The E-R Model: Overview of the Design Process – The Entity-Relationship Model – Constraints – Entity-Relationship Diagrams – Entity-Relationship Design Issues – Weak Entity sets – Extended E-R Features.	12	Chalk & Talk, Exercise, PPT, Video Material
IV	Relational Database Design: Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Functional- Dependency Theory – Decomposition using Multivalued Dependencies.	12	Chalk & Talk, Exercise, Assignment, Video Material, Group Discussion
V	Storage and File Structure: Overview of Physical Storage media – Magnetic Disks – RAID – Tertiary Storage – File Organization – Organization of Records in Files – Data-Dictionary Storage.	12	Quiz, Chalk & Talk, Exercise , Spot test, Assignment, Seminar

Mrs.R.Lakshmi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY						Class: II B.Sc.		
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
III	Core	22OUIT32	Data Structure and Algorithms	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

Course Objectives:

1. To study the systematic way of solving problems and various methods of organizing large amounts of data.

2. To design and implementation of advanced data structures such as Linear Lists, Stacks, Queues, Binary Trees and Graphs.

3. Student will be able to handle operations like Searching, Insertion, Deletion, Traversing mechanism on various data structures.

4. To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures.

5. To understand concepts about sorting techniques.

Course Content:

UNIT- I: Basic Concepts: Overview: System Life Cycle - Object Oriented Design–Data Abstraction and Encapsulation - Basics of C++ - Algorithm Specification. **Arrays:** Abstract Data Types and the C++ Class - The Array as an Abstract Data Type - Representation of Arrays.

UNIT-II: Stacks & Queues: Templates in C++ - The Stack Abstract Data Type - The Queue Abstract Data Type - Sub typing and Inheritance in C++. **Linked Lists:** Singly linked lists and Chains - Representing Chains in C++ - The Template Class Chain - **C**ircular Lists - Linked Stacks & Queues.

UNIT-III: Trees: Introduction - Binary Trees - Binary Tree Traversal and Tree Iterations – Threaded Binary Trees - Heaps - Binary Search Trees- Selection Trees – Forests.

UNIT-IV: Graphs: The Graph Abstract Data Type – Elementary Graph Operation – Minimum Cost Spanning Tree – Shortest Paths and Transitive Closure - Activity Networks.

UNIT-V: **Sorting:** Motivation – Insertion Sort – Quick Sort – Fast method to Sort - Merge Sort – Heap Sort – Sorting on Several Keys – List and Table Sorts.

Book for Study:

Elis Horowitz. Sartaj Sahni. Dinesh. & Mehta.(2013) *Fundamentals of Data structures in C++*, Universities Press (India) Private Limited. Hyderabad. Second Edition. Reprint.

Chapters:

UNIT I   :   Chapters 1 (1.1 - 1.5), 2 (2.1, 2.2, 2.5)

UNIT II   :   Chapters 3(3.1 – 3.4), 4 (4.1 -4.4), 4.6

UNIT III   :   Chapter   5 (5.1 – 5.3, 5.5 - 5.9)

UNIT IV   :   Chapter 6

UNIT V   :   Chapter 7 (7.1 – 7.8)

Books for Reference:

1. Ashok , Kamthane,N. (2003). *Object Oriented Programming with Ansi & Turbo C++*. Pearson Education. New Delhi. First Edition.

2. Easwara Kumar,K.S. (2000). *Object Oriented Data Structure using C++*. Vikad Publishing House Private Limited . New Delhi . First Edition .

3. Ellis Horowitz. Sartajsahni. & Dinesh Metha. (2007). *Fundamentals of Data Structures in C++* . Universities Press (India) Private Limited . Hyderabad. Second Edition .

4. Mark Allen Weiss. (2010). *Data Structures and Algorithms Analysis in C*. Pearson Education Inc. and Dorling Kindersley Publishing Inc. New Delhi. Second Edition.

5. Tenenbaum,M., Moshe, J., Augenstein & YedidyahLangsam.(2005) . *Data Structure using C & C++* . Prentice Hall of India Private Limited . New Delhi . Second Edition.

Web Resources / E-Books:

1. https://pdfcoffee.com/data-structures-using-c-and-c-y-langsam-m-augenstein-and-a-m-tenenbaum-pdf-free.html.

2. https://books.google.co.in/books/about/Object_Oriented_Programming_with_ANSI_an.html?id= rA0SWk4dQ-0C.

3. https://dokumen.tips/documents/fundamentals-of-data-structures-ellis-horowitz-sartaj-sahnipdf.html?page=60.

4. https://www.studocu.com/in/document/vellore-institute-of-technology/formal-languages-and-automata-theory/data-structures-and-algorithm-analysis-in-c-2nd-solutions-manual-by-mark-allen-weiss-z-lib/29714381

Pedagogy

Chalk and Talk, PPT, Group discussion, OHP presentations, Quiz, On the spot test, YouTube Links, Open book test and Virtual Labs.

Activities to be given

- Group Discussion
- Quiz
- PPT

Course Learning Outcomes (CLOs):

Upon successful completion of the Course, the students will be able to

CLO	Course Outcomes Statement	Knowledge According to Bloom's Taxonomy (Up to K level)
CLO 1	Understand data structure concepts and algorithms specification	K1 to K3
CLO 2	Clarify the simple and common data structures – array, list, stack and queue. Solve the problems using these data structures.	K1 to K3
CLO 3	Develop the advanced data structure – binary tree, its representation and discuss the application.	K1 to K4
CLO 4	Describe Use of graph data structure and Classify its application	K1 to K3
CLO 5	Apply algorithm and describes a specific algorithmic approach and apply it for solving common sorting techniques.	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: Total Hours (60 Hrs.)

Unit	Course Content	Hrs.	Mode
I	Basic Concepts: Overview: System Life Cycle - Object Oriented Design–Data Abstraction and Encapsulation - Basics of C++ - Algorithm Specification. Arrays: Abstract Data Types and the C++ Class - The Array as an Abstract Data Type - Representation of Arrays.	12	Chalk & Talk, PPT
II	Stacks & Queues: Templates in C++ - The Stack Abstract Data Type - The Queue Abstract Data Type - Sub typing and Inheritance in C++. Linked Lists: Singly linked lists and Chains - Representing Chains in C++ - The Template Class Chain - Circular Lists - Linked Stacks & Queues.	12	Chalk & Talk, Spot test, Exercise, Assignment, PPT, Video material.
III	**Trees:** Introduction - Binary Trees - Binary Tree Traversal and Tree Iterations – Threaded Binary Trees - Heaps - Binary Search Trees- Selection Trees – Forests.	12	Chalk & Talk, Exercise, PPT, Video Material
IV	Graphs: The Graph Abstract Data Type – Elementary Graph Operation – Minimum Cost Spanning Tree – Shortest Paths and Transitive Closure - Activity Networks.	12	Chalk & Talk, Exercise, Assignment, Video Material, Group Discussion
V	Sorting: Motivation – Insertion Sort – Quick Sort – Fast method to Sort - Merge Sort – Heap Sort – Sorting on Several Keys – List and Table Sorts.	12	Quiz, Chalk & Talk, Exercise , Spot test, Assignment, Seminar

Mrs.S.Sumathi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY						Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
III	Core Lab	22OUIT3P	RDBMS Lab	3	3	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives

1. To impart the to familiarize the participant with the degrees of database environments towards an information-oriented data-processing oriented framework

2. To learn a good formal foundation on the relational model of data

3. To design a to present the concepts and techniques relating to query processing by SQL engines

4. To learn the concepts of transaction processing

5. To design and implementation a project using embedded PL/SQL

PROGRAMS LIST

QUERIES

1. DDL COMMANDS

- Create a library database/table with the following fields: sno,accno,title,author,publisher,Pubyear,edition,rate,noc, pubaddr,isbn
- Clear the screen
- Show the structure of the library database/table
- Add the new field update to the library table
- Modify the size of the field rate in the library database.
- Delete the library table.
- Check the existence of the table.

