

**THIRUVALLUVAR UNIVERSITY**  
**BACHELOR OF SCIENCE**  
**B.Sc. INFORMATION SYSTEM MANAGEMENT**  
**DEGREE COURSE**  
**CBCS PATTERN**

(With effect from 2017 - 2018)

**The Course of Study and the Scheme of Examinations**

S.NO.	Part	Study Components		Ins. hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title					CIA	Uni. Exam	Total
<b>SEMESTER I</b>									
1	I	Language	Paper-1	6	4	Tamil/Other Languages	25	75	100
2	II	English	Paper-1	6	4	English	25	75	100
3	III	Core Theory	Paper-1	6	4	Introduction to Information Technology	25	75	100
	III	Core Practical	Practical-1	3	0		0	0	0
4	III	ALLIED-1	Paper-1	4	3	(to choose any 1 out of 2) A. Mathematical Foundations B. Financial Accounting I	25	75	100
	III	Allied Practical	Practical	3	0		0	0	0
5	IV	Environ. Studies		2	2	Environmental Studies	25	75	100
				<b>30</b>	<b>17</b>		<b>125</b>	<b>375</b>	<b>500</b>
<b>SEMESTER II</b>									
6	I	Language	Paper-2	6	4	Tamil/Other Languages	25	75	100
7	II	English	Paper-2	4	4	English	25	75	100
8	III	Core Theory	Paper-2	6	4	Business Accounting Software	25	75	100
9	III	Core Practical	Practical-1	3	3	Office Automation Lab	25	75	100
10	III	Allied-1	Paper-2	4	3	(to choose any 1 out of 2) A. Statistics B. Financial Accounting II	25	75	100

**B.Sc. Information System Management: Syllabus (CBCS)**

S.NO.	Part	Study Components		Ins. hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title							
11	III	Allied Practical	Practical-1	3	2	(to choose any 1 out of 2) A. Mathematical Foundation & Statistics B. Tally Lab	25	75	100
12	IV	Soft skill		2	1	Soft skill	25	75	100
13	IV	Value Education		2	2	Value Education	25	75	100
				<b>30</b>	<b>23</b>		<b>200</b>	<b>600</b>	<b>800</b>
<b>SEMESTER III</b>									
14	I	Language	Paper-3	6	4	Tamil / Other Languages	25	75	100
15	II	English	Paper-3	6	4	English	25	75	100
16	III	Core Theory	Paper-3	3	3	Programming in C	25	75	100
17	III	Core Practical	Practical-2	3	2	Programming in C Lab	25	75	100
18	III	Allied-2	Paper-3	4	3	(to choose any 1 out of 2) A. Visual Programming B. Business Communication	25	75	100
19	III	Allied	Practical	3	2	A. Visual programming lab B. Business Communication Lab	25	75	100
20	IV	Skill Based Elective I	Paper-1	3	3	E-Business	25	75	100
21	IV	Non-Major Elective I	Paper-1	2	2	Concepts of Internet	25	75	100
				<b>30</b>	<b>23</b>		<b>200</b>	<b>600</b>	<b>800</b>
<b>SEMESTER IV</b>							<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
22	I	Language	Paper-4	6	4	Tamil/Other Languages	25	75	100
23	II	English	Paper-4	6	4	English	25	75	100
24	III	Core Theory	Paper-4	3	3	Programming in C++	25	75	100
25	III	Core Practical	Practical-2	3	2	Programming in C++ Lab	25	75	100
26	III	Allied-2	Paper-4	4	3	(to choose any 1 out of 2) A. Operations Research B. Cost and Management Accounting	25	75	100

27	III	Allied Practical	Practical-2	3	2	A. Operations Research Lab B. Cost and Management Accounting Lab	25	75	100
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S.NO.	Part	Study Components		Ins. hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title					CIA	Uni. Exam	Total
28	IV	Skill Based Elective II	Paper-2	3	3	Computer Network	25	75	100
29	IV	Non-Major Elective II	Paper-2	2	2	Management Information System	25	75	100
				<b>30</b>	<b>24</b>		<b>200</b>	<b>600</b>	<b>800</b>
<b>SEMESTER V</b>									
							<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
30	III	Core Theory	Paper-5	6	5	Principles of Management	25	75	100
31	III	Core Theory	Paper-6	6	5	Data Base Management System	25	75	100
32	III	Core Theory	Paper-7	6	5	Java Programming	25	75	100
33	III	Core Practical	Practical-3	3	2	Java Programming Lab	25	75	100
34	III	Core Practical	Practical-4	3	2	DBMS LAB	25	75	100
35	III	Elective I	Paper-1	3	4	(to choose any 1 out of 3) A. Enterprise Resource Planning B. Bioinformatics C. Marketing Management	25	75	100
36	IV	Skill Based Elective III	Paper-3	3	3	Entrepreneurial Development	25	75	100
				<b>30</b>	<b>26</b>		<b>175</b>	<b>525</b>	<b>700</b>
<b>SEMESTER VI</b>									
							<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
37	III	Core Theory	Paper-8	5	4	Computer Graphics and web Designing	25	75	100
38	III	Core Theory	Paper-9	5	4	Software Engineering	25	75	100
39	III	Core Theory	Paper-10	5	4	Multimedia	25	75	100
40	III	Core Practical	Practical-3	3	3	Computer Graphics and web Designing Lab	25	75	100

41	III	Core Practical	Practical-4	3	3	Multimedia Lab	25	75	100
42	III	Elective II	Paper-2	3	3	(to choose any 1 out of 3) A. Customer Relationship Management B. Fundamentals of Biological Sciences C. Operating Systems	25	75	100
43	III	Elective III	Paper-3	3	3	(to choose any 1 out of 2) A. Human Resource Management B. Geo-Informatics	25	75	100
44	IV	Skill Based Elective IV	Paper-4	3	3	Business ethics	25	75	100
45	V	Extension Activities		0	1		100	-	100
		<b>TOTAL</b>		<b>30</b>	<b>28</b>		<b>300</b>	<b>600</b>	<b>900</b>

Part	Subject	Papers	Credit	Total credits	Marks	Total Marks
Part I	Languages	4	4	16	100	400
Part II	English	4	4	16	100	400
Part III	Allied (Odd Semester)	2	3	6	100	200
	Allied (Even Semester)	2	3	6	100	200
	Allied Practical	3	2	6	100	300
	Electives	3	4+3+3=10	10	100	300
	Core	10	(3,4&5)	41	100	1000
	Core Practical	7	2-3	17	100	700
Part IV	Environmental Science	1	2	2	100	100
	Soft skill	1	1	1	100	100
	Value Education	1	2	2	100	100
	Lang. & Others/NME	2	2	4	100	200
	Skill Based	4	3	12	100	400
Part V	Extension	1	1	1	100	100
	<b>Total</b>	<b>45</b>		<b>140</b>		<b>4500</b>

**THIRUVALLUVAR UNIVERSITY**  
**B.Sc. INFORMATION SYSTEM MANAGEMENT**  
**SYLLABUS**  
**UNDER CBCS**

(With effect from 2017 - 2018)

**SEMESTER I**  
**PAPER - 1**

**INTRODUCTION TO INFORMATION TECHNOLOGY**

**UNIT – I**

**Basics of Information Technology:** Definition - Information Technology for Business - Technological Trends in IT - Applications of Information Technology - Information technology law - **Introduction to Computers:** Definition - Characteristics of a Computer - Classification of Computers - Basic Anatomy of the Computer - Applications / Uses of Computers in different fields

**UNIT – II**

**Input and Output Devices:** Input Devices - Output Devices - Data Representation - Programming Languages / Computer Languages - **Software:** System Software - Application Software - Difference between System Software and Application Software - Device Drivers - Computer Viruses, Bombs, Worms - Types of Viruses

**UNIT – III**

**Data Communication and Computer Networks:** Data Communication - Computer Network - The Uses of a Network - Types of Networks: LAN, MAN, WAN - Intranet and Extranet - Network Topologies- Transmission Media: Guided Transmission Media - Wireless Transmission

**UNIT – IV**

**Internet and its Applications :** History of Internet - Uses of Internet / Application of Internet- Advantages of Internet - ISP - Internet Services - IP Address - Web Browser - URL - DNS - Internet Explorer - Types of internet connections - E-mail - Search Engine

**UNIT – V**

**Operating System:** Evolution of operating systems - Function of Operating System - Classification of Operating System - Example of Operating System – DOS –Windows – UNIX - Linux - Difference between Windows and DOS- Difference between Linux and Windows

**TEXT BOOKS:**

1. Introduction to Information Technology Pelin Aksoy, Laura DeNardis, Cengage Learning India Private Limited.
2. Alexis Leon and Mathews Leon, “Fundamentals of Information Technology”, Vikas Publishing House Pvt. Ltd.
3. Dr.P.Rizwan Ahmed, Introduction to Information Technology, Second Edition (2016), Margham Publications, Chennai.

**WEB REFERENCES:**

1. <https://www.sophia.org/tutorials/basic-introduction-to-information-technology>
2. <http://iiscs.wssu.edu/drupal/node/4327>
3. <http://www4.comp.polyu.edu.hk/~csajaykr/comp5131.html>
4. <https://www.hfcc.edu/catalog/courses/cis-100>

**ALLIED - 1**

**PAPER-1**

**A. MATHEMATICAL FOUNDATIONS**

**UNIT – I: SYMBOLIC LOGIC**

Proposition, Logical Operations, Conjunction, disjunction, negation, conditional and bi-conditional operators, Converse, Inverse, Contra positive, logically equivalent, tautology and contradiction.

