

STUDY AND EVALUATION SCHEME INSTRUMENTATION & CONTROL

Inst. Cont.

CODE NO.	SUBJECT	STUDY SCHEME PERIOD / WEEK	EVALUATION SCHEME						TOTAL MARKS		
			INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT (EXAM)					
			THEORY PRACTICALS			WRITTEN					
		L	T	P	MAX. MARKS	MAX MARKS	MAX MARKS	HRS.	MAX MARKS	HRS	
CM-102	*English and Communication Skills I	4	1	2	50	50	100	3	100	3	300
BS-112	*Applied Mathematics-I	4	2	-	50	-	100	3	-	-	150
ES-121	*Engineering Drawing	2	-	6	-	50	100	3	-	-	150
	#Basic Electricity	4	-	3	50	50	100	3	100	3	300
	#Electrical & Flex.W.Shop	-	-	6	-	50	-	-	100	3	150
ES 122	* Basics of Information technology	-	-	4	-	50	-	-	100	3	150
** Student Centered Activities		-	-	2							
TOTAL		14	3	23							1200
* Common with Civil/ Civil (Construction) and Civil(PHE). #Common with Electronics Comm./Dig.Elex./Med.Elex.											

Rationale

The curriculum aims to develop the use of English for three major purposes social interaction, academic achievement and professional use. Listening, speaking, reading, and writing skills can not be thought of as independent skills. They are generally perceived as interdependent where one skill often activates the other skills as well as the paralinguistic skills required for the achievement of effective communication. It is believed that the most effective way to achieve these purposes is through the adoption of a thematic, integrated, content-based approach to teaching and learning.

DETAILED CONTENTS**1. INTRODUCTION****(10%)****Theory:**

- Definition, Introduction and Process of Communication
- Objectives of Communication
- Essentials of Communication
- Media and Modes of Communication
- Channels of Communication
- Barriers to Communication
- Body language
- Humour in Communication
- Silence in Communication

Note: Teachers are expected to give practical examples, while teaching above topics

2. LISTENING**(10%)**

Theory: Significance, essentials, barriers and effectiveness of Listening.

Practicals: The following exercises to be conducted in practical sessions:

- Using pre-recorded CDs/DVDs with pre-listening exercise to prepare students about what they are going to hear and comprehension based on the audio
- Note-taking
- Listening for the main ideas
- Assessing listening proficiency

3. SPEAKING**(20%)****Theory:**

Significance, essentials, barriers and effectiveness of Speaking

- Introduction to phonetics (Dictionary: meaning and pronunciation of words as given in the standard dictionary using symbols of phonetics)

Practicals: The following exercises to be conducted in practical sessions:

- Exercises on pronunciation of common words as given in the standard dictionary using symbols of phonetics
- Greetings for different occasions
- Introducing oneself, others and leave taking (talking about yourself)

- Just a minute (JAM) sessions: Speaking extempore for one minute on given topics
- Paper reading before an audience (reading unseen passages)
- Situational Conversation/role-playing with feedback, preferably through video recording
- Reading aloud of Newspaper headlines and important articles
- Improving pronunciation through tongue twisters

4. READING

(10%)

Theory:

- Techniques of reading: Skimming, Scanning, Intensive and Extensive Reading
- Comprehension, Vocabulary enrichment and grammar exercises based on the following selective readings:

Section-I

- Homecoming – R.N. Tagore
- The Selfish Giant - Oscar Wilde
- The Stick – Justice Surinder Singh

Section-II

- I Have A Dream – Martin Luther King
- My struggle for An Education- Booker T Washington
- Life Sketch of Sir Mokshagundam Visvesvarayya

Section-III

- Ozymandias – P.B. Shelley
- Daffodils – William Wordsworth
- Stopping by Woods on a Snowy Evening – Robert Frost
- Comprehension exercises on unseen passages
- Exercises on interpretation of tables, charts, graphs, signs and pictures etc.