2. DML COMMANDS

- Insert 5 rows into the library table
- Display all the records of the library table
- Display only the book titles and authors for all the books.
- Display the name and author of all the books which published in the year 2023.
- Change the rate of the books from 200 to 500.
- Change the rate of the book to 350 whose accno is 101.
- Delete the book whose accno is 102.
  Delete all the records of the library table.

3. CREATING TABLES WITH CONSTRAINTS:

- Not null
- Unique
- Check
- Primary key
- Foreign Key

4. STRING FUNCTIONS

- Joining two strings.
- Convert lowercase and uppercase of any string
- Replace one string to another
- Apply lpad and rpad to any string
- Convert first letter is caps in any string
- Remove left side and right side of any string
- Find the length of any string.
- Find the ASCII value of any string.

5. DATE FUNCTIONS

- Display the current time, date, month and year of the date.
- Find the next Monday from the current date

6. NUMERIC FUNCTIONS

Find the absolute, floor, ceil, round and square root value of any number.

7.AGGREGATE FUNCTION

- Find the largest book rate among books of the library table.
- Display the book rate which is minimum among all the books.
- Find the total number of books available in the library.
- Find the total amount of all the books.
- Find the average value of all the book rates.

8. SIMPLE QUERIES (Selection, projection, sorting on a simple table)

- Small /large number of attributes
- Distinct output values
- Renaming attributes
- Computed attributes
- Simple-complex conditions (AND, OR, NOT)
- Partial Matching operators (LIKE, %, _, *, ?)
- ASC-DESC ordering combinations
- Checking for Nulls

9. MULTI-TABLE QUERIES (JOIN OPERATIONS)

- Simple joins (no INNER JOIN)
- Aliasing tables – Full/Partial name qualification
- Inner-joins (two and more (different) tables)
- Inner-recursive-joins (joining to itself)
- Outer-joins (restrictions as part of the WHERE and ON clauses)

PL/SQL

10. Write a PL/SQL block to find the maximum number from given three numbers.
11. PL/SQL Program for Odd Number Generation.
12. write a PL/SQL program for swapping two numbers.
13. PL/SQL Program for Multiplication Table Write a PL/SQL program to find the total and average of 4 subjects and display the grade.
14. Write a program to accept a number and find the sum of the digits.
15. Write a PL / SQL program to check whether the given number is prime or not.
16. Write a PL/SQL program to accept a string and remove the vowels from the string.
17. Create a function to find the factorial of a given number and hence find NCR.
18. write a.PL/SQL function accept date of birth as "dd-mm-yyyy" and sum all digits till you get single digit number to show as he lucky number.
19. Create a procedure to reverse a given number & string.
20. PL/SQL Program for Predefined Exception Handling.
21. PL/SQL Program for User Defined Exception.
22. PL/SQL program for TRIGGERS (Update / Delete).
23. PL/SQL program for CURSORS (Implicit & Explicit)
24. PL/SQL Program to find Factorial Value Using Procedure / function call method.

Book for study

1. Michael McLaughlin.(2014).*Oracle Database PL/SQL Programming*. Printed in the United States of America. Published by O'Reilly Media, Inc.,

Books for Reference

1. Gilenson,M.L.,(2012). *An Introduction to Database Systems.* Wiley Student Edition.

2. James.,Paul Weinberg., &Andy Oppel.(2009). *SQL: The Complete Reference* . Tata Mcgraw Hill.

3. Peter Rob & Carles Coronel.(2006). *DataBase System Concepts.* Cengage Learning India Pvt, Seventh Edition .

4. Patrick O Neil & Morgan Kaufmann Pub. (2002) *Database Principles Programming Performance.* Second Edition.

5. Ramez Elmasri., Shamkant,B., & 0 Navathe. (2017). *Fundamentals of database System* .Pearson Education Publication. Seventh Edition.

Web Resources / E-Books

1. http://www.computer.org
2. http://www.dbpd.com
3. http://www.dmreview.com
4. http://www.oracle.com/oramag/
5. http://www.prestwood.com/forums/database/
6. http://www.sql-zone.com

Nature of the course

- Developing of Oracle RDBMS,SQL* Plus, SQL – query structure, Exception Handling Compilation and Run – time, user – defined, Stored procedures.

Activities to be given
- Implement Programming
- Mini Projects

Activities on Employability Oriented
- SQL Query Development
- Problem Solving.

Pedagogy
- Record Book writing, Program development and Demonstration, Practical sessions.

LESSON PLAN (Total Hours: 45)

Cycle	Course Content	Hrs.	Mode of Teaching
I	**QUERIES** **1.DDL COMMANDS** • Create a library database/table with the following fields: sno,accno,title,author,publisher,Pubyear,edition,rate,noc, pubaddr,isbn • Clear the screen • Show the structure of the library database/table • Add the new field update to the library table • Modify the size of the field rate in the library database. • Delete the library table. • Check the existence of the table. **2.DML COMMANDS** • Insert 5 rows into the library table • Display all the records of the library table • Display only the book titles and authors for all the books. • Display the name and author of all the books which published in the year 2023. • Change the rate of the books from 200 to 500. • Change the rate of the book to 350 whose accno is 101. • Delete the book whose accno is 102. • Delete all the records of the library table.	9	Demo & Practical Session
II	**3.CREATING TABLES WITH CONSTRAINTS:** • Not null • Unique • Check • Primary key • Foreign Key **4.STRING FUNCTIONS** • Joining two strings. • Convert lowercase and uppercase of any string • Replace one string to another • Apply lpad and rpad to any string • Convert first letter is caps in any string • Remove left side and right side of any string • Find the length of any string. • Find the ASCII value of any string.	9	Demo & Practical Session