**UNIT – II**

Sets, Set Operations, Venn diagram, Properties of Sets, Number of Elements in a Set, Cartesian product.

**UNIT – III**

Multiplication of Matrices, Singular and Non-Singular Matrices, Ad joint of a Matrix, Inverse of a Matrix symmetric and skew-symmetric, Hermitian and skew- Hermitian, Orthogonal and unitary matrices, Rank of a matrix, Solution of Simultaneous Linear equations by Cramer's rule.

**UNIT – IV: MATRICES (Cond)**

Test for Consistency and Inconsistency of linear equations, [Rank Method], Characteristic roots and characteristic Vectors, Cayley – Hamilton theorem.

**UNIT – V: NUMBER THEORY**

Prime Number – Composite Number – Decomposition of a Composite Number as a Product of Primes Uniquely [without proof] – Divisors of Positive integer – Congruence Modulo n-Euler Function [without proof] – Highest power of a Prime Number p Contained in n!

**Recommended Text:**

1. P.R. Vittal – Mathematical – Margam Publication, (For units 1 to 4).
2. P.R. Vittal Algebra, Analytical Geomentry and Trigonometry (For unit 5) – Margam Publications.

**REFERENCE BOOKS:**

1. An Introduction to Symbolic Logic –Sussane Kathrina Langer, 1937
2. A Mathematical Introduction to Logic – Herbert Endettan,1972
3. Advanced Number Theory with Applications- Hardcover, Mollin A Richard

## **B. FINANCIAL ACCOUNTING – I**

### **UNIT – I**

Need, concepts and conventions – Accounting Equation – Rectification of errors – Bank Reconciliation Statement – Self balance ledgers.

### **UNIT – II**

Depreciation, Reserves and Provisions – Depreciation, Depletion and Amortization – Objectives of Providing Depreciation – causes of depreciation – methods of recording depreciation – straight line method – Diminishing Balance Method – Changes in method – Insurance Policy Method – Machine Hour Rate Method – Depletion Method – Revaluation Method.

### **UNIT – III**

Account current – Average Due date – Insurance Claim – Abnormal items – Loss of property and Stock – Average clause – Loss of Profit.

### **UNIT – IV**

Final Accounts – Introduction – Manufacturing Account – Trading Account – Distinction between capital and Revenue expenditure – Profit and Loss Account – Balance Sheet – Various adjustments – Classification of Assets and Liabilities – Adjustments.

### **UNIT – V**

Single Entry – Objectives – Definition – Salient features – Limitations of Single Entry – Ascertainment of Profit – Statement of Affairs Method – Conversion Method – Difference between statement of Affairs and Balance Sheet.

### **REFERENCE BOOKS:**

1. M.C. Shukla, T.S. Grewal. Advanced Accounts (Volume – I) S.Chand & Co Ltd., New Delhi.
2. T.S. Reddy & A.Murthy – Financial Accounting – Margahan Publications, Chennai.
3. R.S.N. Pillai, Bagawathi & S.Uma – Advanced Accounting (Financial Accounting) Volume I, S.Chand & Co Ltd., New Delhi.
4. R.L.Gupta & V.K. Gupta, Financial Accounting, Sultan Chand & Sons, New Delhi.
5. S.P.Jain & K.L. Naranj, Advanced Accountancy, Kalayani Publications, New Delhi, Ludhiana.



**SEMESTER II  
PAPER - 2  
BUSINESS ACCOUNTING SOFTWARE**

**UNIT I**

Introduction to word- starting word - Creating short cut for word – creating word documents – creating business letters using wizards – editing word documents – inserting objects formatting documents – spelling and grammar check – word count – thesaurus auto correct working with tables – saving, opening and closing documents – mail merge.

**UNIT II**

Introduction to spread sheets – MS Excel and its features – what is on the screen - Building work sheets – entering data in work sheets, editing and formatting work sheets – creating and formatting different types of charts – application of financial and statistical function

**UNIT III**

Fundamentals of Computerized accounting – Computerized accounting Vs manual accounts. Architecture and customization of tally – Features of tally – Configuration of Tally screens and menus – Creation of company – Creating of groups – Editing and deleting groups - Caution of ledgers - Editing and deleting ledgers

**UNIT IV**

Introduction to vouchers – Vouchers entry payment voucher – Receipt voucher - Sales vouchers – Purchase vouchers – contra voucher - Journal vouchers – Editing and deleting vouchers. Introduction to Inventories – Creation of stock categories – Creation of Stock groups – Creation of Stock items – Configuration and features of stock item – Editing and deleting stocks

**UNIT V**

Introduction to cost – Creation of cost category – Creation cost centers- Editing and deleting cost centers & categories – Usage of cost category and cost centers in vouchers entry - Budgetary controls – Creation of budgets – Editing and deleting budgets – Generating and printing reports in detailed and condensed format. Day books – Balanced sheets – Trial balance – Profit and Loss Account –Found flow statement - Cost centre report – Inventory report Bank reconciliation statement

## **TEXT BOOKS:**

1. Dr. S.V. Srinivasa Vallabhan -Computer Applications in Business – SultanChand Publication.
2. Dr.P.Rizwan Ahmed,[2016] Computer Application in Business Including Tally ERP9, Margham Publications, Chennai

## **REFERENCES:**

1. Nandhani A K, Mastering Tally ERP.9, BPB Publications, New Delhi.
2. Dinesh Maidasani, Mastering Tally ERP.9, Firewall Media, New Delhi
3. Ashok K Nadhani, Tally ERP.9 Training Guide, BPB Publications New Delhi.

## **WEB REFERENCES**

1. [www.tallyerp9help.com/](http://www.tallyerp9help.com/)
2. [www.tallyschool.com/tally-erp-9-books/](http://www.tallyschool.com/tally-erp-9-books/)
3. [www.tallychampsclub.com/Tally.ERP9\\_Book.aspx](http://www.tallychampsclub.com/Tally.ERP9_Book.aspx)
4. [www.tallyhelp.org/tallybook.html](http://www.tallyhelp.org/tallybook.html)

**CORE PRACTICAL - I**  
**OFFICE AUTOMATION LAB**

**MS- Word**

1. Prepare a leave letter in Ms – word.
2. Create a News Paper format document in Ms – Word.
3. Prepare a calendar in Ms - Word.
4. Business Letter using Mail Merge Concept.
5. Prepare a Greeting card for New Year in Ms - Word.
6. Create an Advertisement using Bullets and Numbering in Ms – Word

**MS- Excel**

1. Prepare a Mark List for n students.
2. Arrange data in Ascending order
3. Arrange data in Descending order
4. Pay bill Preparation
5. Preparing various types of Graphs
6. EB bill Preparation

**Internet**

1. Creation of E-mail ID
2. Composing and Sending E-Mails'
3. Sending E- Mail with attachment
4. Downloading Files, Text, Pictures from E-Mail.
5. Deleting mails.
6. Checking Spam and Box waiting list.

**REFERENCES:**

1. M S Office – S S Shrivatsava

**ALLIED - 1**

**PAPER - 2**

**A. STATISTICS**

**UNIT – I**

Measure of Central Tendency – Mean, Median, Mode and their Merits and Demerits.

**UNIT – II**

Measure of Dispersion – Range, Mean Deviation, Quartile Deviation, Standard Deviation, Co-Efficient of Variation.

**UNIT – III**

Skewness – Karl Pearson’s and Bowley’s Co-Efficient of Skewness.

**UNIT – IV**

Correlation and regression

**UNIT – V**

Index Numbers – Moving averages 3-yearly, 4-yearly, 5-yearly weighted aggregate index laapey’s Method Paaschy’s method fishers ideal method Marshall Edge worth Method family budget method – Seasonal index method.

**Recommended Text:**

1. S.P. Gupta Statistical Methods – Sultan Chand & Sons.

**REFERENCES:**

1. Statistics for Management- by Richard I Levin , David S Rubin
2. Complete Business Statistics by Amir D Aczel , Jayavel Sounderpandian

## **B. FINANCIAL ACCOUNTING – II**

### **Objective**

To gain knowledge of accounting in General, to understand the system of Finance Account.

### **UNIT – I**

Branch Accounts – Objects of Branch Accounts – Types of Branches – Dependent Branch – Stock and Debtor System – Accounting System – Independent Branch (foreign branch excluded) – Incorporation of branch trial balance in head office books.

### **UNIT – II**

Departmental Accounts – Distinction between departments and branches – Allocation of Common expenses – expenses other than allocation – Inter departmental transfer at cost of selling price.

### **UNIT – III**

Hire Purchase System – Accounting treatment – Calculation of Interest – books of Hire Purchases and Hire Vendor – Default and repossession – Hire purchase trading account – Installment system – Distinction between Hire Purchase and Installment purchase system – Accounting treatment – books of buys and seller.

