

THE MADURA COLLEGE (AUTONOMOUS) MADURAI - 11  
(Affiliated to Madurai Kamaraj University)  
ACCREDITED B++ BY NAAC

**UPTO 2016**

OFFICE AUTOMATION  
SUB.CODE : 2IT2 (2018 ON) (4916)

Q.NO. 4916

**Unit-1:**

**Word:** Introduction to Word-Editing a Document-Move and Copy Text-Formatting Text and Paragraph-Finding and Replacing a Text and Spelling Checking-Using Tabs-Enhancing Document-Columns, Tables and Other Features-Using Mail Merge.

**Unit-2:**

**Excel:** Introduction to Work Sheet and Excel -Getting Started with Excel-Editing Cells and Using Commands and Functions-Moving and Copying, Inserting and Deleting Rows and Columns-Formatting a Worksheet-Printing the Worksheet-Creating Charts.

**Unit-3:**

**Excel:** Using Date and Time and Addressing Modes-Using Statistical, Math and Financial Functions-Database in a Worksheet-Additional Formatting Commands and Drawing Tool Bar - Miscellaneous Commands and Functions.

**Unit-4:**

**Power Point:** Overview of Power Point-Creating a Presentation-Power Point Views-Running Slide Show-Printing a Presentation.

**Unit-5:**

**Access:** Planning and Designing Access Database-Creating and Modifying Tables - Creating and Modifying Queries- Creating and Modifying Forms- Creating and Modifying Reports.

**Text book:**

1. Pc Software for Windows 98 Made Simple-R K Taxali-Tata McGraw Hill Publishing Company Limited,  
**Chapters:** 9, 10 ,11 ,12 ,13 ,14 ,15 ,16 ,18 , 20 ,21 ,22 ,23 ,24, 25, 26 ,27,28 29,30,31

2. Teach Yourself Access 97-Timothy Buchanan, Craig Eddy, and Rob Newman-SAMS Publishing.

**Chapters:** 10, 11, 12, 13, 16, 17, 18, 19, 20

**Reference:**

Teach Yourself Windows 98-Al Stevens-BPB Publications.

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## II SEMESTER

CODE	SUBJECT	T	R	C
	SBE - BASICS OF OPERATING SYSTEMS	2	0	2

2SIT 4922 @.NO: 4922

**Unit - I: Dos**

Loading DOS - System Prompt - Changing Default Drive - Introduction to File & Directory - Displaying List of Files - Changing the Directory & System Prompt - Creating a New Directory - Copying Files - Deleting Files - Changing Filename - Date & Time - Internal & External Dos Commands - Formatting & Unformatting a Diskette.

Additional DOS Commands: Copying Files - Typing the File Contents - Defining search path - Hidden files - Undelete & Print commands - Disk Management Utilities - Redirecting output & input - DOS utility commands- File Allocation Table (FAT).

Configuring DOS & Batch Files: Configuring DOS - Using COPY CON to create a file - Using Batch Files.

**Unit - II: Windows**

Windows Basics: History of Windows - Starting Windows - The Desktop - Using the mouse - Maximizing, minimizing, Restoring & Closing a Window - Using the Start menu - Control Panel - Managing Multiple Windows - Arranging Icons on the desktop - Creating a new folder on desktop - Logging off and shutting down Windows.

Working with Windows & Windows Accessories: My Computer - Windows Explorer - Copying & Moving files - Using Recycle bin - Managing fonts - Finding Files or folders - using Notepad, Calculator, WordPad & Paint.

**Unit - III: Internet & Web Features**

Internet - Web browsers - Email - Active Desktop - Channels - NetMeeting - FrontPage Express - Case Studies.

**Text Book:**

R.K Taxali - "PC Software for Windows 98 Made Simple" - TataMcGraw Hill Publishing Company Limited.

**Reference Book:**

Al Stevens - "Teach Yourself Windows 98" - BPB Publications.

CODE	SUBJECT : 3IT14233-31 (4926)	T	P	C
	DATA STRUCTURES IN C	5	0	5

Q.No:- 4926

**UNIT I- ARRAYS AND STRUCTURES**

Arrays- Dynamically Allocated Arrays - Structures and unions- Polynomials - Sparse Matrices - Representation of multidimensional Arrays - Strings.

**UNIT II - STACK AND QUEUES**

Stacks-Stacks using Dynamic Arrays- Queues-Circular Queues using Dynamic array- A mazing Problem - Evaluation of Expressions - Multiple Stacks and Queues.

**UNIT III- LINKED LISTS**

Singly Linked Lists and chains - Respresenting chains in C - Linked Stack and Queue- Polynomials - Additional List operations- equivalence classes - sparse matrices - Doubly Linked Lists .

**UNIT IV - TREES**

Introduction - Einary Trees - Binary Tree traversal and iterators - additional binary trees operations - threaded binary Trees - Heaps - binary Search Trees - Selection trees - Forests - Representation of Disjoint Sets - Counting Binary Trees.

**UNIT V - GRAPHS AND SORTING**

Graphs: The Graph abstract data type - Elementary graph Operations - minimum cost spanning tree - shortest path and transitive closure - Activity Networks - Internal Sorting: Insertion Sort - Quick Sort - Merge Sort - Heap Sort - Sorting on Several Keys - List and table sorts. External Sorting: K-Way Merging - Buffer Handling for Parallel Operation - Opimal Merging of Runs.

**TEXT BOOK:**

Horowitz,E. Sahani,S. Anderson-Freed, Fundamentals of Data Structures in C, Second Edition, Universities Press, India.

**REFERENCE BOOKS:**

1. Data structures using C. Yedidyah langsam, Moshe J. Augenstein and Aaron M. Tenenbaum, 2000 PHI, New Delhi.
2. An Introduction to Data structure with applications - Jean Paul Tremblay and Paul G Sorenson - THM, II Edition - 1991.
3. Data Structures and Algorithm Analysis in C MARK ALLEN WEISS - Second edition - Addison Wesley Publishing Company 1997.

The Madura College (Autonomous), Madurai – 11.  
Department of Computer Science

**Model Question Paper**

**Course:** B.Sc. Information Technology

**Semester:** III

**Paper:** Data Structure in C

**Time:** 3 Hrs  
Q.No: 4926

**Paper Code:** 3IT1

**Max. Marks:** 75

**PART – A**

**Answer ALL questions**

**(5 X 3 = 15)**

1. Define Array and its types.
2. What is an amazing problem?
3. Define List and its types.
4. Write short notes on Tree.
5. Define: Graph.

**PART – B**

**Answer any 5 questions**

**(5 X 6 = 30)**

6. Explain any six string functions with example.
7. Explain Structure and Union with example.
8. Describe about Expression and various types of expression.
9. Describe about the Doubly Linked List.
10. Explain about Polynomial Representation.
11. Explain about Selection Trees.
12. Describe about Quick Short algorithm.
13. What are the elementary Graph Operations?

**PART – C**

**Answer ALL questions**

**(3 X 10 = 30)**

14. a) Explain Stack and its Operations with algorithm.  
(Or)  
b) Explain Queue and its Operations with algorithm.
15. a) Explain Linear Linked List.  
(Or)  
b) Describe about the Sparse Matrices and its functions.
16. a) Describe about Binary Tree Properties and Representation.  
(Or)  
b) Explain about Binary Tree Traversal with examples.

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The Madura College (Autonomous), Madurai-11  
Department of Computer Science

**Blue Print**

Course: B.Sc. Information Technology

Semester: III

Paper: Data Structures in C

Time: 3 Hrs

Q. NO:- 4926

Paper Code: 3IT1

Max. Marks: 75

Units	Part - A	Part - B	Part - C
Unit I	1	2	--
Unit II	1	1	1
Unit III	1	2	1
Unit IV	1	1	1
Unit V	1	2	--
Total	5	8	3

Part - A: Answer All Questions

5 \* 3 = 15 marks

Part - B: Answer any 5 out of 8

5 \* 6 = 30 marks

Part - C: Answer All Questions (Either or Type)

3 \* 10 = 30 marks

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75 marks  
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(up to 2016)  
**UPTO 2016**  
 MADURAI - 11

**THE MADURA COLLEGE (AUTONOMOUS) MADURAI - 11**  
**III SEMESTER**

Q.NO. 4928

CODE	SUBJECT : 3IT2 <del>XXXXXXXXXX</del> (4928)	T	P	C
	<b>COBOL PROGRAMMING</b>	4	0	4

**UNIT I - INTRODUCTION**

Introduction to COBOL : History of COBOL - Coding format for COBOL programs - structure of a COBOL program - character set - COBOL words - data names and identifiers - literals - figurative constants - continuation of lines. Identification Division & Environment Division : Identification division syntax - Environment division syntax - configuration section syntax - Input output section syntax.

**UNIT II - DATA DIVISION**

Introduction - level structure - data description entries - file section - working storage section - usage clause - synchronized clause - justified clause - redefines clause - rename clause - qualification of data names - sign clause.

**UNIT III - PROCEDURE DIVISION AND BASIC VERBS**

Structure of the procedure division - data movement verb : MOVE - Arithmetic verbs : Add, Subtract, Multiply & Divide - Sequence control verbs : Goto, Accept, Display - Elementary and group moves - Corresponding option - Rounded option - ON SIZE ERROR option - COMPUTE verb - Conditional and sequence control verbs - condition - IF statement - GOTO with DEPENDING phrase - ALTER, PERFORM, EXIT statements.

**UNIT IV - TABLE HANDLING**

Occurs clause and subscripting - Assigning values to table elements - multi-dimensional tables - PERFORM verb & table handling - Indexed tables and indexing - SET verb - SEARCH verb - SEARCH ALL verb - occurs depending clause.

**UNIT V - FILE HANDLING**

File characteristics - File control entries for sequential files - statements for sequential files - examples of sequential file processing - relational and indexed sequential files - file updation : SORT and MERGE verbs.

**TEXT BOOK:**

1. M.K.Roy, D. Ghosh Dastidar, 1989, COBOL Programming, Tata McGraw Hill Publishing company limited, New Delhi.

**REFERENCE BOOKS:**

1. R. New Comer, 1992, Programming with structured COBOL, Mc Graw Hill International edn., Auckland.
2. V.Rajaraman & H.V.Sahasrabudde, 1986, Computer Programming in COBOL, PHI, New Delhi.
3. A. Philippakis & Kazmir, 1988, Information system through COBOL, Mc Graw Hill International edn., Auckland.

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THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11  
DEPARTMENT OF COMPUTER SCIENCE

MODEL QUESTION PAPER

CLASS: II B.Sc. INFORMATION TECHNOLOGY  
TITLE: COBOL PROGRAMMING  
TIME : 3 HOURS

SEMESTER : III  
CODE : 3IT2  
MAX.MARKS: 75

PART-A

(5X 3 = 15)

ANSWER ALL QUESTIONS:

1. Define data name and identifier.
2. what is the usage of RENAMES clause?
3. Give the syntax of ON SIZE ERROR option.
4. Differentiate Index and Subscript.
5. What is the role of WORK FILE in SORT Statement?.

PART -B

( 5 X 6= 30)

ANSWER ANY FIVE QUESTIONS:

6. Explain the about the figurative constants with example.
7. Discuss the file section in COBOL with example.
8. Describe about sign clause with examples.
9. Compare GO TO and GO TO DEPENDING ON statement.
10. Write briefly about an arithmetic verbs with examples.
11. Write a COBOL program to arrange the numbers in ascending order.
12. What is indexed sequential files ? explain with examples.
13. Explain the use of MERGE statement . List out the rules associated with that.

PART -C

( 3 X 10 = 30)

ANSWER ALL QUESTIONS:

14. a). Explain about the SYNCHRONIZED & JUSTIFIED clause with examples.  
(OR)  
b). Write a COBOL program to find the biggest and smallest of 100 given numbers
15. a). Discuss the various formats of PERFORM statement with suitable example.  
(OR)  
b). Create a bank table. It consists of account number, customer name, balance. Write a COBOL program to count the number of customer whose balance is greater than 5000 using search verb.
16. a). Explain any four sequential file handling statements with suitable example.  
(OR)  
b). Write a COBOL program to update the inventory file.

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THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

COURSE: B.Sc (INFORMATION TECHNOLOGY)

SEMESTER : III

PAPER : COBOL PROGRAMMING

MAX MARKS: 75

CODE : 31T23055

	PART-A	PART-B	PART-C
UNIT-I	1	1	---
UNIT-II	1	2	1
UNIT-III	1	2	1
UNIT-IV	1	1	---
UNIT-V	1	2	1
TOTAL	5	8	3

PART-A : ANSWER ALL QUESTIONS

5 \* 3 = 15 MARKS

PART-B : ANSWER ANY 5 QUESTIONS (OUT OF 8)

5 \* 6 = 30 MARKS

PART-C : ANSWER ALL QUESTIONS (EITHER OR TYPE)

3 \* 10 = 30 MARKS

75 MARKS

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**THE MADURA COLLEGE (AUTONOMOUS) MADURAI - 11****III SEMESTER**

D.NO. 4936

CODE	SUBJECT : 3AIT1 (4936)	T	P	C
	Microprocessors and Its Applications	4	0	4

**Unit - I: Software Architecture**

Internal Architecture – Software model- data types – segment registers- data registers- pointers and index Registers- status registers – generating a memory address – addressing mode.

**Unit - II: 8086/8088 Microprocessor Programming**

The instruction set – data transfer instructions- arithmetic instructions – logic Instructions- shift instructions- rotate instructions- compare instructions- jump Instructions – the loop and loop handling instructions – string and string handling Instructions.

**Unit - III: Memory Interfaces**

Minimum-mode and maximum-mode systems minimum system mode interface- system Clock – bus cycle – control signals – read and write bus cycles – memory interface Circuits.

**Unit - IV: I/o Interface of the 8086/8088 Microprocessors**

Minimum-mode interface- maximum-mode interface- I/O data transfers- I/O instructions- Eight byte wide output ports with isolated I/O – eight byte wide input ports using isolated I/O.

**Unit - V: Interrupt Interface of the 8086/8088 Microprocessors**

Types of interrupts – interrupt instructions- enabling/disabling of interrupt – external Hardware interrupt interface – block diagram of the 8249a (interrupt controller) – Software interrupts.

**Text Book:**

Walter A.Triebel, Autar Sing – “The 8088 and 8086 microprocessors”-PHI 1995.

**Reference Books:**

1. Douglas V.Hall – “Microprocessor and interfacing”- MGH.
2. Bary Brey – “Introduction to Microprocessor and Microcomputer”.

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THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

Course: B.Sc (COMPUTER SCIENCE)

Semester : II

Paper : MICROPROCESSOR-8086/8088

Max Marks: 75

Code :

Time : 3 Hrs

	PART-A	PART-B	PART-C
UNIT-I	2	1	1
UNIT-II	2	2	1
UNIT-III	2	1	1
UNIT-IV	2	2	1
UNIT-V	2	2	1
TOTAL	10	8	5

MAX MARKS: 75

PART A: Answer All Questions

10 \* 2 = 20 MARKS

PART B: Answer Any 5 Questions (OUT OF 8)

5 \* 5 = 25 MARKS

PART C: Answer Any 3 Questions (OUT OF 5)

3 \* 10 = 30 MARKS

75 MARKS

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THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11  
DEPARTMENT OF COMPUTER SCIENCE  
MODEL QUESTION PAPER

Course: B.SC COMPUTER SCIENCE

Semester : II

Title : MICROPROCESSOR 8086/8088

*Its applications.*

Time : 3 Hrs

Code :

Max.Marks: 75

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PART A

I. ANSWER ALL QUESTIONS:

(10 X 2 = 20)

1. List the Different data types available in Microprocessor.
2. Define Double word.
3. Add the Binary Number 11000000 to 11011000 and convert the Binary answer to Hexadecimal number form. Decimal form.
4. List the Logical Operations available in Microprocessor.
5. What are the different signal functions available in the Minimum mode of 8088 and 8086?
6. What is the duration of the bus cycle in the 8088 based Microcomputer if the clock is 8MHZ and two wait states are inserted.
7. Define Isolated I/O.
8. Explain Minimum Mode Interface in Isolated I/O.
9. Define Enabling/Disabling of Interrupts.
10. List the Interrupt Instructions.

PART -B

II. ANSWER ANY FIVE QUESTIONS:

( 5 X 5 = 25)

11. Explain Pointer and Index Registers.
12. Write an Assembly Language program for comparing Strings.

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13. Explain about Rotate Instructions.
14. Write short notes on Memory Interface Circuits.
15. Explain I/O Instructions.
16. Explain I/O Data Transfer.
17. Discuss about S/W Interrupts.
18. Explain Interrupt Mechanism, Types and Priority.

PART -C

III. ANSWER ANY THREE QUESTIONS:

(3 X 10 = 30)

19. Explain in detail about Addressing Modes.
  20. Explain about Data Transfer Instructions.
  21. Explain about Minimum mode Interface signals.
  22. Describe about Eight Byte wide Output ports using Isolated I/O.
  23. Describe the Block Diagram of 82C59A Interrupt Controller.
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**IV SEMESTER**

CODE	SUBJECT : 4IT1 (4942)	T	P	C
	<b>DATABASE MANAGEMENT SYSTEM</b>	<b>5</b>	<b>0</b>	<b>5</b>

Q.No!-4942

A B **Unit: I Introduction:** Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Relational Databases – Database Design – Object based and Semistructured databases – Data Storage and Querying – Transaction Management – Data Mining and Analysis – Database Architecture – Database users and Administrators – History of Database Systems.  
**Relational Model:** Structure of Relational Databases – Fundamental Relational Algebra Operations – Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null Values – Modification of the Database.

1 2 **Unit: II SQL: Background** – Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null Values – Nested Subqueries – Complex Queries – Views – Modification of the Database – Joined Relations. Other **Relational Languages:** The Tuple Relational Calculus – The Domain Relational Calculus – Query-By-Example – Datalog.

1 2 **Unit: III Database Design and 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 – Database Design for Banking Enterprise – Reduction to Relational Schemas – Other aspects of database design – The Unified Modeling Language.

1 1 **Unit: IV Relational Database Design:** Features of Good Relational Database Designs – Atomic Domains and First Normal Form – Decomposition using Functional Dependencies – Functional Dependency Theory – Decomposition using Functional Dependencies – Decomposition using Multivalued Dependencies – More Normal Forms – Database Design Process – Modeling Temporal Data.

1 2 **Unit: V Storage and File Structure:** Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization – Organization of records in Files – Data-Dictionary Storage. Indexing and Hashing: Basic Concepts – Ordered Indices – B+-Tree Index Files – B-Tree Index Files – Multiple-Key Access – Static Hashing – Dynamic Hashing – Comparison of Ordered Indexing and Hashing – Bitmap Indices – Index Definition in SQL.

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**Text Book:**

“Database System Concepts” by Abraham Silberschatz, Henry F. Korth, S.Sudarshan. Fifth Edition. McGraw Hill International Edition.

**Reference Books:**

1. “Fundamentals of Database Systems” by Elmasri, Navathe. Fourth Edition
2. “Database Concepts” by CJ Date.



THE MADURA COLLEGE (EVENING - AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

Course : B.Sc. (Information Technology)

Semester : IV

Paper : Database Management System

Max Marks: 75

Code : 4IT/

Time : 3 Hrs

Q. NO: 4942

UNITS	PART-A	PART-B	PART-C
I	1	1	1
II	1	2	-----
III	1	2	1
IV	1	1	1
V	1	2	-----
TOTAL	5	8	3

PART - A: Answer All Questions

$5 * 3 = 15$  Marks

PART - B: Answer any 5 out of 8

$5 * 6 = 30$  Marks

PART - C: Answer All (Either or type)

$3 * 10 = 30$  Marks

75 Marks

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THE MADURA COLLEGE (EVENING - AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

MODEL QUESTION PAPER

Course : B.Sc. (Information Technology)

Semester : IV

Paper : Database Management System

Max Marks: 75

Code : 4IT

Time : 3 Hrs

Q.No. 4942

PART-A

Answer ALL Questions

(5 \* 3 = 15)

1. Brief about View of Data.
2. Describe the syntax of QBE query.
3. Mention any two Extended ER Features.
4. When do you decompose a relation?
5. What is meant by Tertiary Storage?

PART-B

Answer ANY FIVE Questions:

(5 \* 6 = 30)

6. How do you modify the database in Relational Algebra.
7. Explain about Group by clause and Aggregate Functions in SQL.
8. Describe about Tuple Relational Calculus with examples.
9. Mention the various types of Attributes in ER model. Explain with examples.
10. Explain about UML with diagram.
11. Define BCNF. Explain with suitable example.
12. Explain about structure of Magnetic Disk with neat sketch.
13. Explain about B<sup>+</sup>-Tree with Search operation.

PART-C

Answer ALL Questions

(3 \* 10 = 30)

14. a. With neat sketch, describe the Database Architecture.  
(Or)  
b. Explain about the basic operations of Relational Algebra.
15. a. What are the components used in ER diagram. Explain with suitable example.  
(Or)  
b. Describe about the Reduction of ER Model to Relational Model with examples.
16. a. Explain in detail about the first three Normal Forms with suitable examples.  
(Or)  
b. Explain about theory of Functional Dependencies.



CODE	SUBJECT : 4IT2 (4944)	T	P	C
	<b>Data Communication &amp; Computer Networks</b>	4	0	4

Q. NO. - 4944

**UNIT I: DATA COMMUNICATION**

Components – Direction of Data flow – networks – Components and Categories – types of Connections – Topologies – Protocols and Standards – ISO / OSI model – Transmission Media – Coaxial Cable – Fiber Optics – Line Coding – Modems – RS232 Interfacing sequences.

**UNIT II : DATA LINK LAYER**

Error – detection and correction – Parity – LRC – CRC – Hamming code – low Control and Error control - stop and wait – go back-N ARQ – selective repeat ARQ sliding window – HDLC. - LAN - Ethernet IEEE 802.3 - IEEE 802.4 - IEEE 802.5 - IEEE 802.11 – FDDI - SONET – Bridges.

**UNIT III: NETWORK LAYER**

Internetworks – Packet Switching and Datagram approach – IP addressing methods – Subnetting – Routing – Distance Vector Routing – Link State Routing – Routers.

**UNIT IV : TRANSPORT LAYER**

Duties of transport layer – Multiplexing – Demultiplexing – Sockets – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP) – Congestion Control – Quality of services (QOS) – Integrated Services.

**UNIT V: APPLICATION LAYER**

Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW – Security – Cryptography.

**TEXT BOOK:**

Behrouz A. Forouzan, "Data communication and Networking", Tata McGraw-Hill, 2004.

**REFERENCE BOOKS :**

1. James F. Kurose and Keith W. Ross, "Computer Networking: A Top-Down Approach Featuring the Internet", Pearson Education, 2003.
2. Larry L. Peterson and Peter S. Davie, "Computer Networks", Harcourt Asia Pvt. Ltd., Second Edition.
3. Andrew S. Tanenbaum, "Computer Networks", PHI, Fourth Ed., 2003.
4. William Stallings, "Data and Computer Communication", Sixth Edition, Pearson Education, 2000.

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MODEL QUESTION PAPER

Course : B.Sc. (Information Technology)

Semester :IV

Paper : Data Communication and  
Computer Network

Max Marks:75

Code : 4IT2

Time :3 Hrs

PART-A

I. Answer All Questions:

(5 \* 3 = 15 Marks)

1. What is the Data Communication? What are the components of Data Communication?
2. What is Hamming Code?
3. What is the function of Routers?
4. Define the term Multiplexer & QOS.
5. List the advantages of Cryptography.