	5. DATE FUNCTIONS • Display the current time, date, month and year of the date. • Find the next Monday from the current date **6. NUMERIC FUNCTIONS** • Find the absolute, floor, ceil, round and square root value of any number.		
III	**7.AGGREGATE FUNCTION** • Find the largest book rate among books of the library table. • Display the book rate which is minimum among all the books. • Find the total number of books available in the library. • Find the total amount of all the books. • Find the average value of all the book rates. **8.SIMPLE QUERIES (Selection, projection, sorting on a simple table)** • Small /large number of attributes • Distinct output values • Renaming attributes • Computed attributes • Simple-complex conditions (AND, OR, NOT) • Partial Matching operators (LIKE, %, _, *, ?) • ASC-DESC ordering combinations • Checking for Nulls **9. MULTI-TABLE QUERIES (JOIN OPERATIONS)** • Simple joins (no INNER JOIN) • Aliasing tables – Full/Partial name qualification • Inner-joins (two and more (different) tables) • Inner-recursive-joins (joining to itself) • Outer-joins (restrictions as part of the WHERE and ON clauses)	9	Demo & Practical Session
IV	**PL/SQL** 10. Write a PL/SQL block to find the maximum number from given three numbers. 11. PL/SQL Program for Odd Number Generation. 12. write a PL/SQL program for swapping two numbers. 13. PL/SQL Program for Multiplication Table.Write a PL/SQL program to find the total and average of 4 subjects and display the grade. 14. Write a program to accept a number and find the sum of the digits. 15. Write a PL / SQL program to check whether the given number is prime or not. 16. Write a PL/SQL program to accept a string and remove the vowels from the string.	9	Demo & Practical Session
V	17. Create a function to find the factorial of a given number and hence find NCR. 18. write a.PL/SQL function accept date of birth as "dd-mm-yyyy" and sum all digits till you get single digit number to show as he lucky number. 19. Create a procedure to reverse a given number & string. 20. PL/SQL Program for Predefined Exception Handling. 21. PL/SQL Program for User Defined Exception. 22. PL/SQL program for TRIGGERS (Update / Delete). 23. PL/SQL program for CURSORS (Implicit & Explicit) 24. PL/SQL Program to find Factorial Value Using Procedure / function call method.\	9	Demo & Practical Session

Mrs.R.Lakshmi & Mrs.S.Sumathi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	CourseCode	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
III	**Generic Elective Course III**	**22OUITGEIT3**	**E-Commerce**	**5**	**5**	**25**	**75**	**100**

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives:

1. To learn the Fundamentals of e-Commerce.
2. To gain the knowledge on Network Infrastructure for E-commerce.
3. To understand the functions of web security of electronic commerce software.
4. To learn the various Electronic payment mechanisms.
5. To recognize the usage of Wireless technologies.

Course Content

Unit –I: Fundamentals of e-Commerce: e-Commerce and its types - Driving forces behind e-Commerce – Impacts - benefits and limitations of e-Commerce - Consumer behavior in e-Commerce - Electronic Data Interchange(EDI) - Supply Chain Management; Just-in-time - Procurement Management and Customer Relationship Management.

Unit –II: Network Infrastructure for E-commerce: Access Equipment - Access Media and Network Infrastructure for e-Commerce - Internet, Internet and Extranet

Unit –III: Web Security: Security threats on the Internet and their impact - Security services - Security mechanisms – Cryptography - Firewalls

Unit –IV: Electronic Payments: Electronic Funds Transfer and types of Electronic payments – Electronic payment mechanisms such as credit cards - smart cards - electronic cash and electronic checks.

Unit –V: Mobile Commerce: Mobile computing and wireless - Wireless technologies and Wireless Application Protocol (WAP) and WAP gateway.

Book for Study

Mamta Bhusry. (2018*). E-Commerce.* Published by Firewall/Laxmi Publications (P) Ltd., New Delhi. Edition: First.

Chapters:

Unit I	:	Chapters 1, 2, 3
Unit II	:	Chapters 4, 5
Unit III	:	Chapters 6, 7, 8
Unit IV	:	Chapters 9
Unit V	:	Chapters 10, 11

Reference Books

1. David Whiteley. (2007). E-*Commerce.* Tata McGraw Hill Publisher. New Delhi. Sixteenth Edition.

2. Jaiswal, S. (2006). *E-Commerce,* Galgotia Publications private limited. New Delhi. Second edition.

3. Joseph,P.T & S.J. (2008). E-Commerce. Prentice Hall of India Pvt. New Delhi.

4. Kamlesh,K. Bajaj & DebjaniNag. (2006) . *E-Commerce.*Tata McGraw Hill Publishing. New Delhi. Second edition . 2006.

5. Puja Walia Mann. & Nidhi. (2009). *E-Commerce.* MJP Publishers. Chennai. First Edition.

6. Ritendra Goel. (2007). *E-Commerce.* New age International Publishers. New Delhi. First edition.

Web Resources / E-Books

1. https://www.drnishikantjha.com/booksCollection/E-Commerce%20.pdf
2. https://docplayer.net/10134501-The-complete-e-commerce-book-by-janice-reynolds.html
3. https://www.infobooks.org/pdfview/8996-e-commerce-ms-k-bhavithravani/
4. https://www.drnishikantjha.com/booksCollection/E-Commerce%20.pdf
5. https://www.tutorialspoint.com/e_commerce/e_commerce_business_models.htm

Pedagogy

Power point Presentations, Seminar, Quiz, Assignment, video material and Brain storming.

Activities to be given
- Group Discussion
- Quiz
- Seminar

Course Learning Outcomes (CLOs)

Upon successful completion of the Course, the students will be able to

S.No.	Course Outcome	Knowledge Level(According to Bloom's Taxonomy)
CLO 1	Illustrate E-commerce and its types and the relationship between management and customer.	K1 to K3
CLO 2	Compare the Internet types for electronic commerce	K1 to K3
CLO 3	Interpret the security services and mechanisms in the security	K1 to K4
CLO 4	Formulate the electronic fund transfer mechanism	K1 to K3
CLO 5	Describe of mobile mechanism protocol for e-commerce	K1 to K4

K1- Remembering facts with specific answers
K2- Basic understanding of facts.
K3- Application oriented
K4- Analyzing, examining and making presentations with evidences

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: (Total Hours: 75)

Unit	Course Content	Hrs.	Mode
I	**Fundamentals of e-Commerce:** e-Commerce and its types - Driving forces behind e- Commerce – Impacts - benefits and limitations of e-Commerce - Consumer behavior in e-Commerce - Electronic Data Interchange(EDI) - Supply Chain Management; Just-in-time - Procurement Management and Customer Relationship Management.	15	Chalk & Talk, PPT

II	**Network Infrastructure for E-commerce:** Access Equipment - Access Media and Network Infrastructure for e-Commerce - Internet, Internet and Extranet	15	Chalk & Talk, Spot test, Exercise, Assignment, PPT, Video material.
III	**Web Security:** Security threats on the Internet and their impact - Security services - Security mechanisms – Cryptography – Firewalls.	15	Chalk & Talk, Exercise, PPT, video material
IV	**Electronic Payments:** Electronic Funds Transfer and types of Electronic payments – Electronic payment mechanisms such as credit cards - smart cards - electronic cash and electronic checks.	15	Chalk & Talk, Exercise, Assignment, video material, Group Discussion
V	**Mobile Commerce:** Mobile computing and wireless - Wireless technologies and Wireless Application Protocol (WAP) and WAP gateway.	15	Quiz, Chalk & Talk, Exercise , Spot test, Assignment, Seminar

Mrs.R.Boomadevi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
III	Skill Enhancement Course	22OUITSE3P	PHP and MySQL Lab	2	2	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives

1. To impact the knowledge in scripting.

2. To learn the functions and their method of calls.

3. To understand the form action.

4. To learn the file handling mechanism.

5. To design a web page and Database connectivity.

Course Content

PHP Programs:

1. Write a PHP Program for Sum of Digits.

2. Write a PHP Program for Even Odd Program using Script and Form in PHP.

3. Write a PHP Program for Factorial Program using Script, Form and Recursion in PHP.

4. Write a PHP Program for Armstrong number using Script and Form in PHP.

5. Write a PHP Program for Palindrome Number using Script and Form in PHP.

6. Write a PHP Program for Fibonacci Series using Script and Recursive Function.

7. Write a PHP Program for Reversing Number using Script and String function in PHP.

8. Write a PHP Program for Area of Triangle using Script and Form.

9. Write a PHP Program for Leap Year Program using Script and Form.

10. Write a PHP Program for to print the alphabets in a triangle or in a pyramid form using

    o range() with for loop

    o chr() with for loop

    o range() with foreach loop

11. Write a PHP Program for Number Triangle.

12. Write a PHP Program for Parameterized Function.

13. Write a PHP Program for Call By Value and Call By Reference.

14. Write a PHP Program for PHP Form Handling using Get Form and POST Form.

15. Write a PHP Program for PHP File Handling.

PHP MySQL Connection:

16. Write a PHP Program in MySQL to Create Database.

17. Write a PHP Program in MySQL to Create Table.

18. Write a PHP Program in MySQL to Insert Record.

19. Write a PHP Program in MySQL to Update Record.

20. Write a PHP Program in MySQL to Delete Record.

21. Write a PHP Program in MySQL to Select Query.

22. Write a PHP Program in MySQL to Order By.

Book for study

1. Mario Lurig .(2008). *PHP Reference: Beginner to Intermediate PHP5*. First Edition.

2. Robin Nixon. (2014). *Learning PHP, MySQL & JavaScript With jQuery, CSS & HTML5*. O'Reilly Media, Inc. Fourth Edition.

3. Luke Welling & Laura Thomson. (2016). *PHP and MySQL® Web Development.* Pearson Edu, Inc. Fifth Edition.

4. Steve Suehring. Tim Converse. & Joyce Park .(2009).*PHP 6 and MySQL.* Wiley Publishing, Inc.

Books for Reference

1. Adams, A. (2022). *PHP Programming-The Complete Guide*. Code Academy. First Edition.

2. Altaf Hussain. (2016). *Learning PHP 7 High Performance Paperback*. Packt Publishing Limited. Fourth Edition.

3. George Scholssnagle. (2004). *Advanced PHP Programming*. Sams Publishing. Kindle Edition.

4. Guy W. & LeckyThompson.(2008). *Just Enough Web Programming with XHTML, PHP, and MySQL Paperback*. Delmar Cengage Learning. First Edition.

5. Jason Gilmore,W. (2010). *Beginning PHP and MySQL: From Novice to Professional*. Apress. Inc. Fourth Edition.

Web Resources / E-Book

1. http://cdn.phpreferencebook.com/wp-content/uploads/2008/12/php_reference_-_beginner_to_intermediate_php5.pdf

2. https://github.com/manjunath5496/PHP-Programming-Books/blob/5b4c11bd5e45d75489a61859922b971c26145683/php(1).pdf

3. https://ptgmedia.pearsoncmg.com/images/9780321833891/samplepages/9780321833891.pdf

4. https://downloads.mysql.com/docs/apis-php-en.pdf

5. http://cs.petrsu.ru/~musen/php/2015/Books/PHP6%20and%20MySQL%20Bible%20by%20Steve

%20Suehring.pdf

6. http://minitorn.tlu.ee/~jaagup/kool/java/kursused/14/webpr/beginning_php_and_mysql_from_novice_to_professional_4th_edition.pdf

Nature of the course

- Developing logic and structured program, organizing data in software development.

Activities to be given

- Implement Programming
- Mini Projects

Activities on Employability Oriented

- Software Development
- Data Analysis

Pedagogy

Record Book writing, Program development and Demonstration, Practical sessions.

LESSON PLAN (Total Hours: 30)

Cycle	Course Content	Hrs.	Mode of Teaching
I	**PHP Programs:** 1. Write a PHP Program for Sum of Digits. 2. Write a PHP Program for Even Odd Program using Script and Form in PHP. 3. Write a PHP Program for Factorial Program using Script, Form and Recursion in PHP. 4. Write a PHP Program for Armstrong number using Script and Form in PHP.	6	Demo & Practical Session
II	5. Write a PHP Program for Palindrome Number using Script and Form in PHP. 6. Write a PHP Program for Fibonacci Series using Script and Recursive Function. 7. Write a PHP Program for Reversing Number using Script and String function in PHP. 8. Write a PHP Program for Area of Triangle using Script and Form.	6	Demo & Practical Session

III	9. Write a PHP Program for Leap Year Program using Script and Form.
	10. Write a PHP Program for to print the alphabets in a triangle or in a pyramid form using.
	   o range() with for loop
	   o chr() with for loop
	   o range() with for each loop
	11. Write a PHP Program for Number Triangle.
		6	Demo & Practical Session

IV	12. Write a PHP Program for Parameterized Function.	6	Demo &
	13. Write a PHP Program for Call By Value and Call By Reference.		Practical
	14. Write a PHP Program for PHP Form Handling using Get Form and POST Form.		Session
	15. Write a PHP Program for PHP File Handling.		
V	**PHP MySQL Connection:**	6	Demo &
	16. Write a PHP Program in MySQL to Create Database.		Practical
	17. Write a PHP Program in MySQL to Create Table.		Session
	18. Write a PHP Program in MySQL to Insert Record.		
	19. Write a PHP Program in MySQL to Update Record.		
	20. Write a PHP Program in MySQL to Delete Record.		
	21. Write a PHP Program in MySQL to Select Query.		
	22. Write a PHP Program in MySQL to Order By.		

Mrs.S.Sumathi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/ Week**	**CIA**	**SE**	**Total**
IV	Core	22OUIT41	**Computer Graphics**	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

Course Objectives:

1. To comprehend the fields and system of Graphics system.

2. To understand the output primitives such as points and line drawing algorithms.

3. To use the attributes of output primitives in program development.

4. To describe the Transformation of an object such as Translation, Rotation and Scaling.

5. To apply the concepts of Graphics primitives and Two Dimensional Object Creation & Manipulation Techniques.

Course Content

Unit – I: A Survey of Computer Graphics: Computer Aided Design – Presentation Graphics – Computer Art – Entertainment – Education and Training – Visualization – Image Processing – GUI. **Overview of Graphics Systems:** Video Display Devices- Raster Scan System – Random Scan System – Graphics Monitors and Workstations – Input Devices – Hard Copy Devices – Graphics Software.

Unit – II: Output Primitives: Points and Lines – Line Drawing Algorithms – Loading the Frame Buffer – Line function – Circle Generating Algorithms – Ellipse Generating Algorithms – Other Curves – Parallel Curve Algorithms – Curve Functions - Pixel Addressing – Filled Area Primitives –Fill Area Functions – Cell Array - Character Generation.

Unit – III : Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Antialiasing.

Unit – IV: Two Dimensional Geometric Transformation: Basic Transformations- Matrix representations and Homogeneous Coordinates - Composite Transformations – Other Transformations – Transformations between coordinate systems – Affine Transformations – Transformation Functions – Raster Methods for Transformations.

Unit – V: Two Dimensional Viewing: The Viewing Pipeline - Viewing Coordinate Reference Frame - Window to viewport Coordinate Transformation - Two Dimensional Viewing Functions- Clipping Operations – Point Clipping – Line Clipping (Cohen-Sutherland, Liang-Barshy, Nicholl Lee-Nicholl Line Clipping) – Polygon Clipping – Curve Clipping – Text Clipping – Exterior Clipping.