Practicals:

- Paper reading
- Poetry recitation
- Reading newspaper headlines

5. WRITING

(15%)

Theory:

- Significance, essentials and effectiveness of writing
- Paragraph of 100-120 words

Practicals:

- Exercises on spellings
- Group exercises on writing paragraphs on given topics

6. VOCABULARY

(15%)

Theory:

- Vocabulary of commonly used words
- Pair of words (Words commonly confused and misused)

Practicals:

- To look up words in a Dictionary: meaning and pronunciation of words as given in the standard dictionary using symbols of phonetics
- To seek information from an Encyclopedia

7. GRAMMAR

(20%)

Theory:

- Identification of parts of speech
- Using a word as different parts of speech
- Correction of in-correct sentences
- Tenses
- Voice

Note: Teachers are expected to give practical examples, while teaching above topics

RECOMMENDED BOOKS

1. Text Book of English and Communication Skills Vol – 1, By Alvinder Dhillon and Parmod Kumar Singla; Published by: M/S Abhishek Publications, Chandigarh
2. Spoken English (2nd Edition) by V Sasikumar & PV Dhamija; Published by Tata MC Graw Hills, New Delhi.
3. Spoken English by MC Sreevalsan; Published by M/S Vikas Publishing House Pvt. Ltd; New Delhi.
4. Spoken English –A foundation course (Part-I & Part-II) By Kamlesh Sdanand & Susheela Punitha; Published by Orient BlackSwan, Hyderabad
5. Practical Course in English Pronunciation by J Sethi, Kamlesh Sadanand & DV Jindal; Published by PHI Learning Pvt. Ltd; New Delhi.
6. A Practical Course in Spoken English by JK Gangal; Published by PHI Learning Pvt. Ltd; New Delhi.
7. English Grammar, Composition and Usage by NK Aggarwal and FT Wood; Published by Macmillan Publishers India Ltd; New Delhi.
8. Business Correspondence & Report writing (4th Edition) by RC Sharma and Krishna Mohan; Published by Tata MC Graw Hills, New Delhi.
9. Business Communication by Urmila Rani & SM Rai; Published by Himalaya Publishing House, Mumbai.
10. Business Communication Skills by Varinder Kumar, Bodh Raj & NP Manocha; Published by Kalyani Publisher, New Delhi.
11. Professional Communication by Kavita Tyagi & Padma Misra; Published by PHI Learning Pvt. Ltd; New Delhi.
12. Business Communication and Personality Development by Bsiwajit Das and Ipseeta Satpathy; Published by Excel Books, Delhi
13. Succeeding Through Communication by Subhash Jagota; Published by Excel Books, Delhi
14. Communication Skills for professionals by Nira Konar; Published by PHI Learning Pvt. Ltd; New Delhi.
15. Developing Communication Skills (2nd Edition) by Krishna Mohan & Meera Banerji; Published by Macmillan Publishers India Ltd; New Delhi.

16. Effective Technical Communication By M .Ashraf Rizwi; Published by Tata MC Graw Hills, New Delhi.
17. Basic Communication Skills for Technology by Andrea J Rutherford; Published by Pearson Education, New Delhi
18. English & Communication Skills for students of Science & Engineering by SP Dhanavel; Published by Orient BlackSwan, Hyderabad.
19. Technical Communication- Principles & Practices by Meenakshi Raman & Sangeetha Sharma; Published by Oxford University Press, New Delhi.
20. Technical English by S. Devaki Reddy & Shreesh Chaudhary; Published by Macmillan Publishers India Ltd; New Delhi.
21. Advanced Technical Communication, by Kavita Tyagi & Padma Misra; Published by PHI Learning Pvt. Ltd; New Delhi.
22. Communication Skills for Engineer & Scientist by Sangeeta Sharma & Binod Mishra; Published by PHI Learning Pvt. Ltd; New Delhi.

RATIONALE

The course aims at developing analytical abilities in basics of applied mathematics such as: vector algebra, matrices, elementary numerical analysis, coordinate geometry, differential and integral calculus and solution of first order differential equations. Besides application of above the elements in engineering, the course of study will also provide continuing education base to them.