### **UNIT – IV**

Partnership Accounts – Fundamentals – Profit and Loss appropriation account – Admission – adjustments in the profit sharing ration – adjustment for revaluation of assets and liabilities – treatment of good will – adjustments for good will – adjustment of undistributed profit or loss – adjustment – rearrangement of capitals – Retirement and death of partners – various adjustments – Joint Life Policy.

### **UNIT – V**

Partnership Accounts – Dissolution of firm – Settlement of accounts – accounting treatment for goodwill and unrecorded assets and liabilities – Insolvency of a partner – Garner U Murray – Fixed and Fluctuating Capital – all partners insolvency – Gradual realization and Piecemeal distribution – proportionate Capital Method – Maximum loss Method.

**Reference Books:**

1. M.C. Shukla, T.S. Growal, Advanced Accounts (Volume 1), S. Chand & Co. Ltd., New Delhi.
2. T.S. Reddy & A. Murthy – Financial Accounting – Margham Publications, Chennai.
3. R.S.N. Pillai, Bagavathi & S. Uma – Advanced Accounting (Financial Accounting) Volume – 1, S. Chand & Co. Ltd., New Delhi.
4. R.L. Gupta & V.K. Gupta, Financial Accounting, Sultan Chand & Sons, New Delhi.
5. S.P. Jain & K.L. Narang, Advanced Accountancy, Kalyani Publications, New Delhi, Ludhiana.
6. Dr. S. Ganesan, S.R. Kalavathy, Thirumalai Publications, Nagarkoil.

**ALLIED PRACTICAL - I**

**A. MATHEMATICAL FOUNDATION & STATISTICS**

**Exercises:**

1. Finding Rank of a Matrix.
2. Verification of Cayley Hamilton Theorem.
3. Tautology and Contradiction.
4. Drawing Venn Diagrams.
5. Mean – Median – Mode.
6. Mean Deviation – Quartile Deviation, Co-efficient of Variation.
7. Skewness.
8. Correlation.
9. Regression.
10. Moving Average.

**REFERENCE BOOKS:**

1. An Introduction to Symbolic Logic –Sussane Kathrina Langer, 1937
2. A Mathematical Introduction to Logic – Herbert Endettan,1972
3. Advanced Number Theory with Applications- Hardcover, Mollin A Richard
4. Statistics for Management- by Richard I Levin , David S Rubin
5. Complete Business Statistics by Amir D Aczel , Jayavel Sounderpandian

## **B. TALLY PRACTICAL**

1. Prepare trading and Profit and Loss Account and Balance Sheet of a Company.
2. Cost category and cost centre
3. Bank Reconciliation Statement
4. Inventory and stock
5. Invoicing
6. Interest Calculation
7. Consolidation of accounts
8. Security Control
9. Display and Reporting
10. Scenario Management and Miscellaneous reports.

### **REFERENCES:**

1. Nandhani A K, Mastering Tally ERP.9, BPB Publications, New Delhi.
2. Dinesh Maidasani, Mastering Tally ERP.9, Firewall Media, New Delhi
3. Ashok K Nadhani, Tally ERP.9 Training Guide, BPB Publications New Delhi.



**SEMESTER - III  
PAPER - 3  
PROGRAMMING IN C**

**UNIT – I**

Overview of C: History - Importance of C - Structure of C programs - Keywords and Identifiers – Constants, Variables, Datatypes, Declaration of variables - Types of Operator- Evaluation of Expression - Operator Precedence and Associativity.

**UNIT – II**

Managing Input - Output Operators, Decision making Branching and Loops: Types of If statement - Switch statement - Conditional operator - Goto statement - While statement- do statement - for Statement - Continue statement.

**UNIT – III**

Arrays and Strings: One Dimensional Arrays - Two Dimensional Arrays - Read and Write text - String Handling - Two Dimensional Arrays with String – Pointers - Pointers and Arrays.

**UNIT – IV**

User-defined functions: Need for functions - Basic form of C functions - Category of functions - Handling Non - Integer Functions - Nesting of Functions – Recursion - Access modifiers - ANSI C Functions - Call by Value, Call by Reference.

**UNIT – V**

Structures and Unions: Definition of Structure - Structure Initialization - Comparison of Structure Variables - Arrays within Structures - Structures within Structures - Structures and Functions – Unions - Pointers and

Structures - File Management in C - Dynamic Memory allocation.

**Text Book:**

1. Ashok N. Kamthane, Programming with ANSI and Turbo C, Pearson Education, 2006
2. Dr.P.Rizwan Ahmed, [2016] "Programming IN (ANSI-C) Margham Publication, Chennai.

**Reference:**

1. Rajaraman.V [2001] Computer Programming in C, Prentice Hall of India, New Delhi.
2. Balaguruswamy.E[2002] "Programming IN ANSI-C" Ed.2, Tata McGraw Hill, Publication Company, New Delhi.

**CORE PRACTICAL -I**  
**PROGRAMMING LAB IN C**

**(C – Practical)**

1. To find max and min of numbers
2. To generate Fibonacci series
3. npr and ncr
4. Matrix addition and subtraction
5. Transpose of a Matrix Sorting - Bubble Sort
6. Sorting – bubble sort
7. Reverse a string and check for palindrome
8. Counting the number of vowels, consonants, words and white spaces in a line of text
9. Linear Search
10. Binary Search

**Reference:**

1. Rajaraman.V [2001] Computer Programming in C, Prentice Hall of India, New Delhi.
2. Balaguruswamy. E [2002] “Programming IN ANSI-C” Ed.2, Tata McGraw Hill, Publication Company, New Delhi.

**ALLIED - 2**

**PAPER - 3**

**A. VISUAL PROGRAMMING**

**UNIT – I**

Customizing a form – Writing a simple program – Tool box – Creating control – Name property – Command button – Access keys – Image control – Text boxes – Labels – Message boxes – Grid \_editing tools – Variables  
– Data types – String number.

**UNIT – II**

Displaying information – Determinate loops, indeterminate loops – Conditions- built in function – Functions and Procedure.

**UNIT – III**

Arrays- List- Sorting and searching record - Control arrays – Grid controls – Project with multiple forms - Do events and sub main-Error trapping.

**UNIT – IV**

VB objects -Dialogue boxes - Common control – Menus - MDI forms-Testing - Debugging and Optimization – working with Graphics.

**UNIT – V**

File and Handling- File system control – File system objects.

**Text Book**

1. Gary Cornell – Visual Basic 6.0 from the ground up – Tata McGraw Hill – 1999.
2. Noel Jerk – Visual Basic (the complete reference) - Tata McGraw Hill – 1999.
3. Deitel & Deitel, T.R. Nieto – Visual Basic6 – Pearson Edition.

**Web References**

1. <http://www.vb6reference.tomswebdesign.net/>
2. <http://www.dreamincode.net/forums/topic/18079-visual-basic-6-quick-reference-cheat-sheet/>
3. <http://www.vbtutor.net/vbtutor.htm>
4. <http://www.webbasedprogramming.com/programming-resources/visual-basic-6.html>

## **B. BUSINESS COMMUNICATION**

### **Objective:**

To enable the students to know about the Principles, Objectives and Importance of Communications.

### **UNIT – I**

Features of Business Communication – Importance of Effective Communication in Business– classification of communication – Characteristics (7cs) and guidelines of effective business communication.

### **UNIT – II**

Analysis of business letters – Basic principles in drafting – Appearance, Structure and Layout– letter styles.

### **UNIT – III**

Various types of business letters – Letters of enquiry – offers, Quotations, orders, complaints and settlement, circular letters, status enquiry, collection letters, application for jobs CV, resumes and reference letters.

### **UNIT – IV**

Company correspondence – Correspondence with share holders, Debenture and Fixed deposit holders.

### **UNIT – V**

Bank and Insurance correspondence, Correspondence with Government departments – Modern methods of correspondence – e-mail, internet, Fax, Video conference and their importance.

### **Reference Books:**

1. Rajendra pal and J.S.Korlahalli Essentials of Business Communication – Sultan Chand & Sons, New Delhi.
2. Bovee, Thill, Schatzman 7<sup>th</sup> Edition pearson publication, New Delhi.
3. Shirley Taylor Communication for business pearson publication, New Delhi.

**ALLIED PRACTICAL – I**

**A. VISUAL PROGRAMMING**

**(VB Practical)**

1. Building simple application
2. Working with Intrinsic controls and ActiveX controls
3. Application with multiple forms
4. Application with dialogs
5. Application with menus
6. Application using data control Application using format dialogs
7. Drag and Drop events
8. Database Management
9. Creating ActiveX controls

**Text Book**

1. Gary Cornell – Visual Basic 6.0 from the ground up – Tata McGraw Hill – 1999.
2. Noel Jerk – Visual Basic (the complete reference) - Tata McGraw Hill – 1999.
3. Deitel & Deitel, T.R. Nieto – Visual Basic6 – Pearson Edition.

**BUSSINESS COMMUNICATION**

**(Internet Practical)**

1. To create a dialup connection for internet
2. To create a e-mail account
3. To create & send a e-mail
4. Message Forwarding & Sending e-mail to multiple address.
5. Chatting using internet.