PART-B

II. Answer any Five Questions

(5 \* 6 = 30 Marks)

6. Describe about different topologies of Network.
7. Describe about the functions of Modems.
8. Explain briefly about 'IEE 802.5'.
9. Explain about the stop and wait Protocol.
10. Describe about Pocket Switching method with neat Diagram.
11. Explain about the details of Transport Layer.
12. Describe briefly about UDP.
13. Explain briefly about DNS.

PART-C

III. Answer All Questions

(3 \* 10 = 30 Marks)

14. a) Explain about OSI Reference Model with neat Diagram?  
(Or)  
b) Explain briefly about the various Transmission Media?
15. a) Explain about FDDI Connection with neat Diagram.  
(Or)  
b) Describe briefly about Error detection and Correction codes.
16. a) Write short notes on following:  
i) SMTP ii) FTP iii) HTTP  
(Or)  
b) Explain about any two cryptography algorithm.



THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

Course : B.Sc (Information Technology)

Semester : IV

Paper : Data Communication and  
Computer Network

Max Marks: 75

Code : HIT2 - - - - -

Time : 3 Hrs

Q. NO. 4944

UNITS	PART-A	PART-B	PART-C
UNIT-I	1	2	1
UNIT-II	1	2	1
UNIT-III	1	1	-
UNIT-IV	1	2	-
UNIT-V	1	1	1
TOTAL	5	8	3

PART A: Answer All Questions

5 \* 3 = 15 Marks

PART B: Answer any Five Questions

5 \* 6 = 30 Marks

PART C: Answer All Questions  
(Either or Type)

3 \* 10 = 30 Marks

75 Marks

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**THE MADURA COLLEGE (AUTONOMOUS) MADURAI - II**  
**IV SEMESTER**

(upto 2016)

CODE	SUBJECT : 4IT3 (4946)	T	P	C
	<b>VISUAL PROGRAMMING</b>	4	0	4

**Unit - I: Integrated Development Environment**

Q.No: 4946

Introduction - Learning the IDE Features - Visual Basic editor - Working with Multiple Projects - Customizing the IDE - Working with Forms: The Anatomy of a Form - Working with forms properties - Tweaking a form's properties - Form events - Form Methods - Multiple Document Interface (MDI) forms - Form Wizard.

**Unit - II: Selecting & Using Controls**

Command Buttons - Text Boxes - Labels - Option Buttons - Check Boxes - Frame Controls - List Boxes - Combo Boxes - Image Objects - Picture Boxes - Timers - Scroll Bars - Drive & Directory list Boxes - File List Boxes - Adding Other Controls to the Toolbox.

**Unit - III: Understanding Data Types**

Variable Types - Arrays - Constants - Logical Operators - Evaluating conditions in code - Code Modules - Code Library - Retrieving Code Modules - Creating a Code Module - Using Private & Public Sub Procedures - Passing Parameters to Procedures - Creating and using Functions - Adding Code Modules - Working with Class Modules.

**Unit - IV: Using Menus & Toolbars**

Menus and Toolbars - Menu Object - Creating a Menu with the Menu Editor - Creating Toolbars - Cool bar control - Storing & Retrieving Data - Working with ASCII Files - Using Data Controls - The Anatomy of a Database - Creating Databases with Visual Data Manager - Creating a Database Table - Creating a Query - Modifying a Table.

**Unit - V: Using ActiveX & DLL**

Understanding ActiveX Platform - The Role of ActiveX - Understanding the Role of ActiveX in Software Development - Creating and Using ActiveX Documents - Creating and Using ActiveX controls - Creating and Using ActiveX DLLs - Using DLLs & The Windows API - Introducing Dynamic Link Libraries - DLL calling conventions - The API Viewer - Using API in Applications.

**Text Book:**

Steve Brown - "Visual Basic 6" - BPB Publications 2003.

**Reference Books:**

1. Content Development Group - "Visual Basic 6.0 Programming" - TMG.
2. Steven Holzner - "Visual Basic 6 Programming".

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**Model Question Paper**

**Course:** B.Sc. Information Technology

**Semester:** IV

**Paper:** Visual Programming

**Time:** 3 Hrs

**Paper Code:** 4TF3 ( 20 5 )

**Max. Marks:** 75

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**PART – A**

**Answer ALL questions**

**(5 X 3 = 15)**

1. Define Multiple Document Interface.
2. State any Three Text box Properties.
3. Define Module.
4. Write a short note on Database?
5. State the role of ActiveX.

**PART – B**

**Answer any FIVE questions**

**(5 X 6 = 30)**

6. Describe about IDE Features.
7. Write any Five Form Events?
8. Discuss the various events of List Box & Check Box.
9. Write the Syntax for do-until and for loop.
10. Explain Procedures and its types.
11. Write short notes on Files?
12. Create a VB Application to Shutdown a Computer.
13. Discuss in detail about using API Application.

**PART – C**

**Answer ALL questions**

**(3 X 10 = 30)**

14. a) Create a VB Application to open a text file with in the form.  
(Or)  
b) Explain any four properties for given tools.  
i) Combo Box. ii) Option Button iii) Command Button iv) Image.
15. a) i) Explain the Operators in Visual Basic.  
ii) Write short notes on Arrays?  
(Or)  
b) Create a VB Application to demonstrate pass by value and pass by reference.  
(Swap Two Values).
16. a) How to create a Database in Visual Data Manager.  
(Or)  
b) Discuss in detail about Menu Editor.



The Madura College (Autonomous), Madurai-11  
Department of Computer Science

**Blue Print**

**Course:** B Sc. Information Technology

**Semester:** IV

**Paper:** Visual Programming

**Time:** 3 Hrs

**Paper Code:** 4IT3

**Max. Marks:** 75

**Q. No.** 1946

Units	Part – A	Part – B	Part – C
Unit I	1	2	--
Unit II	1	1	1
Unit III	1	2	1
Unit IV	1	1	1
Unit V	1	2	--
Total	5	8	3

**Part – A:** Answer All the Questions

5 \* 3 = 15 marks

**Part – B:** Answer any 5 out of 8

5 \* 6 = 30 marks

**Part – C:** Answer All Questions (Either or Type)

3 \* 10 = 30 marks

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75 marks  
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**THE MADURA COLLEGE (AUTONOMOUS) MADURAI - 11**  
**IV SEMESTER**

*(UPTO 2016)*

CODE	SUBJECT : 4IT4 (4948)	T	P	C
	<b>MULTIMEDIA &amp; ITS APPLICATIONS</b>	4	0	4

**Unit - I: Multimedia Introduction**

Q.No:- 4948

Definitions - CD-ROM and the Multimedia Highway - Where to use Multimedia. Introduction to Making Multimedia - The stages of a Project - what you need. Hardware - Macintosh Verses Windows - Connections - Memory and Storage devices - Input devices - Output hardware.

**Unit-II: Basic Tools**

Basic software tools-Text Editing and Word processing Tools-OCR software-Painting and Drawing Tools-3D Modeling and animation Tools-Image Editing Tools-Sound Editing Tools-Animation , video and digital movie tools. Multimedia authoring tools-Making Instant multimedia-types of authoring tools-card and page-based authoring tools-Icon and object-based authoring tools-time-based authoring tools-Class platform authoring notes.

**Unit-III: Text, Sound and Images**

Text: The power of meaning -about fonts and faces-using text in multimedia-computers and text-font editing and design tools-hypermedia and hypertext. Sound: The power of sound-multimedia system sounds-digital audio-making MIDI audio-audio file formats-MIDI versus digital audio-adding sound to your multimedia project-production tips. Images: before you start to create-making still images-color-image file formats.

**Unit-IV: Animation and Video**

Animation: The power of motion-principles of animation-Animation by computer-making animations that work. Video: using video-how video works-broadcast video standards-analog video-digital video-video recording and tape formats-shooting and editing video.

**Unit-V: Planning**

Planning and cost: The process of making multimedia-scheduling-estimating-RFP's and bid proposals. Designing and producing: Designing-producing.

**Text Book:**

Tay Vaughan - Multimedia making it Work-6<sup>th</sup> Edition-Tata McGraw-Hill

**Reference Book:**

1. David Hillman-Multimedia Technology and Applications-Galgotia Publications Pvt. Ltd.
2. Judith Jaffcoats - "Multimedia in practice - Technology operations, PHI, 1998.

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THE MADURA COLLEGE (EVENING- AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

MODEL QUESTION PAPER

Course : B.Sc (Information Technology) Semester :IV  
Paper : Multimedia and its Applications Max Marks:75  
Code : 4IT4 Time :3 Hours

PART-A

I. Answer Any FIVE Questions: (5 \* 5 = 25 Marks)

1. Write short notes on Communication Devices.
2. Describe about Painting and Drawing tools.
3. Write short notes on Card and Page-based Authoring Tools.
4. Discuss about Font editing and Design Tools.
5. Differentiate MIDI versus Digital Audio.
6. Mention the steps involved in making a Rolling Ball.
7. Describe about any two broadcast video standards.
8. Write Short notes on Estimation.

PART-B

II. Answer ALL Questions: (5 \* 10 = 50 Marks)

9. a. Explain in detail about Memory and Storage Devices.  
(OR)  
b. List and Explain the components needed to create a Multimedia Project.
10. a. Explain about the different types of tools used in Animation, Video and Digital movies.  
(OR)  
b. Explain about different types of Authoring Tools.
11. a. Explain in detail about Text handling in computers.  
(OR)  
b. Explain in Detail about Colors in Multimedia.
12. a. Explain in detail about Animation by Computer.  
(OR)  
b. Explain about Shooting and Editing Video.
13. a. Explain about Process of Making Multimedia Project.  
(OR)  
b. Describe in detail about RFP and Bid proposals.

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THE MADURA COLLEGE (EVENING- AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

Course : B.Sc (Information Technology) Semester : IV  
Paper : Multimedia and its Applications Max Marks:75  
Code : 4IT4 Time : 3 Hours

Q.No: 4948

UNITS	PART-A (Open Type)	PART-B (Either or Type)
UNIT-I	1	1
UNIT-II	2	1
UNIT-III	2	1
UNIT-IV	2	1
UNIT-V	1	1
TOTAL	8	5

PART A: Answer Any 5 Questions out of 8  $5 * 5 = 25$  Marks

PART B: Answer all Questions  
(Either or Type)  $5 * 10 = 50$  Marks

75 Marks

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## IV SEMESTER

Q.No. 4954  
(Upto 2016)

CODE	SUBJECT : 4AIT (4954)	T	P	C
	MANAGEMENT INFORMATION SYSTEMS	3	0	2

**Unit - I:**

Meaning - Definition- Integrated system- MIS vs. data processing - MIS and other academic discipline such as managerial Accounting, operational research, Management, organization theory and computer science.

**Unit - II:**

MIS support for decision making-Structured, Programmable decisions-unstructured, non programmable Decisions- hierarchy of management activity-Information systems for operational & management control-Planned performance - Variance from planned performance, reasons for variances, Analysis of possible decisions or courses of action - MIS structure based on organizational function - Formal Vs Informal systems.

**Unit - III:**

Decision- making process-Phases of decision- making process, problem finding, Formulation and solution or alternatives-criteria for decision making - Decision trees.

**Unit - IV:**

Concepts of information - Definition of information. Model of communication system - mathematical definition of Information-information presentation-quality of Information - Gentle model of the human as an Information processor.

**Unit - V:**

Concepts of planning and control and Organization Structure - Meaning-object of organizational planning-Setting of goals and objectives-hierarchy of planning -the planning process-the sources of Planning data-development of planning models - The basic model of organization structure- organization by product or service- Matrix organization.

**Text Book:**

Margrethe.H.Olson&Gordon.B.Davis-"Management Information System Conceptual Foundations, Structure & Development" -II Ed., -MGH.

**Reference Books:**

- 1.Davidkroneke,RichardAllanHatch - "Management Information System".
- 2.C. Laudan,JanePriceLaudon - "Management Information System" - PHI.

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THE MADURA COLLEGE (AUTONOMOUS), MADURAI-11

DEPARTMENT OF COMPUTER SCIENCE

BLUE-PRINT

Course : B.Sc (Information Technology)

Semester : IV

Paper : Management Information  
System

Max Marks: 75

Code : 4AIT

Time : 3 Hrs

UNITS	PART-A	PART-B	PART-C
UNIT-I	1	1	-
UNIT-II	1	2	1
UNIT-III	1	1	-
UNIT-IV	1	2	1
UNIT-V	1	2	1
TOTAL	5	8	3

PART A: Answer All Questions

5 \* 3 = 15 Marks

PART B: Answer any Five Questions

5 \* 6 = 30 Marks

PART C: Answer All Questions  
(Either or Type)

3 \* 10 = 30 Marks

75 Marks

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B.Sc Information Technology Syllabus (2008 on)



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

**UPTO 2016**

**TITLE : OPERATING SYSTEMS**

**CODE : SIT 1 (2008 ON)**

**QN.NO : 4958**

**UNIT - I:**

Evolution of Operating Systems - Types of Operating of Operating System  
- Different views of OS - Design and Implementation of Operating Systems - I/O programming concepts - Interrupts structure & processing.

**UNIT - II:**

Memory Management;  
Single contiguous Allocation - Partitioned Allocation - Relocatable Portioned Allocation - Paged and Demand paged Memory management - Segmented Memory Management - Segmented and Demand paged Memory Management - Swapping and overlay techniques.

**UNIT - III:**

Processor Management;  
Job scheduling - process scheduling - Functions and policies - Evaluation of Round Robin Multiprogramming Performance - Process Synchronization - Race condition - synchronization mechanism - deadly embrace prevention and detect and recover methods.

**UNIT - IV:**

Device Management:  
Techniques for Device Management - Device characteristics - I/O Traffic Controller, I/O scheduler, I/O Device Handlers - Virtual Devices - Spooling.

**UNIT - V:**

File Management  
Simple File System, General model of a File System, Physical and Logical File Systems.  
Case studies: DOS, UNIX/LINUX Operating Systems.

**TEXT BOOK:**

1. "Operating Systems" - E.Madnick and John J.Donavan, Tata McGraw Hill Book Company Ltd.

**REFERENCE BOOK:**

1. Operating Systems (concepts and Design) - Milan Milekovic - McGraw Hill International Edition.

B.Sc. Information Technology Syllabus (2008-09)



THE MADURA COLLEGE (Autonomous) MADURAI - 11  
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**UPTO 2016**

TITLE : CLIENT SERVER COMPUTING

CODE : 5IT 2 (2008-09)

Qn.No. 4960

**Unit - I:**

Overview of Client/Server Computing - Evolution of Client/Server Computing - Overview of Client/Server application - Understanding Client/Server computing.

**Unit - II:**

Client Hardware and Software - Client Software Products - Client Requirements.

**Unit - III:**

Server Hardware - Server Environment - Server Operating systems - Server Requirements - Server data management and access tools.

**Unit - IV:**

Overview of Networking - LAN Hardware & software - Development methodology.

**Unit - V:**

Application Development tools - Managing the production environment - Production requirements - Future trends.

**Text Book:**

Dawna Travis Dewire - "Client/Server Computing" - McGraw-Hill International Editions - 1994.

**Reference Book:**

Patrick Smith & Steve Guengerich - "Client/Server Computing" - PHI - II edition - 1994.



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

**TITLE : SOFTWARE ENGINEERING**

**CODE : SIT 3**

**QN.NO : 4962**

**Unit - I: Introduction**

Definitions - Some Size factors - Quality and Productivity factors - Managerial issues.

**Unit - II: Planning A Software Project**

Defining the problem - Developing a solution strategy - Planning the development process - Planning an organizational structure - Other Planning Activities.

**Unit - III: Software Cost Estimation**

Software cost factors - Software cost estimation techniques - Staffing level estimation - Software requirements definition - The software requirements specification - Formal Specification techniques.

**Unit - IV: Software Design**

Fundamental design concepts - Modules and modularization criteria - Design notations - Design techniques - Real-time and distributed system design - Test plans - Milestones, walkthroughs & inspections.

**UNIT - V: Software Maintenance**

Enhancing Maintainability during development - Managerial aspects of software maintenance - Configuration management - Source - code metrics - Other Maintenance tools and Techniques.

**Text Book:**

Richard Fairley - "Software Engineering concepts" - MGH.

**Reference Books:**

1. H.C Shooman - "Software engineering design" - MGH - 1983.
2. Roger Pressman - "Software Engineering" - MGH - IV Ed., 1998.



**UPTO 2016**

**TITLE : WEB TECHNOLOGY**

**CODE : SIT 4**

**QN.NO : 4964**

**UNIT - I: Introduction to HTML**

Designing a Home Page - HTML Generation - HTML Documents - Anchor Tag - Hyper link - Sample Documents - Head & Body Sections - Header Section - Title - Prolog - Links - Color full web page - Comment lines - Sample HTML Documents - Designing the body section - Heading Printing - Aligning the headings - Horizontal rules - Paragraphs - Tab settings - Images and pictures - Embedding PNG format Image.

**UNIT - II: Lists and Tables**

Ordered and unordered lists - headings in a list - nested lists - Table handling - tables - table creation in HTML - width of the table and cells - cell spanning - multiple rows/columns - coloring cells - Column specification - Sample tables.

**Unit - III: Frames , Forms and DHTML**

Frames - Frameset Definition - Frame definition - Nested frames - Forms - Action attributes - Method attributes - enctype attribute - Dropdown lists - Sample forms - Defining Styles - Elements of styles - Linking a style sheet to an HTML document - Inline styles - External style sheets - Internal style sheets - multiple styles.

**Unit - IV: VB Script**

**Functions, Objects Variables:** Variable Defined - Function Defined - Statements and Subroutines Defined - Object Defined.

**Input and Output:** Displaying Messages - Asking For Input - Command-Line Parameters as Input. **Manipulating Numbers:** Numbers in VBScript - Basic Arithmetic - Advanced Arithmetic - Boolean Math - Converting Numeric Data types - Converting other Data types to Numeric Data.

**Unit - V: Objects in VB Script**

**Manipulating Strings:** Strings in VBScript - Working with Sub strings - Concatenating Strings - Changing Strings - Formatting Strings - Converting other Data types to String data. **Manipulating Other Types of Data:** Working with Date and Times - Working with Arrays - Working with Bytes. **Controlling the Flow of Execution:** Conditional Execution-Loops - Putting it all together.

**TEXT BOOK:**

1. C Xavier - "World wide Web Design with HTML" - TMH.
2. Don Jones - "VBScript, WMI & ADSI Unleashed" - Pearson Publication.

**REFERENCE BOOK:**

1. Jennifer Niederst - "Web Design in a Nutshell" - Shroff Publishers.
2. Elizabeth Castro - "HTML for the World Wide Web" - Pearson Pub.



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

**TITLE : E-COMMERCE (Elective-I)**

**CODE : SIT 5 (A)**

**Qn.No. 4966**

**UNIT - I**

Introduction: What is E-Commerce, Forces behind E-Commerce, E-Commerce Industry Framework, and Brief History of E-Commerce. Inter Organizational E-Commerce, Intra Organizational E-Commerce, and Consumer to Business Electronic Commerce, Architectural framework

**UNIT - II**

Network Infrastructure: LAN, Ethernet/IEEE standard 802.3) LAN, WAN, Internet, TCP/IP Reference Model, Domain Name Server, Internet Industry Structure.

**UNIT - III**

Electronic payment systems, types of electronic payment systems, digital token-based electronic payment systems, smart cards & electronic payment systems, credit card based electronic payment systems, risk and electronic payment systems, designing electronic payment systems.

**UNIT - IV**

Information Distribution and Messaging: FTP, E-Mail, WWW server, HTTP, Web service implementation, Information publishing, Web Browsers, HTML, Common Gateway Interface.

**UNIT - V**

Mobile & wireless computing fundamentals, mobile computing framework, wireless delivery technology and switching methods, mobile information access devices, mobile data internetworking standards, cellular data communication protocols, mobile computing applications, personal communication service.

**BOOK:**

1. Frontiers of E-commerce by Kalakota & Whinston (Addison-wesley) E-business.

**REFERENCE BOOK:**

1. Roadmap for success by Dr. Ravi Kalakota & Marcia Robinson (addison wesly).
2. Electronic Commerce By Bharat Bhasker (TMH)

B.Sc. Information Technology Syllabus (2008 onwards)



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

**B.Sc (IT)**

**TITLE : PROGRAMMING IN JAVA**

**CODE : 6IT1 (2008 ON)      Qn. No. 4974**

**UNIT I:**

Java History - Java Features - Simple Java programs - Class Declaration - Java tokens - Comments - Java Statements - JVM - Implementing java program - Command Line Arguments - Constants, Variables and Data types - Operators and Expressions. Decision Making Statements - Simple If Statements - Simple If statements - if - else statements - Nesting of if - else statements - else if ladder - switch statement - ternary operator - Looping - Looping Statements - While, Do, For Loop Statements.

**UNIT II:**

Creation of class - objects and methods - Accessing class members - Constructors - Method Overloading - Overriding - Static members - Inheritance - Interface.

**UNIT III:**

Arrays - Types - Length - Strings - Strings Manipulations - Vector - Vector Classes - Wrapper Class - Enumerated Types. Java API Packages - System Package - Creating and Accessing User defined and System Package - Managing Errors and Exceptions.

**UNIT IV:**

Managing input/output files in Java - Stream I/O - Byte stream Class - Character Stream Class - Creation of Files - File handing in Java - Multithreaded programming - Multithreads in java - Thread Class - Life Cycle of Thread - thread Exceptions - Priority - Synchronization.

**UNIT V:**

Applet Programming: Introduction- Preparing to Write Applets - Building Applet Code - Applet Life Cycle - Creating an Executable applet - Applet tag - running the applet - Passing parameters - to applets - Displaying numerical values - Getting input from the user.

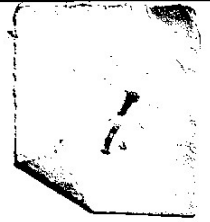
Graphics programming: Introduction - The Graphics Class - Lines and Rectangles - circles and ellipse - Drawing Arcs - drawing Polygons.

**TEXT BOOK:**

1. Balagurusamy E., Programming with JAVA. 3 rd Edition, McGraw - Hill, New Delhi, 2007.

**REFERENCE BOOK:**

1. Deitel H.M., and Deitel P.J., JAVA - how to program, Pearson Education, New Delhi, 2003.
2. Herbet Schidit, Java 2 Complete Reference, McGraw -Hill, New Delhi.
3. Patrick Naughton and Herbert Schildt, The Complete reference Java2, 5<sup>th</sup> Edition, Tata McGraw - Hill, New Delhi, 2005.



**Model Question Paper**

**Course:** B.Sc. Information Technology

**Semester:** VI

**Paper:** Programming in JAVA

**Time:** 3 Hrs

**Paper Code:** 6IT1 (2008 on)

**Max. Marks:** 75

**PART – A**

**Answer ALL questions**

**(5 X 3 = 15)**

1. Define Constants.
2. Define Objects and Methods.
3. Write short notes on Array and its types?
4. State any three methods in Thread Class.
5. Describe about Applet Programming.

**PART – B**

**Answer any FIVE questions**

**(5 X 6 = 30)**

6. Explain about looping statements in JAVA.
7. Write a JAVA Program to find the Prime no of a given limit.
8. Write short notes on Method Overloading with suitable example.
9. Write the Syntax for any five String methods and its uses.
10. Discuss in detail about Exception Handling in JAVA.
11. Write short notes on File Handling in JAVA?
12. Discuss about Applet Life Cycle.
13. Write a JAVA Program to draw a various shapes using Applet.