NOTE: Weightage of each topic for external examination is given in the brackets

DETAILED CONTENTS

1. **ALGEBRA** (15%)
 - (i) Arithmetic Progression (A.P.) – its n^{th} term, sum to n terms. Geometric Progression (G.P.) - its n^{th} term, sum to n terms. And infinite Geometric series. Partial Fractions.
 - (ii) Binomial theorem for positive integral index (without proof), Binomial theorem for any index, Expansions.
2. **TRIGONOMETRY.** (15%)
 - (i) Sum and difference formulas for trigonometric ratios of angles and their application (without proof). Formula from product to sum, difference and vice-versa. Ratio of multiple angles, sub multiple angles (like $2A$, $3A$, $A/2$).
 - (ii) In a triangle sine formulas, cosine formulas, Napier's analogy. Solution of triangle.
 - (iii) Simple problems on height and distance.
 - (iv) Plotting of curves $y = f(x)$, $f(x)$, trigonometric functions (Sine, Cosine, Tangent).
3. **COORDINATE GEOMETRY.** (40%)
 - (i) Equation of straight line in various standard forms. Intersection of two straight lines and angle between them. Concurrent lines, perpendicular distance formula.
 - (ii) General equation of a circle and its characteristics. Equation of a circle given center and radius, three point form and diametrical form.
 - (iii) Definition of a conic section, standard equation of a parabola equation of parabola given its focus and Directrix. Given the equation of parabola finding its focus axis, vertex, Directrix and latus section.
 - (iv) Ellipse and hyperbola (standard equation, without derivation) determining the equation of ellipse and hyperbola given the Directrix, focus and eccentricity. Given the equation of the ellipse and hyperbola finding the foci, Directrices, axes, latus rectum, vertex and eccentricity.
4. **VECTOR ALGEBRA.** (10%)
 - (i) Concept of a vector, Position vector of a point. Addition and subtraction of vectors.
 - (ii) Multiplication of a vector by a scalar product and vector product of two vectors. Application to problems on work done and moment (torque)
5. **DETERMINANT AND MATRIX.** (20%)
 - (i) Definitions Evaluation of a determinant of order two and three. Minor and cofactors. Properties of determinants. Solving simultaneous equations by Cramer's rule.
 - (ii) Concept of a matrix, definitions, Transpose of a matrix, Symmetric and Skew Symmetric matrix, Diagonal matrix, Unit matrix, Addition and Multiplication of matrices, Adjoint and Inverse of a matrix, solving simultaneous equations by matrix methods.

ES – 121 ENGINEERING DRAWING

	L	T	P
Pds/week	2	-	6

RATIONALE

Drawing is the language of engineers & technicians. Reading & interpreting engineering drawing is their day to day responsibility. The course is aimed at in developing basic graphic skills so as to enable them to use these skills in preparation of engineering drawings their reading & interpretation. The emphasis while imparting instruction should be to develop conceptual skills in the students.

NOTE:-1. Weightage of each topic for external examination is given in the brackets.

2. First angle projection to be followed.
3. Minimum of 12 sheets to be prepared by each student.
4. BIS SP 46 – 1988 should be followed.

DETAILED CONTENTS

1. INTRODUCTION (5%)
 - Drawing instruments & their uses.
 - Lines, lettering & dimensioning.
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2. SCALES (10%)

Types of scales, plain scale, diagonal scale, vernier scale.
3. PROJECTION OF POINTS AND LINES (20%)

First angle and Third angle projections

Projection of Points : Introduction, Points situated in 1st, 2nd, 3rd and 4th quadrants. Projection of Lines: Introduction, Line parallel to one or both the planes, Line contained by one or both the planes, line parallel to one of the plane. Line inclined to one plane and parallel to others, Line inclined to both the planes.
4. THEORY OF PROJECTIONS (elaborate theoretical instruction) (15%)
 - Introduction to first angle projections
 - Drawing 3 views of given objects (at least 2 objects)
 - Drawing 6 views of given objects (Non symmetrical objects may be selected for this exercise)
 - Identification of surfaces on drawn views & objects drawn.
 - Exercises on missing surfaces & views
 - Sketching practice of pictorial view from objects
5. SECTION (20 %)

Section planes, true shape of a section

Section of prism

 - a). Section plane parallel to VP
 - b). Section plane parallel to HP

Section of pyramids

 - a). Section plane parallel to base of pyramid
 - b). Section plane parallel to VP

Section of cylinder

 - a). Section plane parallel to the base
 - b). Section plane parallel to the axis

Importance & salient features, methods of representing sections, classification of section, conventions in sectioning.