**Reference Books:**

1. Electronic Mail – Jacob Palme

**SKILL BASED SUBJECT**

**PAPER - 1**

**E-BUSINESS**

**UNIT-I**

**Introduction to E-Business:** Definition - Characteristics of e-Business - E-Business Requirements - Benefits - Advantages and Disadvantages –

**E-Business Categories:** E-Auction - E-Banking - E-Commerce – E - Directories – E-Engineering- E-Franchising - E-Gambling E-Learning - E-Mailing - E-Marketing – E-Supply - E-Trading

**UNIT - II**

E-Commerce Framework – Traditional vs. E-Business Applications – Architectural Framework – The Internet as Network Infrastructure – Major Categories of E-Commerce – B2C, B2B, C2B and C2C.

**UNIT-II: Networks**

Overview of Communication Network – Communication Processors – Communication Media – Communication Satellite – Wireless Networks – Wireless Internet Access ISDN – Dial-Up – Broadband.

**UNIT-III: Firewalls and Securities**

OSI Models – Network Security and Firewalls – Protocols – Types – Client Server Network Security – Data and Message Security – Digital Signature, Certificates, Envelopes - Encrypted Documents.

**UNIT-IV: EDI in Business**

E-Commerce and World Wide Web – E-Payment Systems – Electronic Data Interchange (EDI) – EDI Applications in Business, Intranet Application in Business.

**UNIT-V: E-Payment Systems**

Online Payment – Payments Cards – Electronic Cash – Electronic Wallets – Digital Cards – Types – Stored Value Cards – Internet Technologies –

**Text Book**

1. R.Kolkota and A.B.Whinston: Frontiers of Electronic Commerce, New Delhi, Addison Wesley, 1996.
2. Dr.P.Rizwan Ahmed, [2015], E-Commerce and E-Business, Margham Publications, Chennai.
3. The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business Paperback – Import, 30 Mar 2004 by Janice Reynolds

**NON-MAJOR ELECTIVE**

**PAPER-1**

**CONCEPTS OF INTERNET**

**UNIT- I**

Introduction to Computers Programming Language types - History of Internet - Personal Computers History of World Wide Web- Micro software .NET Java-Web resources.

**UNIT – II**

Web Browsers- Internet Explorer- connecting to Internet Features of Internet explorer 6 - Searching the Internet- online help and tutorials- File Transmission Protocol (FTP) - Browser settings

**UNIT III**

Attaching a file, Electronic mail Creating an E-mail id Sending and Receiving mails- attaching a file-Instance Messaging (IM)-

**UNIT IV**

HTML - Introduction - Structure of HTML document- Linking-Basic Tags in HTML- Images-Special characters and line breaks-Line Break -Unordered Lists - Simple HTML Programs

**UNIT V**

E-Marketing -Consumer Tracking-Electronic Advertising (E-Advertising)-Search Engine-Customer Relationship Management (CRM)-Online Payments-Credit Card Payments-Digital Cash-E-Wallet-Micropayments

**Text Books**

1. H.M.Deital, P.J. Deital and A.B.Goldberg, Internet and World Wide Web Third edition, Prentice Hall of India, New Delhi.
2. Dr.P.Rizwan Ahmed, Internet and its Applications, Margham Publications, Chennai.

**Reference**

1. The Internet- Complete Reference Harley Han, Tata McGraw hill



**SEMESTER IV**

**PAPER - 4**

**PROGRAMMING IN C++**

**UNIT - I**

Principles of Object Oriented Programming (OOP) : Software Evolution - OOP Paradigm - Basic Concepts of OOP - Benefits of OOP - Object Oriented Languages - Applications of OOP.

**UNIT - II**

Introduction to C++; Tokens, Keywords, Identifiers, Variables, Operators, Manipulators, Expressions and Control Structures in C++; Pointers - Functions in C++ - Main Function - Function Prototyping - Parameters Passing in Functions - Values Return by Functions - inline Functions - Friend and Virtual Functions.

**UNIT - III**

Classes and Objects; Constructors and Destructors; and Operator Overloading and Type Conversions - Type of Constructors - Function overloading.

**UNIT - IV**

Inheritance: Single Inheritance - Multilevel inheritance - Multiple inheritance - Hierarchical Inheritance - Hybrid Inheritance. Pointers, Virtual Functions and Polymorphism; Managing Console I/O operations.

**UNIT - V**

Working with Files : Classes for File Stream Operations - Opening and Closing a File - End-of-File Deduction - File Pointers - Updating a File - Error Handling during File Operations - Command-line Arguments.

**TEXT BOOKS**

1. E. Balagurusamy, 'Object Oriented Programming with C++', Tata McGraw-Hill Publishing Company Ltd., 1995
2. Dr.P.Rizwan Ahmed, Programming in C++ and Data Structure, Margham Publications, Chennai.

**REFERENCES:**

1. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.
2. H.Schildt, C++: The Complete Reference, TMH Edition, 1998.

**CORE PRACTICAL II**

**PROGRAMMING LAB IN C++**

**(C++ PRACTICAL)**

1. Program to implement classes, create object and member functions.
2. Program to implement the concept of function overloading.
3. Program to implement the concept of Operator Overloading.
4. Program to implement the concept of inheritance.
5. Program to implement file handling concepts.
6. Program to implement Constructor and Destructor.
7. Program to implement Binary Search.
8. Program to implement Bubble Sort.
9. Program to implement GCD of two numbers.
10. Program to implement Matrix Addition.

**REFERENCES:**

1. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.
2. H.Schildt, C++: The Complete Reference, TMH Edition, 1998.

**ALLIED - 2**

**PAPER - 4**

**A. OPERATIONS RESEARCH**

**UNIT – I**

Development of OR – Defining of OR – Modeling – Characteristics and Phases – Tools Techniques and Methods – Scope of OR.

**UNIT – II**

Linear Programming Problem - Formulation – Slack and Surplus variables – Graphical Solution of LPP-Simplex Method – Computational Procedure – Artificial variables techniques – Big M Method and Two Phase Method.

**UNIT – III**

The Transportation and Assignment problem: A streamlined simplex method for the transportation problem, the assignment problem, algorithms for assignment problem.

**UNIT – IV**

Network Analysis: PERT/CPM – Basic concepts, preparation of network diagram computation of critical path, PERT cost, applications of PERT, Limitations of PERT/CPM.

**UNIT - V**

Game Theory Introduction – Two person zero sum game – Basic terms – Games with saddle point games without saddle point – Graphical solution – Dominance property – Arithmetic method – General Solution of  $m \times n$  rectangular game.

**TEXT BOOKS:**

1. Looma. N.P [1999] “Linear Programming”.
2. Sharma. J.K, “Operation Research, Theory”, Macmillan, India.
3. Taha, H.A [2002], “Operations Research an Introduction”, Prentice – Hall of India, New Delhi.
4. Operation Research by Kanti Swarup P.K.Gupta and ManMohan sultan Chand and sons Publication.

**REFERENCES:**

1. Hiller, L.S. and G.J. Lieberman, [2001], “Introduction to Operations Research”, McGraw Hill Pub. Co., Singapore.
2. Sharma. J.K [2003], “Operations Research – Theory and Application”, Macmillan

**WEB REFERENCES:**

1. [http:// en.wikipedia.org/wiki/Operations\\_research](http://en.wikipedia.org/wiki/Operations_research)
2. [http:// en.wikipedia.org/wiki/Linear\\_programming](http://en.wikipedia.org/wiki/Linear_programming)
3. [http:// en.wikipedia.org/wiki/tit\\_tat](http://en.wikipedia.org/wiki/tit_tat)
4. [http:// en.wikipedia.org/wiki/simplex\\_algorithm](http://en.wikipedia.org/wiki/simplex_algorithm)

## **B. COST AND MANAGEMENT ACCOUNTING**

### **UNIT – I**

Cost Accounting - Meaning, Definition, Nature and Scope – Objectives –Advantages and limitations – Elements of cost – Financial versus Cost Accounting. Cost System – Types of costing and Cost classification, cost unit- cost centre and profit centre.

### **UNIT – II**

Material Cost: Meaning of material, need of material control – essential material control-advantages, limitations. Store records – purchase order – methods of pricing – issues of material. Methods – FIFO- LIFO – Simple Average- weighted average – Goods Received note – Bin Card – Store Ledger- Purchase, receipts and inspection – Inventory control – EOQ – ABC Analysis.

### **UNIT – III**

Labor : Meaning of Labor – Importance of Labor, labor cost control, Causes, methods of measurement and reduction of labor turnover – Idle time and over time- methods of wage payment – time rate system – piece rate system : Taylor’s , Merricks and Gantt’s Task – Premium bonus system – Halsey plan, Rowan plan. Over head : classification of overheads- primary distribution overhead – secondary distribution overheads – direct distribution and continued distribution methods.

### **UNIT – IV**

Management Accounting : Meaning, Definition, Objectives, function, advantages and limitation – difference between management accounting and financial accounting – difference between management account and cost accounting- financial statements – comparative and common size statements – Trend analysis.

### **UNIT – V**

Fund flow statement: Meaning – uses of fund flow statement – schedule of changes in working capital – fund flow statement – cash flow statement: meaning – uses – difference between fund flow and cash flow statement – preparation of cash flow statement.

Theory: 60%    Problem: 40%

### **REFERENCE BOOKS:**

1. Cost and Management Account – Y.Hari Prasad Reddy, T.S. Reddy – Margam Publications
2. Cost and Management Accounting – S.P.Jain and K.L.Narang – Kalyani Publishers.
3. Cost and Management Accounting – S.N.Mageshwari – Sulthan Chand
4. Cost and Management Accounting – A.Murthi. – S.V.Publications.