**PART – C**

**Answer ALL questions**

**(3 X 10 = 30)**

14. a) Explain Inheritance and its types.  
(Or)  
b) Write a JAVA Program to perform Method Overriding with suitable example.
15. a) Write a JAVA Program to find Matrix Multiplication.  
(Or)  
b) Describe in detail about Packages.
16. a) Explain about Thread Life Cycle.  
(Or)  
b) Discuss in detail about Byte Stream Class and Character Stream Class.



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30/3/11

The Madura College (Autonomous), Madurai-11  
Department of Computer Science

**Blue Print**

Course: B.Sc. Information Technology

Paper: Programming in JAVA

Paper Code: 6IT1 (2008 on)

QN. NO:- 4974.  
Semester: VI

Time: 3 Hrs

Max. Marks: 75

Units	Part – A	Part – B	Part – C
Unit I	1	2	---
Unit II	1	1	1
Unit III	1	2	1
Unit IV	1	1	1
Unit V	1	2	---
Total	5	8	3

Part – A: Answer All the Questions

5 \* 3 = 15 marks

Part – B: Answer any 5 out of 8

5 \* 6 = 30 marks

Part – C: Answer All Questions (Either or Type)

3 \* 10 = 30 marks

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75 marks  
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**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

B.Sc (IT)

Title : DATA MINING

CODE : 6IT2 (2008 ON) QN.NO : 4976

A B C

Unit - I:

105-138

Introduction to Data Mining - Data preprocessing: Preprocess the data-Descriptive Data Summarization - Data Cleaning- Data Integration and transformation - Data reduction - Data discretization and concept Hierarchy Generation.

Unit - II:

84-98

Data Warehouse and OLAP Technology - Data warehouse- A Multidimensional Data Model - Data Warehouse Architecture- Data warehouse Implementation- From Data warehousing to data mining. Data cube Computation and Data Generalization - efficient methods for data cube computation - Further development of Data cube and OLAP Technology- Attribute oriented Induction - An Alternate method for data Generalization and Concept description.

Unit - III:

226-29

Mining frequent Associations and correlations - Basic concepts and a Road map - efficient and scalable frequent Item set Mining methods - Mining various kinds of Association rules - from Association mining to correlation analysis - Constraint based Association Mining.

Unit - IV:

279

Classification and prediction - Classification - prediction - Issues regarding classification & prediction - Classification by Decision tree Induction - Bayesian classification - Rule based classification; Classification by Back propagation - Support vector machines.

Unit - V:

325-380

Cluster analysis - Cluster analysis - Types of data in cluster analysis - categorization of major clustering methods - Partitioning methods - Hierarchical methods - Density based methods - Grid based methods - model based clustering methods.

Text Book:

Han, J., Hamber, M. - "Data Mining concepts and Techniques"  
Morgan Kaufman Publishers, New Delhi.

Reference Book:

1. Margaret Dunham - "Data Mining Introductory and Advanced topics" - Prentice Hall 2003.
2. Heikki Mannila and Padhraic Smyth - "Principles of Data Mining" - MIT Press Fall 2000.



Received on 30/3/11  
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30/3/11

The Madura College (Autonomous), Madurai-11  
Department of Computer Science

**Blue Print**

Course: B.Sc. Information Technology

QN. No: 4976.

Semester: VI

Paper: Data Mining

Time: 3 Hrs

Paper Code: 6IT2 (2008 on)

Max. Marks: 75

Units	Part - A	Part - B	Part - C
Unit I	1	1	1
Unit II	1	2	---
Unit III	1	1	---
Unit IV	1	2	1
Unit V	1	2	1
Total	5	8	3

Part - A: Answer All the Questions

5 \* 3 = 15 marks

Part - B: Answer any 5 out of 8

5 \* 6 = 30 marks

Part - C: Answer All Questions (Either or Type)

3 \* 10 = 30 marks

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75 marks  
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B.Sc Information Technology Syllabus (2008 on)



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

B.Sc (IT)

Title : COMPUTER SECURITY

CODE : 6IT3(B) (2008 ON) QN.NO : 4980

Elective - II

**UNIT I:**

Security Problem in Computing

Characteristics of Computer in intrusion - Basic Concepts - Threats, Vulnerabilities - Controls - Confidentiality - Integrity - Availability - Methods of Defense.

**UNIT II:**

Basic Encryption & Decryption

Substitution Cipher: Caesar Cipher, other Substitutions, one time Pad - Transposition: Columnar Transposition - Symmetric and Asymmetric Encryption Systems - Stream and Block Ciphers - data Encryption Standard - Rivest Shamir Adel man (RSA) Encryption.

**UNIT III:**

Security Involving Programs and Operating Systems:

Flaws: Malicious Code: Virus, Worm.

Program Flaws: Buffer Overflows - Incomplete Mediation - Time-of-Check to Time-of-Use Errors - Program Development Controls - Memory, File protection Requirements & Techniques - user Authentication.

Trusted Operating System: Design Principals & Evaluation.

**UNIT IV:**

Database and Network Security: Database Integrity - Database Secrecy - Interference Control - Multilevel Databases - Network threats - Introduction to Network Security Techniques.

**UNIT V:**

Administering Security: Security Planning - Risk Analysis - Physical Security - Legal Aspects of Security.

**TEXT BOOK:**

1. Charles P. Pfleeger, Shari Lawrence Pfleeger, Security in Computing, 3<sup>rd</sup> Edition, Person Education, new Delhi, 2003.

**REFERENCE BOOK:**

1. Atul Kahate, Cryptography and Network Security, Tata McGraw -Hill, New Delhi, 2003.
2. William Stallings, Cryptography and Network Security, Principle and Practices, Prentice Hall of India, New Delhi, 1998.



**THE MADURA COLLEGE (Autonomous) MADURAI - 11**  
(Re-Accredited With 'A' Grade By NAAC)

B.Sc. (IT)

**TITLE : DESK TOP PUBLISHING**

**CODE : 6SIT (2008 ON)      Qn.NO. : 4986**

**SKILL BASED ELECTIVE**

**UNIT I: Photoshop**

Introduction - Working Environment - Opening & Saving Files - Getting Started with images - Defining Colors.

**UNIT II:**

Painting Tools - Editing Tools - Making Selection - Layers - Filters - Color Correction and Techniques.

**UNIT III:**

Getting Started - Introduction - Uses of Flash - Tools & Toolbar - Properties inspector - Panels - Viewing Options.

Creating Objects - Stage & overlay Objects - Tools - Panel Tool - Line Tool - Pen Tool - Sub Select Tool - Oval Tool - Rectangle Tool - Pencil Tool - Brush Tool - Ink bottle Tool - Paint Bucket Tool - Dropper Tool - Eraser Tool.

**UNIT IV: Flash**

Editing Object - Selecting with Lasso Tool - Arrow Tool - Grouping Objects - Free Transform Tool - Reshaping Objects - Align Objects - Pixels - Snapping - Stacking order.

Color & Text - Standard Color Palette - Adding Solid Colors - Adding Gradients - Fill Transform Tool - Selecting Colors - Adding, Formatting, Manipulating Text.

Bitmap Sound and Videos - using Bitmaps - Importing Bitmaps - Properties - Bitmap as File - using Sound - importing Sounds - Editing Sounds - Adding Video - Manipulating Videos.

**UNIT V:**

Frames & Layers - Working with Frames - Adding Frames - Deleting & Copying Frames - Frame Properties - Working with Layers - Inserting Layers - Deleting & Copying Layers - layer mode - Properties - Folders - Mask Layers.

Animation - Animation Basics - Elements of Animation - Animation Scenes - Frame by Frame Animation - Motion Twinning - Motion Guides - Shape Twinning - Animation Text - Distribute Text to Layers - Movie Clips.

**TEXT BOOK:**

1. Flash MX in Easy Steps - Nick Vandome - Dream Tech Press
2. Photoshop 7 in Easy Steps - Robert Shuttleworth - Dream Tech Press.

**REFERENCE BOOK:**

1. Comdex Desktop Publishing Course Kit - Vikas Gupta.
  2. Macromedia Flash MX 2004 Fast & Easy Web Development - Lisa Bucki - Premier Press.
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Received on 30/3/11  
VJL 30/3/11

The Madura College (Autonomous), Madurai-11  
Department of Computer Science

**Blue Print**

**Course:** B.Sc. Information Technology

**QN.No:-** 4986.

**Semester:** VI

**Paper:** SBE- Desktop Publishing

**Time:** 3 Hrs

**Paper Code:** 6SIT (2008 on)

**Max. Marks:** 75

Units	Part – A	Part – B	Part – C
Unit I	1	2	--
Unit II	1	1	1
Unit III	1	2	1
Unit IV	1	1	1
Unit V	1	2	--
<b>Total</b>	<b>5</b>	<b>8</b>	<b>3</b>

**Part – A:** Answer All the Questions

5 \* 3 = 15 marks

**Part – B:** Answer any 5 out of 8

5 \* 6 = 30 marks

**Part – C:** Answer All Questions (Either or Type)

3 \* 10 = 30 marks

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75 marks  
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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**  
(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)  
RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U1FMC1**

**COURSE TITLE : Introduction to Information  
Technology**

**QN.NO : 9401**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Unit I:**

Introduction to Computers - Generation of Computers - Classification of Digital Computer - Anatomy of Digital Computer.

**Unit II :**

Architecture of Computer - CPU and Memory - Secondary Storage Devices - Input Devices - Output Devices.

**Unit III :**

Introduction to Computer Software - Programming Language - Operating Systems - Introduction to Database Management System - Data Mining and On-line Analytical Processing.

**Unit IV:**

Computer Networks - WWW and Internet - Email - Intranets - Mobile Computing and Business on the Internet.

**Unit V :**

Introduction to Multimedia - Multimedia Applications - Computers at Home, Education, Entertainment, Science, Medicine and Engineering - Introduction to Computer Security - Computer Viruses, Bombs, Worms.

**Text Book:**

1. Alexis Leon And Mathews Leon, Fundamentals of Information Technology , Vikas Publishing House Pvt. Ltd, 2009.

**Reference Book:**

1. Dennis P. Curtin ,Kim foley, KunalSen and Cathleen Morin, Information Technology – The Breaking Wave, Tata-McGraw Hill Publications, 2005.

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U1FMC2**

**COURSE TITLE : Programming in C**

**QN.NO : 9402**

**TIME : 3 Hours**

**MAX.MARKS :75**

### **UNIT I: Overview of C**

History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – Operators and Expressions: Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

### **UNIT II: Managing I/O Operations**

Reading and Writing a Character – Formatted Input, Output – Decision Making & Branching: if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops

### **UNIT III: Arrays**

One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. Strings: Declaration, Initialization of string variables – reading and writing strings – string handling functions

### **UNIT IV: User-defined functions**

Need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. Structures and Unions: Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields

**P.T.O**

## **UNIT V: Pointers**

Accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. Files: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

### **Text Book:**

1. E.Balagurusamy, Programming in ANSI C, 3<sup>rd</sup> Edition, 2005, Tata McGraw Hill Publishing Company.

### **Chapters:**

Unit I: 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)

Unit II: 4 – 6

Unit III: 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)

Unit IV: 9 (Except 9.20), 10

Unit V: 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

### **Reference Books:**

1. Gottfried , Programming with C, Schaum's Outline Series, , 2006Tata McGraw Hill
2. Ashok N.Kamthane , Programming with ANSI and Turbo C , 2006, Pearson Education
3. H. Schildt, C: The Complete Reference, 4th Edition, 2000 ,TMH Edition
4. Kanetkar Y., Let us C, 1999, BPB Pub., New Delhi

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**RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC**

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U1FAC1**

**COURSE TITLE : Digital Electronics**

**QN.NO : 9404**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Unit - I :**

Numbers Systems and Discrete Logic Why Binary– binary to decimal – decimal to binary – octal – hexa decimal – ASCII code – Excess-3 Code – Gray Code – transistor inverter – OR gates – AND gates – Boolean Algebra – NOR gates – NAND gates.

**Unit – II:**

Circuit Analysis and Design Boolean Law and theorems –sum of product method – K-Map truth tables – Pairs, Quads, Octets – K-Map simplifications – Don’t care – product of sum method – product of sum simplifications.

**Unit – III:**

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – 7 segment decoders – Encoders – Exclusive-OR gates – parity generators-checkers – Binary Addition – Binary Subtraction – 2’s & 1’s complement representation – Complement Arithmetic – Arithmetic building blocks.

**Unit – IV:**

Flip-Flops, Clocks and timers RS flip-flop – D Flip-Flop – JK Flip-Flop – JK Master Slave Flip-Flop – Schmitt Trigger – 555 Timer Astable – 555 Timer Monostable – 555 Timer Schmitt Trigger.

**Unit – V:**

Shift Registers and Counters Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Ring counter – Ripple Counter – Synchronous Counter – MOD counters – Presetable counters.

**Text Book:**

Albert Paul Malvino & Donald P. Leach, Digital Principles and Applications, Fourth Edition, Tata McGraw-Hill Edition, 2005

Unit I: Chapters: 1, 4

Unit II: Chapters: 2

Unit III: Chapters: 3.1 to 3.8, 5.1 to 5.7

Unit IV: Chapters: 8.1, 8.3,8.6,8.7,8.8, 9.3,9.4

Unit V: Chapters: 10, 11.1,11.3,11.5,11.6

**Reference Book:**

M.Morris Mano, Digital Logic and Computer Design, PHI, 2005

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U2FMC3**

**COURSE TITLE : Object Oriented Programming  
with C++**

**QN.NO : 9406**

**TIME : 3 Hours**

**MAX.MARKS :75**

**UNIT I:**

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – User-defined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

**UNIT II:**

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

**UNIT III:**

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

**UNIT IV:**

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output with manipulators.

**UNIT V:**

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

**Text Book:**

1. E. Balagurusamy, Object Oriented Programming with C++, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

Unit I – Chapter 1 (Except 1.3, 1.4), Chapter 2 (Only 2.6),

Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4

Unit II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)

Unit III – Chapter 7, Chapter 8

Unit IV – Chapter 9, Chapter 10

Unit V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4 )

**Reference Books:**

1. Herbert Schildt, C++ - The Complete Reference, 1998, TMH.
2. Paul Deitel, Harvey Deitel, C++ How to Program, Ninth edition (2014) PHI.
3. Ashok N. Kamthane, Object Oriented Prog., with ANSI & Turbo C ++, Pearson Education.
4. Poornachandra Sarang, Object-Oriented Programming With C++ , 2<sup>nd</sup> Edition, PHI.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U2FMC4**

**COURSE TITLE : Multimedia Technology**

**QN.NO : 9407**

**TIME : 3 Hours**

**MAX.MARKS :75**

### **Unit – I: Multimedia Introduction**

Definitions – CD-ROM and the Multimedia Highway – Where to use Multimedia.

Introduction to Making Multimedia – The stages of a Project – what you need. Hardware – Macintosh Verses Windows – Connections – Memory and Storage devices – Input devices – Output hardware.

### **Unit-II: Basic Tools**

Basic software tools-Text Editing and Word processing Tools-OCR software-Painting and Drawing Tools-3D Modeling and animation Tools-Image Editing Tools-Sound Editing Tools-Animation , video and digital movie tools. Multimedia authoring tools-Making Instant multimedia-types of authoring tools-card and page-based authoring tools-Icon and object-based authoring tools-time-based authoring tools-Class platform authoring notes.

### **Unit-III: Text, Sound and Images**

Text: The power of meaning –about fonts and faces-using text in multimedia-computers and text-font editing and design tools-hypermedia and hypertext. Sound: The power of sound-multimedia system sounds-digital audio-making MIDI audio-audio file formats-MIDI versus digital audio-adding sound to your multimedia project-production tips. Images: before you start to create-making still images-color-image file formats.

### **Unit-IV: Animation and Video**

Animation: The power of motion-principles of animation-Animation by computer-making animations that work. Video: using video-how video works-broadcast video standards-analog video-digital video-video recording and tape formats-shooting and editing video.

### **Unit-V: Planning**

Planning and cost: The process of making multimedia-scheduling-estimating-RFP's and bid proposals. Designing and producing: Designing-producing.

### **Text Book:**

Tay Vaughan - Multimedia making it Work-6<sup>th</sup> Edition-Tata McGraw-Hill.

### **Reference Books:**

1. David Hillman-Multimedia Technology and Applications-Galgotia Publications Pvt. Ltd.
2. Judith Jaffcoats – “Multimedia in practice – Technology operations, PHI, 1998.



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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U2FAC2**

**COURSE TITLE : Discrete Mathematics**

**QN.NO : 9409**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Unit-I: Set Theory**

Introduction – Sets - Notation and Description of Sets – Subsets - Venn-Euler Diagrams - operations on sets - Properties of set operations - verification of the Basic Laws of Algebra by Venn diagram - The principle of Duality.

**Unit-II: Relations**

Cartesian product of two sets - Relations - Representation of Relations - operations on Relations - Equivalence Relation. Functions and Operators - one-to-one, onto functions - Special types of functions - invertible functions - composition of functions.

**Unit-III: Mathematical Induction**

Techniques of Proof - Mathematical induction Recurrence Relation and Generating Functions: Recurrence – An introduction - Polynomials and their evaluations - Recurrence Relations - Solution of finite order Homogeneous Relations - Solution of finite order Non-Homogeneous Relations - Generating Functions.

**Unit-IV: Matrix Algebra**

Introduction - Matrix Operations - Inverse of a square matrix - Elementary operations and Rank of a matrix - Simultaneous equations - Eigen Values and Eigen Vectors.

**Unit-V: Logic**

Introduction - TF Statements – Connectives - Atomic and Compound statements - Well Formed Formulae - Truth table of a formula – Tautology - Tautological implications and equivalence of formulae - Lattices - Some properties of Lattices.

**Text Book:**

Dr. M.K.Venkatraman, Dr.N.Sridharan, N.Chandrasekaran – “Discrete Mathematics” - The National Publishing Company - 2003.

**Reference Books:**

1. Alan Doerr,Levassure – “Applied Discrete Mathematical Structures for Computer Science”.
2. Trembly and Manohar – “Discrete Mathematical Structures with Application to Computer Science”.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U3FMC5**

**COURSE TITLE : Operating Systems**

**QN.NO : 9411**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Unit - I: Introduction**

Operating system basics – Computer System organization – Computer system architecture – operating system structure – Operating system operations – Distributed systems – Open source operating systems. **System structures:** Operating system services – User operating system interface – System calls – Operating system structure.

**Unit - II: Process Management**

Process concepts – Process scheduling – Inter-process communication. **Multithreaded programming:** Overview – Multithreading models. **Process Scheduling:** Basic concepts – Scheduling criteria – Scheduling algorithms.

**Unit - III: Memory Management**

Memory management strategies – Background – Swapping – Contiguous memory allocation – Paging – Structure of the page table – Segmentation. **Virtual memory management:** Background – Demand paging – Copy-on-write – Page replacement – Thrashing.

**Unit - IV: Storage Management**

**File system:** File concepts – Access methods – File sharing – Protection. **Secondary storage structures:** Overview of Mass-storage structure – Disk structure – Disk scheduling – Disk management - RAID structure. **I/O systems:** Overview – I/O hardware.

**Unit - V: Process Coordination**

**Synchronization:** Background – The Critical-Section problem – Semaphores. **Deadlocks:** System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance.

**Chapters:**

Unit – I : 1.1 -1.5, 1.10, 1.13, 2.1-2.3, 2.7.  
Unit – II : 3.1, 3.2, 3.4, 4.1, 4.2, 5.1-5.3.  
Unit – III : 8.1-8.6, 9.1-9.4, 9.6.  
Unit – IV : 10.1, 10.2, 10.5, 10.6, 12.1, 12.2, 12.4, 12.5, 12.7, 13.1, 13.2.  
Unit – V : 6.1, 6.2, 6.5, 7.1-7.5.

**Text Book:**

Abraham Silberschatz, Peter B.Galvin, Greg Gagne - “Operating System Concepts “ – Wiley Student Edition – 8<sup>th</sup> Edition - 2010.

**Reference Books:**

1. D.M.Damdhere - “Operating systems – A concept based approach” – 2<sup>nd</sup> Edition – TMH.
2. William Stalings – “ Operating system, Internals and design principles” – 2008 – PHI.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U3FMC6**

**COURSE TITLE : Visual Programming**

**QN.NO : 9412**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of computer programming with GUI approach.
- Learning the concept and controls of a front-end tool.

**UNIT I : Introduction**

Overview of the IDE - Managing forms in Visual Basic - The Visual Basic Language: Declaring Constants, Variables – Selecting variable types-Converting between data types - setting variable scope- verifying data types – declaring arrays & Dynamic arrays – Declaring Subroutines – Declaring functions – Handling strings – Converting strings to numbers and back again – Handling operators & operator precedence – Using if-else statements- Using select case –Looping – Handling higher math- Handling Dates and Times.

**UNIT II : Controls**

Text Boxes and Rich text Boxes- command buttons – checkboxes & option buttons – list boxes and combo boxes – picture boxes and image controls – The timer control – The frame control – the label control – the shape control.

**UNIT III: Menus & Toolbars**

Visual Basic Menus: adding a menu to a form – modifying & deleting menu items – creating sub menus – using Visual Basic predefined menus-Handling MDI forms & MDI child menus-creating & displaying popup menus – Adding & deleting menu items at runtime– Toolbars, status bars, progress bars and coolbars.

**UNIT IV : Files & Data Base Concepts**

File handling and File Controls – Using DAO,RDO and ADO : Creating and managing databases with the visual data manager – creating a table - Adding a Data control – opening a database with the data control, Remote data control, ADO data control – connecting a databases using controls- working with database objects in code.

**UNIT V : Activex controls & Documents**

Creating an Activex control – Designing Activex control- Adding controls to an Activex control- Registering an Activex control – Creating an Activex Document – Activex Document Dll vs EXEs – Testing an Activex Document.

**Text Book:**

Steven Holzner – “Visual Basic 6 Programming Black Book” - 16<sup>th</sup> Reprint Edition - Dreamtech Press Publications.

**Reference Books:**

1. Petroustos.E – “ Mastering Visual Basic 6” – Fifth edition, BPB Publications
2. Jerke .N - “ Visual Basic 6.0 – The Complete reference” – Nineteenth Reprint 2004, Tata-McGraw Hill Publishing.
3. Gary Cornell- “VB 6 from the Ground up” – Second Reprint 1999-Tata-McGraw Hill Private Ltd.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U3FMC7**

**COURSE TITLE : Linux Programming**

**QN.NO : 9413**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of open source software.
- Learning the architecture and processes of Linux operating system.

**Unit –I: Introduction to Linux**

Getting started: An introduction to UNIX, Linux and GNU - Programming Linux.

Shell programming: Introduction - Pipes and redirection - The shell as a Programming language-Shell syntax - Going Graphical - Dialog utility - Putting it altogether.

**Unit-II: Working With Files**

Linux file structure-System calls and device drivers - Library functions - low level file access -The Standard I/O library - Formatted input and output - File and directory maintenance - Scanning Directories – Errors - The /Proc file systems - Advanced Topics: fcntl and mmap.

**Unit-III: Processes and Signals**

Introduction to process - Process structure - Starting new processes - Signals.

**Unit-IV: Inter Process Communication**

Pipes - Process pipes - Sending output to ‘popen’ - The pipe call - Parent and child processes -Named pipes: FIFOs - The CD database applications. **Semaphores, Shared memory and Message queues** : Semaphores - Shared memory - Message queues – IPC Status commands.

**Unit-V: Sockets**

Introduction - Socket connections - Network information - Multiple clients - Datagrams.

**Chapters:**

Unit – I : 1 and 2.

Unit – II : 3

Unit – III : 11.

Unit – IV : 13 and 14.

Unit – V : 14 and 15

**Text Book:**

Neil Matthew,Richard Stones-“ Beginning Linux Programming”,Fourth Edition,2008,Wiley Publishing Inc.