Drawing of full section, half section, partial or broken out section, offset sections, revolved sections & removed sections. Exercises on sectional views of different objects.

Drawing of different conventions for materials in sections. Conventional breaks for shafts, pipes: Rectangular /square/circular, angle, channel and Rolled sections.

6. ISOMETRIC VIEWS

(15%)

- Fundamentals of isometric projections (theoretical instructions)
- Isometric views from 2 or 3 given orthographic views

7. Symbols, Conventions and simple drawing

(10%)

- (a) Civil Engineering: Sanitary fitting symbols
- (b) Electrical fittings: Symbols for domestic interior installations
- (c) Building plan drawing with Electrical and Civil Engineering symbols.

REFERENCES

1. Engg. Drawing A Text Book of Engineering Drawing By Surjit Singh Dhanpat Rai & co.
2. Engineering drawing –planes & solid geometry ND Bhatt, V.M. Panchal Charotar publisher home

BASIC ELECTRICITY

L. I. P.
4 - 5

Rationale:

The course provides the student. (i) Understanding the basic concepts and principles of DC and AC power, DC and AC circuits (ii) Familiarization with basic electrical circuits and devices (iii) Understanding the principles of working of various testing and measuring instruments and their effective use.

DETAILED CONTENTS

ELECTROSTATICS

1. Review of the following:

(5%)

- (a) Coulomb's law, Electric field, Electric intensity, Electric lines of force in simple charge configuration
- (b) Gauss's Theorem (no proof), Field around a charged conductor, plane sheet and a sphere
- (c) Concept of potential difference, potential due to a point charge, potential gradient, equipotential Surfaces, breaks down potential and dielectric strength

2. Capacitor

(5%)

- (a) Concepts of capacitance and capacitors, units of capacitance, capacitors ratings
- (b) Parallel plate, spherical and cylindrical capacitors and their capacities
- (c) Energy stored in a capacitor
- (d) Concept of dielectric and its effect on capacitance
- (e) Series and parallel combination of capacitors, simple problems of capacitors

3. DC Circuits

(15%)

- (a) Concept and units of electric current.
- (b) Ohm's law, concept of resistance, conductance, resistivity and conductivity. Their units and dependence on temperature in conductor.
- (c) Power and energy, heating effect of electric current and conversion of mechanical to electrical units and vice versa.
- (d) Kirchhoff's voltage and current laws, their applications in simple DC circuits.
- (e) Series and parallel combination of resistors, wattage consideration, simple problems.

4. Basic Magnetism

(5%)

- (a) Magnetism, Nature of Magnetism, Magnetic field, Lines of Magnetic flux, Coulomb's law, magnetic intensity, permeability, reluctance, magnetic flux, magnetic density, intensity of magnetization, hysteresis, relation between B & H.
- (b) Analogy between Electric and magnetic circuits.

5. Electro Magnetism

(15%)

- (a) Magnetic effect of electric current, work law & its application, Biot savart law
- (b) Field outside a long current carrying conductor, field strength due to a solenoid, field strength of the axis of a circular loop.
- (c) Force between two current carrying parallel conductors.
- (d) Faraday's laws, Lenz's law and rules of electromagnetic induction, principles of self and mutual induction. self and mutually induces emf, simple numerical problems

- (e) Energy stored in a magnetic field, concept of current growth, decay and rise time constant in an inductive (RL) circuit
- (f) Energy stored in an inductor.

6. AC Theory

(15%)

- (a) Concept of alternating voltage and current, difference between AC and DC
- (b) Concept of cycle, frequency, period, amplitude, Instantaneous value, average value, rms value and peak value, form factor
- (c) Equation of sinusoidal waveform representation of alternating quantities. Concept of phase difference.