**ALLIED PRACTICAL – II**  
**OPERATION RESEARCH**

**(O.R Practical)**

1. Formulating and solving Linear Program Models [LPM] on a simple spreadsheet such as maximizing revenue – minimizing cost – operating under constraints.
2. Formulating strategies for transporting finished goods for markets.
3. Traveling salesman problem.
4. Computation of critical path for a project.
5. Computation and applications for game Theory.

**REFERENCES:**

1. Hiller, L.S. and G.J. Lieberman, [2001], “Introduction to Operations Research”, McGraw Hill Pub. Co., Singapore.
2. Sharma. J.K [2003], “Operations Research – Theory and Application”, Macmillan

**COST AND MANAGEMENT ACCOUNTING**

**(Cost and Management Accounting Practical)**

1. Prepare FIFO with the help of your own data.
2. Prepare LIFO with the help of your own data.
3. Prepare Simple Average with the help of your own data.
4. Prepare Weighted Average with the help of your own data.
5. Preparation of Overhead with primary distribution.
6. Preparation of Overhead with secondary distribution.
7. Calculated comparative balance sheet with your imaginary figure.
8. Prepare common size statement with imaginary figure.
9. calculate trend analysis
10. Preparation of fund flow statement with imaginary figure.
11. Preparation of cash flow statement with imaginary figure.

**REFERENCE BOOKS:**

1. Cost and Management Account – Y.Hari Prasad Reddy, T.S. Reddy – Margam Publications
2. Cost and Management Accounting – S.P.Jain and K.L.Narang – Kalyani Publishers.
3. Cost and Management Accounting – S.N.Mageshwari – Sulthan Chand
4. Cost and Management Accounting – A.Murthi. – S.V.Publications.

**SKILL BASED SUBJECT**  
**PAPER - 2**  
**COMPUTER NETWORKS**

**UNIT-I**

Computer networks – Network hardware- Network software- Protocol Hierarchies – Layering – Interfaces, services, primitives – OSI reference Model – TCP/IP reference model – physical layer – transmission media - Wireless transmission – switching.

**UNIT – II**

Data link layer : services of DLL – framing – flow control – error control – Error detection codes – Error correction codes – DLL protocol – stop and Wait protocol –sliding window protocol - HDLC – DLL in the internet

**UNIT-III**

Network layer : services of network layer - routing – shortest path routing Algorithm – congestion control – general principle of congestion control Inter network routing – Network layer in the internet – IP protocol –IP address – subnets – internet control protocol

**UNIT-IV**

Transportation layer: services of transportation layer – addressing –Establishing and releasing connection – flow control – buffering –Multiplexing – the internet transportation protocol TCP and UDP –Model – connection management – TCP congestion control – UDP

**UNIT-V**

Application layer – DNS – name space – resource – records – name Servers - Email – architecture and services – user agent – message Format and transfer – USENET implementation – WWW client and Server sides – locating information on the web

**TEXTBOOKS:**

1. **Computer Networks – Andrew S. Tanenbaum**, 4th edition, PHI.  
(UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)

**REFERENCE BOOKS:**

1. Data Communication and Network– Achyut Godbole, 2007, TMH.
2. Computer Network Protocols, Standards, and Interfaces – Uyles Black, 2nd ed, PHI.

**NON-MAJOR ELECTIVE**

**PAPER-2**

**MANAGEMENT INFORMATION SYSTEM**

**UNIT- I**

Management Information: Meaning of Information – Attributes of Information – Information needs of Managers – Web databases – Data warehousing – Knowledge Management – Information System for decision making.

**UNIT - II**

Types of Information systems: Transaction Processing Systems – Office automation systems – Decision Support Systems – Executive Support Systems – Management Information systems: Evolution of MIS – Computers and MIS.

**UNIT - III**

System Analysis – System planning and the mutual investigation – System design – The process and stages of system design – Input/output forms design – File Organization – System implementation.

**UNIT - IV**

Management information needs and communication links for marketing system, Production system, Accounting System, Manufacturing system, inventory control system and budgetary control system – IS organization – Top managements responsibility – Data Processing group's responsibility.

**UNIT - V**

Development, maintenances of MIS – Operation of manual information system, Role of Computer in MIS – Database concepts, Expert systems – System audit.

**Text Books:**

1. Rizwan Ahmed, Management Information System, Margham Publications, Chennai.
2. Effy Oz, "Management Information Systems", Second edition, Thomson Learning Course Technology, 2002.
3. Jawadekar W.S, "Management Information Systems", Tata McGraw Hill Publishing Company Ltd, 2002.

**Reference Books:**

1. David Knoenke (1989), "Management Information Systems", Tata McGraw Hill, New Delhi.
2. Iandon K.C and Landon J.P (2001), "Management Information Systems", Maxwell Macmillan Publishing Company.
3. Murdic Rose and Elaggett, "Information System for Modern Management, Prentice Hall.
4. Robert Schultheis, Mary Sumner, "Management Information Systems" – The Manager's View, Fourth edition, Tata McGraw Hill Edition, 1999.



**SEMESTER V**

**PAPER - 5**

**PRINCIPLES OF MANAGEMENT**

**UNIT – I**

Fundamentals of Managements – Basic Principles and Process of Management and administration – Planning – Distinguishing between operational and Strategic Planning.

**UNIT – II**

Functions of Managers: Planning – Organizing – Staffing – Leading – Controlling Control techniques and Information technology.

**UNIT – III**

Levels of Managements: Top-Level Managers – Middle-Level Managers – First-Level Managers – Time Spent in carrying out Managerial Functions.

**UNIT – IV**

Management Skills and Organizational Hierarchy: Technical Skills – Human Skills – Conceptual Skills  
– Design Skills.

**UNIT – V**

Approaches to Management: methods for performing jobs-select workers with appropriate abilities for each job – Training for standard task- planning work and eliminating interruptions – wage incentive for increase for increase output.

**TEXT BOOKS:**

1. Koontz Harrold and wehrich Heinz [1990], “Essentials of Management – McGraw Hill, Fifth Edition.
2. Tripathy and P.N.Reddy [1992]: Principles of Management, Tata McGraw Hill, New Delhi.

**REFERENCES:**

1. Button Gene and Thakur Manab [1996], “Management Theory – Principles and Practice”, Tata McGraw Hill, New Delhi.
2. Chandra Bose [2001], “Principles of Management and Administration”, Prentice Hall of India, Delhi.
3. Robbins [2002], “Management”, 7<sup>th</sup> Edition, Pearson Education, Delhi.

**PAPER - 6**

**DATABASE MANAGEMENT SYSTEM**

**UNIT – I**

Introduction: Database – Definition of DBMS – purpose of Database – Overall System structure – Entity Relationship model – Mapping constraints – E.R Diagrams

**UNIT – II**

Relational Model – Structure – Formal Query Language – Relational Algebra – Tuple and Domain Relational Calculus.

**UNIT – III**

Oracle: Data types – SQL - Data Definition Language (DDL): Creating table – Altering table – Truncating Table dropping a table. Data Manipulation Language (DML): Insert, select, update and delete command. Transactional Control Language: commit, Rollback. Data Control Language: Grant and Revoke privileges

**UNIT – IV**

Joins – simple join, self join, Outer join. Set Operators – Union, Union all, Intersect, minus. Integrity Constraints - Unique, primary key constraints, Not Null, check constraint.

**UNIT – V**

PL/SQL : PL/SQL blocks – procedures – functions – Cursor management – triggers-Exception Handling.

**Text books:**

1. Singh – Database System : Concepts, Design & Applications, Pearson Education.
2. Abraham Silberschatz, H.F.Korth and S.Sundarshan- Database system concepts- Mcgraw Hill Publications.
3. Michael Abbey And Micael. J.Corey – Oracle – A Beginners guide. TMH

**Web References**

1. <http://www.cs.sfu.ca/CourseCentral/354/zaiane/material/notes/contents.html>
2. [www.tutorialspoint.com/dbms/](http://www.tutorialspoint.com/dbms/)
3. [www.studytonight.com/dbms/](http://www.studytonight.com/dbms/)
4. [codex.cs.yale.edu/avi/db-book/db6/slide-dir/](http://codex.cs.yale.edu/avi/db-book/db6/slide-dir/)

**PAPER - 7**

**JAVA PROGRAMMING**

**UNIT- I**

Introduction to Java - Features of Java - Object Oriented Concepts - Data Types - Variables - Arrays - Operators - Control Statements-Input and output-Scanner and System class-print(), println(), and printf() methods.

**UNIT- II**

Classes - Objects - Constructors - Overloading method - Access Control - Static and fixed methods - Inner Classes - String Class - Inheritance - Overriding methods - Using super- Abstract class – Type Wrapper classes for primitive types – Auto boxing and auto Unboxing -Recursion.

**UNIT- III**

GUI components – Common GUI Event types and Listener Interfaces- JOptionPane – JLabel, JTextfield, JButton, JCheckBox, JTextarea, JComboBox, JList – Mouse Event Handling - Key Event Handling.