**Reference Book:**

Linux system programming- Robert Love,O’Reily,SPD.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U3FAC3**

**COURSE TITLE : Data Structures and  
Computer Algorithms**

**QN.NO : 9415**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of computer programming with algorithmic approach.
- Learning the concept of data structures and its operations.

**UNIT I : Stacks and Queues**

The Stack & Queue abstract data type– A Mazing Problem – Evaluation of Expressions– Multiple Stacks and Queues. **Linked Lists:** Singly Linked Lists –Circular list- Linked Stacks and Queues – Polynomials- Doubly Linked List.

**UNIT II : Trees**

Basic Terminology – Binary Trees- Properties - Representations - Binary Tree Traversal – Additional Binary tree operations-Threaded Binary Trees.

**UNIT III : Graphs**

Definitions and Representations – Elementary Graph operations-Minimum Cost Spanning Trees – Shortest Path and Transitive Closure – Activity Networks.

**UNIT IV: Divide and Conquer**

The General Method – Binary Search – Finding the Maximum and Minimum – Merge Sort – Quick Sort – Selection Sort.

**UNIT V: The Greedy Method**

The General Method – Knapsack problem-Tree vertex Splitting-job sequencing with deadlines- Minimum cost spanning trees-optimal storage on tapes-optimal merge patterns-single source shortest path.

**Text Books:**

1. Ellis Horowitz , Sartaj Sahni & Dinesh Mehta – “Fundamentals of Data structures in C++”  
- 2<sup>nd</sup> Edition – Universities Press 2007.
2. Ellis Horowitz , Sartaj Sahni & Sanguthevar Rajasekaran- “Fundamentals Of Computer Algorithms”- 2<sup>nd</sup> Edition- Universities Press 2007.

**Reference Books:**

1. Yedidyah langsam, Moshe J.Augenstein and Aaron- “Data structures using C “– PHI.
2. Seymour Lipschutz – “Data Structures” - TataMcGrawhill – Year 2006.
3. Jean Paul Tremblay and Paul G Sorenson – “An Introduction to Data structure with Application” - THM, II Edition – 1991.



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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U3FAC4**

**COURSE TITLE : Computerized Accounting**

**QN.NO : 9416**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of computerized financial management.
- Learning the concepts of accounts and accounting software.

**Unit – I : Introduction to Accounting**

Principles of Book keeping – Day Books and Ledgers – Cash Book – Petty Cash Book – Trial Balance.

**Unit – II : Preparation of Final Accounts**

Preparation of Trading and Profit & Loss Account – Preparation of Balance Sheet (Simple Problems only)

**Unit – III : Ratio Analysis**

Meaning – Importance – Types - Liquidity Ratios - Solvency Ratio - Activity Ratios. (Simple problems only)

**Unit – IV : Preparation of Accounts through Accounting Software**

Creation of Company – Creation of Group – Creation of Ledger.

**Unit – V: Voucher Creation and Display of Final Accounts in Accounting Software**

Creation of Vouchers - Types of Voucher – Alteration of Voucher – Deletion of Voucher .  
Preparation of Final Accounts through Tally – Trial Balance – Profit and Loss Account – Balance Sheet at the Gateway of Tally - Methods of showing Balance sheet.

**Text Book:**

1. Dr. S.A.N Shazuli Ibrahim, Financial Accounting – I, PASS Publications, Madurai.
2. Dr. P. Rizwan Ahmed, Tally ERP 9, Margham Publications, Chennai.

**Books for Reference**

1. S.P. Jain & K.L Narang, “*Advanced Accountancy*” Vol-I, Nineteenth Edition, 2015, Kalyani Publishers, Mumbai.
2. R.L. Gupta & M. Radhaswamy, “*Advanced Accountancy*” Vol-I, 2015, Sultan Chand & Sons, New Delhi.
3. Nellai Kannan C, “*Tally*”, 2004, Nels Publications.
4. Shraddha Singh & Navneet Mehra, “*Tally.ERP 9- Power of Simplicity*”, 2014, ITC Publication.

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**PROGRAMME: UG NME- Information Tech      COURSE CODE : 17U3FNM1**

**COURSE TITLE : Introduction to Internet      QN.NO : 9418**

**TIME : 3 Hours      MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of basics of Internet.
- Learning the various aspects of Internet design and functionalities.

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**Unit I: Introduction to Internet**

Internet- Growth of Internet and Arpanet - Owners of the Internet -Anatomy of Internet – History of WWW - Basic Internet Terminologies – Net etiquette - Internet Applications - Commerce on the Internet – Governance on the Internet - Impact of Internet on Society.

**UNIT II: Browsers and Search engines**

Browsers – browser- Introduction – Parts of a browser window -Running a browser - working with a Browser. Search engines: What is search engine? - Types of search engines - Search and Meta search engines.

**Unit III: E-mail**

E-mail - E-mail Networks and Servers - E-mail Protocols - Structure of E-mail - Attachments – E-mail Clients - E-mail Clients - web based E-mail-Address book – Signature File.

**UNIT IV: HTML Programming Basics**

Introduction to HTML – HTML browsers - Different versions of HTML-HTML tags - Document overview - Header elements - Section headings –

**UNIT V: HTML Programming Basics**

Block headings - Lists-Inline elements – Images - working with Tables, Forms, Frames.

**Text book:**

Internet Technology and Web design, Ramesh Bangia, Firewall Media, (An imprint of Lakshmi Publications Pvt. Ltd.), Third Edition, 2011.

Unit 1: Chapter 1.2

Unit 2: Chapter 3 & Chapter 4

Unit 3: Chapter 5(5.6), Chapter 8(8.11 &8.13)

Unit 4: Chapter 5 (5.1) & Chapter 6

Unit 5: Chapter 9

**Reference Books:**

1.The Internet Book, Douglas E. Comer, Fourth Edition, PHI Learning Pvt. ltd. , New Delhi, 2009.

2.Using the Internet the Easy Way, Young Kai Seng, Minerva Publications, First Edition, 2000.

3.Fundamentals of Information Technology By Alexis Leon and Mathews Leon, Vikas Publishing House Pvt. Ltd., Revised Edition.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FMC8**

**COURSE TITLE : Programming in Java**

**QN.NO : 9419**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of OOPs approach in computer programming.
- Learning the concept and controls of Java language.

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**Unit – I: Introduction**

Java history – Java Features – Simple Java Programs – Class declaration – Tokens – Comments – Statements – JVM – Implementing Java programs – Command line arguments – Constants, Variables and Data types – Operators and Expressions – Decision making statements – Simple if statements – If-else statements – Nesting if-else statements – else-if ladder – switch statement – ternary operator – Looping – While, do-while, for loop statements.

**Unit – II: Class & objects**

Creation of class – Objects and methods – Accessing class members – Constructors – Method Overloading – Overriding – Static members – Inheritance – Interface.

**Unit – III: Arrays**

Arrays – Types – Length – Strings – Strings Manipulations – Vector – Vector classes – Wrapper class – Enumerated types – Java API Packages – System package – Creating and accessing user defined and system package – Managing errors and exceptions.

**Unit – IV: Input / Output**

Managing I/O files in Java – Stream I/O – Byte stream class – Character stream class – creation of files – File handling in Java – Multi threaded programming – Multithreads in Java – Thread class – Lifecycle of thread – Thread exceptions – Priority.

**Unit – V: Applets & Graphics Programming**

Applet programming – Introduction – Preparing to write Applets – Building applet code – Applet life cycle – Creating an executable applet – Applet tag – Running the applet – Passing parameters – Displaying numerical values - Getting input from the user – Graphics programming – Introduction – the Graphics class – Lines and rectangles – Circles and ellipse – Drawing arcs – Drawing polygons.

**Text Book:**

E. Balagurusamy – “Programming with Java” – V Edition., - MGH.

**Reference Books:**

1. Deital & Deital – “Java How to Program” – Pearson education-2003.
2. Herbert Schildt - “Java A Beginner’s Guide” - IV Ed., TMH.
3. Patrick Naughton, Herbert Schildt – “Java Complete Reference2 – V Ed., - TMH.

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FMC9**

**COURSE TITLE : Data Communication &  
Computer Networks**

**QN.NO : 9420**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of data communication and computer networks.
- Learning the concept and the various layers of a computer network design.

**UNIT I: DATA COMMUNICATION**

Components – Direction of Data flow – networks – Components and Categories – types of Connections – Topologies – Protocols and Standards – ISO / OSI model – Transmission Media – Coaxial Cable – Fiber Optics – Line Coding – Modems – RS232 Interfacing sequences.

**UNIT II : DATA LINK LAYER**

Error – detection and correction – Parity – LRC – CRC – Hamming code – low Control and Error control - stop and wait – go back-N ARQ – selective repeat ARQ- sliding window – HDLC. - LAN - Ethernet IEEE 802.3 - IEEE 802.4 - IEEE 802.5 - IEEE 802.11 – FDDI - SONET–Bridges.

**UNIT III: NETWORK LAYER**

Internetworks – Packet Switching and Datagram approach – IP addressing methods – Subnetting – Routing – Distance Vector Routing – Link State Routing – Routers.

**UNIT IV : TRANSPORT LAYER**

Duties of transport layer – Multiplexing – De -multiplexing – Sockets – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP) – Congestion Control – Quality of services(QOS)–IntegratedServices.

**UNIT V: APPLICATION LAYER**

Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW – Security – Cryptography.

**TEXT BOOK:**

Behrouz A. Forouzan, “Data communication and Networking”, Tata McGraw-Hill, 2004.

**REFERENCE BOOKS :**

1. James F. Kurose and Keith W. Ross, “Computer Networking: A Top-Down Approach Featuring the Internet”, Pearson Education, 2003.
2. Larry L.Peterson and Peter S. Davie, “Computer Networks”, Harcourt Asia Pvt. Ltd., Second Edition.
3. Andrew S. Tanenbaum, “Computer Networks”, PHI, Fourth Ed.,2003.
4. William Stallings, “Data and Computer Communication”, Sixth Edition, Pearson Education, 2000.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FMC10**

**COURSE TITLE : Web Programming**

**QN.NO : 9421**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of web programming.
- Learning the .

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**UNIT I**

Internet Basics: Basic Concepts – Internet Domains – IP Address – TCP/IP Protocol – The WWW – The Telnet — Introduction to HTML: Web server - Web client / browser - Tags – Text Formatting – Lists – Tables – Linking Documents - Frames.

**UNIT II**

JavaScript: JavaScript in Web Pages – The Advantages of JavaScript – Writing JavaScript into HTML – Syntax – Operators and Expressions – Constructs and conditional checking – Functions – Placing text in a browser – Dialog Boxes – Form object’s methods – Built in objects – user defined objects.

**UNIT III**

XML: Comparison with HTML – DTD – XML elements – Content creation – Attributes –Entities – XSL – XLINK – XPATH – XPOINTER – Namespaces – Applications – integrating XML with other applications.

**UNIT IV**

Self reading content, Hence not provided.

**UNIT V**

ASP: Introduction to ASP – Objects – Components – Working with HTML forms – Connecting to Microsoft SQL Server & MS–Access Database – SQL statements with connection object – Working with record sets.

**Text Books**

1. “Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI”, Ivan Bayross, BPB Publication. UNIT I & II
2. “XML Bible”, Elliotte Rusty Harold, 2nd Edition, Wrox Publication. UNIT III
3. “Beginning Java Server Pages”, Vivek Chopra, Sing Li, Rupert Jones, Jon Eaves, John T. Bell, Wrox Publications. UNIT IV
4. “Practical ASP”, Ivan Bayross, BPB Publication. UNIT V

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FMC11**

**COURSE TITLE : Computer Organization**

**QN.NO : 9422**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of organization of computer.
- Learning the concept of components of a computer system.

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**UNIT I: BASIC STRUCTURE OF COMPUTERS**

Functional units – Basic operational concepts – Bus structures – Performance and metrics – Instructions and instruction sequencing – Hardware – Software Interface – Instruction set architecture – Addressing modes – RISC – CISC. ALU design – Fixed point and floating point operations.

**UNIT II: BASIC PROCESSING UNIT**

Fundamental concepts – Execution of a complete instruction – Multiple bus organization – Hardwired control – Micro programmed control – Nano programming.

**UNIT III: PIPELINING**

Basic concepts – Data hazards – Instruction hazards – Influence on instruction sets – Data path and control considerations – Performance considerations – Exception handling.

**UNIT IV: MEMORY SYSTEM**

Basic concepts – Semiconductor RAM – ROM – Speed – Size and cost – Cache memories – Improving cache performance – Virtual memory – Memory management requirements – Associative memories – Secondary storage devices.

**UNIT V: I/O ORGANIZATION**

Accessing I/O devices – Programmed Input/Output -Interrupts – Direct Memory Access – Buses – Interface circuits – Standard I/O Interfaces (PCI, SCSI, USB), I/O devices and processors.

**TEXT BOOK:**

1. Carl Hamacher, Zvonko Vranesic and Safwat Zaky, “Computer Organization”, Fifth Edition, Tata McGraw Hill, 2002.

**REFERENCES:**

1. David A. Patterson and John L. Hennessy, “Computer Organization and Design: The Hardware/Software interface”, Third Edition, Elsevier, 2005.
2. William Stallings, “Computer Organization and Architecture – Designing for Performance”, Sixth Edition, Pearson Education, 2003.
3. John P. Hayes, “Computer Architecture and Organization”, Third Edition, Tata McGraw Hill, 1998.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FAC5**

**COURSE TITLE : Numerical Methods**

**QN.NO : 9423**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of computer arithmetic.
- Learning various algebraic and numerical methods.

**UNIT I: Algebraic and Transcendental Equations**

Errors in numerical computation-Iteration method-Bisection method-Regula-Falsi method-Newton-Raphson method-Horner's method.

**UNIT II: Simultaneous Equations**

Introduction-Simultaneous equations-Back substitution-Gauss Elimination method-Gauss – Jordan Elimination method-Calculation of Inverse of a matrix-Crout's method-Iterative methods-Gauss-Jacobi Iteration method-Gauss seidal Iteration method-Newton Raphson's method for simultaneous equations.

**UNIT III: Interpolation**

Introduction: Newton's interpolation Formulae-Central difference Interpolation formulae-Gauss forward, Gauss backward, Lagrange's interpolation formulae-Divided differences-Newton's divided difference formula-Inverse Interpolation.

**UNIT IV: Numerical Differentiation and Integration**

Introduction-Derivates using Newton's forward difference formula-Derivates using Newton's backward difference formula-Numerical Integration-Newton-cotes quadrature formula-Trapezoidal Rule-Simpson's one third rule-Simpson's 3/8 th rule.

**UNIT V: Numerical Solution of Ordinary Differential Equations**

Introduction-Taylor series method-Picard's method-Euler's method-Runge-kutta method of second, third, fourth order-Predictor & corrector methods-Mile's method.

**Text Book:**

Numerical Methods, Second Edition, S.Arumugam, A.Thangapandi Issac, A.Somasundaram, SCITECH publications.

**Chapters:**

Unit I: Chapter-3

Unit II: Chapter-4 (excluding Relation method and its related problems)

Unit III: Chapter-7 (Sections: 7.0, 7.1, 7.2((i), (ii) and related problems); 7.3,7.4,7.5,7.6)

Unit IV: Chapter-8 (Sections: 8.0,8.1,8.2 related problems,8.5 (excluding Weddles rule, Booles rule, Romberg's method and related problems) )

Unit V: Chapter-10 (Sections : 10.0,10.1,10.2,10.3(excluding modified Euler's method & its related problems) 10.4,10.5,10.6 )

**Reference Book:**

Mathews J.H. Numerical Method for Maths, Science and Engineering; PHI, New Delhi, 2001.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U4FNM2**

**COURSE TITLE : PC Software**

**QN.NO : 9426**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of basic computer software.
- Learning various features of Word and PowerPoint.

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**Unit I: Introduction to MS Word**

Getting started with Word: Starting Word 2000 - Viewing Layouts- Typing, Navigating Documents and Selecting Text.

**Unit II: Creating Professional Documents**

Setting up the page – Customizing the page. Advance Tools in Word2000: proofing Tools – Using Tables - Mail merge – using Macros.

**Unit III: Introduction to MS PowerPoint**

Getting started with PowerPoint: Usefulness of PowerPoint for Presentations – Starting a PowerPoint Presentation- Enhancing the presentation.

**Unit IV: Features of PowerPoint**

ClipArt and WordArt in PowerPoint – Working with Charts and tables.

**Unit V: Advanced Concepts in PowerPoint**

Advanced Concepts in PowerPoint: Importing and exporting charts - Giving final touches Creating Presentation for the Internet- Automatic work with Macros.

**Text Book:**

“Working with MS Office 2000” by Content Development Group. Tata McGraw-Hill Publishing Company Limited.

**Reference Book:**

“Pc Software for Windows 98 Made Simple”- Tata McGraw-Hill Publishing Company Limited.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U5FMC12**

**COURSE TITLE : Relational Database**

**QN.NO : 9427**

**Management Systems**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To understand the fundamentals of data models and concepts of database system
- To develop a programming skill of SQL

**Unit – I**

**Introduction**

Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Relational Databases – Database Design – Object based and Semi structured databases -Data Storage and Querying – Transaction Management – Data Mining and Analysis – Database Architecture – Specialty Databases-Database users and Administrators – History of Database Systems.

**Unit – II**

**Relational Databases**

Relational Model: Structure of Relational Databases – Fundamental Relational Algebra Operations – Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null Values – Modification of the Database. **SQL:** Background -Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null Values – Nested Sub queries – Complex Queries – Views – Modification of the Database – Joined Relations.

**Unit – III**

**Database Design**

Other Relational Languages: The Tuple Relational Calculus -The Domain Relational Calculus – Query-By-Example-Data log. **Database Design and 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**

**Normalization**

Features of Good Relational Database Designs – Atomic Domains and First Normal Form – Decomposition using Functional Dependencies – Functional Dependency Theory – Keys and Functional dependencies: Boyce Codd Normal form-BCNF and Dependency Preservation-Third Normal Form.

**Unit – V**

**Storage and File Structure**

Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization – Organization of records in Files – Data-Dictionary Storage.

**Text Book:**

Abraham Silberschatz, Henry F. Korth, S. Sudharshan -“Database System Concepts”,VI Ed., TMH.

**Chapters:**

**Unit I** : 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13.

**Unit II** : 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11.

**Unit III**: 5.1,5.2, 5.3, 5.4, 6.1,6.2, 6.3, 6.4, 6.5, 6.6, 6.7

**Unit IV**: 7.1, 7.2, 7.3, 7.4

**Unit V** : 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8

**Reference Books:**

1. Raghu RamaKrishnan,Johannes Gehrke-, “**Database Management System**”- Mcgraw Hill,Third Edition.
2. Leon & Leon -“**DBMS**” ,New Edition ,Leon vikas Pub.
3. Thomas Connolly -“**Database Systems**”-,Addison Wesley–NewPrint.
4. J.Keerthika -“**Database Management Systems**”, Excellent publishers.

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U5FMC13**

**COURSE TITLE : Management Information**

**QN.NO : 9428**

**Systems**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives**

- To impart the knowledge of Management Information systems.
- Learning the concept and operations of information systems.

**Unit - I**

Meaning-Definition-Integrated systems-MIS and data processing-MIS and other academic discipline such as managerial accounting, operational research, management, organization theory and computer science.

**Unit - II**

MIS support for decision making-structured, programmable decisions-Unstructured, non programmable decisions-hierarchy of management activity-Information systems for operational and management control –Planned performance-Variance from planned performance, reasons for variances, Analysis of possible decisions or courses of action-MIS structure based on organizational function-Formal and informal systems.

**Unit - III**

Decision-making process-phases of decision making process, problem finding, formulation and solution or alternatives-criteria for decision making-Decision trees.

**Unit - IV**

Concepts of information-Definition of information-Model of communication system-Mathematical definition of information-Information presentation-Quality of information-General model of the human as an information processor.

**Unit - V**

Concepts of planning and control and organization structure-Meaning-Object of organizational planning-Setting of goals and objectives-Hierarchy of planning-The planning process-The sources of planning data-Development of planning models-The basic model of an organization structure-Organization by product or service-Matrix organization .

**Text Book:**

Magrethe.H.Olson&Gordon.B.Davis-“ManagementInformationsystems”conceptual Foundations, structure and development-II edition, MGH.

**Chapters:**

**Unit – I:** 1.1, 1.2, 1.3.

**Unit – II:** 2.1, 2.2, 2.3, 2.6.

**Unit – III:** 6.1, 6.2, 6.3, 6.7

**Unit – IV:** 7.1, 7.2, 7.3, 7.4, 8.1.

**Unit – V:** 10.1, 10.2, 11.1.11.2.

**Reference Books:**

1. James A O’Brien George M Marakas Ramesh Behl “Management Information Systems” Tenth edition McGrawHill publications.
2. Rainer Prince Watson “Management Information Systems”-Third edition Wiley publications.
3. C.Laudon,JanePrice Laudon-“Management Information System”- seventh edition - PHI.



**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U5FMC14**

**COURSE TITLE : Software Engineering**

**QN.NO : 9429**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- Understanding user conceptual models and development of better specifications.
- Improvement in design languages and reusable code

**Unit1 - Introduction**

Definitions- Some Size Factors: Total Effort Devoted to Software, Distribution of Effort, project size Categories, How Programmers Spend their time -Quality and Productivity factors-Managerial issues.

**Unit II - Planning A Software Project**

Defining the problem: Goals and Requirements –Developing a solution strategy-Planning the development process: The phased Life-cycle Model, Milestones,,Documents,and Reviews, The Cost Model, The Prototype Life-Cycle Model, Successive versions- planning an organizational structure-other planning Activities.

**Unit III - Software Cost Estimation**

Software cost factors-Software cost estimation techniques-Staffing level estimation – Software requirements definition-The Software requirements specification-Formal Specification techniques.

**Unit IV - Software Design**

Fundamental design concepts-Modules and modularization criteria-Design notations-Design techniques-Real-time and distributed system design-Test plans-Milestones, walkthroughs & inspections.

**Unit V - Software Maintenance**

Enhancing Maintainability during development - Managerial aspects of software maintenance-Configuration management - Source-code metrics - other Maintenance tools and Techniques.

**Text Book:**

Richard Fairley-“Software Engineering concepts”-MGH

**Chapters:**

**Unit-I:** 1.2, 1.3, 1.4

**Unit-II:** 2.1, 2.2, 2.3, 2.4, 2.5

**Unit-III:** 3.1, 3.2, 3.3, 4.1, 4.2

**Unit-IV:** 5.1, 5.2, 5.3, 5.4, 5.6, 5.7, 5.8

**Unit-V:** 9.1, 9.2, 9.3, 9, .4, 9.5

**Reference Books:**

1. H.C.shooman-“Software engineering design”-MGH.
2. Roger.S.Pressman-“Software Engineering”-MGH-IVED.



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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U5FMC15**

**COURSE TITLE : Dot Net Technologies**

**QN.NO : 9430**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To understand the concept of GUI Design tools, also to make them aware of controls in VB.NET
- Code programs and develop interface using VB.NET.

**Unit - I**

**Introduction to VB.NET**

**Getting started in Visual Basic to .Net** –Starting Visual Basic Dot Net-Creating and Running very first application-**IDE:** What is IDE-Using the Auto hide facility–Using the Properties windows–Setting the properties of forms and controls–Using the solution explorer-Writing an event procedure-The Standard Toolbar. Setting properties using the Properties Window: Classification of Properties.