7. Measuring Instruments :-

(15%)

- (a) Electrical Instruments, Essentials of Indicating type Instruments
- (b) Permanent magnet Moving coil Instrument
- (c) Difference between ammeter and voltmeter
- (d) Extension of their range and simple numerical problems
- (e) Dynamometer type moving coil instrument Principle and working of wattmeter (Dynamometer type)
- (f) Moving Iron instruments (attraction type and repulsion type)

8. Voltage and current sources

(15%)

- (a) Concept of constant voltage source, symbol and graphical representation, characteristics of ideal and practical voltage sources.
- (b) Concept of constant current source, symbol, characteristics and graphical representation of ideal and practical current sources.
- (c) Equivalence of current and voltage sources

9. Circuit Theorems

(15%)

- (i) Thevenin's Theorem, Norton's Theorem, Superposition Theorem, Maximum Power Transfer Theorem, applications of network theorems in solving DC circuit problems.

List of Practical:

1. Verification of Ohm's law
2. (a) Verification of $R_{eq} = R_1 + R_2 + R_3 + \dots$ In circuit, where $R_1, R_2, R_3 \dots$ are in series
- (b) Verification of $1/R_{eq} = 1/R_1 + 1/R_2 + 1/R_3 + \dots$ in circuit, where $R_1, R_2, R_3 \dots$ are in parallel
3. Verification of Kirchhoff's first and second laws
4. To measure the (very low) resistance of ammeter and (very high) resistance of voltmeter
5. To measure resistance of galvanometer by half deflection method.
6. Conversion of galvanometer into (i) Ammeter (ii) Voltmeter
7. To verify in DC Circuits :
 - (i) Thevenin's Theorem
 - (ii) Norton's Theorem
 - (iii) Superposition Theorem
 - (iv) Maximum Power Transfer Theorem.

8. To measure inductance of ferrite core coil by first removing the core and then by inserting the core gradually to the full extent and observe the effect of flux concentration on value of inductance.
 9. (a) To verify $L_{eq} = L_1 + L_2 + L_3 + \dots$, where L_1, L_2, L_3, \dots are connected in series.
(b) To verify $1/L_{eq} = 1/L_1 + 1/L_2 + 1/L_3 + \dots$ where L_1, L_2, L_3, \dots are connected in parallel.
 10. To measure capacitance of tuning capacitor by gradually turning the plates inside one another and to observe effect of different overlaps.
 11. (a) To verify $C_{eq} = C_1 + C_2 + C_3 + \dots$ Where C_1, C_2, C_3, \dots are connected in parallel
(ii) To verify $1/C_{eq} = 1/C_1 + 1/C_2 + 1/C_3 + \dots$ Where C_1, C_2, C_3, \dots are connected in series
 12. Plot current and voltage growth and decay in RL and RC circuits for different time constants
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RATIONALE

Information technology has great influence on all aspects of our life. Primary purpose of using computer is to make the life easier. Almost all work places and living environment are being computerized. The subject introduces the fundamentals of computer system for using various hardware and software components. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of information technology and its scope; operating a computer; use of various tools of MS Office/Open Office and internet form the broad competency profile of diploma holders. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

Note:

Explanation of Introductory part should be dovetailed with practical work. Following topics may be explained in the laboratory along with the practical exercises. There will not be any theory examination.

TOPICS TO BE EXPLAINED THROUGH DEMONSTRATION

1. Information Technology – its concept and scope, applications of IT, ethics and future with information technology
2. Impact of computer and IT in society.-- Computer application in office, book publishing, data analysis, accounting, investment, inventory control, graphics, air and railway ticket reservation, robotics, military, banks, Insurance financial transactions and many more
3. Generations of computer, block diagram of a computer, CPU, memory, data – numeric data, alpha numeric data, processing of data.
4. Computers for information storage, information seeking, information processing and information transmission, computer organization, computer hardware and software; primary and secondary memory: RAM, ROM, PROM etc. Input devices; keyboard, mouse, scanner, etc ; output devices ; VDU and Printer(Impact and non-Impact printers), Plotter etc. Primary and Secondary Storage (Auxiliary Storage), Secondary storage; magnetic disks – tracks and sectors, optical disk (CD, CD-RW and DVD Memory)
5. Introduction to Operating Systems such as MS-DOS and Windows, difference between DOS and Windows
6. Basics of Networking – LAN, MAN, WAN