Book for Study:

Donald Hearn, Pauline Baker,M. (2012). *Computer Graphic C Version.* Pearson Education. New Delhi. Second Edition.

Chapters:

Unit I	:	Chapter 1 ,Chapter 2
Unit II	:	Chapter 3
Unit III	:	Chapter 4
Unit IV	:	Chapter 5
Unit V	:	Chapter 6

Books for Reference:

1. Feiner, J.F. Hughes. (2007) *Computer Graphics.* Tata McGraw Hill publications. New Delhi. Third Edition.

2. Johnson. (2001). *Computer Graphics and application.* PHI publications. New Delhi. Third Edition.

3. Malay K. Pakhira. (2008). *Computer Graphics, Multimedia and Animation.* Prentice Hall Of India Pvt. Ltd. New Delhi. Second Edition.

4. Mukherjee, D. P. (1999). *Fundamentals of Computer Graphics And Multimedia.* Prentice Hall Of India Pvt. Ltd. New Delhi. First Edition.

5. Steven Harrigton. (2005). *Computer Graphics.* Tata McGraw Hill publications. New Delhi. Second Edition.

Web Resources / E-Books:

1. https://drive.uqu.edu.sa/_/fbshareef/files/Computer%20Graphics%20C%20Version%20by%20Donald%20Hearn%20&%20M%20Pauline%20Baker%20II%20Edition.pdf

2. https://www.ddegjust.ac.in/studymaterial/mca-5/mca-401.pdf

3. https://static1.squarespace.com/static/6439495f1dac13513cad5842/t/6460a0810dde7b3b2224b755/1684054146127/rusiv.pdf

4. https://bibtu.com/c3672bebbe18a9368788857e9046e75bfhUqiBuO7dDPESZcsOCFW8aW77obM2y-e96s7

5. http://students.aiu.edu/submissions/profiles/resources/onlineBook/a6A8H5_computer%20graphics.pdf

Pedagogy

Chalk and Talk, PPT, Group discussion, OHP presentations, Quiz, On the spot test,

You tube Links, Open book test and Virtual Labs.

Activities to be given

- Group Discussion
- Quiz
- PPT

Course Learning Outcomes (CLOs):

Upon successful completion of the Course, the students will be able to

CLO	Course Outcomes Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CLO 1	Understand the basic concept of Computer Graphics system	K1 to K3
CLO 2	Familiar t h e output primitives and apply the attribute of output primitives in the program development.	K1to K3
CLO 3	Develop the program using the attribute of output primitives.	K1 to K4
CLO 4	Describe the concept of Transformation of an object such as Translation, Rotation and Scaling.	K1 to K3
CLO 5	Apply the concepts of Graphics primitives and Two Dimensional Object Creation & manipulation Techniques.	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: Total Hours (60 Hrs.)

Unit	Course Content	Hrs.	Mode
I	**A Survey of Computer Graphics:** Computer Aided Design – Presentation Graphics – Computer Art – Entertainment – Education and Training – Visualization – Image Processing – GUI. **Overview of Graphics Systems:** Video Display Devices-Raster Scan System – Random Scan System – Graphics Monitors and Workstations – Input Devices – Hard Copy Devices – Graphics Software.	12	Chalk & Talk, PPT
II	**Output Primitives**: Points and Lines – Line Drawing Algorithms – Loading the Frame Buffer – Line function – Circle Generating Algorithms – Ellipse Generating Algorithms – Other Curves – Parallel Curve Algorithms – Curve Functions - Pixel Addressing – Filled Area Primitives –Fill Area Functions – Cel Array - Character Generation.	12	Chalk & Talk, Spot test, Exercise, Assignment, PPT, Video material.
III	**Attributes of Output Primitives**: Line Attributes – Curve Attributes – Color and vGrayscale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Antialiasing.	12	Chalk & Talk, Exercise, PPT, Video Material
IV	**Two Dimensional Geometric Transformation**: Basic Transformations- Matrix representations and Homogeneous Coordinates- Composite Transformations – Other Transformations – Transformations between coordinate systems – Affine Transformations – Transformation Functions – Raster Methods for Transformations.	12	Chalk & Talk, Exercise, Assignment, Video Material, Group Discussion
V	**Two Dimensional Viewing**: The Viewing Pipeline - Viewing Coordinate Reference Frame - Window to viewport Coordinate Transformation - Two Dimensional Viewing Functions- Clipping Operations – Point Clipping – Line Clipping (Cohen-Sutherland, Liang-Barshy, Nicholl Lee-Nicholl Line Clipping) – Polygon Clipping – Curve Clipping – Text Clipping – Exterior Clipping.	12	Quiz, Chalk & Talk, Exercise , Spot test, Assignment, Seminar

Mrs.G.Amudha

Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
IV	Core Lab	22OUIT4P	Computer Graphics Lab	3	3	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives

1. To impart the knowledge about basic Graphics programs.

2. To learn the various algorithms used in graphics.

3. To design a 2D/3D transformation

4. To learn the variations in filling algorithm.

5. To design simple animation using Transformations.

PROGRAMS LIST

1. Basic Structure of C - Graphics Program.

2. Implement DDA Algorithm for drawing a line segment between two given end points.

3. Implement Bresenham's Line Drawing Algorithm for drawing a line segment between two given endpoints.

4. Midpoint Circle generation algorithm for drawing a circle.

5. Implement the Ellipse Generation Algorithm for drawing an ellipse.

6. Write a program for displaying text in different sizes, different colors and different font styles by using graphics functions.

7. write a program for creating simple two dimensional shape of car using lines, circles

8. Apply the basic 2D transformations - reflection for a given 2D object.

9. Write a C-program for performing the basic transformations - Translation for a given 3D object.

10. Write a Program for 4-connected Boundary Fill Algorithm.

11. Write program for designing simple animations using transformations.

12. Write a Program for moving circle in different directions using Transformations.

13. Write programs for designing simple animations using transformations like windmill rotation.

Book for study

1. Donald Dald Hearn (2002). *Computer Graphics, C Version*, Paperback Pearson Education India. Second Edition.

Books for Reference

1. Byron Gottfried, Schaum's. (2018). *Outline Programming with C*. Fourth Edition. Tata McGraw-Hill.

2. Kernighan and Ritchie. (1998). *The C Programming Language*. Second Edition. Prentice Hall.

3. Schildt, Herbert. (2021). *C The Complete Reference.* McGraw Hill Education. New Delhi.

4. Malay K. Pakhira. (2008). *Computer Graphics, Multimedia and Animation*. Prentice Hall of India Pvt. Ltd. New Delhi. Second Edition.

5. Mukherjee D. P. (1999). *Fundamentals of Computer Graphics and Multimedia*. Prentice Hall of India Pvt. Ltd. New Delhi. First Edition.