**UNIT- IV**

Layout Managers – Flow Layout, Border Layout, Grid Layout.- Graphics Contexts and Graphics Objects – Color Control – Font Control – Drawing Lines, Rectangles and Ovals – JSlider-Using Menus with Frames.

**UNIT- V**

Packages - Access Protection - Importing Packages - Interfaces - Exception Handling – Throw and Throws - Thread - Synchronization - Runnable Interface - Inter thread Communication – Multithreading.- file streams

**Text Books:**

1. Dr.P.Rizwan Ahmed, [2016] Java Programming, Third Edition, Margham Publications, Chennai.
2. Balaguruswamy,E[2000], “Programming with Java –A Primer”, Second Edition, Tata McGraw Hill Publishing Company, New Delhi.

**References:**

1. Herber Schildt,[2002]. “The Complete Reference – Java 2”, Fifth Edition, Tata McGraw Hill Publishing Company , Delhi.
2. Java How to Program by Deitel & Deitel - 6th Edition- PHI Publication 2005.

### **CORE PRACTICAL III**

#### **JAVA LAB**

1. Simple Arithmetic Calculation.
2. Decision making
3. Looping Statement
4. String Manipulation
5. Operator Overloading
6. Create Simple Package
7. Implementing thread using thread class
8. Working with Colors and Fonts
9. Drawing various shapes using Graphical Statement
10. Usage of Buttons, Labels, Text Components in suitable application.

#### **Text Book:**

1. Balguruswamy, E [2000], “Programming with Java –A Primer”, Second Edition, Tata McGraw Hill Publishing Company, Delhi.

#### **Reference:**

1. The Complete Reference Java™ 2 Third Edition, Patrick Naughton, Herbert Schildt, Tata McGraw-Hill Publishing Company Limited, New Delhi.

#### **Web References**

1. [www.cplusplus.com/reference/](http://www.cplusplus.com/reference/)
2. [en.cppreference.com/](http://en.cppreference.com/)
3. [www.tutorialspoint.com/cplusplus/](http://www.tutorialspoint.com/cplusplus/)
4. [www.informit.com](http://www.informit.com) › Articles › Programming › C/C++

## **CORE PRACTICAL IV**

### **DBMS LAB**

#### **RDBMS (Oracle Lab)**

1. Create a table Student-master with the following fields client\_no,name, address, city, state,pincode,remarks,bal\_due with suitable data types. a) Create another table supplier\_table from client\_master. Select all the fields and rename client\_no with supplier\_no and name with supplier\_name. b) Insert data into client\_master c) Insert data into supplier\_master from client\_master. d) Delete the selected row in the client\_master.
2. Create a table sales\_order with s\_order\_no and product\_no as primary key. Set other fields to store client number, delivery address, delivery date,order status. a) Add a new column for storing salesman number using ALTER Command. b) Set the s\_order\_no as foreign key as column constraints. c) Set the s\_order\_no as foreign key as table constraints. d) Enforce the integrity rules using CHECK.
3. Create a table student\_master with the following fields name, regno, dept and year with suitable data types. Use Select command to do the following. a) Select the student's name column. b) Eliminate the duplicate entry in table. c) Sort the table in alphabetical order. d) Select all the Students of a particular department.
4. Create a table sales\_order\_details with the s\_order\_no as primary key and with the following fields: product\_no, description, qty\_ordered, qty\_disp,product\_rate, profit\_percent, sell\_price, supplier\_name. a) Select each row and compute sell\_price\*.50 and sell\_price\*1.50 for each row selected. b) Select product\_no, profit\_percent, Sell\_price where profit\_per is not between 10 and 20 both inclusive. c) Select product\_no, description, profit\_percent, sell\_price where profit\_percent is not between 20 and d) Select the suppliername and product\_no where suppliername has 'r' or 'h'as second character.
5. Create a table master\_book to contain the information of magazine code, magazine name, publisher. Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update, delete operations on the above table.
6. Create a table to contain phone number, user name, address of the phone user. Write a function to search for a address using phone numbers.

7. Create a table stock to contain the itemcode, itemname, current stock, date of last purchase. Write a stored procedure to seek for an item using itemcode and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.
8. Create a table to store the salary details of the employees in a company. Declare the Cursor to contain employee number, employee name and net salary . Use Cursor to update the employee salaries.
9. Create a table to contain the information about the voters in a particular constituency. Write a proper trigger to update or delete a row in the table.
10. Create a table to store the details of the Aluminus in an institution. Write a PL/SQL block to change address of a particular alumni. Write proper exceptions and appropriate error messages.

**Text books:**

1. Singh – Database System : Concepts, Design & Applications, Pearson Education.
2. Abraham Silberschatz, H.F.Korth and S.Sundarshan- Database system concepts- Mcgraw Hill Publications.
3. Michael Abbey And Micael. J.Corey – Oracle – A Beginners guide. TMH

**ELECTIVE SUBJECT**

**PAPER - 1**

**A. ENTERPRISE RESOURCE PLANNING**

**UNIT - I**

Business function and Business process: Functional areas and Business Process - functional area of operations - Business process - Marketing Sales - supply chain management - Accounting and finance - Human Resource - Functional areas of information system - The development of ERP system SAP R/3 - New directions in ERP - significance and benefits of ERP software and systems.

**UNIT - II**

Marketing information system and sales order process in ERP: sales and Distribution in ERP - Pre sales activities - sales order processing - inventory Sourcing - Delivery - Billing - payment - Customer relationship Management - benefits of CRM.

**UNIT - III**

Production and supply chain management information system: Production overview - The production planning process - The SAP ERP Approach to production planning - Sales forecasting - sales and operation Planning - Demand management - Material requirement planning in SAP ERP - ERP and supplier - Supply chain

**UNIT - IV**

Accounting in ERP: Accounting activities - using ERP for accounting Information - operational decision making problem - credit management - Industrial credit management in SAP ERP - product profitability analysis - Management reporting with ERP system - Document flow for customer Service.

**UNIT - V**

Human resource process in ERP: HR with ERP - Advance HR features - Time management - Payroll - Travel management - Training and Development - Management by objectives - ERP process modeling.

**Text Books**

1. ELLEN MONK and BRET WAGNER, ENTERPRISE RESOURCE PLANNING - 3rd edition - MGH.
2. Dr.P.Rizwan Ahmed, Enterprise Resource Planning, Margham Publications, Chennai.

## **B. BIO – INFORMATICS**

### **UNIT – I**

Protein; Characterization of protein molecules – sedimentation analysis molecular exclusion, chromatography and SDS gel electrophoresis. Determination of amino acid sequence of proteins. Chemical synthesis of peptides.

### **UNIT – II**

Denaturation and renaturation, orders of protein structure, primary and secondary structures –  $\alpha$  – helix,  $\beta$  sheet and  $\beta$  – turns. Tertiary structure –  $\alpha$  and  $\beta$ .

### **UNIT – III**

Nucleic acids and DNA double helical, Watson and Crick Model. A,B,Z, forms. Triple and Quadruple structures. Concepts of Replication, transcription and translation.

### **UNIT – IV**

Molecular markers for mapping. RFLPs, Chromosome walking. STS and ESTs, positional cloning, SAGE and Cluster analysis. Software programmes and database tools. Sequence analysis at whole genome level: BCRs. ACRs, orthologues, paralogues orphan genes.

### **UNIT – V**

Scope of bioinformatics, useful search engines, Boolean searching, uses of Nucleic acid databases, protein sequences [NCBI, Swiss port, Beranda] using of software like FASTA and BLAST, HEX, Vasmol, Swiss PDB, Argus lab.

### **Text Books:**

1. Lesk, A.M., [2002], “introduction to Bioinformatics”, Oxford Uni. Press, New Delhi.
2. Lewin, B.,[2000], “Genes VIII”. Oxford Uni. Press, New Delhi
3. Ranga, M.M.,[2004], “ Bio informatics”, Panima Book Publishing Company, New Delhi.



**References:**

1. Primrose,[2003], “ Principles of genome analysis”, Blackwell Science.
2. Campbell and Heyer, [2002], “ Discovering genomics, proteomics and bioinformatics”, Cold spring Harbor Laboratory Press,
3. Nicholl, D.S.T., [2002], “ An introduction to genetic engineering”. 2<sup>nd</sup> Edition. Cambridge university Press,

**Web Resources:**

1. <http://www.ensembl.org>
2. <http://www.ncbi.nlm.nih.gov/genbank>
3. <http://www.proteinstructure.com>

## **C. MARKETING MANAGEMENT**

### **UNIT – I**

Fundamentals of marketing – Role of marketing – Relationship of marketing with other functional areas – Concept of marketing – various definitions of marketing- Marketing management of product services and selling – Marketing approaches – various environmental factors affecting the marketing functions.

### **UNIT – II**

Buyer Behavior – consumer goods and Industrial goods – Buying motives – Buyer Behavior model- Factors influencing buyer behavior.

Market Segmentation – Need and Basis of Segmentation – Marketing Strategy- Segmentation – Targeting – Positioning.

### **UNIT - III**

Sales Forecasting – Various methods of Sales Forecasting – Analysis and Application. Product – Characteristics – Benefits – Classification – New Product development process – Product life cycle – Product Portfolio analysis – Product line and Product mix decision.