LIST OF PRACTICALS

1. Identify and list functions of various components and peripherals of given computer.
2. Installation of operating system viz. * Windows XP, *Windows 2007 etc.
3. Installing a computer system by giving connection and loading the system software and application software and various sources to install software
4. Exercises on entering text and data (Typing Practice)

5. Features of Windows as an operating system:
 - a) Start , shutdown and restore
 - b) Creating and operating on the icons
 - c) Opening, closing and resizing the windows
 - d) Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file , creating and operating on a folder
 - e) Introduction to all properties such as changing settings like, date, time, calculator, colour (back ground and fore ground)
 - f) Using short cuts
6. Word Processing (MS Office/Open Office)
 - a) File Management:

Opening, creating and saving a document, locating files, copying contents in some different file(s)
 - b) Editing a document:
 - Entering text, cut, copy, paste using toolbars
 - Use of spell check
 - PDF file and its conversion in different file formats (MS Word/Excel etc.)
 - Scanning, editing and printing of a document
 - c) Formatting a document:
 - Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods
 - Aligning of text in a document, justification of document ,Inserting bullets and numbering
 - Formatting paragraph, inserting page breaks and column breaks, line spacing
 - Use of headers, footers, inserting footnote, end note, use of comments
 - Inserting date, time, special symbols, importing graphic images, drawing tools
 - d) Tables and Borders:
 - Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
 - How to change docx file to doc file
 - Print preview, zoom, page set up, printing options
 - Using Find, Replace options
7. Spread Sheet Processing (MS Office/Open Office)
 - a) Starting Excel

open worksheet, enter, edit data, formulae to calculate values, format data, create chart, printing chart, save worksheet, switching between different spread sheets

b) Menu commands:

Create, format charts, organize, manage data, solving problem by analyzing data, creating graphs

c) Work books:

- Managing workbooks (create, open, close, save, rename), working in work books
- Editing a worksheet: copying, moving cells, pasting, inserting, deleting cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

d) Creating a chart:

- Working with chart types, changing data in chart, formatting a chart, use chart to analyze data
- Using a list to organize data, sorting and filtering data in list

e) Formulas:

Addition, subtraction, division, multiplication, percentage and auto sum

8. Power Point Presentation (MS Office/Open Office)

a) Introduction to PowerPoint

- How to start PowerPoint
- Working environment: concept of toolbars, slide layout, templates etc.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter etc.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements

- Adding text boxes, importing pictures, tables and charts etc.

d) Formatting slides

- Text formatting, changing slide layout, changing slide colour scheme
- Changing background, Applying design template

e) How to view the slide show?

- Viewing the presentation using slide navigator, Slide transition
- Animation effects etc.

9. Antivirus

a) What is virus and its types

b) Problems due to virus

c) Installation and updation of antivirus (anyone out of Kaspersky, McAfee, Norton, Quickheal etc).

d) How to scan and remove the virus

10. Internet and its Applications

a) Log-in to internet, introduction to search engine

Browsing and down loading of information from internet

- b) Creating e-Mail Account
 - Log in to e-mail account and Log out from e-mail account
- c) Managing e-Mail
 - Creating a message
 - Sending, receiving and forwarding a message
 - Attaching a file
 - Deleting a message

INSTRUCTIONAL STRATEGY

Since this subject is practical oriented, the teacher should demonstrate the capabilities of computers to students while doing practical exercises. The students should be made familiar with computer parts, peripherals etc. and proficient in making use of MS Office/Open Office in addition to working on internet. The student should be made capable of working on computers independently. This subject should be taught with the help of LCD projector, (while teaching a group) using PowerPoint presentation slides.

RECOMMENDED BOOKS

1. Fundamentals of Computer by E Balagurusamy, Tata McGraw Hill Education Pvt. Ltd., New Delhi
2. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
3. Fundamentals of Computer by Sumita Arora by Dhanpat Rai and Co , New Delhi
4. Computers Today by SK Basandara, Galgotia Publication Pvt Ltd. Daryaganj, New Delhi.
5. Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
6. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
7. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
8. Fundamentals of Information Technology by Leon and Léon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
9. Information Technology for Management by Henery Lucas; Tata McGraw Hill Education Pvt Ltd , New Delhi
10. MS Office by BPB Publications, New Delhi