6. Steven Harrigton. (2005). *Computer Graphics.* Tata McGraw Hill publications. New Delhi. Second Edition.

Web Resources / E-Books

1. https://drive.uqu.edu.sa/_/fbshareef/files/Computer%20Graphics%20C%20Version%20by%20Donald%20Hearn%20&%20M%20Pauline%20Baker%20II%20Edition.pdf

2. https://ggnindia.dronacharya.info/IT/Downloads/Labmanuals/AUG09_DEC09/V_Sem/CG_Lab_SemV.pdf

3. https://archive.mu.ac.in/myweb_test/S.Y.B.Sc.(IT)%20(Sem%20%20III%20)%20Computer%20Graphics.pdf

4. https://bibtu.com/c3672bebbe18a9368788857e9046e75bfhUqiBuO7dDPESZcsOCFW8aW77obM2y-e96s7

5. http://students.aiu.edu/submissions/profiles/resources/onlineBook/a6A8H5_computer%20graphics.pdf

Nature of the course

- Developing interactive 3D modeling and surface textures for real.

Activities to be given

- Implement Programming
- Mini Projects

Activities on Employability Oriented

- Software Development
- Data Analysis

Pedagogy

Record Book writing, Program development and Demonstration, Practical sessions.

LESSON PLAN (Total Hours: 45)

Cycle	Course Content	Hrs.	Mode of Teaching
I	1. Basic Structure of C - Graphics Program. 2. Implement DDA Algorithm for drawing a line segment between two given end points. 3. Implement Bresenham's line drawing algorithm for drawing a line segment between two given endpoints.	9	Demo & Practical Session
II	4. Midpoint circle generation algorithm for drawing a circle. 5. Implement the Ellipse Generation Algorithm for drawing an ellipse. 6. Write a program for displaying text in different sizes, different colors and different font styles by using graphics functions.	9	Demo & Practical Session
III	7. write a program for creating simple two dimensional shape of car using lines, circles 8. Apply the basic 2D transformations - reflection for a given 2D object. 9. Write a C-program for performing the basic transformations - Translation for a given 3D object.	9	Demo & Practical Session
IV	10. Write a Program for 4-connected Boundary fill Algorithm 11. Write program for designing simple animations using transformations	9	Demo & Practical Session
V	12. Write a Program for moving circle in different directions using Transformations. 13. Write programs for designing simple animations using transformations like windmill rotation.	9	Demo & Practical Session

Mrs.G.Amudha
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
IV	Core	22OUIT42	Computer Organization	3	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

Course Objectives:

1. To introduce the concepts of Computer Organization
2. To equip the students with the skills of computer oriented knowledge.
3. To comprehend the importance of the hardware-software interface.
4. To learn the different types of serial communication techniques.
5. To inquiry the Instruction execution stages.

Course Content

Unit –I : Basic Structure of Computers and Machine Instructions:

Computer Types-Functional Units-Basic Operational Concepts-Memory Locations and Address-Memory Operations-Instruction Sequencing- Addressing modes-Stacks & Queues-Subroutines.

Unit –II: I/O Organization and Peripherals: Accessing I/O Devices-Interrupts-Processor Examples-DMA-Buses-Interface Circuits- Standard I/O Interfaces.

Unit –III: Memory System and Storage Devices: Basic Concepts- Semiconductor RAM Memories- Read Only Memories- Cache Memories-Speed, Size and cost- Cache Memories-Performance Considerations-Virtual memories- Memory Management Requirements –Secondary Storage Devices.

Unit –IV: Arithmetic and Processing Unit: Addition and Subtraction of signed Numbers- Design of Fast Adders-Multiplication of Positive numbers-Signed Operand Multiplication- Fast Multiplication-Integer Division-Floating Point Numbers and Operations.

Unit -V: Basic Processing Unit: Some fundamental concepts -Execution of complete instructions-Multiple Bus Organization-Hardwired Control-Micro programmed Control- Pipelining basic Concepts-Data Hazards-Instruction Hazards.

Book for Study:

1. Carl Hamacher. ZvonkoVranesic & SafwatZaky.(2005). *Computer Organization,* TATA McGraw Hill Education Private Limited. New Delhi. Fifth Edition.

Chapters:

1. Unit I : Chapter 1(1.1,1.2,1.3,1.4),2(2.2,2.3,2.5,2.7,2.8,2.9)
2. Unit II : Chapter 4
3. Unit III : Chapter 5
4. Unit IV : Chapter 6
5. Unit V : Chapter 7(7.1 to 7.5),8(8.1-8.3)

Books for Reference:

1. David Patterson, A. & JohnHennery, L. (2007) . *Computer Organization and Design.* Elsevier sadirision of reed Elsevier India Private Limited. NewDelhi. Third Edition.
2. John, P. & Hayes. (1998). *Computer Architecture and Organization.* Tata McGraw Hill. New Delhi. Third Edition.
3. Morris Mano, M. (2005). *Computer System Architecture.* Pearson Prentice Hall of India, NewDelhi. Third Edition.
4. Rajaraman, V. & Radhakrishnan. (2006).T . *Digital Logic and Computer Organization,* Pearson Prentice Hall of India. NewDelhi. First Edition.
5. William Stallings. (2007). *Computer Organization & Architecture,* Pearson Prentice Hall of India, NewDelhi, Seventh Edition.

Web Resources / E-Books:

1. https://ict.iitk.ac.in/wp-content/uploads/CS422-Computer-Architecture-ComputerOrganizationAndDesign5thEdition2014.pdf
2. https://www.academia.edu/31944631/Computer_Organization_and_Design_5th_Edition_Patterson_Hennessy
3. https://pdfkeys.com/download/3384331-Carl-Hamacher-Computer-Organization-5th-Edition.pdf
4. https://www.academia.edu/27585711/Computer_Organisation_and_Design_5th_Edition
5. https://repository.dinus.ac.id/docs/ajar/Tanenbaum__Structured_Computer_Organization_5th_Ed.pdf

Pedagogy

Chalk and Talk, PPT, Group discussion , OHP presentations, Quiz, On the spot test,

You tubeLinks, Open book test and Virtual Labs.

Activities to be given

- Group Discussion
- Quiz
- PPT

Course Learning Outcomes (CLOs):

Upon successful completion of the Course, the students will be able to

CLO	Course Outcomes Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CLO 1	Understand the theory and architecture of central processing unit.	K1 to K3
CLO 2	Learn some of the design issues in terms of speed, technology, cost, performance.	K1to K3
CLO 3	Design a simple CPU with applying the theory concepts.	K1 to K4
CLO 4	Use appropriate tools to design verify and test the CPU architecture.	K1 to K3
CLO 5	Analyze the concepts of parallel processing, pipelining and inter processor communication.	K1 to K4

K1- Remembering facts with specific answers
K2- Basic understanding of facts.
K3- Application oriented
K4- Analyzing, examining and making presentations with evidences.

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: Total Hours (60 Hrs.)

