

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
M.Sc. (I.T.) [Five Years Integrated Course]
B.Sc. (Information Technology)
Semester - I

Teaching and Evaluation Scheme

Paper Sr. No.	Paper Title	Teaching Schedule (Hours/Week)		University Exam Theory / Practical Duration		Internal Exam Theory / Practical Duration		Total Theory / Practical
		Lect	Prac	Hrs.	Marks	Hrs.	Marks	
101	Maths - I	4	-	3	70	2	30	100
102	Computer Fundamentals	4	-	3	70	2	30	100
103	Computer Programming & Programming Methodology	4	-	3	70	2	30	100
104	PC Software & Hardware Troubleshooting	4	-	3	70	2	30	100
105	Communication Skills	4	-	3	70	2	30	100
106	Practical		10	5	140	3	60	200
Total		30			490		210	700

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Paper No : 101

Paper Title : Maths – I.

L: 4, T:0, P:0 Hrs

1. Relations:

Cartesian Product of sets; relations as sets of ordered pairs; types of relations; Properties of relations; Congruence relations; Equivalent classes; Composition of relations; Algebra of relations.

2. Functions:

Functions as sets of ordered pairs; Types of functions; Equality of functions; Algebra of functions; Composition of two functions; Inverse functions; Characteristics functions; Functions in Business economics; Equilibrium prices.
Binary operations; Properties of Binary operations.

3. Theory of Matrices:

Matrices; Types of matrices; Equality of matrices; Operations on matrices; Properties of Operations Singular Matrices; Inverse of Matrix; Adjoint of Matrix; Rank of Matrices; Elementary Row/Column transformations; Row/Column equivalent canonical forms; Inverse using elementary transformations; Solution of a system of linear equations using elementary transformations.

4. Basic Statistics:

Introductions: Definitions Merits and demerits: Frequency distributions and frequency charts;
Measures of Central tendency: Arithmetic mean; geometric mean; Harmonic mean; Median; Mode; Quartiles, Deciles and Percentiles.
Measures of Dispersion: Range, Quartile deviation; Mean deviation; Standard deviation; Skewness and Kurtosis.

5. Probability Theory:

Introduction: Definition; Sample spaces: Events: Types of events; algebra of events; Conditional Probability; theorems on probability; Baye's theorem.

6. Random variables and distributions:

Random variables (discrete and continuous); Mathematical expectations and Variance. Discrete Probability Distributions: Binomial Distribution; Density function; Mean and variance of the Distribution Properties and uses.
Poisson Distribution: Density function; Mean and Variance of the distribution, properties and uses.

Main Readings :

1. C. L. Liu: Elements of Discrete Mathematics, 2nd Edition: McGraw Hill 1985.
2. B.S. Vatssa: Discrete Mathematics; Wishwa Prakashan.
3. K.B. Datta: Matrix and Linear algebra; Prentice Hall of India; 1991.

Supplementary Reading:

1. B.L. Agrawal: Basic Statistics (1996). New – age International Publishers, New Delhi.
2. A.M. Goon; M.K. Gupta & B. Dasgupta; Fundamentals of Statistics (Vol. 1) (1986)
3. Kapur and Gupta: Fundamentals of Mathematical Statistic; S. Chand and Co.

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Paper No : 102

Paper Title : Computer Fundamentals.

L: 4, T:0, P:0 Hrs

1. Introduction

History of Development of Computers, Hardware, Software, Firmware and Operating Systems, Types of Computers

2. Basic Computer Architecture

Block Diagram, CPU architecture, Memory Organization, Addressing Techniques and Modes, Instruction execution

3. Memory & Devices

RAM, ROM, PROM, EPROM, EEPROM, Extended Memory, Expanded Memory, Virtual Memory, Cache Memory

I/O and Secondary storage devices: Floppy Disks, Hard Disk, VDU, Mouse, CD-ROM, Printers, Modem, Plotter, Web Camera, Joysticks, etc.

Disk Architecture

4. Number System & Codes

Various Number Systems and Arithmetic, Conversion of Numbers, Character Codes (ASCII, EBCDIC, BCD, Excess-3, Gray etc.), Binary and Hexadecimal Arithmetic.

5. Introduction to DOS and DOS Commands.

Main Readings:

1. How Computers work - Ron White - Techmedia
2. Computer Fundamentals - V Rajaraman, PHI
3. Computer Fundamentals – P.K. Sinha , BPB
4. Using MS-DOS - Wyatt, PHI

Supplementary Readings :

1. Computer and Commonsense - Hunt & Shelley, PHI
2. Peter Norton complete guide to DOS 6.22- Peter Norton- PHI
3. DOS guide updated to 6.22 - Peter Norton - PHI
4. The Simple MODEM book - Potts, PHI.
5. Inside IBM PC - Peter Norton, TMH.

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Paper No : 103

L: 4, T:0, P:0 Hrs

Paper Title : Computer Programming & Programming Methodology.