**Unit - II**

**Control structure & Looping**

Variables and Data types-Text box control–Radio button control-Programming Statements :IF...Then ,IF...THEN...END IF, IF...THEN...ELSE...END IF–The MsgBox() function-The InputBox() function-List box control-Programming Statement: Select Case–Check box control-Iteration Statements-Do While Loop- Do Until Loop- Do Loop Until-For Next-Arrays.

**Unit - III**

**Menus and Dialog Boxes**

Basic elements of menus-Generic procedure of creating menus-Creating a simple menu application. Structured Programming:What is Structured Programming-Events, Subroutines & Functions-Scope of variables-Scope of procedures-Elementary and composite data types.

**Unit - IV**

**Object-Oriented programming**

What is OOPS-Implementing OOPS-Inheritance overriding-Collections. Working with files: Introduction to files-Classification of files-Handling files and folders using functions-File processing using streams-Advanced Techniques in Visual Basic Dot Net:Single document interface and multiple document interface.

**Unit – V**

**Data Access with ADO.Net**

What are databases-Connections, Data Adapters and Datasets-Accessing Data with Server Explorer-Accessing Data with Data Adapters and Datasets-Working with ADO.Net-Overview of ADO.Net Objects.

**Text Books:**

1. “Visual Basic Dot Net”- Shirish Chavan, Pearson Edition, Fourth Edition.
2. “Visual Basic Dot Net Black Book” - Steven Holzner, Wiley Press.

**Chapters:**

**Unit – I:** 1.5, 1.6, 2.2, 2.5, 2.14, 2.15, 2.16, 2.18, 2.22, 3.1.

**Unit – II :** 5.1,5.11,5.12,5.13,5.14,6.3,6.7,6.9,6.10,7.2,7.3,7.5,7.6,7.8,7.9,7.11. }Textbook 1

**Unit – III:** 9.1, 9.2, 9.3, 10.1, 10.2, 10.3, 10.4, 10.7.

**Unit – IV:** 11.1, 11.2, 13.1, 13.2, 13.4, 13.10, 14.1.

**Unit – V:** 21 →Textbook 2

**Reference Books:**

1. “Visual Basic Dot Net-A Beginner’s guide”- Jeffery Kent -Tata McGraw Hill, First Edition.
2. “Visual Basic Dot Net Step by Step”- Michael Halvorson ,Prentice Hall of India Pvt, First Edition,2002.
3. “The Complete reference Visual Basic Dot Net “Jeffrey R.Shapiro- Tata McGraw Hill, Sixteenth Reprint,2010
4. “Visual Basic Dot Net”- John Smiley Tata McGraw Hill, First Edition 2002.

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**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : Elective-I. (A) Programming**  
**in Asp**

**COURSE CODE : 17U5FME1**  
**QN.NO : 9431**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of ASP Programming.
- Learning the concepts of Active Server Pages and ADO controls.

**Unit – I**

**The Basic of ASP Programming**

**Active Server Pages:** Need for Active server pages – **The Development Environment:** Automated Development - **Active Server Pages:** ASP Objects – ADO Objects – ASP Components -Relational Database and other Data Sources – Developing on-line Application – Client/Server or Tiered Applications – Virtual Directories – **The Web Site as Communications Channel:** Development Issues – **ASP and the Web programming basics:** Web sites coding languages – Static Web Pages – Dynamic Applications – Laying Out the Web Site.

**Unit – II**

**The Request and Response Objects**

**Web based communication:** The Request object – Accessing values from forms or URLs- The Server Variables Collections – The Cookies Collections – The Client Certificate Collections-**The Response object:** Response Object Collections – Response Object Properties – Response Object Methods – Writing Data to the Browser – **The Server Object:** The Server object – The ASP Error Object – **The Application and Session Object: Visitor Status and State:** Maintaining State with Cookies – Scope – Default and Virtual ASP Applications – The Application Object – The global.asa File – Using The Application Object – ASP Sessions – The Session Object – Using the Session Object in an Application.

**Unit – III**

**Active Server Components and ADO**

**The Scripting Object Model and SOM Objects:** **The Scripting Object Model:** Creating Objects- - The Dictionary Objects – The Scripting: FileSystemObject Object – The Drive Objects – The Folder Object – The File Object – The Scripting: TextStream Object. **Major Active Server Components:** **Active Server Components:** Active Server Components - Creating Server Components with ASP – The Adrotator Component- The Browser Capabilities Component – The Content Linking Components – The Content Rotator Components- **More Active Server components:** More Microsoft IIS Server Components – The Counters Components – Using the Counters Components – The Page Counter Components – The Tools Components – The Logging Utility Components – Third-Party Components ASP – Using These ASP Components.

P.T.O.

## **Unit – IV**

### **The ADO Connection – Related Objects**

**Interactivity and latency:** Optimizing Database Interactions – The Connection Object – Advanced Error – Handling Techniques – The Command Object – Record Set Cursors – Record Set Locking – Stored Procedures – The Parameters Collections.

## **Unit V**

### **The ADO Record Set–Related Objects**

**The Record set Object:** Record set Methods and Properties- the Record set Navigation and Manipulation Operations – **The Stream and Record Object:** Record Object Properties and Methods- Stream Object Properties and Methods.

### **Text Book:**

Dave Mercer – ASP3.0 a Beginner’s Guide – TMH 2012.

### **Chapters:**

**Unit I:** 1, 2

**Unit II:** 3, 4, 5

**Unit III:** 6, 7, 8

**Unit IV:** 10

**Unit V:** 11

### **Reference Books:**

1. Beginning ASP 3.0 – Chris Ullman, Wrox Publications, and Edition 2000.
2. Designing Active Server Pages – Scott Mitchell, O’REILLY Publications, and Edition 2000.
3. Sams Teach Yourself Active Server Pages 3.0 in 21 Days – Scott Mitchell and James Atkinson, 1<sup>st</sup> Edition, Sams Publications.
4. Master Active server Pages 3 –Russell Jones, Edition 2000, Sybex Publications

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U5FME1(C)**

**COURSE TITLE : Information Security**

**QN.NO : 9433**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To understand the basics of Information Security
- To know the technological accepts of Security Method

**Unit I - Information security**

The Importance of Information Protection-The Evolution of information Security-Justifying Security Investment: Business Agility, Cost Reduction, Portability-Security Methodology-Security Program:Authority-Framework-Assessment-planning-Action-Maintenance-The Impossible job-The weakest Link-Strategy and Tactics-Business Process vs Technical controls.

**Unit II - Risk Analysis**

Threat Definition: Threat Vectors, Threat Sources and Targets-Types of Attacks: Malicious Mobile code- Advanced persistent Threats (APTS)- Manual Attacks- Risk Analysis

**Unit III - Security Policies**

Security Policies: Security Policy Development- Security policy Contributors- Security policy Audience- Policy Categories- Frameworks- Security Awareness- Importance of Security Awareness,-objectives of an Awareness Program- Increasing Effectiveness-Implementing the Awareness Program- Enforcement- Policy Enforcement for Vendors-policy Enforcement for Employees- Software-Based Enforcement- Data Privacy Polices- Data Integrity polices

**Unit IV - Security Design & Organization**

The CIA Triad and other Models: Confidentiality-Integrity-Availability-Additional concepts-Defense models: The Lollipop model-The Onion model-Security Organization: Roles and responsibility: Security positions-Security incidence response Team-Managed security services.

**Unit V - Authentication and Authorization**

Authentication: Usernames and Passwords-Certificate based Authentication-Extensible authentication Protocol(EAP)-Biometrics-Additional users for Authentication Authorization: User Rights-Role-Based Authorization (RBAC)-Access Control Lists(ACLs)-Rule-Based Authorization

**Text Book:**

“Information Security” The Complete Reference 2<sup>nd</sup> Edition-Mark Rhodes –Ousley.

**Chapters:**

**Unit I : 1      Unit II: 2      Unit III: 5      Unit IV: 4, 6      Unit V: 7**

**Reference Books:**

1. Mark Stamp -“Information Security”,Willey 2005
2. E.Whitman and Herbert J.Mattord -“Principles of Information Security” ,Michael 4<sup>th</sup> edition



**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U6FMC16**

**COURSE TITLE : Android Programming**

**QN.NO : 9437**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of Android Programming.
- Learning the concept and operations of Android Applications.

**Unit I - Fundamentals of Android Development**

**Introduction to Android:** The android 4.1 Jelly Bean SDK – Understanding the Android Software Stack – Installing the Android SDK – Creating Android Virtual Devices – Using the Text View Control – Using The Android Emulator – The Android Debug Bridge (ADB) – Launching Android Applications on a Hand Set. **Basic Widgets:** Understanding the role of Android Project Files-understanding Activities – Role of the Android Manifest Editor – Creating the user interface – Commonly used layouts and controls – Event Handling – Displaying Messages Through Toast – Creating and Starting an Activity – Using the Edit Text control – Choosing options with Checkbox – Choosing mutually exclusive items using Radio Buttons.

**Unit II - Building Blocks for Android Application Design**

**Laying Out Controls in Containers:** Introduction to layouts – Linear layout – Relative Layout – Absolute Layout – using Image View – Frame Layout – Table Layout – Grid Layout – Adapting to Screen Orientation. **Utilizing resources and Media:** Creating an Image switcher Application – Scrolling through Scroll View – Playing Audio – Playing Video – Displaying progress with progress Bar – Using Assets.

**Unit – III - Using selection Widgets and Debugging**

Using list View – Using the spinner control – using the Grid view control – Creating an Image Gallery using the View pager control – Using debugging tool(DDMS)- Debugging Applications – Using the debug perspective. **Creating Interactive menus and ActionBars:** Menus and their types – Creating Menus through XML – Creating Menus through coding – Applying a Context Menu to a ListView – Using the Action Bar -Replacing Menus with the Action Bar- Creating a Tabbed Action Bar – Creating a Drop-Down List Action Bar.

**Unit – IV - Using DataBases**

Using the SQLiteOpenHelper Class – Accessing Databases with ADB – Creating a Data Entry Form.

**Unit – V - Advanced Android Programming Internet, Entertainment, and Services**

**Displaying Web Pages and Maps:** Displaying Web Pages – Using the WebViewClient Class – Using Google Maps.

**Text Book:**

Android Programming - Unleashed – B.M. Harwani – Pearson Education 2013.

**Chapters:**

**Unit I:** 1, 2

**Unit II:** 3, 4

**Unit III:** 5, 7

**Unit IV:** 8

**Unit V:** 10

**Reference Books:**

1. Android Programming for Beginners – John Horton, First Edition, Packt Publishing.
2. Prasannakumar Dixit – Android 2014, Vikas Publishing Pvt Ltd.,
3. Wei-Menglee – Beginning Android 4 Application Development, 2014 Wiley India Pvt Ltd.,
4. Android Programming: The Big Nerd Ranch Guide – Bill Phillips and Chris Stewart – O’Reilly Media Publishers, Third Edition.

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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**  
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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U6FMC17**

**COURSE TITLE : Data Mining and Data**

**QN.NO : 9438**

**Warehousing**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- Understanding the concepts of Data Warehousing and Data Mining
- Understanding various Data Mining Algorithms.

**Unit - I**

**Introduction to Data Mining and Data**

Introduction – Why Data Mining – Moving toward the Information Age – Data Mining as the Evolution of Information Technology – What Is Data Mining – What Kinds of Data Can Be Mined – Database Data – Data Warehouses – Transactional Data – Other Kinds of Data – What Kinds of Patterns Can Be Mined – Class/Concept Description: Characterization and Discrimination – Mining Frequent Patterns, Associations, and Correlations – Classification and Regression for Predictive Analysis – Cluster Analysis – Outlier Analysis – Are All Patterns Interesting – Getting to Know Your Data – Data Objects and Attribute Types – What Is an Attribute – Nominal Attributes – Binary Attributes – Ordinal Attributes – Numeric Attributes – Discrete versus Continuous Attributes – Basic Statistical Descriptions of Data – Measuring the Central Tendency: Mean, Median, and Mode – Measuring the Dispersion of Data: Range, Quartiles, Variance, Standard Deviation and Interquartile Range – Graphic Displays of Basic Statistical Descriptions of Data – Measuring Data Similarity and Dissimilarity – Data Matrix versus Dissimilarity Matrix – Proximity Measures for Nominal Attributes – Proximity Measures for Binary Attributes – Dissimilarity of Numeric Data: Minkowski Distance – Proximity Measures for Ordinal Attributes – Dissimilarity for Attributes of Mixed Types – Cosine Similarity.

**Unit - II**

**Data Preprocessing**

Data Preprocessing: An Overview – Data Quality: Why Preprocess the Data – Major Tasks in Data Preprocessing – Data Cleaning – Missing Values – Noisy Data – Data Cleaning as a Process – Data Integration – Entity Identification Problem – Redundancy and Correlation Analysis – Tuple Duplication – Data Value Conflict Detection and Resolution – Data Reduction – Overview of Data Reduction Strategies – Wavelet Transforms – Principal Components Analysis – Attribute Subset Selection – Regression and Log-Linear Models: Parametric Data Reduction – Histograms – Clustering – Sampling – Data Cube – Aggregation – Data Transformation and Data Discretization – Data Transformation Strategies – Overview – Data Transformation by Normalization – Discretization by Binning – Discretization by Histogram Analysis – Discretization by Cluster, Decision Tree, and Correlation Analyses – Concept Hierarchy Generation for Nominal Data.

**Unit - III**

**Data Warehousing and OLAP**

Basic Concepts – What Is a Data Warehouse – Differences between Operational Database Systems and Data Warehouses – But, Why Have a Separate Data Warehouse – Data Warehousing: A Multitiered Architecture – Data Warehouse Models: Enterprise Warehouse, Data Mart, and Virtual Warehouse – Extraction, Transformation, and Loading – Metadata Repository – Data Warehouse Modeling: Data Cube and OLAP – Data Cube: A Multidimensional Data Model – Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional Data Models – Dimensions: The Role of Concept Hierarchies – Measures: Their Categorization and Computation – Typical OLAP Operations

– A Starnet Query Model for Querying Multidimensional Databases – Data Warehouse Design and Usage – A Business Analysis Framework for Data Warehouse Design – Data Warehouse Design Process – Data Warehouse Usage for Information Processing – From Online Analytical Processing to Multidimensional Data Mining – Data Warehouse Implementation – Efficient Data Cube Computation: An Overview – Indexing OLAP Data: Bitmap Index and Join Index – Efficient Processing of OLAP Queries – OLAP Server Architectures: ROLAP versus MOLAP versus HOLAP.

#### **Unit - IV**

##### **Frequent Patterns, Associations & Correlations and Classification**

Basic Concepts – Market Basket Analysis: A Motivating Example – Frequent Itemsets, Closed Itemsets, and Association Rules – Frequent Itemset Mining Methods – Apriori Algorithm: Finding Frequent Itemsets by Confined – Candidate Generation – Generating Association Rules from Frequent Itemsets – Improving the Efficiency of Apriori – A Pattern-Growth Approach for Mining Frequent Itemsets – Mining Frequent Itemsets Using Vertical Data Format – Mining Closed and Max Patterns – Which Patterns Are Interesting—Pattern Evaluation Methods – Strong Rules Are Not Necessarily Interesting – From Association Analysis to Correlation Analysis – A Comparison of Pattern Evaluation Measures – Classification: Basic Concepts – Basic Concepts – What Is Classification – General Approach to Classification – Decision Tree Induction – Decision Tree Induction – Attribute Selection Measures – Tree Pruning – Scalability and Decision Tree Induction – Visual Mining for Decision Tree Induction – Rule-Based Classification – Using IF-THEN Rules for Classification – Rule Extraction from a Decision Tree – Rule Induction Using a Sequential Covering Algorithm.

#### **Unit - V**

##### **Cluster Analysis**

Cluster Analysis – What Is Cluster Analysis – Requirements for Cluster Analysis – Overview of Basic Clustering Methods – Partitioning Methods – k-Means: A Centroid-Based Technique – k-Medoids: A Representative Object-Based Technique – Hierarchical Methods – Agglomerative versus Divisive Hierarchical Clustering – Distance Measures in Algorithmic Methods – BIRCH: Multiphase Hierarchical Clustering Using Clustering Feature Trees – Chameleon: Multiphase Hierarchical Clustering Using Dynamic Modeling – Probabilistic Hierarchical Clustering – Grid-Based Methods – STING: STatistical INformation Grid – CLIQUE: An Apriori-like Subspace Clustering Method.

##### **Text Book:**

Jiawei Han, Micheline Kamber, and Jian Pei – “DATA MINING Concepts and Techniques” – Third Edition – Morgan Kaufman Publishers, New Delhi.

##### **Chapters:**

**Unit-I:** 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, & 2.4.

**Unit – II:** 3.

**Unit-III:** 4.1, 4.2, 4.3, 4.4.

**Unit-IV:** 6, 8.1, 8.2, 8.4.

**Unit V:** 10.1, 10.2, 10.3, 10.5

##### **Reference Books:**

1. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining, and OLAP” – Tata McGraw Hill Edition.
2. Margaret Dunham – “Data Mining Introductory and Advanced topics” - Prentice Hall 2003.
3. Heikki Mannila and Padhraic Smyth – “Principles of Data Mining” - MIT Press Fall 2000.



**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U2FME2 (E)**

**COURSE TITLE : PHP Programming (Ele – II)**

**QN.NO : 9439**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of PHP programming
- Code programs and develop interface using PHP programming

**Unit –I - Introduction to PHP**

Overview of PHP: PHP Origin-PHP History-Benefits in running PHP As A Server Side Script-Drawbacks in running PHP As A Server Side Script. Getting started: Writing PHP- Naming files-comments- The semicolon- Delivering text as output- White spaces- Running the PHP script- Data types-variables-constants.

**Unit-II - The Basics of PHP**

Operators: Unary operators-Negation operators-Increment/Decrement operators-Cast operators-Binary operators-Numeric operators-Assignment operators-Concatenation operators-Comparison operators-Logical operators-Bitwise operators-Ternary operators- Operator precedence. Arrays: Array Creation-Array Data Retrieval-Associative array- Conditional Statements: The if statement-Executing multiple statements-The else if clause- The switch statement. Iterations: looping-The For loop-The While loop-Controlling an array using a while loop -Do while statement-The for each loop-Infinite loops-Special Loop keywords - Loops within Loops.

**Unit-III - Functions**

User defined functions: Functions with arguments-Functions with multiple Arguments- Functions Accepting and returning values by reference- Functions Accepting and returning values by value-Accessing global variables within a function-Globalizing functions- Functions in Files-Recursion-Anonymous Functions-Built-in Functions-PHP Server variables-Working with DATE and TIME Functions-Performing mathematical operations- Working with String Functions.

**Unit-IV - Exception Handling and Working with files**

Configuration directives-Error logging-Exception handling-About files and directories: Parsing directory paths-calculating file, directory and disk sizes-determining access and modification times-Working with files: the concept of resource-recognizing newline characters, end of file character-opening and closing a file-reading from a file-writing a string to a file-moving the file pointer-reading directory contents.

## **Unit-V - Working with Forms**

Introducing HTML Form Tags and Elements-The main <form> Tag - Form elements:Text Box-Text Area-Password-Radio Button-Check Box-The Combo Box or Drop Down List Box-Hidden Field-Image-Submit and Reset buttons. Adding Elements To A Form: Adding A Textbox- Adding Radio buttons- Adding Check boxes- Adding A select box- Adding A password field- Adding A Textarea- Adding A Submit and Reset button-Adding a Hidden Field-Uploading Files to the web server using PHP-The move\_uploaded\_file() function.

### **Text Books:**

- 1.Ivan Bayross,Sharnam Shah, "PHP 5.1 for beginners",First edition,SPD publishers.
2. W.Jason Gilmore,"Beginning Php and Mysql,Fourth edition,Springer publishers.

### **Chapters:**

**Unit -I:** 1,5

**Unit -II:** 6

**Unit -III:** 7

**Unit -IV:** 8

**Unit -V:** 8, 10(pages 229-248) → Text Book -2

### **Reference Books:**

1. Kevin Yank,"Build your own database driven web site using PHP & MySQL",2011,4<sup>th</sup> edition,sitepoint.
2. Dinesh Maidasani, "Straight to the point PHP",First edition,FireWall media.
3. Matt Zandstra," SAMS Teach yourself PHP4 in 24 hours"

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**PROGRAMME: B.Sc., Information Technology**

**COURSE CODE : 17U6FSM6**

**COURSE TITLE : Animation Techniques Using  
FLASH**

**QN.NO : 9443**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Objectives:**

- To impart the knowledge of Basic Animations.
- Learning the concept of 2D Animations and its operations.

**Unit I**

**Introducing Flash CS5**

Introduction to Flash CS5: Exploring the New and Enhanced features of Flash CS5 – Launching the Flash Application – Exploring the User Interface of Flash CS5 – Working with workspaces – Saving – Opening – Closing Flash Document.

**Unit II**

**Getting Started with Tools**

Working with Drawing Tools in Flash – Working with the Selection and Modification Tools in Flash – Working with Colors in Flash – Adding Filters in Flash.

**Unit III**

**Working with Objects and Text**

Editing Objects in Flash – Transforming Objects – Copying – Deleting – Working with Classic and Text Layout Framework text Engines – Editing a Text Field.

**Unit IV**

**Working with the TIMELINE Panel**

Working with Frames and Keyframes in Flash – Working with Layers and Layer Folders in Flash – Creating Symbols in Flash – Modifying Symbols.

**Unit V**

**Creating Animations**

Working with Sound files in Flash – Understanding Tweened Animations – Using Shape Tweening in Flash – Working with Motion Tweening in Flash – Editing the Motion Path of a Tweened Object – Working with Motion Presets in Flash.

**Text Book:**

1. Flash CS5 in Simple Steps – Kogent Learning Solutions Inc. 2011 Dream Tech Press.

**Chapters:**

**Unit I:** 1

**Unit I:** 2

**Unit III:** 3

**Unit IV:** 4, 5

**Unit V:** 6, 7

**Reference Books:**

1. Learning Flash CS5 by Ramesh Bangia, Khanna Publishing.
2. Adobe Flash Professional CS5 Bible by Todd Perkins, Wiley Publications.



**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : C Programming**  
**TIME : 3 Hours**

**COURSE CODE : 20U1FMC1**  
**QN.NO : 11301**  
**MAX.MARKS :75**

### **Course Objectives:**

1. To acquire knowledge on the basis of C program
2. Programming and train them to develop user friendly application code using C.
3. To familiarize the concept of Decision making and looping.
4. To understand the concepts of Arrays its declaration and uses.
5. Be familiar with programming environment with C programming structure.
6. To learn the concept of file structure and pointers used in code development.

### **Unit-I: Overview of C**

History of C – Basic Structure of C Programs – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Operators and Expressions: Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions.

### **Unit-II: Managing I/O Operations**

Reading and Writing a Character – Formatted Input, Output – Decision Making & Branching: if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – the while statement – do statement – the for statement.

### **Unit-III: Arrays**

One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays. Strings: Declaration, Initialization of string variables – reading and writing strings – string handling functions.

### **Unit-IV: User-defined functions and Structures**

Elements of user defined functions – function calls– all types of arguments and return values – nesting of functions – scope visibility and life time of variables. Structures and Unions: Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – unions.

### **Unit-V: Pointers and Files**

Accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – pointers as function arguments – pointers and structures. Files: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

### **Books for Study**

1. E.Balagurusamy, Programming in ANSI C, 7<sup>th</sup> Edition,2007, Tata McGraw Hill Publishers.

#### **Chapters:**

- Unit I: 1, 2, 3.
- Unit II: 4, 5, 6.
- Unit III: 7, 8.
- Unit IV: 9, 10.
- Unit V: 11, 12.