Unit	Course Content	Hrs.	Mode
I	**Basic Structure of Computers and Machine Instructions:** Computer Types-Functional Units-Basic Operational Concepts-Memory Locations and Address-Memory Operations-Instruction Sequencing- Addressing modes-Stacks & Queues-Subroutines.	12	Chalk & Talk,PPT
II	**I/O Organization and Peripherals:** Accessing I/O Devices-Interrupts-Processor Examples-DMA-Buses-Interface Circuits- Standard I/O Interfaces.	12	Chalk & Talk,Spot test, Exercise, Assignment, PPT, Video material.
III	**Memory System and Storage Devices:** Basic Concepts-Semiconductor RAM Memories- Read Only Memories- Cache Memories-Speed, Size and cost- Cache Memories-Performance Considerations-Virtual memories- Memory Management Requirements –Secondary Storage Devices.	12	Chalk & Talk, Exercise, PPT, Video Material
IV	**Arithmetic and Processing Unit:** Addition and Subtraction of signed Numbers- Design of Fast Adders-Multiplication of Positive numbers-Signed Operand Multiplication- Fast Multiplication-Integer Division-Floating Point Numbers and Operations.	12	Chalk & Talk, Exercise, Assignment, Video Material, Group Discussion
V	**Basic Processing Unit:** Some fundamental concepts-Execution of complete instructions-Multiple Bus Organization-Hardwired Control-Micro programmed Control- Pipelining basic Concepts-Data Hazards-Instruction Hazards.	12	Quiz, Chalk &Talk, Exercise , Spot test, Assignment, Seminar

Mrs.R.RajaSangeetha

Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	CourseCode	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
IV	Generic Elective Course IV	22OUITGECOM4	Financial and Cost Accounting	5	5	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives:

1. To develop and understand the nature and purpose of financial statements in relationship to decision making.
2. To develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records and financial statements.
3. To be able to interpret cost accounting statements and cost calculation using accounting methods.
4. To keep inactive, waste, surplus, scrap and obsolete items at the minimum level.
5. To estimate and ascertain profits or losses.

Course Content

Unit –I: Double Entry System: Introduction – Meaning of Accounting – Accounting Terms and Types of Assets – Principle of Double Entry - Advantages of Double Entry System – Rules. **Journal & Ledger**: Preparation of Journal, Ledger & Trial Balance – Relation between Journal and Ledger - Trial Balance.

Unit –II: Final Accounts: Financial Statements and their Nature –Trading Account - Advantages of Trading Account – Profit and Loss Account – Balance Sheet - Distinction between Trading, Profit and Loss account and Balance Sheet – Prepare Trading, Profit and Loss A/C and Balance Sheet Adjustments in Final Accounts - Difference between Trial Balance and Balance Sheet.

Unit-III: Introduction: Cost Accounting – Objectives – Functions of Cost Accounting - Difference between Financial accounting and Cost Accounting. **Cost – Methods, Types, Classification:** Methods of Cost – Types of Cost - Classification – Elements of Cost – Production Account – Preparation of Cost Sheet.

Unit –IV: Material Inventory Control: Store Keeping – Functions of Store Keeper – Store Lay out – Types of Stores – Centralized and Decentralized – Central Store with Sub-stores - Fixation of Stock Levels - Economic Order Quantity (EOQ) - ABC Analysis – Inventory System: Preparation of Bin card and Stores Ledger Account. **Material Issues Control:** Issue Procedure – Pricing of Materials: Actual Price Method (FIFO, LIFO), Average Price Method (Simple Average and Weighted Average).

Unit-V: Labour Cost : Introduction –Control of Labour Cost – Methods of Time Booking – Merits and Demerits – Idle Time - Control on over time and idle Time – Labour Turnover.

Labour Cost – Cost Accounting: Methods of Remuneration –Time rate at Ordinary levels, Time rate at High wage levels, Guaranteed Time Rates - Differential Piece Rate – Premium Bonus Schemes (Incentive systems): The Halsey Premium Plan, The Halsey-weir Scheme , Rowan Scheme, Barth Scheme and Emerson Efficiency Bonus plan.

Book for Study

1. Nagarajan,.K. Vinayagam,.N. & Mani,.P. (2009). *Principles of Accountancy.* Eurasia Publishing House PVtLtd. Ramnagar. New Delhi. Fourth Edition. Reprint
2. R.S.N Pillai,. *V. & Bagavathi.*(2014). *Cost Accounting* . S. Chand & Company PVT Ltd. Ram Nagar. New Delhi. Revised Edition.

Chapters:

      Unit I   :   Chapters 1, 2 (Text Book 1)

      Unit II   :   Chapter 6   (Text Book 1)

      Unit III   :   Chapters 1, 2 (Text Book 2)

      Unit IV   :   Chapters 4, 5 (Text Book 2)

      Unit V   :   Chapters 7, 8 (Text Book 2)

Reference Books:

1. Gupta.,R.L. & Radhaswamy,.M.(2007).C*ost Accounting,* Sultan Chand & Sons Educational Publishers. New Delhi. Thirteenth Revised Edition.
2. Iyengar,.C. & Jain,.S.P. (2007). *Financial Accounting.* NarangKalyani Publishers. Ludhiana. Eighth edition.
3. Reddy,.T.S. & Murth,.A. *Financial Accounting.* Marcham Publication. Chennai. Fourth Edition. 2003.
4. Saxena,.V.K. & Vashist,.C.V.(2005). *Cost Accounting.* New Delhi. Seventh Edition.
5. Sultan. C*ost Accouting.* Sultan Chand & Sons Educational Publishers. New Delhi. Eighth Edition.

Web Resources / E-Books

1. https://books.google.co.in/books?id=mkgBvgEACAAJ&pg=SA2-PA30&source=gbs_selected_pages&cad=2#v=onepage&q&f=false

2. https://books.google.co.in/books?id=1IlGrCW6jm8C&pg=PP1&source=gbs_selected_pages&cad=2#v=onepage&q&f=false

3. https://books.google.co.in/books?id=XC45rbtRuJsC&pg=PP3&source=gbs_selected_pages&cad=2#v=onepage&q&f=false

4. https://www.yourarticlelibrary.com/cost-accounting/problems-cost-accounting/top-14-cost-accounting-problems-with-solutions/75727

5. https://pdfkeys.com/download/6232011-Financial%20Accounting%20By%20T%20S%20Reddy%20A%20Murthy.pdf

Pedagogy

Power point Presentations, Seminar, Quiz, Assignment, video material and Brain storming.

Activities to be given

- Group Discussion
- Quiz
- Seminar

Course Learning Outcomes (CLOs)

Upon successful completion of the Course, the students will be able to

S. No.	Course Outcome	Knowledge Level(According to Bloom's Taxonomy)
CLO 1	Acquire the basic knowledge of single entry system, hire purchase and installment purchase, down payment.	K1 to K3
CLO 2	Understand the features of single entry system and wholesale profit and retail profit, different methods.	K1 to K3
CLO 3	Familiarizing the methods of Financial accounting and Cost Accounting	K1 to K4
CLO 4	Develop analytical skills department trading and profit and loss account and balance sheets, stocks and debtors system and final accounts system	K1 to K3
CLO 5	Evaluate the cost of departmental purchase, consolidated final accounts and default and repossession of goods under hire purchase system.	K1 to K4

K1- Remembering facts with specific answers
K2- Basic understanding of facts.
K3- Application oriented
K4- Analyzing, examining and making presentations with evidences

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	2	3	1	2	3	2
CLO2	3	3	2	3	3	2
CLO3	3	3	1	2	2	1
CLO4	3	2	2	1	1	2
CLO5	3	3	1	2	3	1

1-Basic Level   2- Intermediate Level   3- Advanced Level

LESSON PLAN: (Total Hours: 75)