- 1. Algorithm & Flowcharting**
- 2. Programming Language & Structured Programming**
Structured Programming, Levels of Programming languages,
Compiler/Interpreter, Editor, Problem Analysis
- 3. Program Bugs & Testing**
Program Bugs, Preparing Test data, Functional & Structural Testing
- 4. Constants & Variables**
Character Set, Constants, Variables - needs & definition
- 5. Expressions & Operators**
Operators, Expression, Evaluation & Assignment of Expression
- 6. Input & Output Statements**
- 7. Jumping, Branching & Looping Statements**
- 8. Mathematical & String Built-in functions**
- 9. Array**
- 10. User Defined Functions and Procedures**
- 11. File Organization**
Sequential, Binary
Random

Main Readings :

1. Programming in BASIC - Balaguruswamy – TMH
2. Qbasic For MS DOS 5.0. – Venkateswaran, Jaico publication
3. Programming expertise in BASIC - Kenetkar – BPB
4. Programming with BASIC - Gottfried – TMH

Supplementary Readings :

1. Structured Programming Concepts - La Budde - Mc.Graw Hill
2. Foundations of Programming - James – BPB
3. BASIC Programming self taught - Seymour C. Hirsch – PHI
4. BASIC Programming with Applications - Jain, TMH
5. Program Design - Juliff, PHI

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Paper No : 104

Paper Title : PC Software & Hardware Troubleshooting L: 4, T:0, P:0 Hrs

1. Introduction

Concept of Window, Icon, Menu, Desktop, Creating Folder and Shortcuts, Finding Files and Folders, Creating Copying, Moving and Deleting files, Adding in and deleting from Start menu, Window Explorer, Elementary Commands

2. Word Processing Package

Typing, Editing, Proofing & Reviewing, Formatting Text & Paragraphs, Automatic Formatting And Styles, Working With Tables, Graphics And Frames Mail Merge, Automating Your Work & printing Documents

3. Spreadsheet Package

Concept of worksheet, Working & Editing In Workbooks, Creating Formats & Links, Protecting and Hiding data, Built-in Functions, Formatting A Worksheet & creating graphic objects, Creating Charts (Graphs),formatting and analyzing data, Organizing Data In A List (Data Management), Sharing & Importing Data Printing, Macros

4. Presentation Package

Creating and Editing Slides, Creating and Editing objects in the Slide, Animation and Slide transition effects, Creating and Running Slide show, Templates Interface with other packages

5. PC Hardware

PC Functions and Components, Tools & Equipment, System Configuration, BIOS/CMOS Settings, System Resources, Safety and Preventative Maintenance Cleaning & Preventative Maintenance, IDE Devices, SCSI Devices, Peripheral Devices, Motherboard & Components, Motherboard Architecture & Troubleshooting, Printers, Printer Connection, Configuration & Troubleshooting Networking & Troubleshooting, Network Cards & Cables, Network Standards

Main Readings:

1. Mastering Microsoft Office 2000 - Couser – BPB
2. How Computers work - Ron White - Techmedia
3. Upgrading & Repairing PC – QUE
4. Upgrading & Repairing Network – QUE

Supplementary Readings:

1. WORD 6 for Windows Quick & easy Reference - Mansfield – BPB
2. Mastering WORD 6 for Windows - Mansfield – BPB
3. Using MS Word 2000 - Calabria, Burke & Kirkland - PHI
4. Mastering EXCEL 2000 for Window - Martin - BPB
5. Using MS Office 2000 - Bott - PHI

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Paper No : 105

Paper Title : Communication Skills.

L: 4, T:0, P:0 Hrs

1. Introduction

Spoken and Conversational skills for Greetings, Requests, Invitations, Permission, Thanks etc., Paragraph Development, Vocabulary Development

2. Reading Skills

Model of Reading to learn - P.S.O.R., Reading Tactics and Strategies, Reading Purposes and Meaning, Reading outcomes structure of meaning technique

3. Writing Skills

Guidelines for effective writing, Writing styles for application, Personal Resume, Business Letter and Memo including Requests, Complains asking quotations etc. Technical Report writing, Writing paragraphs on a given topic., Developing story from given points

4. Listening Skills

Barriers to listening, Effective listening Skills, Feedback Skills, Attending Telephone calls, Note taking

5. Speaking and Discussion Skills

Components of Effective talk / Presentation, Planning of content of a talk / Presentation, Use of Visual aids, Effective speaking skills, Discussion skills

Main Readings :

1. Chrisle W. Handbook of Practical communication skills – JAICO
2. S.J. McGrath. - Basic Managerial Skills for all - PHI

Supplementary Readings :

1. Reading to learn - Sheila Smith & Thomas M. - Methuen(London)
2. Communication Conversation Practice - Tata McGraw Hill
3. Communication in English - R P Bhatnagar & R T Bell -Orient Longman
4. Good English - G H Vallins - Rupa & Co.
5. Let's Talk English - M. I. Joshi
6. Essentials of Business Communications - Pat & Sons, - S. Chand

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Paper No : 106

Paper Title : Practicals.

L: 0, T:0, P: 10 Hrs

Practicals based on subjects no. 103, 104 & 105.