## Books for Reference

1. Gottfried , Programming with C, Schaum's Outline Series, , 2006,Tata McGraw Hill.
2. Ashok N.Kamthane , Programming with ANSI and Turbo C , 2006, Pearson Education.
3. Kanetkar Y., Let us C, 1999, BPB Pub., New Delhi.

## Web Resources

1. <https://www.tutorialspoint.com/cprogramming/>
2. <https://www.programiz.com/c-programming/>
3. <https://www.geeksforgeeks.org/c-language-set-1-introduction/>

## Pedagogy

Chalk and talk, Materials, PPT, Assignment, Seminar, Problem solving, Group discussion, Interaction and Demonstration.

## Course Learning Outcomes:

On the completion of the course the student will be able to

CLO No.	Course Learning Outcomes	K – Level
CLO1	Demonstrate the types of variables ,Constants, data types, operators, Expressions	Up To K2
CLO2	Examine the concept of Looping and Conditional statements for developing the code.	Up To K4
CLO3	Implement the various types of Arrays and operations related with strings	Up To K3
CLO4	Develop the code for various types of user defined functions and the scope of visibility lifetime variables and apply Structures and Unions for complicated problems	Up To K3
CLO5	Describe about the Pointers and the impact of address of pointers used in code development, Explain the usage of File concepts in C coding	Up To K4

## Mapping of CLOs with POs:

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	1	1	3
CLO2	3	3	N/A	N/A	3
CLO3	3	2	N/A	N/A	3
CLO4	2	2	N/A	N/A	2
CLO5	2	2	N/A	N/A	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

## Mapping of CLOs with PSO:

CLOs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	2	1	2	2
CLO2	3	1	3	1	3	2
CLO3	2	3	3	N/A	1	2
CLO4	3	2	3	N/A	1	2
CLO5	2	3	3	N/A	3	1

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Learning Outcome Based Education & Assessment (LOBE)**  
**Blue Print for Summative Examination - C Programming**  
**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

S.NO	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No Of Questions	K - Level	No Of Questions	K – Level		
1	CLO1	Up to K2	2	K1 & K2	1	K1	2(K1&K1)	1(K2)
2	CLO2	Up to K4	2	K1 & K2	1	K1	2(K3&K3)	1(K4)
3	CLO3	Up to K3	2	K1 & K2	1	K2	2(K2&K2)	1(K3)
4	CLO4	Up to K3	2	K1 & K2	1	K2	2(K3&K3)	1(K3)
5	CLO5	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K4)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers

K2 – Basic understanding of facts and stating main ideas with general answers

K3 – Application oriented – Solving Problems

K4 – Examining, analyzing, presentation and make inferences with evidences

**Distribution of Section – wise Marks with K Levels \***

K Level	Section A (No Choice)	Section B (No choice)	Section C (Either/or)	Section D (Open choice)	Total Marks	% of Marks without choice	Consolidated
K1	5	4	10	-	19	15.83	42%
K2	5	6	10	10	31	25.83	
K3	-	-	20	20	40	33.33	33%
K4	-	-	10	20	30	25	25%
<b>Total Marks</b>	10	10	50	50	120	100	100%

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(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)

RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : Principles of Information**  
**Technology**

**COURSE CODE : 20U1FMC2**  
**QN.NO : 11302**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objectives:**

1. To acquire the knowledge of fundamentals of Computer Systems.
2. To study the concepts of computer architecture and various Input / Output devices.
3. To demonstrate the Computer Software and Software development
4. To learn the concepts of Computer Networks and WWW.
5. Use Multimedia techniques in various areas.

**Unit-I: Introduction**

Introduction to Computers - Generation of Computers - Classification of Digital Computer - Anatomy of Digital Computer.

**Unit-II: Hardware**

Architecture of Computer - CPU and Memory - Secondary Storage Devices - Input Devices - Output Devices.

**Unit-III:Software**

Introduction to Computer Software - Programming Language - Operating Systems - Introduction to Database Management System.

**Unit-IV: Networks**

Computer Networks - WWW and Internet - Email - Intranets - Mobile Computing and Business on the Internet.

**Unit-V: Multimedia and Security**

Introduction to Multimedia - Multimedia Applications - Computers at Home, Education, Entertainment, Science, Medicine and Engineering - Introduction to Computer Security - Computer Viruses, Bombs, Worms.

**Books for Study**

1. Alexis Leon And Mathews Leon, Fundamentals of Information Technology, Vikas Publishing House Pvt. Ltd, 2009.

**Chapters:**

Unit I: Chapters 1 -4.

Unit II: Chapters 5, 7-10.

Unit III: Chapters 11,13,14,16.

Unit IV: Chapters 21, 24-26, 49.

Unit V: Chapters: 33, 34, 46-48, 30, 32.

**Books for Reference**

1. Dennis P. Curtin ,Kim foley, KunalSen and Cathleen Morin, Information Technology – The Breaking Wave, Tata-McGraw Hill Publications, 2005.
2. Principle of Information Technology by Kathleen M. Austin and Lorraine N. Bergk.

**Web Resources**

1. <http://www.itdesk.info/Basic Concepts of Information Technology notes.pdf>
2. [https://www.academia.edu/34887670/Unit\\_1\\_-Information\\_Technology\\_Notes](https://www.academia.edu/34887670/Unit_1_-Information_Technology_Notes)

## Pedagogy

Chalk and talk, Materials, PPT, Assignment, Seminar, Group discussion, Interaction and Projectors.

## Course Learning Outcomes:

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

CLO No.	Course Learning Outcome	K - Level
CLO1	Describe the generation of computer and digital computer systems.	Up To K2
CLO2	Explain the basics of CPU and memory and different types of storage, Input/output devices.	Up To K4
CLO3	Illustrate the computer Software and database management systems.	Up To K3
CLO4	Classify the concepts of Computer Network.	Up To K3
CLO5	Explain Multimedia applications.	Up To K4

## Mapping of CLOs with POs:

CLOs / POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	1	1	3
CLO2	3	1	N/A	N/A	2
CLO3	2	3	N/A	N/A	3
CLO4	3	2	N/A	N/A	2
CLO5	2	3	1	2	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

## Mapping of CLOs with PSOs:

COs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	1	1	3	N/A
CLO2	3	3	3	3	3	2
CLO3	3	2	2	2	3	2
CLO4	3	3	2	3	2	1
CLO5	3	2	3	3	2	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

## Learning Outcome Based Education & Assessment (LOBE)

### Blue Print for Summative Examination - Principles of Information Technology

#### Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

Sl.No	CLOs	K - Level	Section A		Section B		Section C (Either / or Choice)	Section D (Open Choice)
			MCQs		Short Answer			
			No. of Questions	K – Level	No. of Questions	K - Level		
1	CLO 1	Up to K 2	2	K1 & K2	1	K1	2 (K1 & K1)	1(K2)
2	CLO 2	Up to K 4	2	K1 & K2	1	K2	2 (K2 & K2)	1(K4)
3	CLO 3	Up to K 3	2	K1 & K2	1	K2	2 (K3 & K3)	1(K3)
4	CLO	Up to K	2	K1 &	1	K3	2 (K3 &	1(K3)

	4	3		K2			K3)	
5	CLO 5	Up to K 4	2	K1 & K2	1	K2	2 (K3 & K3)	1(K4)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each Question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers

K2 – Basic understanding of facts and stating main ideas with general answers

K3 – Application oriented – Solving Problems

K4 – Examining analyzing , presentation and make inferences with evidences

#### Distribution of Section – wise Marks with K Levels

<b>K – Level</b>	<b>Section A (No Choice)</b>	<b>Section B (No Choice)</b>	<b>Section C (Either / or Choice)</b>	<b>Section D ( Open Choice)</b>	<b>Total Marks</b>	<b>% of Marks without choice</b>	<b>Consolidated</b>
<b>K1</b>	5	2	10	-	17	14.16	40 %
<b>K2</b>	5	6	10	10	31	25.83	
<b>K3</b>	-	2	30	20	52	43.33	43.33%
<b>K4</b>	-	-	-	20	20	16.66	16.66 %
<b>Total Marks</b>	10	10	50	50	120	100.00	100 %

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**

**COURSE TITLE : Discrete Mathematics**

**TIME : 3 Hours**

**COURSE CODE : 20U1FAC1**

**QN.NO : 11303**

**MAX.MARKS :75**

***Course Objectives:***

1. To acquire knowledge on Discrete Structure and apply Boolean laws.
2. To illustrate the use of relations and comparing various functions.
3. To understand and apply inductions and finding solutions for finite order relations.
4. To elucidate the significance of matrices.
5. To apply the laws & and rules used in logic in various applications.

**Unit-I: Set Theory**

Introduction – Sets - Notation and Description of Sets – Subsets - Venn-Euler Diagrams - operations on sets - Properties of set operations - verification of the Basic Laws of Algebra by Venn diagram - The principle of Duality.

**Unit-II: Relations**

Cartesian product of two sets - Relations - Representation of Relations - operations on Relations - Equivalence Relation. Functions and Operators - one-to-one, onto functions - Special types of functions - invertible functions - composition of functions.

**Unit-III: Mathematical Induction**

Techniques of Proof - Mathematical induction Recurrence Relation and Generating Functions: Recurrence – An introduction - Polynomials and their evaluations - Recurrence Relations - Solution of finite order Homogeneous Relations - Solution of finite order Non-Homogeneous Relations - Generating Functions.

**Unit-IV: Matrix Algebra**

Introduction - Matrix Operations - Inverse of a square matrix - Elementary operations and Rank of a matrix - Simultaneous equations - Eigen Values and Eigen Vectors.

**Unit-V: Logic**

Introduction - TF Statements – Connectives - Atomic and Compound statements - Well Formed Formulae - Truth table of a formula – Tautology - Tautological implications and equivalence of formulae - Lattices - Some properties of Lattices.

**Books for Study**

1. Dr. M.K.Venkatraman, Dr.N.Sridharan, N.Chandrasekaran – “Discrete Mathematics” - The National Publishing Company - 2003.

**Chapters:**

Unit – I : 1.

Unit – II : 2.1-2.5, 3.

Unit – III: 4, 5.1-5.6.

Unit – IV : 6.1 -6.5, 6.7.

Unit – V : 9.1 -9.8,10.1 – 10.2.

## Books for Reference

1. Alan Doerr,Levassure – “Applied Discrete Mathematical Structures for Computer Science”.
2. Trembly and Manohar – “Discrete Mathematical Structures with Application to Computer Science”.

## Web Resources

1. <http://www.cs.yale.edu/homes/aspnes/classes/202/notes.pdf>
2. <http://home.iitk.ac.in/~aralal/book/mth202.pdf>

## Pedagogy

Chalk and talk, Materials, Assignment, Seminar, Problem solving, Group discussion, and Interaction.

## Course Learning Outcomes:

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

CLO No.	Course Learning Outcomes	K - Level
CLO1	List various laws of Set theory. Apply the laws and properties to simplify the problems. Discuss the duality principle and solve the problems.	Up To K3
CLO2	Describe the representations of relations. Illustrate the usage of equivalence relations in real world problems. Outline different types of functions.	Up To K3
CLO3	Explain Mathematical induction and recurrence relations. Classify the finite order relations.	Up To K4
CLO4	Outline the operations on matrices. Solve simultaneous linear equations. Find the Eigen values and Eigen vectors.	Up To K3
CLO5	Relate Atomic and Compound statements of Logic. Identify the relationship between WFF and Tautology. Explain Lattices and its properties.	Up To K4

## Mapping of CLOs with POs:

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	1	1	3
CLO2	3	3	N/A	N/A	2
CLO3	3	3	N/A	N/A	2
CLO4	3	1	N/A	N/A	3
CLO5	3	2	1	1	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

## Mapping of CLOs with PSOs:

CLOs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	2	3	2	2	N/A
CLO2	3	N/A	1	N/A	N/A	N/A
CLO3	1	1	2	N/A	1	N/A
CLO4	2	2	2	N/A	2	N/A
CLO5	3	3	3	2	3	1

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Learning Outcome Based Education & Assessment (LOBE)**  
**Blue Print for Summative Examination – Discrete Mathematics**  
**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

Sl. No	CLOs	K - Level	Section A		Section B		Section C (Either/ or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K - Level	No. of Questions	K - Level		
1	CLO 1	Up to K 3	2	K1 & K2	1	K1	2(K1 & K1)	1(K3)
2	CLO 2	Up to K 3	2	K1 & K3	1	K3	2(K3 & K3)	1(K2)
3	CLO 3	Up to K 4	2	K1 & K2	1	K1	2(K2 & K2)	1(K4)
4	CLO 4	Up to K 3	2	K1 & K2	1	K2	2(K3 & K3)	1(K1)
5	CLO 5	Up to K 4	2	K1 & K3	1	K3	2(K4 & K4)	1(K3)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

**Distribution of Section-wise Marks with K Levels**

K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated
K1	5	4	10	10	29	24.17	45%
K2	3	2	10	10	25	20.83	
K3	2	4	20	20	46	38.33	38%
K4	-	-	10	10	20	16.67	17%
<b>Total Marks</b>	10	10	50	50	120	100.00	100%

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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**

(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)

RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : Object Oriented Programming**  
**with C++**

**COURSE CODE : 20U2FMC3**  
**QN.NO : 11305**

**TIME : 3 Hours**

**MAX.MARKS :75**

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### **Course Objective:**

1. To introduce the C++ programming and its use in Object oriented environment, learn how to write Inline functions for efficiency & performance.
2. To learn how to implement types of Constructors and class member functions.
3. To demonstrate types of inheritance and applied in various applications.
4. To create & process data in files using file I/O functions.
5. To learn how to design & implement generic classes with C++ templates.

### **Unit-I: Principles of Object-Oriented Programming**

Basic Concepts of Object-Oriented Programming – Benefits of OOP – Structure of a C++ Program – Tokens – Operators in C++ – inline functions – Function overloading – classes and objects: specifying a class – Defining member functions – Making an outside function inline – Friendly functions – Object as function arguments – Returning objects.

### **Unit-II: Constructor**

Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors. Operator overloading: Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators

### **Unit-III: Inheritance**

Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance – Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

### **Unit-IV: I/O Operations and Files**

C++ Stream classes – Unformatted I/O operations – Managing output with manipulators. Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments.

### **Unit-V: Templates and Exception Handling**

Class Templates - Class Templates with Multiple Parameters–Function Templates–Basics of Exception Handling– Exception Handling Mechanism.

### Books for Study

1. E. Balagurusamy, Object Oriented Programming with C++, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

#### Chapters:

Unit I – 1.5,1.6,2.6,3.2,3.14,4.6,4.10,5.3,5.4,5.6,5.14-5.16

Unit II – 6.2 to 6.7, 6.11, 7.2 – 7.5, 7.8

Unit III – 8.2 – 8.9, 8.11-8.12

Unit IV – 10.3, 10.4, 10.6, 11.2-11.7, 11.10

Unit V – 12.2, 12.3, 12.4, 13.2, 13.3

### Books for Reference

1. Herbert Schildt, C++ - The Complete Reference, 1998, TMH
2. Paul Deitel, Harvey Deitel, C++ How to Program, Ninth edition (2014) PHI
3. Ashok N. Kamthane, Object Oriented Prog., with ANSI & Turbo C ++, Pearson Education
4. Poornachandra Sarang, Object-Oriented Programming With C++ , 2<sup>nd</sup> Edition, PHI

### Web Resources

1. <https://www.learncpp.com/>
2. <https://hackr.io/tutorials/learn-c-plus-plus>
3. <https://www.programiz.com/cpp-programming/examples>

### Pedagogy

Chalk and talk , Materials, PPT, Assignment , Seminar , Problem solving , Group discussion , Interaction, and Demonstration.

### Course Learning Outcomes:

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

CLO No.	Course Learning Outcomes	K - Level
CLO1	Explain keywords, tokens, variables constants and datatypes. Apply different types of operators, looping concepts and conditional statements for developing the code. Describe the concepts of oops and its benefits.	Up To K3
CLO2	Develop the constructor and destructor with their types in user defined Functions	Up To K4
CLO3	Illustrate the concepts of inheritance and its types.	Up To K3
CLO4	Discuss various IO Formatting.	Up To K3
CLO5	Utilize Exception for handling Run-Time errors.	Up To K4

The Academic Council, The Madura College (Autonomous): 26<sup>th</sup> August 2020

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### Mapping of CLOs with POs:

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	2	N/A	1
CLO2	2	1	N/A	N/A	1
CLO3	2	3	N/A	N/A	2
CLO4	3	3	N/A	N/A	3
CLO5	2	3	N/A	N/A	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Mapping of CLOs with PSOs:**

CLOs/PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	N/A	3	N/A	2	2
CLO2	3	3	2	2	1	N/A
CLO3	3	3	2	N/A	3	3
CLO4	3	3	3	N/A	3	3
CLO5	2	2	3	2	3	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Learning Outcome Based Education & Assessment (LOBE)**

**Blue Print for Summative Examination - Object Oriented Programming with C++**

**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

Sl.No	CLOs	K – Level	Section A		Section B		Section C (Either / or Choice)	Section D (Open Choice)
			MCQs		Short Answer			
			No.of Questions	K - Level	No.of Questions	K - Level		
1	CLO 1	Up to K 2	2	K1 & K1	1	K2	2 (K1 & K1)	1(K2)
2	CLO 2	Up to K 4	2	K2 & K2	1	K2	2 (K4 & K4)	1(K2)
3	CLO 3	Up to K 3	2	K1 & K1	1	K3	2 (K3& K3)	1(K3)
4	CLO 4	Up to K 3	2	K2 & K2	1	K3	2 (K3 & K3)	1(K3)
5	CLO 5	Up to K 4	2	K4 & K4	1	K3	2 (K1 & K1)	1(K4)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each Question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers

K2 – Basic understanding of facts and stating main ideas with general answers

K3 – Application oriented – Solving Problems

K4 – Examining analyzing , presentation and make inferences with evidences

**Distribution of Section – wise Marks with K Levels**

K - Level	Section A (No Choice)	Section B (No Choice)	Section C (Either / or Choice)	Section D ( Open Choice )	Total Marks	% of Marks without choice	Consolidated
K1	4	-	20	-	24	20	43 %
K2	4	4	-	20	28	23.3	
K3	-	6	20	20	46	38.3	39%
K4	2	-	10	10	22	18.3	18%
<b>Total Marks</b>	10	10	50	50	120	100.00	100 %

The Academic Council, The Madura College (Autonomous): 26<sup>th</sup> August 2020

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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**  
(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)  
RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : Digital Principles and Applications**

**COURSE CODE : 20U2FMC4**  
**QN.NO : 11306**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objective:**

1. To acquire knowledge on Number systems and Logic gates.
2. To examine the various Logical Expressions.
3. To analyze various Data circuits & Arithmetic operations.
4. To demonstrate the Clocks and Timing Circuits.
5. To characterize various Sequential Circuits.

**Unit-I: Number systems and Digital Logic**

Binary Number System-Binary to Decimal Conversion-Decimal to Binary conversion -Octal numbers - Hexadecimal numbers -The ASCII code -The Excess-3 code -The Gray Code – transistor inverter. Digital Logic - Basic gates-NOT, OR, AND-Boolean Algebra - Universal logic gates-NOR, NAND.

**Unit-II: Combinational logic circuits**

Boolean Laws and Theorems -Sum of Products method -Truth table to Karnaugh map -Pairs, Quads, and Octets –Karnaugh simplifications -Don't care condition- Product of sums method -product of sums simplification.

**Unit-III: Data Processing circuits**

Multiplexers -Demultiplexers -1 of 16 Decoder –BCD to decimal Decoders -Seven segment Decoders. Arithmetic circuits: Binary Addition -Binary Subtraction - 2's & 1's complement Representation - Complement Arithmetic -Arithmetic Building Blocks.

**Unit-IV: Flip-Flops and Timers**

RS FLIP FLOP- D FLIP- FLOP - JK FLIP-FLOPs – JK MASTER SLAVE FLIP- FLOP. Clocks and Timing circuits: 555 Timer-Astable-555 Timer – Monostable.

**Unit-V: Shift Registers and Counters**

Types of Registers -Serial-In -Serial-Out-Serial-In -Parallel-Out -Parallel-In-Serial-Out -Parallel-In - Parallel-Out. Counters: Ring Counter – Ripple Counter - Synchronous Counters.

**Book for Study**

1. Albert Paul Malvino, Donald P.Leach, , Digital Principles and Application, 7<sup>th</sup>Edn, 2011, McGraw Hill Publication.

**Chapters:**

Unit-I : 1, 4

Unit-II : 2

Unit-III : 3.1 to 3.6, 5.1 to 5.7

Unit-IV : 8.1, 8.3, 8.6, 8.7, 9.3, 9.4

Unit-V : 10, 11.1, 11.3

P.T.O.

**Books for Reference**

1. Morris Mano, 2005, Digital Logic and computer design, Prentice -Hall of India.
2. RonaldJ.Tocci, 2007, Digital System Principles and Application, Prentice -Hall of India.

**Web Resources**

1. [https://www.tutorialspoint.com/digital\\_circuits/](https://www.tutorialspoint.com/digital_circuits/)
2. [https://www.electronics-tutorials.ws/sequential/seq\\_5.html](https://www.electronics-tutorials.ws/sequential/seq_5.html)
3. [https://soaneemrana.org/onewebmedia/DIGITAL PRINCIPLES AND Application BY LEACH & MALVINO.pdf](https://soaneemrana.org/onewebmedia/DIGITAL%20PRINCIPLES%20AND%20Application%20BY%20LEACH%20&%20MALVINO.pdf)

**Pedagogy**

Chalk and talk , Materials, PPT, Assignment , Seminar , Problem solving , Group discussion , Interaction and Demonstration.

**Course Learning Outcomes:**

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

CLO No.	Course Learning Outcomes	K – Level
CLO1	Illustrate the basic idea about number systems and to learn conversion from one number system to another number system.	Up To K3
CLO2	Examine various logical expressions	Up To K4
CLO3	Analyze various data processing circuits.	Up To K4
CLO4	Explain characteristics of Clocks and Timing Circuits.	Up To K2
CLO5	Compare various sequential circuits.	Up To K2

**Mapping of COs with POs:**

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	1	2	1	3	1
CLO2	1	1	1	NA	1
CLO3	1	3	2	NA	2
CLO4	1	3	3	NA	3
CLO5	1	1	3	3	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Mapping of CLOs with PSOs:**

CLOs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	3	3	3
CLO2	3	3	3	3	3	3
CLO3	3	2	3	2	3	2
CLO4	2	2	2	1	2	1
CLO5	2	1	2	1	3	1

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Learning Outcome Based Education & Assessment (LOBE)**  
**Blue Print for Summative Examination - Digital Principles and Applications**  
**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

Sl.No	CLOs	K - Level	Section A		Section B		Section C (Either / or Choice)	Section D (Open Choice)
			MCQs		Short Answer			
			No. of Questions	K – Level	No. of Questions	K - Level		
1	CLO 1	Up to K 3	2	K3 & K3	1	K3	2 (K3 & K3)	1(K3)
2	CLO 2	Up to K 4	2	K4 & K4	1	K4	2 (K3 & K3)	1(K4)
3	CLO 3	Up to K 4	2	K1 & K2	1	K2	2 (K2& K2)	1(K4)
4	CLO 4	Up to K 3	2	K1 & K2	1	K3	2 (K3 & K3)	1(K2)
5	CLO 5	Up to K 2	2	K1 & K2	1	K1	2 (K1 & K1)	1(K2)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each Question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers

K2 – Basic understanding of facts and stating main ideas with general answers

K3 – Application oriented – Solving Problems

K4 – Examining analyzing , presentation and make inferences with evidences

**Distribution of Section – wise Marks with K Levels**

K – Level	Section A (No Choice)	Section B (No Choice)	Section C (Either / or Choice)	Section D ( Open Choice )	Total Marks	% of Marks without choice	Consolidated
K1	3	2	10	-	15	12.5	42%
K2	3	2	10	20	35	29.16	
K3	2	4	30	10	46	38.33	38%
K4	2	2	-	20	24	20	20%
<b>Total Marks</b>	10	10	50	50	120	100.00	100 %

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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**

(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)

RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME: B.Sc., Information Technology**  
**COURSE TITLE : Resource Management**  
**Techniques**

**COURSE CODE : 20U2FAC2**  
**QN.NO : 11307**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objectives:**

1. To gain the Knowledge of making Linear programming problems from Real time situations.
2. To apply simplex methods and its variants to solve the variety of Complex problems.
3. To acquire the benefits of allocating works using Transportation & Assignment problems.
4. To solve the problems using different strategies using Games.
5. To simplify the development work / project by planning with the help of Networking.