Unit	Course Content	Hrs.	Mode
I	**Double Entry System:** Introduction – Meaning of Accounting – Accounting Terms and Types of Assets – Principle of Double Entry - Advantages of Double Entry System – Rules. **Journal & Ledger:** Preparation of Journal, Ledger & Trial Balance – Relation between Journal and Ledger - Trial Balance.	15	Chalk & Talk, PPT
II	**Final Accounts:** Financial Statements and their Nature – Trading Account -Advantages of Trading Account – Profit and Loss Account – Balance Sheet - Distinction between Trading , Profit and Loss account and Balance Sheet – Prepare Trading, Profit and Loss A/C and Balance Sheet Adjustments in Final Accounts - Difference between Trial Balance and Balance Sheet.	15	Chalk & Talk, Spottest, Exercise, Assignment, PPT, Video material.
III	**Introduction:** Cost Accounting – Objectives – Functions of Cost Accounting - Difference between Financial accounting and Cost Accounting. **Cost – Methods, Types, Classification:** Methods of Cost – Types of Cost - Classification – Elements of Cost – Production Account – Preparation of Cost Sheet.	15	Chalk & Talk, Exercise, PPT, video material
IV	**Material Inventory Control:** Store Keeping – Functions of Store Keeper – Store Lay out – Types of Stores – Centralized and Decentralized – Central Store with Sub-stores - Fixation of Stock Levels - Economic Order Quantity (EOQ) - ABC Analysis – Inventory System: Preparation of Bin card and Stores Ledger Account. **Material Issues Control:** Issue Procedure – Pricing of Materials: Actual Price Method (FIFO, LIFO), Average Price Method (Simple Average and Weighted Average).	15	Chalk & Talk, Exercise, Assignment, videomaterial, Group Discussion

V	**LabourCost :**Introduction –Control of Labour Cost – Methods of Time Booking – Merits and Demerits – Idle Time - Control on over time and idle Time – Labour Turnover. **Labour Cost – Cost Accounting:** Methods of Remuneration –Time rate at Ordinary levels, Time rate at High wage levels, Guaranteed Time Rates - Differential Piece Rate – Premium Bonus Schemes (Incentive systems): The Halsey Premium Plan, The Halsey-weir Scheme , Rowan Scheme, Barth Scheme and Emerson Efficiency Bonus plan.	15	Quiz, Chalk & Talk, Exercise , Spot test,Assignment, Seminar

Mrs.R.Boomadevi
Course Designer

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: II B.Sc.			
Sem.	Category	Course Code	Course Title	Credits	Contact Hours/ Week	CIA	SE	Total
IV	Skill Enhancement Course	22OUITSE4P	Tally Lab	2	2	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓	✓	

Course Objectives

1. To impart knowledge regarding concepts of Financial Accounting.
2. To create company, enter accounting voucher entries including advance voucher entries, reconcile bank statement.
3. To learn basics of accountancy, its principles, concepts, conventions, recording procedures, Bank reconciliation.
4. To creating a company involves providing basic information about the company whose books of accounts are to be maintained in Tally.
5. To design information about the company, books, and details of currency.

Course Content

PROGRAMS LIST

1. Creation of Company Altering and Deleting Company.

2. F11- Features and F12-Features

3. Creation of Journal and Ledger

4. Creating Multiple Ledgers, Altering and Deleting Ledgers

5. Creating Groups, Altering and Deleting Groups

6. Accounting Voucher Creation and Voucher Entry

7. Profit & Loss A/C

8. Balance Sheet

9. Bill wise transactions, Altering and Deleting transactions

10. Creation of Cost Centre and Cost category

11. Stock Creation

12. Inventory Vouchers: Receipt note, Delivery note, Rejection in, Rejection out, Stock Journal

13. Voucher: Payment – Receipt – Journal - Contra Voucher - Alteration – Deletion

14. Voucher entry for Stock Purchase, Sales, Sales return and Purchase return

15. Inventory Analysis Reports

Book for study

Ashok Nandhini,.K. & KisorNandhini,.K. (2008). *Simple Tally 9*, BPB

Publication, New delhi,

Books for Reference

1. Ashok Nandhini,.K. & KisorNandhini,.K. (2009). *Implementing Tally 9*. BPB

   Publications. New delhi.

2. Dinesh Maidasani. (2010). *Tally 9.* FireWall Media Laxmi Publications . New

   Delhi.

3. Nellai Kannan.C.(2008). *Tally (Version 9).* Nels Publication .India .

4. PalaniVel,.S.(2010).*Tally.* Margham Publications Chennai .

5. Rakesh Sangwan. (2021).*Tally workbook,*images edition. Ascent Prime

   Publication

Web Resources / E-Book

1. https://mirror.tallysolutions.com/tallyweb/tally/tallyerp/Getting%20Started%20with%20Tally
   .ERP%209.pdf

2. https://drive.google.com/file/d/1Lk9f31HBaP4Z_rSQ3LvbF-cWz0SY5yGC/view

3. https://ncsmindia.com/wp-content/uploads/2012/04/TALLY-9.0-PDF.pdf

4. https://help.tallysolutions.com/seriesa/rel-5-4/en/help/TDL_Reference_Manual.pdf

5. https://www.academia.edu/38581672/Getting_started_with_Tally_ERP_9_pdf

Nature of the course

- Developing the complete enterprise software for small & medium enterprises and perfect

  business management solution and software with an ideal combination of function.

Activities to be given

- Implement Programming

- Mini Projects

Activities on Employability Oriented

- Software Development
- Data Analysis

Pedagogy

Record Book writing, Program development and Demonstration, Practical sessions.

LESSON PLAN (Total Hours: 30)

Cycle	Course Content	Hrs.	Mode of Teaching
I	1. Creation of Company Altering and Deleting Company. 2. F11- Features and F12-Features 3. Creation of Journal and Ledger	6	Demo & Practical Session
II	4. Creating Multiple Ledgers, Altering and Deleting Ledgers 5. Creating Groups, Altering and Deleting Groups 6. Accounting Voucher Creation and Voucher Entry	6	Demo & Practical Session
III	7. Profit & Loss A/C 8. Balance Sheet 9. Bill wise transactions, Altering and Deleting transactions	6	Demo & Practical Session
IV	10. Creation of Cost Centre and Cost category 11. Stock Creation 12. Inventory Vouchers: Receipt note, Delivery note, Rejection in, Rejection out, Stock Journal	6	Demo & Practical Session
V	13. Voucher: Payment – Receipt – Journal - Contra Voucher - Alteration – Deletion 14. Voucher entry for Stock Purchase, Sales, Sales return and Purchase return 15. Inventory Analysis Reports	6	Demo & Practical Session

Mrs.R.Boomadevi
Course Designer

EVALUATION (PRACTICAL)

Internal (Formative)   : 40 marks
External (Summative)   : 60 marks
Total   : 100 marks

Question Paper Pattern for Internal Practical Examination: 40 Marks

S.No	Components	Marks
1.	I – Major question	15
2.	II - Minor question	08
3.	III-Spotter (4 x 3)	12
4.	IV –Record book	05
	Total	**40**

Question Paper Pattern for External Practical Examination (Major) : 60 Marks

S.No	Components	Marks
1.	I – Major question	20
2.	II - Minor question	15
3.	III-Spotter (4 x 5)	20
4.	IV –Record book	5
	Total	**60**

In respect of external examinations passing minimum is **35% for Under Graduate Courses** and in total, **aggregate of 40%.**