### **UNIT – IV**

Pricing – factors influencing pricing decisions- pricing objectives – pricing policies and procedures – pricing strategies – physical distribution – importance of various kinds marketing channels- Distribution problems .

### **UNIT – V**

Promotion – Advertising – Publicity – Public relations – Personal Selling – Sales promotion administration.

### **REFERENCE BOOK:**

1. Marketing – Rajan Nair – Sulthan Chand & Co.
2. Marketing – J.Jaya Shankar – Margam Publication
3. Marketting Management – Saxena - McGrawHils
4. Modern Marketting – R.S.N.Pillai and Bagvathi - S.Chand.

**SKILL BASED SUBJECT**

**PAPER - 3**

**ENTREPRENEURIAL DEVELOPMENT**

**OBJECTIVE:**

To gain knowledge about setting – up and managing a business

**UNIT – I**

Meaning of Entrepreneur – Entrepreneur and Enterprise – Entrepreneur and manager – Entrepreneur and Entrepreneur – Qualities (Traits) of a True Entrepreneur Characteristics of Entrepreneur – Types of Entrepreneurs – Functions of an Entrepreneur – Roles of Entrepreneurs in the Economic Development.

**UNIT – II**

Establishing an Enterprise – Project Identification – Selection of the Product – Project Formulation – A Assessment of Project Feasibility – Preparation of Project Report – Selection of Site (Location)

**UNIT – III**

Selection of Types of Organization – Sole Proprietorship – Partnership joint stock Company – Factors Influencing the Choice of Organization – Sources of Project Finance – Sources of Long Term Finance – Sources of Short Term Finance.

**UNIT – IV**

Incentives and Subsidies – Meaning of Incentives and Subsidies – Need and Problems Incentives for Development of Backward Area – Incentives for SSI Units in Backward Areas – Incentives for SSI Units – Subsidies and Incentives in Tamil Nadu.

**UNIT – V**

Women Entrepreneurs – Concept – Functions and Role – Problems of Women Entrepreneurs – Suggestions for Development of Women Entrepreneurs – Rural Entrepreneurship – Need – Problems – How to Develop Rural Entrepreneurship.

**REFERENCE BOOKS:**

1. C.B.Gupta – Entrepreneurship Development in India – Sultan Chand
2. Jayashree Suresh – Entrepreneurial Development – Margham Publications
3. P. saravanavel – Entrepreneurial development – Ess pee kay pub. House
4. Dr.S.S.Khanka – Entrepreneurial Development – S.Chand.

**SEMESTER VI**

**PAPER - 8**

**COMPUTER GRAPHICS AND WEB DESIGNING**

**UNIT – I**

**Overview of Computer Graphics System:** Overview of Computer Graphics system – Video display devices – Raster Scan and random scan system – **Primitives and Attributes:** Drawing a line, circle and ellipse generating algorithms – Scan line algorithm – Character generation – attributes of lines, curves and characters

**UNIT – II**

**TWO Dimensional Viewing and Geometric Transformation:** Principles of viewing – windowing – clipping – co-ordinate reference frame – basic transformation – scaling and rotations.

**UNIT – III**

**THREE Dimensional Objects:** Object display methods – Depth Presentation – stereoscopic views – surface models – cubic's– spines and curves – 3D viewing – Elimination and surface rendering – Color and animation.

**UNIT – IV**

HTML – Forms – Tables – Web page design – Java Script Introduction – Control Structures – Functions – Arrays – objects – simple web application.

**UNIT – V**

Dynamic HTML – Introduction –Cascading style sheets – Servlets – Deployment of simple servlets – Web Server(Java web server/Tomcat/web logic) – HTTP GET and POS Requests – Session – Cookies- JDBC connectivity.

**Text Books:**

1. Asthana, R.G.S. and Sinha, N.K.,(1996),”Computer Graphics” New Age Int.Pub.(p)Ltd., publishers.
2. Hearn, D. and Pauline Baker, M. (1987),”Computer Graphics(C-Version)” 2<sup>nd</sup> Edition, Pearson Education, Delhi.
3. Jennifer Niederst(1999) Web Design in a Nutshell, Shroff Publishers Pvt. Ltd, Mumbai

**PAPER - 9**

**SOFTWARE ENGINEERING**

**UNIT – I**

Introduction to Software Engineering: Definition – size factor- Quality and Productivity Factors – managerial Issues. Planning a software Project: Defining the Problem – Goals and Requirements – solution strategy. Planning the development Process: Various Models – Planning an Organizational Structure – Planning Activities.

**UNIT – II**

Software cost estimation: Introduction – Software cost Factors – Software cost Estimation – Estimating Software maintenance Costs. Software Requirement: Definition – Software Requirement specification – Specification Techniques.

**UNIT – III**

Software Design: Design concept – Modules and Modularization Criteria – Design Notation – Design Considerations – Test Plans – Milestones, Walkthroughs and Inspections. Design Guidelines Implementation Issues : Structure Loading Techniques – Coding Style.

**UNIT – IV**

Modern Programming Languages Features: Type Checking – User defined Data Types – Scoping Rules  
– Exception Handling. Verification and Validation Techniques : Quality Assurance – States Analysis.

**UNIT – V**

Unit Testing and Debugging – System Testing – Formal verification. Software Maintenance – Maintainability. Configuration Management – Source Code Metrics – Other maintenance Tools and Techniques.

**TEXT BOOK:**

1. RICHARD FAIRLEY, Software Engineering Concepts. TATA Mc GRAW-Hill Edition.
2. A.Zakiuddin Ahmed, Software Engineering, Margham Publications, Chennai.

**REFERENCE BOOK:**

Software Engineering VI Edition,  
Author: ROGER S.PRESSMAN  
Publishers : TATA McGRAW HILL Interanational Edition.

**PAPER - 10**

**MULTIMEDIA**

**UNIT – I**

Definition – classification – Applications of Multimedia – Multimedia Hardware – Multimedia Software – CDROM- DVD

**UNIT – II**

**MM Audio:** Digital Audio Technology – sound cards – recording and editing – MIDI Fundamentals – Working with MIDI – audio file formats.

**Unit – III**

**MM Text:** Text in Multimedia. **MM Graphics:** Coloring- digital imaging fundamentals- developing and editing – file formats.

**UNIT – IV**

**MM Animation:** Computer animation fundamentals- kinematics- morphing – animation software tools and techniques. **MM Video:** Digital Video fundamentals – digital video production and editing techniques – file formats

**UNIT – V**

**MM Project :** Various stages of MM project design and development – MM Skills – MM team – MM authoring.

**TEXT BOOK:**

1. Multimedia Magic – S.Gokul revised and updated second edition – BPB

**Reference Book:**

1. Multimedia Making it work – Tay Vaughen 6<sup>th</sup> edition – TMH.

**CORE PRACTICAL - IV**

**COMPUTER GRAPHICS & WEB DESIGNING LAB**

**Computer Graphics:**

1. Bresenham's algorithm for drawing line, circle and ellipse.
2. Graphic primitives (Line, Circle, Box etc.)
3. 2D transformation (scaling, translation, rotation, reflection and shearing).
4. Clipping and windowing.
5. 3D transformations (scaling, translation and rotation).

**Web Designing:**

1. Create a simple page introducing yourself how old you are, what you do, what you like and dislike. Modify the introduction to include a bullet list of what you do and put list the 5 things you like most and dislike as numbered lists. Create another page about your favorite hobby and link it to (and form) your main page. Center something, and put a quote on one of your pages.
2. Put an existing image on a web page. Create a table, use a heading and at least one use of row span/col. Span. Color a page and some text within the page. Link to another site.
3. Create a new file called index. Html.
  - Put the normal HTML documents structure tags in the file.
  - Give it a title.
  - At the bottom of the page (i.e. the last thing between the body tags) put the following:
    - A horizontal rule.
    - A Link to your e-mail Address (with your name between the tag); remember to put the link to your E-Mail address within address tags.
    - A line break.
    - The date. (I have this same structure at the bottom of this page).
    - Above this block (which is called the footer), put a title in headings tags.
    - Add some text describing yourself (you can split this into multiple headings and Paragraphs if you wish)
4. Write a script to create an array of IO elements and display its contents.
5. Write a function in java script that takes a string and looks at it character by character.

**Text Books:**

1. Asthana, R.G.S. and Sinha, N.K.,(1996),”Computer Graphics” New Age Int. Pub.(p) Ltd., publishers.
2. Hearn, D. and Pauline Baker, M. (1987),”Computer Graphics(C-Version)” 2<sup>nd</sup> Edition, Pearson Education, Delhi.
3. Jennifer Niederst (1999) Web Design in a Nutshell, Shroff Publishers Pvt. Ltd, Mumbai

**CORE PRACTICAL - IV**

**MULTIMEDIA LAB**

**1. photo Effects:**

Decolouring, Changing cloth texture and pattern, Changing background, Applying soft light effect.

**2. Photo Retouching:**

**2.1** Colour correction, Blending Images, smooth skin effects, adding blur effects to background.

**2.2** Converting black and white photo to colour photo.

**3. Text Effect:**

Creating Metatite text, Shining text, Illumines text, Transparent glass text, Marquee, Digital banner.

**4 .Image Editing :**

Creating simple Images. **a.** Editing – resize, change colour depth, resolution, file format, brightness, add and edit layer style, add text. **b.** Stitch and edit two images into single using selection, Lasso and elone stamp tools (masking).