**Unit-I: Linear Programming Problem – I**

Mathematical Formulation of the problem – Graphical Solution – Introduction- Graphical Solution Method – Some exceptional cases- General L.P.P. – Canonical and Standard forms of L.P.P.

**Unit-II: Linear Programming Problem – II**

Simplex Method – Introduction – Fundamental Properties of Solutions – The computational procedure – Use of Artificial Variable. Duality in linear programming – Introduction – The general Primal-Dual pair – Formulating a dual problem – Duality and Simplex method.

**Unit-III: Transportation and Assignment problem**

Transportation Problem – Introduction – General Transportation Problem – The transportation table – Solution of a Transportation problem – Finding an initial basic feasible solution – Test for optimality – Transportation Algorithm (MODI method). Assignment Problem – Introduction – Mathematical formulation of the problem – The assignment method – Special cases in assignment problems – A typical assignment problem – The traveling salesman problem.

**Unit-IV: Game Theory**

Introduction – Two-person zero-sum games – Some basic terms – The Maxmin-Minimax principle – Games without Saddle points-mixed strategies – Graphic solution of  $2 \times n$  and  $m \times 2$  games – Dominance property – Arithmetic method for  $n \times n$  games.

**Unit-V: Network Scheduling**

Introduction – Network and basic components – Logical sequencing – Rules of network Construction – Critical path analysis – Distinction between PERT and CPM.

**Books for Study**

1. Kanti Swarup, P.K. Gupta, Man Mohan – “Operations Research” – 18<sup>th</sup> edition, Sultan Chand & Sons Educational Publishers, New Delhi.

**Chapters:**

Unit – I : 2.1 – 2.3, 3.1 - 3.5

Unit – II : 4.1 - 4.4, 5.1 – 5.3, 5.7

Unit – III: 10.1, 10.2, 10.5, 10.8 - 10.10, 10.13, 11.1 - 11.5, 11.7.

Unit – IV : 17.1 - 17.8.

Unit – V : 25.1 - 25.4, 25.6, 25.8.

## Books for Reference

1. Hamdy A. Taha – “Operations Research an Introduction” – PHI, 8<sup>th</sup> edition.
2. S.D. Sharma – “Operations Research” – 12<sup>th</sup> edition, Kedar Nath Ram Nath & Co Publishers, Meerut.

## Web Resources

1. [https://www.mathcity.org/msc/notes/operation\\_research](https://www.mathcity.org/msc/notes/operation_research)
2. [http://www.pondiuni.edu.in/storage/dde/downloads/mbaii\\_qt.pdf](http://www.pondiuni.edu.in/storage/dde/downloads/mbaii_qt.pdf)

## Pedagogy

Chalk and talk , Materials, Assignment , Seminar , Problem solving , Group discussion, and Interaction.

## Course Learning Outcomes:

On the completion of the course the student will be able to

CLOs	Course Learning Outcomes	K -Level
CLO1	List the rules for formulating LPP. Apply the rules to formulate the mathematical formulation. Find the solution for Graphical method problems. Discuss the Canonical and standard forms.	Up To K3
CLO2	Describe the steps of computing Simplex method. Illustrate the usage of various simplex methods. Outline the duality principles and solve the problems by applying simplex methods.	Up To K3
CLO3	Explain various ways to find Initial BFS for transportation problem. Classify the various problem solving techniques in Assignment methods. Find solution for traveling salesman problem.	Up To K4
CLO4	Outline the strategies used in Games. Solve the games using graphical method and Dominance theory. Describe Arithmetic method.	Up To K3
CLO5	Discuss the network components, Construction rules. Examine the Critical path in network construction. Relate PERT and CPM.	Up To K4

## Mapping of CLOs with POs:

CLOs/ POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	3	1	NA	3
CLO2	3	2	NA	NA	1
CLO3	3	3	NA	3	2
CLO4	3	2	1	NA	2
CLO5	3	3	NA	3	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

## Mapping of CLOs with PSOs:

CLOs/ PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	N/A	N/A	N/A	N/A	N/A
CLO2	3	1	N/A	N/A	N/A	N/A
CLO3	3	3	3	2	3	2
CLO4	3	2	1	N/A	2	3
CLO5	3	3	3	1	3	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

**Learning Outcome Based Education & Assessment (LOBE)**  
**Blue Print for Summative Examination - Resource Management Techniques**  
**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

Sl.No	CLOs	K - Level	Section A		Section B		Section C (Either/ or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K - Level	No. of Questions	K - Level		
1	CLO 1	Up to K 3	2	K1 & K2	1	K1	2(K1 & K1)	1(K3)
2	CLO 2	Up to K 3	2	K1 & K3	1	K3	2(K3 & K3)	1(K2)
3	CLO 3	Up to K 4	2	K1 & K2	1	K1	2(K2 & K2)	1(K4)
4	CLO 4	Up to K 3	2	K1 & K2	1	K2	2(K3 & K3)	1(K1)
5	CLO 5	Up to K 4	2	K1 & K3	1	K3	2(K4 & K4)	1(K3)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers

K2 – Basic understanding of facts and stating main ideas with general answers

K3 – Application oriented – Solving Problems

K4 – Examining analyzing, presentation and make inferences with evidences

**Distribution of Section-wise Marks with K Levels**

K Level	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated
K1	5	4	10	10	29	24.17	45%
K2	3	2	10	10	25	20.83	
K3	2	4	20	20	46	38.33	38%
K4	-	-	10	10	20	16.67	17%
<b>Total Marks</b>	10	10	50	50	120	100.00	100%

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**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**  
(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)  
RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME : B.Sc. Information Technology**

**COURSE CODE : 20U3FMC5**

**COURSE TITLE : Data Structures and Algorithms**

**QN.NO : 11309**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objectives**

1. To demonstrate various methods of organizing large amount of data.
2. To get familiarity with the concepts of trees and its variants.
3. To develop the program using linked lists, trees and graphs.
4. To implement operations like searching and sorting using divide and conquer technique.
5. To apply a greedy technique to solve a specific problem.

UNIT	CONTENT	Hrs	K-Level	CLO
I	<b>Stacks and Queues</b> <b>Introduction:</b> Introduction of algorithms, Basics of C++, Data Abstraction and Encapsulation, Arrays: Representation of Arrays and Polynomials <b>Stacks and Queues:</b> The Stack & Queue abstract data types – Evaluation of Expressions. <b>Linked Lists:</b> Singly Linked Lists –Doubly Linked List - Circular list- Linked Stacks and Queues – Polynomials.	15	Up to K2	1
II	<b>Trees:</b> Basic Terminology – Binary Trees- Properties - Representations - Binary Tree Traversal – Additional Binary Tree operations-Threaded Binary Trees - Binary Search Tree.	15	Up to K3	2
III	<b>Graphs:</b> Definitions and Representations – Elementary Graph operations-Minimum Cost Spanning Trees – Shortest Path and Transitive Closure – Activity Networks.	15	Up to K4	3
IV	<b>Divide and Conquer:</b> The General Method – Binary Search – Finding the Maximum and Minimum – Merge Sort – Quick Sort – Selection Sort.	15	Up to K4	4
V	<b>The Greedy Method:</b> The General Method – Knapsack problem- job sequencing with deadlines- Optimal storage on tapes-Optimal merge patterns-Single source shortest path.	15	Up to K3	5

**Books for Study**

1. “Fundamentals of Data structures in C++” by Ellis Horowitz, Sartaj Sahni & Dinesh Mehta -- 2<sup>nd</sup> Edition - Universities Press 2007.
2. “Fundamentals Of Computer Algorithms” by Ellis Horowitz , Sartaj Sahni & Sanguthevar Rajasekaran - 2<sup>nd</sup> Edition- Universities Press 2007.

**Chapters**

**Book 1**

Unit I: 1.2,1.3,1.4, 2.3, 2.5, 3.2, 3.3, 3.6, 4.1, 4.4, 4.6, 4.7

Unit II: 5.1.1, 5.2, 5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.4, 5.5, 5.7

Unit III: 6.1, 6.2, 6.3, 6.4, 6.5

**Book 2**

Unit IV: 3.1 – 3.6

Unit V: 4.1 – 4.4, 4.6 – 4.8

**Books for Reference**

1. “Data structures using C “ by Yedidyah langsam, Moshe J.Augenstein and Aaron M. Tenenbaum - PHI.
2. “Data Structures” by Seymour Lipschutz - TataMcGrawhill – Year 2006.
3. “An Introduction to Data structure with Application” by Jean Paul Tremblay and Paul G Sorenson – THM, II Edition – 1991.

## Web Resources

1. <https://www.geeksforgeeks.org/data-structures/>
2. [https://www.tutorialspoint.com/data\\_structures\\_algorithms/greedy\\_algorithms.htm](https://www.tutorialspoint.com/data_structures_algorithms/greedy_algorithms.htm)
3. [https://www.tutorialspoint.com/data\\_structures\\_algorithms/pdf/greedy\\_algorithms.pdf](https://www.tutorialspoint.com/data_structures_algorithms/pdf/greedy_algorithms.pdf)
4. <https://www.javatpoint.com/divide-and-conquer-introduction>

## Rationale for Nature of the course

- Helps the students in developing logic and structured programs and to storing and organizing data in a particular way in a computer.

## Activities on Knowledge and Skill Development

- Analyze the applicability of algorithms in various fields.
- Compare the efficacy of various data structure.

## Pedagogy

Chalk and talk, Materials, PPT, Assignment , Seminar , Problem solving , Group discussion , Interaction and Demonstration.

## Lesson Plan

Unit	Topics	Hours	Mode
I	<b>Introduction of algorithms</b> Basics of C++, Data Abstraction and Encapsulation, Representation of Arrays and Polynomials	5	Lecture
	<b>Stacks and Queues</b> The Stack abstract data type – The Queue abstract data type	3	Lecture, GD
	Evaluation of Expressions	7	Lecture
	Linked List – Singly – Double – Circular linked list		
II	<b>Trees</b> Basic Terminology – Binary Trees- Properties – Representations	5	Lecture
	Binary Tree Traversal	5	Lecture,
	Additional Binary tree operations-Threaded Binary Trees – Binary Search Trees	5	Lecture, PPT
III	<b>Graphs</b> Definitions and Representations – Elementary Graph operations	5	Lecture, case studies
	Minimum Cost Spanning Trees – Shortest Path and Transitive Closure – Activity Networks.	10	Lecture
IV	<b>Divide and Conquer</b> Binary Search	2	Lecture, case studies
	Finding the Maximum and Minimum	2	Lecture
	Merge Sort – Quick Sort – Selection Sort.	11	Lecture, GD
V	<b>The Greedy Method</b> Introduction - Knapsack problem -job sequencing with deadlines	7	Lecture, Assignment
	Optimal storage on tapes-optimal merge patterns-single source shortest path.	8	Lecture, PPT

## Course Learning outcomes

On the completion of the course the student will be able to

CLOs	Course Learning Outcomes	K - Levels
CLO 1	Describe how stacks, queues and linked structures are represented in memory and their applications.	Up to K2
CLO 2	Demonstrate the representation of trees and its variants.	Up to K3
CLO 3	Analyze the various applications using Graph operations.	Up to K4
CLO 4	Discuss the computational efficiency of the divide and conquer algorithms for sorting and searching.	Up to K4
CLO 5	Implement various applications of greedy method.	Up to K3

### Mapping of CLOs with PSOs

CLOs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO 1	3	3	2	2	2	1
CLO 2	3	3	3	2	2	3
CLO 3	3	3	2	1	2	3
CLO 4	3	3	3	3	2	2
CLO 5	3	3	3	2	2	1

(3 – Advanced Application, 2 – Intermediate Level, 1- Basic Level)

### Mapping of CLOs with POs

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO 1	3	2	3	3	2
CLO 2	3	3	3	2	2
CLO 3	3	2	2	1	3
CLO 4	3	3	1	3	3
CLO 5	3	2	1	3	3

(3 – Advanced Application, 2 – Intermediate Level, 1- Basic Level)

### Learning Outcome Based Education & Assessment (LOBE)

#### Formative Exam – Blue Print - Data Structures and Algorithms (CIA I & II)

#### Articulation Mapping - K Levels with Courses Learning Outcomes (CLOs)

Internal	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K- Level	No. of Questions	K- Level		
CIA I	CLO 1	Up to K2	2	K1& K2	1	K1	2(K1&K1)	1(K2)
	CLO 2	Up to K3	2	K1& K2	2	K2	2(K2&K2)	2(K3)
CIA II	CLO 3	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K3)
	CLO 4	Up to K4	2	K1 & K2	2	K2	2(K3&K3)	2(K4)
Question Pattern (CIA I & II)	No. of Questions to be asked		4		3		4	3
	No. of Questions to be answered		4		3		2	2
	Marks for each question		1		2		5	10
	Total Marks for each section		4		6		10	20

- CLO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

#### Distribution of Section-wise Marks with K Levels \*

K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated %
K1	2	2	10	-	14	23.33	67
K2	2	4	10	10	26	43.33	
K3	-	-	-	20	20	33.33	33
K4	-	-	-	-	-	-	-
<b>Total Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100.00</b>	<b>100%</b>

K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated
K1	2	-	-	-	2	3.33	17
K2	2	6	-	-	8	13.33	
K3	-	-	10	10	20	33.33	33
K4	-	-	10	20	30	50.00	50
<b>Total Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100.00</b>	<b>100%</b>

**Learning Outcome Based Education & Assessment (LOBE)**  
**Blue Print for Summative Examination -Data Structures and Algorithms**  
**Articulation Mapping – K Levels with Courses Learning Outcomes (CLOs)**

S.NO	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No Of Questions	K - Level	No Of Questions	K - Level		
1	CLO 1	Up to K2	2	K1& K2	1	K1	2(K1&K1)	1(K2)
2	CLO 2	Up to K3	2	K1& K2	1	K2	2(K2&K2)	1(K3)
3	CLO 3	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K3)
4	CLO 4	Up to K4	2	K1 & K2	1	K2	2(K3&K3)	1(K4)
5	CLO 5	Up to K3	2	K1 & K2	1	K1	2(K3&K3)	1(K3)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

- K1 – Remembering and recalling facts with specific answers
- K2 – Basic understanding of facts and stating main ideas with general answers
- K3 – Application oriented – Solving Problems
- K4 – Examining, analyzing, presentation and make inferences with evidences

**Distribution of Section – wise Marks with K Levels \***

K Levels	Section A (No Choice)	Section B (No choice)	Section C (Either/or)	Section D (Open choice)	Total Marks	% of Marks without choice	Consolidated
K1	5	4	10	-	19	15.83	42%
K2	5	6	10	10	31	25.83	
K3	-	-	20	30	50	41.67	42%
K4	-	-	10	10	20	16.67	16%
Total Marks	10	10	50	50	120	100	100%

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME : B.Sc. Information Technology**

**COURSE CODE : 20U3FAC3**

**COURSE TITLE : Financial Accounting**

**QN.NO : 11311**

**TIME : 3 Hours**

**MAX.MARKS :75**

<b>Course Objectives</b>				
<ul style="list-style-type: none"><li>To understand the basic concepts of accounting system</li><li>To familiarize the concept of journal entries and preparation of subsidiary books</li><li>To gain working knowledge on preparation of Ledger accounts and Trial Balance</li><li>To prepare Trading and Profit &amp; Loss Account</li><li>To understand concept of Financial Statement and prepare Balance Sheet</li></ul>				
<b>Unit</b>	<b>Course Contents</b>	<b>Hours</b>	<b>K level</b>	<b>CLO</b>
<b>I</b>	<b>Introduction to Accounting, Journal &amp; Subsidiary Books</b> Meaning – Definition – Features of Good Accounting System - Principles of Accounting – Concepts and Conventions – Book keeping – Importance – Golden Rules of Accounting – Journal – Meaning – Journal Entries. Subsidiary Books – Meaning - Benefits of Subsidiary Book System – Types - Purchase & Sales Book - Purchase Return & Sales Return Book-Bills Receivable & Bills Payable Book- Cash Book – Simple Cash Book-Two Column Cash Book-Triple Column Cash Book - Imprest system of Petty Cash Book	18	Up to K2	CLO 1
<b>II</b>	<b>Ledger and Trail Balance</b> Ledger – Meaning – Distinction between Journal and Ledger - Posting from journal to Ledger- Balancing of Ledger Accounts. Trail Balance - Meaning – Objectives of preparing Trial Balance - Methods of Preparation of Trial Balance - Balance and unbalance method.	18	Up to K3	CLO 2
<b>III</b>	<b>Final Accounts for Sole Traders</b> Final Accounts - Meaning – Manufacturing Account - Features - Trading Account - Preparation of Trading Account - Preparation Profit & Loss Account with simple adjustments – Preparation of Balance sheet with simple adjustments	18	Up to K3	CLO 3
<b>IV</b>	<b>Computerized Accounting</b> Introduction – Installation of Tally and getting started – Features and Configuration – Accounts / Inventory Information - Creation of Company – Creation of Group – Creation of Ledger.	18	Up to K4	CLO 4
<b>V</b>	<b>Voucher Creation and Display of Final Accounts in Accounting Software</b> Creation of Vouchers - Types of Voucher – Alteration of Voucher – Deletion of Voucher. Preparation of Final Accounts through Tally – Trial Balance – Profit and Loss Account – Balance Sheet at the Gateway of Tally - Methods of showing Balance sheet.	18	Up to K3	CLO 5

**Note:** The Questions should be asked in the ratio of 60 % for Problem and 40% Theory.

**\*Syllabus for the course on ‘Financial Accounting’ passed by the Board of Studies of Department of Commerce.**

**Book for Study:**

1. Dr. Shazuli Ibrahim, *Financial Accounting – I*, PASS Publications, Madurai.
2. Dr.P.Rizwan Ahmed, Tally ERP 9, Margham Publications,2016.

## Books for Reference

1. R.L. Gupta & M. Radhaswamy, “*Advanced Accountancy*” Vol-I, 2015, Sultan Chand & Sons, New Delhi.
2. S.P. Jain & K.L. Narang, “*Advanced Accountancy*” Vol-I, Nineteenth Edition, 2015, Kalyani Publishers, Mumbai.
3. M.A. Arulanandam & K.S. Raman, “*Advanced Accountancy*” Vol-I, Sixth Edition, 2015, Himalaya Publishing House, Mumbai.
4. S. N. Maheshwari & Suneel K Maheshwari, “*Financial Accounting*”, Fifth Edition, 2012, Vikas Publishing House.
5. R.S.N. Pillai, Bagavathi & S. Uma, “*Fundamentals of Advanced Accountancy*”, Third Edition, 2015, S. Chand, New Delhi.
6. SP. Iyengar, “*Advanced Accountancy*” Vol-I, Fourth Edition, 2004. Sultan Chand & Sons, New Delhi.

## Web Resources

1. <https://byjus.com/commerce/class-11-accountancy-chapter-1-introduction-to-accounting/>
2. <https://www.accountingtools.com/articles/what-is-a-ledger-account.html>
3. [https://www.investopedia.com/terms/t/trial\\_balance.asp](https://www.investopedia.com/terms/t/trial_balance.asp)
4. <https://byjus.com/commerce/final-accounts/>
5. <https://www.zoho.com/books/guides/cost-sheet.html#:~:text=A%20cost%20sheet%20document%20can,just%20before%20the%20production%20begins.>
6. <https://kfknowledgebank.kaplan.co.uk/management-accounting/costing/tac-v-mc#:~:text=Marginal%20costing%20is%20the%20accounting,as%20costs%20of%20the%20product.>

**Pedagogy:** Chalk & Talk, Assignments, Exercises, PPT, Assignment

**Rationale for Nature of the Course:** Can get knowledge in Accounting to pursue higher studies.

## Activities to be given

1. Prepare comprehensive problems in Financial Accounting, Cost Accounting and Management Accounting under various situations
2. Assignment on Preparation of Trading and Profit & Loss Account.
3. Hands on training in Accounting software

**Course Designer Name :** Dr. A. Mayil Murugan, Head & Associate Professor,  
PG Department of Commerce

## LESSON PLAN

Unit	Content	Hrs	Mode
I	<b>Introduction to Accounting, Journal &amp; Subsidiary Books</b> Meaning – Definition – Features of Good Accounting System - Principles of Accounting – Concepts and Conventions – Book keeping – Importance – Golden Rules of Accounting – Journal – Meaning – Journal Entries.	9	Chalk & Talk, PPT, Quiz Exercise
	Subsidiary Books – Meaning - Benefits of Subsidiary Book System – Types - Purchase & Sales Book - Purchase Return & Sales Return Book-Bills Receivable & Bills Payable Book- Cash Book – Simple Cash Book-Two Column Cash Book-Triple Column Cash Book - Imprest system of Petty Cash Book	9	
II	<b>Ledger and Trail Balance</b> Ledger – Meaning – Distinction between Journal and Ledger - Posting from journal to Ledger- Balancing of Ledger Accounts.	9	Chalk & Talk, PPT, Quiz Exercise
	Trail Balance - Meaning – Objectives of preparing Trial Balance - Methods of Preparation of Trial Balance - Balance and unbalance method.	9	
III	<b>Final Accounts for Sole Traders</b> Final Accounts - Meaning – Manufacturing Account - Features - Trading Account - Preparation of Trading Account - Preparation Profit & Loss Account with simple adjustments	9	Chalk & Talk, PPT, Quiz Exercise
	Preparation of Balance sheet with simple adjustments	9	
IV	<b>Computerized Accounting</b> Introduction – Installation of Tally and getting started – Features and Configuration – Accounts / Inventory Information	9	Chalk & Talk, PPT, Quiz Exercise
	Creation of Company – Creation of Group – Creation of Ledger.	9	

V	<b>Voucher Creation and Display of Final Accounts in Accounting Software</b> Creation of Vouchers - Types of Voucher – Alteration of Voucher – Deletion of Voucher.	9	Chalk & Talk, Exercise, Quiz Assignment
	Preparation of Final Accounts through Tally – Trial Balance – Profit and Loss Account – Balance Sheet at the Gateway of Tally - Methods of showing Balance sheet.	9	

### Course Learning Outcomes

CLOs	On completion of the course, the students should be able to	K- Level
CLO 1	Describe the principles of Accounting, journal and Subsidiary Books	Up to K2
CLO 2	Prepare the ledger and trail balance	Up to K3
CLO 3	Prepare the Trading and Profit & Loss Account and Balance Sheet	Up to K3
CLO 4	Analyse the Accounts through Accounting software	Up to K4
CLO 5	Develop the voucher and display of final accounts through Accounting software.	Up to K3

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

(CLOs)	Programme Outcomes (with Graduate Attributes)					
	PO 1 (Knowledge Base)	PO 2 (Problem Analysis & Investigation)	PO 3 (Communication Skills & Design)	PO 4 (Individual and Team Work)	PO 5 (Professionalism, Ethics and equity)	PO 6 (Life Long Learning)
CLO 1	2	2	2	2	2	2
CLO 2	2	2	2	2	2	2
CLO 3	2	3	2	2	2	2
CLO 4	2	2	2	2	2	2
CLO 5	2	3	2	2	2	2

3- Advance Application    2- Intermediate Level    1- Basic Level

### Formative Examination- Blue Print Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

CIA	CLOs	K- Level	Section A MCQ	Section B Short Answers	Section C (Either/Or Choice)	Section D (Open Choice)
I	CLO 1	Up to K2	2 (K1& K2)	1 (K1)	2 (K2&K2)	2(K2 & K2)
	CLO 2	Up to K3	2 (K1& K2)	2 (K2)	2 (K2&K2)	1(K3)
II	CLO 3	Up to K3	2 (K1& K2)	2 (K2)	2 (K2&K2)	1(K3)
	CLO 4	Up to K4	2 (K1& K2)	1 (K2)	2 (K3&K3)	2(K4 & K4)
No. of Questions to be asked			4	3	4	3
No. of Questions to be answered			4	3	2	2
Marks for each question			1	2	5	10
<b>Total Marks for each section</b>			<b>4</b>	<b>6</b>	<b>10</b>	<b>20</b>

### Distribution of Marks with K Level for CIA I & CIA II

CIA	K Levels	Section A (Multiple Choice Questions)	Section B (Short Answer Questions)	Section C (Either/Or Choice)	Section D (Open Choice)	Total Marks	% of (Marks without choice)	Consolidated
I	K1	2	2	-	--	4	6.67	67%
	K2	2	4	10	20	36	60.0	
	K3	-	-	10	10	20	33.33	33%
	<b>Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100</b>	<b>100%</b>
II	K1	2	-	-	--	2	3.34	34%
	K2	2	6	10	--	18	30.00	
	K3	-	-	10	10	20	33.33	33%
	K4	-	-	-	20	20	33.33	33%
	<b>Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100</b>	<b>100%</b>

CLO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

**Summative Examination -Blue Print**  
**Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)**

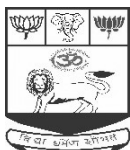
Units	CLOs	K- Level	Section A (MCQs)	Section B (Short Answers)	Section C (Either/Or Choice)	Section D (Open Choice)
1	CLO 1	Up to K2	2 (K1&K2)	1 (K1)	2 (K1&K1)	1(K2)
2	CLO 2	Up to K3	2 (K1&K2)	1 (K1)	2 (K2&K2)	1(K3)
3	CLO 3	Up to K3	2 (K1&K2)	1 (K2)	2 (K3&K3)	1(K3)
4	CLO 4	Up to K4	2 (K1&K2)	1 (K2)	2 (K4&K4)	1(K4)
5	CLO 5	Up to K3	2 (K1&K2)	1 (K2)	2 (K3&K3)	1(K3)
No. of Questions to be asked			10	5	10	5
No. of Questions to be answered			10	5	5	3
Marks for each question			1	2	5	10
<b>Total Marks for each Section</b>			<b>10</b>	<b>10</b>	<b>25</b>	<b>30</b>

**Distribution of Marks with K Level for Summative Examination**

K Levels	Section A (MCQs)	Section B (Short Answers)	Section C (Either/Or Choice)	Section D (Open Choice)	Total Marks	% of (Marks without choice)	Consolidated
K1	5	4	10	-	<b>19</b>	<b>15.83</b>	<b>42%</b>
K2	5	6	10	10	<b>31</b>	<b>25.83</b>	
K3	-	-	20	30	<b>50</b>	<b>41.67</b>	<b>42%</b>
K4	-	-	10	10	<b>20</b>	<b>16.67</b>	<b>16%</b>
<b>Total</b>	<b>10</b>	<b>10</b>	<b>50</b>	<b>50</b>	<b>120</b>	<b>100</b>	<b>100%</b>

NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.

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RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC

**PROGRAMME : B.Sc. Information Technology      COURSE CODE : 20U3FSM1**

**COURSE TITLE : Office Automation**

**QN.NO : 11312**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objectives**

1. To enable the user, to create, formatting and enhancing documents.
2. To develop a spreadsheet application.
3. To impart the knowledge of building worksheet with EXCEL.
4. To learn the concepts of creating a database with Ms-Access.
5. To learn the manipulation of data with Ms-Access.

UNIT	CONTENT	Hrs	K-Level	CLO
I	<b>MS WORD 2010: Creating a Document with Word:</b> Viewing the Word Window – Moving around in a Document - Changing Document Views – Setting Up the Page – Setting Up the Page Margins – Selecting Text –Adding Header and Footers – Inserting Page Numbers and the Date and Time – Creating a Blog Posting on the Web. <b>Formatting a Document with Word:</b> Finding and Replacing - Formatting – Changing Paragraph Alignment – Changing Line Spacing – Displaying Rulers – Setting Paragraph Tabs – Setting Paragraph Indents – Changing Character Spacing – Creating Bulleted and Numbered Lists.	6	Up to K3	1
II	<b>Creating a Worksheet with Excel:</b> Viewing the Excel Window – Selecting Cells – Moving Around the Workbook – Entering Labels on a Worksheet - Entering values on a Worksheet – Entering Values Quickly with AutoFill – Edition Cell Contents – Clearing Cell Content – Inserting And Deleting Cell Contents – Selecting Rows, Columns and Special Ranges – Selecting and Naming a Worksheet – Inserting and Deleting a Worksheet – Moving and Copying a Worksheet – Adjusting Column Width and Row Height.	6	Up to K3	2
III	<b>Building a Worksheet with Excel:</b> Understanding Formulas – Understanding Cell Referencing – Creating a Simple formula - Create a Formula Using Formula AutoComplete – Editing a Formula – Naming Cells and Ranges – Simplifying a Formula with Ranges – Calculating Totals with AutoSum – Correcting Formulas – Creating Function – Creating Function using the Library.	6	Up to K4	3
IV	<b>Creating a Database with Access:</b> Understanding How Database Store Data – Creating a Database – Viewing the Access Window- Changing Database Display Options – Viewing Database Objects- Working with Database Objects-Planning Tables- Creating a Table by Entering Data-Creating An Application Part Using A Template- Creating A Table Using SharePoint	6	Up to K2	4
V	<b>Locating, Managing Data With Access:</b> Working With A Table- Importing Data Into Tables- Working With A Table In Design View-	6	Up to K3	5

	Working With Fields-Specifying Data Types And Field Properties- Creating Field Properties-Creating Input Masks- Creating A Lookup Field-Planning Table Relationships-Defining Table Relationships- Ensuring Referential Integrity-Sorting Records-Filtering Out Records.			
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### Book for Study

“Microsoft Office 2010 on Demand” First Edition by Steve Johnson, Perspection, Inc, Published by Pearson Education, 2012.

### Chapters

- Unit I : 6,7
- Unit II : 9
- Unit III : 10
- Unit IV : 14
- Unit V : 14,15

### Books for Reference

1. “Learning Computer Fundamentals, MS Office and Internet & Web Technology” by Dinesh Maidasani, Third Edition, Firewall Media ,
2. “Working with MS Office 2000” by Content Development Group. Tata McGraw-Hill Publishing Company Limited.
3. “PC Software for Windows 98 Made Simple”- Tata McGraw-Hill Publishing Company Limited.

### Web Resources

1. <https://vignan.ac.in/subjectsnew/BC111.pdf>
2. <http://www.guru99.com/inroduction-to-microsoft-excel.html>
3. <http://www.tutorialspoint.com/powerpoint/index.html>

### Rationale for Nature of the course

- It is used to digitally create, store, manipulate rely office information and data needed for accumulation basic tasks and goals.

### Activity on Skill Development

- Formal Letter Writing
- Resume Writing
- Presentation Design
- Bill Calculations
- Report Generation

### Activities on Employability

- Data Entry operations
- Performance Reporting
- Office Administration

### Pedagogy

Chalk and Talk, PPT, Assignment ,Projector, Demonstration, Practical Session.

### Lesson Plan

Unit	Topic	Hours	Mode
I	<b>MS WORD 2010: Creating a Document with Word:</b> Viewing the Word Window – Moving around in a Document - Changing Document Views – Setting Up the Page – Setting Up the Page Margins – Selecting Text –Adding Header and Footers – Inserting Page Numbers and the Date and Time – Creating a Blog Posting on the Web.	3	Chalk and Talk, Demo Session
	<b>Formatting &amp; Enhancing Document with Word: Formatting a Document with Word:</b> Finding and Replacing Formatting – Changing Paragraph Alignment – Changing line spacing – Displaying Rulers – Setting Paragraph Tabs – Setting Paragraph Indents – Changing Character Spacing – Creating Bulleted and Numbered Lists.	3	Demo Session

II	<b>Creating a Worksheet with Excel:</b> Creating a Worksheet with Excel: Viewing the Excel Window – Selecting Cells – Moving Around the Workbook – Entering Labels on a Worksheet - Entering values on a Worksheet – Entering Values Quickly with AutoFill.	3	Demo Session
	Edition Cell Contents – Clearing cell content – inserting and deleting cell contents – Selecting Rows, Columns and Special Ranges – Selecting and Naming a Worksheet – Inserting and Deleting a Worksheet – Moving and Copying a Worksheet – Adjusting Column Width and Row Height	3	PPT
III	<b>Building a Worksheet with Excel: Building a Worksheet with Excel:</b> Understanding Formulas – Understanding Cell Referencing – Creating a Simple formula - Create a Formula Using Formula AutoComplete – Editing a Formula – Naming Cells and Range. Simplifying a Formula with Ranges – Calculating Totals with AutoSum – Correcting Formulas – Creating Function – Creating Function using the Library.	3	Demo Session
		3	PPT
IV	<b>Creating a Database with Access:</b> Understanding How Database Store Data – Creating a Database – Viewing the Access Window- Changing Database Display Options – Viewing Database Objects- Working with Database Objects-Planning Tables- Creating a Table by Entering Data-Creating An Application Part Using A Template- Creating A Table Using SharePoint-	4	Demo Session
		2	Practical Session
V	<b>Creating A Database With Access:</b> Working With A Table-Importing Data Into Tables- Working With A Table In Design View-Working With Fields-Specifying Data Types And Field Properties-Creating Field Properties Creating Input Masks- Creating A Lookup Field-Planning Table Relationships-Defining Table Relationships-Ensuring Referential Integrity-Sorting Records-Filtering Out Records.	3	Demo Session
		3	Practical Session Assignment

### Course Learning Outcomes

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

CLOs	Course Learning Outcomes	K - Levels
CLO 1	Learn the concepts of Formatting & Enhancing Document using Microsoft Word	Up to K3
CLO 2	Design and Create a Worksheet using Microsoft Excel	Up to K3
CLO 3	Perform various calculation using formulae.	Up to K4
CLO 4	Examine database concepts and explore the Ms-Access environment.	Up to K2
CLO 5	Build a new database with related tables and to create records.	Up to K3

### Mapping of CLOs with PSOs

CLOs/PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO 1	3	-	2	-	1	1
CLO 2	3	1	2	2	1	2
CLO 3	3	-	1	-	1	2
CLO 4	3	1	2	3	2	1
CLO 5	3	2	3	3	3	1

(3 – Advanced Applications, 2 – Intermediate Level, 1 – Basic Level)

### Mapping of CLOs with POs

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO 1	3	1	1	-	1
CLO 2	3	3	3	2	2
CLO 3	3	2	3	-	1
CLO 4	3	1	1	1	2
CLO 5	3	2	2	-	3

(3 – Advanced Applications, 2 – Intermediate Level, 1 – Basic Level)

### Learning Outcome Based Education & Assessment (LOBE)

### Formative Exam – Blue Print – Office Automation (CIA I & II)

### Articulation Mapping - K Levels with Courses Learning Outcomes (CLOs)

Internal	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K- Level	No. of Questions	K- Level		
CIA I	CLO 1	Up to K3	2	K1 & K2	1	K1	2(K3&K3)	1(K3)
	CLO 2	Up to K3	2	K1 & K2	2	K2	2(K2&K2)	2(K3)
CIA II	CLO 3	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K4)
	CLO 4	Up to K2	2	K1 & K2	2	K2	2(K1 & K1)	2 K2)
Question Pattern (CIA I & II)	No. of Questions to be asked		4		3		4	3
	No. of Questions to be answered		4		3		2	2
	Marks for each question		1		2		5	10
	Total Marks for each section		4		6		10	20

- CLO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

### Distribution of Section-wise Marks with K Levels \*

K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated %
K1	2	2	-	-	4	6.67	33
K2	2	4	10	-	16	26.67	
K3	-	-	10	30	40	66.66	67
K4	-	-	-	-	-	-	-
<b>Total Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100.00</b>	<b>100%</b>
K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated
K1	2	-	10	-	12	20	67
K2	2	6	-	20	28	46.66	
K3	-	-	-	-	-	-	-
K4	-	-	10	10	20	33.34	33
<b>Total Marks</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>100.00</b>	<b>100%</b>

## Learning Outcome Based Education & Assessment (LOBE)

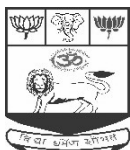
### Blue Print for Summative Examination – Office Automation Articulation Mapping – K Levels with Courses Learning Outcomes (CLOs)

S.No	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No Of Questions	K - Level	No Of Questions	K - Level		
1	CLO 1	Up to K3	2	K1& K2	1	K1	2(K3&K3)	1(K3)
2	CLO 2	Up to K3	2	K1& K2	1	K2	2(K2&K2)	1(K3)
3	CLO 3	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K4)
4	CLO 4	Up to K2	2	K1 & K2	1	K2	2(K1 & K1)	1(K2)
5	CLO 5	Up to K3	2	K1 & K2	1	K1	2(K3&K3)	1(K3)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

- K1 – Remembering and recalling facts with specific answers
- K2 – Basic understanding of facts and stating main ideas with general answers
- K3 – Application oriented – Solving Problems
- K4 – Examining, analyzing, presentation and make inferences with evidences

#### Distribution of Section – wise Marks with K Levels \*

K Levels	Section A (No Choice)	Section B (No choice)	Section C (Either/or)	Section D (Open choice)	Total Marks	% of Marks without	Consolidated
K1	5	4	10	-	<b>19</b>	15.83	<b>42%</b>
K2	5	6	10	10	<b>31</b>	25.83	
K3	-	-	20	30	<b>50</b>	41.67	<b>42%</b>
K4	-	-	10	10	<b>20</b>	16.67	<b>16%</b>
Total Marks	10	10	50	50	<b>120</b>	100	<b>100%</b>



**THE MADURA COLLEGE (Autonomous), MADURAI – 625 011**  
**(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY)**  
**RE-ACCREDITED (3<sup>rd</sup> Cycle) WITH “A” GRADE BY NAAC**

**PROGRAMME : NME - Information Technology**      **COURSE CODE : 20U3FNM1**

**COURSE TITLE : PC Software**

**QN.NO : 11313**

**TIME : 3 Hours**

**MAX.MARKS :75**

**Course Objectives**

1. To acquire knowledge on the basics of MS Office package.
2. To enable the user, to create and edit documents.
3. To manipulate numeric data, formulas and functions.
4. To impart the knowledge of worksheet.
5. To visualize the concept of power point presentation.

UNIT	CONTENT	Hrs	K-Level	CLO
I	<b>Introduction to MS Office 2010: Getting started with office:</b> Introduction - Starting an office program. <b>Creating a Document with Word:</b> Viewing the Word Window – Changing Document Views – Setting Up the Page – Setting Up the Page Margins – Selecting Text – Checking Spelling and Grammar – Adding Header and Footers.	6	Up to K2	1
II	<b>Formatting &amp; Enhancing Document with Word :</b> <b>Formatting a Document with Word:</b> Formatting Text for Emphasis – Finding and Replacing -Formatting – Changing Paragraph Alignment – Changing line spacing – Displaying Rulers – Setting Paragraph Tabs – Creating Bulleted and Numbered Lists. <b>Enhancing a Document with Word:</b> Creating a Table – Entering Text in a Table – Modifying a Table – Adjusting Table Cells – Calculating a Value in a Table – Addressing Envelops and labels – Creating a Form Letter- Creating Labels.	6	Up to K2	2
III	<b>Worksheet with Excel:</b> Creating a Worksheet with Excel: Viewing the Excel Window – Selecting Cells – Moving Around the Workbook – Entering the values on a Worksheet – Entering Values Quickly with AutoFill – Editing Cell Contents – Clearing cell content – inserting and deleting cell contents – Selecting Rows, Columns and Special Ranges .	6	Up to K2	3
IV	<b>Building a Worksheet with Excel:</b> Understanding Formulas – Understanding Cell Referencing – Creating a Simple formula - Create a Formula Using Formula AutoComplete – Editing a Formula – Naming Cells and Ranges – Simplifying a Formula with Ranges – Calculating Totals with AutoSum – Correcting Formulas – Sorting and Filtering.	6	Up to K2	4
V	<b>Presentation with PowerPoint :</b> <b>Creating Presentation with PowerPoint:</b> Viewing the PowerPoint Window – Creating New and Consistent Slides – Working with Objects – Entering and Editing Text – Adding background Style <b>Delivering a Presentation with PowerPoint:</b> Adding Animation – Creating Slide Transitions – Inserting Videos and Audio- Creating a Custom Slide Show – Starting a Slide Show	6	Up to K2	5

## Book for Study

“Microsoft Office 2010 On Demand” First Edition by Steve Johnson, Perspection, Inc, Published by Pearson Education.

## Chapters

- Unit - I: Chapter 1& 6
- Unit - II: Chapter 7 & 8
- Unit - III: Chapter 9
- Unit - IV: Chapter 10
- Unit - V: Chapter 12 & 13

## Books for Reference

1. “Learning Computer Fundamentals, MS Office and Internet & Web Technology” by Dinesh Maidasani, Third Edition, Firewall Media.
2. “Working with MS Office 2000” by Content Development Group. Tata McGraw-Hill Publishing Company Limited.
3. “PC Software for Windows 98 Made Simple” by R.K. Taxali - Tata McGraw-Hill Publishing Company Limited.

## Web Resources

1. <https://www.howtogeek.com/445170/how-to-align-text-vertically-or-horizontally-in-microsoft-word/>
2. <https://www.excelcampus.com/functions/formula-editing-tips/>
3. <https://24slides.com/presentbetter/add-animations-powerpoint/>

## Rationale for Nature of the course

- It is used to digitally create, store, manipulate rely office information and data needed for accumulation basic tasks and goals.

## Activity on Skill Development

- Formal Letter Writing
- Resume Writing
- Presentation Design

## Activities on Employability

- Data Entry operations
- Knowledge Processing Operations

## Pedagogy

Chalk and talk, Materials, PPT, Assignment, Seminar, Problem solving, Group discussion, Interaction and Demonstration.

## Lesson Plan

Unit	Topics	Hours	Mode
I	Introduction to MS – Office 2010, Create and View the Word Window	2	Lecture & PPT
	Setting Up the Page and Page Margins, Selecting Text, Spelling and Grammar, Header and Footers	2	Lecture & PPT
		2	Lecture & PPT
II	Formatting Text, Finding and Replacing, Changing Paragraph Alignment and line spacing, Displaying Rulers, Setting Paragraph Tabs.	2	Lecture & PPT
	Creating Bulleted and Numbered Lists. Creating a Table, Entering Text in a Table, Modifying a Table, Adjusting Table Cells, Calculating a Value in a Table.	2	Lecture & PPT
	Addressing Envelops and labels, Creating a Form Letter, Creating Labels.	2	Lecture & PPT

III	Creating a Worksheet with Excel , Viewing the Excel Window, Selecting Cells, Moving Around the Workbook, Entering the values on a Worksheet. Entering Values Quickly with AutoFill, Editing Cell Contents, Clearing cell content, inserting and deleting cell contents, Selecting Rows, Columns and Special Ranges	3 3	Lecture & PPT Group Discussion
IV	Understanding Formulas, Cell Referencing, Create a Formula Using Formula AutoComplete, Editing a Formula, Naming Cells and Ranges, Formula with Ranges. Calculating Totals with AutoSum, Correcting Formulas, Sorting and filtering	3 3	Lecture & PPT Quiz
V	Viewing PowerPoint Window, Creating New, Consistent Slides, Working with Objects, Editing Text. Adding background Style, Animation, Slide Transitions, Inserting Videos and Audio, Custom Slide Show, Slides Show.	3 3	Assignment Lecture, PPT

### Course Learning Outcomes

On the completion of the course the student will be able to

CLOs	Course Learning Outcomes	K - Level
CLO 1	Express basic documents	Up to K2
CLO 2	Represent documents with formatting and use mail merge options	Up to K2
CLO 3	Demonstrate worksheets and organize data in Microsoft Excel	Up to K2
CLO 4	Trace the techniques of sorting and filtering	Up to K2
CLO 5	Demonstrate basic objects and design elements to presentations.	Up to K2

### Mapping of CLOs with POs

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO 1	3	1	2	1	3
CLO 2	3	2	3	2	3
CLO 3	3	2	2	3	3
CLO 4	3	3	3	3	3
CLO 5	3	3	2	3	3

(3 – Advanced Application, 2 – Intermediate Level, 1- Basic Level)

### Learning Outcome Based Education & Assessment (LOBE)

#### Blue Print for Formative – PC Software

#### Articulation Mapping - K Levels with Course Outcomes (CLOs)

Sl. No	CLOs	K- Level	Section A		Section B		Section C (Open Choice)
			Short Answers		(Either/or Choice)		
			No. of Questions	K- Level	No. of Questions	K- Level	
1	CLO X	Up to K2	2	K1	2	K2&K2	2 (K1)

2	CLO Y	Up to K2	1	K1	2	K2&K2	1 (K1)
No. of Questions to be asked			3			4	3
No. of Questions to be answered			3			2	2
Marks for each question			2			7	10
Total Marks for each section			6			14	20

- CLO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

#### Distribution of Section-wise Marks with K Levels (CIA I & II)

K - Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Total Marks	% of Marks without choice	Consolidated %
K1	6	-	30	36	56.25	100
K2	-	28	-	28	43.75	
<b>Total Marks</b>	<b>6</b>	<b>28</b>	<b>30</b>	<b>64</b>	<b>100.00</b>	<b>100%</b>

### Learning Outcome Based Education & Assessment (LOBE)

#### Blue Print for Summative Examination – PC Software

#### Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

Sl.No	CLOs	K- Level	Section A		Section B		Section C (Open Choice)
			Short Answers		(Either/or Choice)		
			No of Questions	K - Level	No of Questions	K - Level	
1	CLO 1	Up to K2	1	K1	1	K2 & K2	1(K1)
2	CLO 2	Up to K2	1	K1	1	K2 & K2	1(K1)
3	CLO 3	Up to K2	1	K1	1	K2 & K2	1(K1)
4	CLO 4	Up to K2	1	K1	1	K2 & K2	1(K1)
5	CLO 5	Up to K2	1	K1	1	K2 & K2	1(K1)
No. of Questions to be asked			5		10		5
No. of Questions to be answered			5		5		3
Marks for each question			2		7		10
Total Marks for each section			10		35		30

- K1- Remembering and recalling facts with specific answers.
- K2- Basic understanding of facts and stating main ideas with general answers.

#### Distribution of Section – wise Marks with K Levels

K	Section A	Section B	Section C	Total	% of Marks	Consolidated
K1	10	-	50	60	46.15	100
K2	-	70	-	70	53.85	
Total	10	70	50	130	100	100%