**5 .Web Graphics:**

**a.** creating a gif image using image ready for web **b.** Create a web navigation Image

**6 .Animation :**

**Text:** **a.** Text floating into screen from outside the screen. **b.** Animated Banner using image ready/any other software. **c.** Fade in fade out banners.

**7. Animation :**

**Image:** **a.** Animated lightening strike. **b.** Mobile wall paper **c.** icon animation

**8.** Create a digital clock Animation.

**Reference Book:**

1. Multimedia Making it work – Tay Vaughen 6<sup>th</sup> edition – TMH.



**ELECTIVE**

**PAPER - 2**

**A. CUSTOMER RELATIONSHIP MANAGEMENT**

**UNIT-I**

CRM – Introduction – Definition – Need for CRM – Complementary Layers of CRM – Customer Satisfaction – Customer Loyalty – Product Marketing – Direct Marketing.

**UNIT-II**

Customer Learning Relationship – Key Stages of CRM – Forces Driving CRM – Benefits of CRM – Growth of CRM Market in India – Key Principles of CRM.

**UNIT-III**

CRM Program – Groundwork for Effective use of CRM – Information Requirement for an Effective use of CRM – Components of CRM – Types of CRM.

**UNIT-IV**

CRM Process Framework – Governance Process – Performance Evaluation Process.

**UNIT-V**

Use of Technology in CRM – Call Center Process – CRM Technology Tools – Implementation – Requirements Analysis – Selection of CRM Package – Reasons and Failure of CRM.

**Text books:**

1. Customer relationship management, K.Balasubramaniyan, GIGO publication, 2005.
2. The essentials guide to knowledge management – E-business and CRM application, Amrit tiwana, Pearson education, 2001.

**Reference Books:**

1. E-business – Roadmap for success, Dr.Ravi Kalakota, Pearson education asia, 2000.
2. Business – The Dell way, Rebecca saunders, India book distributors, 2000.

## **B. FUNDAMENTALS OF BIOLOGICAL SCIENCES**

### **UNIT- I**

Microbial world: Structure of bacteria, virus and alchae, Environmental and industrial application of microbes. Food microbiology – food spoilage, food preservation and fermentation.

### **UNIT – II**

Classification and morphology of plant: Outline of Classification of Major plant communities. General morphology of fungi, bryophytes, pteridophytes, gymnosperms and angiosperms and their adaptations.

### **UNIT – III**

Animals kingdom: Classification of invertebrates and vertebrates. Characteristics and morphological adaptations of the invertebrates and vertebrates.

### **UNIT – IV**

Study of cells using microscopes, structural organization of cells-nucleus, mitochondria, endoplasmic reticulum, golgi apparatus, lysosomes and peroxisomes etc. and their function. Cell division.

### **UNIT – V**

Fundamental of genetics, mendelian inheritance, mutation. Theories of origin of life – organic evolution, speciation, Chromosomal manipulation.

### **Text Books:**

1. Dutta, A.C(1995) “Botany for degree students. Oxford University Press, Chennai.
2. Reha Mathur, (1994) “Animal Behaviour”, Restrogi & Company, Merrut.
3. Ready, S.M.[2004]”Microbial Biotechnology”. Panima Book Publishing Company, New Delhi.

### **References**

1. Ce Robertis, EDP and EMF De Roberties, [1996] “Cell and Molecular Biology”. B.I.Waverly Pvt. Ltd., New Delhi.
2. Prescott et al.,[1999] “microbiology”, MC Graw Hill, New Delhi
3. Stebbins, G.L.,[1979] “Process of organic evolution”. Prentice Hall of India, New Delhi.

### **Web Resources**

1. [http:// www.netsci.org](http://www.netsci.org)
2. <http://www.animalword.net.in>
3. <http://www.biodive.org>

## **C. OPERATING SYSTEM**

### **UNIT – I**

Introduction: Definition of Operating system – Functions of operating system – History of Operating system – Types of Operating system – System calls and system programs.

### **UNIT – II**

Process Management : Definition of Process – Process states – process state transition – Operations on Process – Process control block - Inter process Communication – Deadlocks.

### **UNIT – III**

Memory management: Single and Multiple partitioned allocation – Paging – Segmentation - Virtual Memory Management – Demand paging and page replacement algorithms.

### **UNIT – IV**

Information Management : File concept – Access methods – Directory structure – Allocation methods- free space management- disk scheduling.

### **UNIT – V**

Unix Operating System : Structure of Unix Operating System – Shell and Kernel of Unix O/S -Files system – simple commands: ls, cp, rm, who, mkdir, cd, rmdir, more, lp, wall, mail etc.

### **TEXT BOOK**

Abraham Silberschatz and P.B. Galvin – Operating System Concepts – Addison Wesley Publication.

**ELECTIVE SUBJECT**

**PAPER - 3**

**A. HUMAN RESOURCE MANAGEMENT**

**UNIT – I**

Nature and scope of HRM – personnel Management and HRM – Functions of HRM – Functions of HR Manager – HRM as a profession – Indian perspective.

**UNIT – II**

Human Resource Planning – Recruitment – Selection – Methods of Selection – Use of Various tests  
– Interview techniques in selection – Placement.

**UNIT – III**

Induction – Training methods – Techniques – Identification of training needs – Training and Development.

**UNIT – IV**

Job satisfaction – Motivation (Maslow's and Two Factor Theory only) – Performance Appraisal – Methods – Compensation – Incentives – Monetary and Non-Monetary.

**UNIT – V**

Transfer – Promotion and Termination of Services – Career Development – Monitoring.

**Reference Books:**

1. Aswathappa – Human Resource and Personnel Management.
2. Memoria CB – Personnel Management.
3. Decenzo / Robbins – Human Resource Management.
4. Jayasankar - Human Resource Management.
5. C.B. Gupta - Human Resource Management.
6. L.M. Prasaad - Human Resource Management.

**B. GEO – INFORMATICS**

**UNIT – I**

Photogrammetric: Aerial Photographs – Basic terms, scales, relief displacements, Flight Planning, Stereoscopy, and Fundamentals of Aerial photo – interpretation.

**UNIT – II**

Remote Sensing: Physics of remote sensing, Ideal remote sensing system, Remote sensing satellites and their data products, Sensors and orbital characteristics, Spectral reflectance curves, resolution and multi – concept, FCC.

**UNIT – III**

Digital Image Processing: Satellite Image – Characteristics and formats, Image Histogram, Introduction to Image rectification, Image Enhancement, Supervised Classification. Applications of remote sensing.

**UNIT – IV**

Geographic Information System [GIS] Basic concepts of geographic data, GIS and its components, Data acquisition, vector and raster data and structures for storage and efficient retrieval, GIS functions Spatial modeling, GIS Applications.

**UNIT – V**

Global Positioning system [GPS] introduction, Satellite navigation System, GPS-Space segments, Receivers, Static, Kinematic and Differential GPS.

**TEXT BOOKS:**

1. Gupta, R.P.[1991], “Remote sensing Geology”, Springer – Verlag, Heldelberg.
2. Lan Heyood, et al. [2000], “An introduction to geographic information systems”, Addison Wesley Longman Ltd., England.

**REFERENCES:**

1. Aronoff, S.[1989], “Geographic Information Systems: A management perspective”, DDL Publication, Ottawa.
2. Burrough, P.A., [2002], “ Principles of Geographic information Systems for land resource assessment”, Oxford Uni. Press, New York.
3. Lillsand, T.M. and Kiefer, P.W.,[1986], “Remote Sensing and Image Interpretation”, John Wiley and Sons, New York.

**WEB RESOURCES:**

1. <http://www.ncgia.ucsb.edu/>
2. <http://www.gisdevelopment.net/publications/index.htm>
3. <http://rst.gsfc.nasa.gov/Front/tofc.html>
4. <http://www.loc.gov/rr/scitech/mysteries/global.html>
5. <http://scign.jpl.nasa.gov/learn/gpsl.html>
6. <http://opengis.org>
7. <http://www.freegis.org>

**SKILL BASED SUBJECT**

**PAPER - 4**

**BUSINESS ETHICS**

**UNIT – I**

Role and importance of Business Ethics and Values in Business – Definition of Business Ethics Impact on Business Policy and Business Strategy – Role of CEO – Impact on the Business Culture.

**UNIT – II**

Types of Ethical issues – Bribes – Coercion – Deception – Theft – Unfair Discrimination.

**UNIT – III**

Ethics internal – Hiring – Employees – Promotions – Discipline – Wages – Job Description – Exploitation of employees – Ethics External – Consumers – Fair Prices – False Claim Advertisements.

**UNIT – IV**

Ethics External – Environment Protection – Natural – Physical – Society – Relationship of Values and Ethics – Indian Ethos – Impact on the performance.

**UNIT – V**

Vendors – Government – Social Audit.

**Text Books:**

1. Memoria & Menoria – Business Policy.
2. David J. Fritzsche – Business Ethics: A Global & Management Perspective – Tata McGraw-Hill.
3. Ramaswamy Namakumari – Strategic Planning – Corporate Strategy – MacMillan India Ltd.
4. Velasquez – Business Ethics – Prentice – Hall of India.
5. Dr.S.Shankaran – Business Ethics & Values.