Paper: 101 / Subject: Communication Skills

Credits 2 **Total Hrs/Week: 2**

Aim: **Objective is to guide/help students in improving their English communication skills.**

Prerequisite: **Basic School English**

1. Introduction
- 1.1. Spoken and conversation for Greetings, Requests, Invitation, Permission, Thanks etc.
- 1.2. Basic Sentence patterns
- 1.3. Agreement between Subject and Verb
- 1.4. Basic rule of Composition
- 1.5. Paragraph Development
- 1.6. Vocabulary Development
- 1.7. Model Auxiliary
- 1.8. Active and Passive voice
- 1.9. Conjunction and prepositions

2. Writing Skills
- 2.1. Guidelines for effective writing
- 2.2. Writing style of application
- 2.3. Personal Resume
- 2.4. Business letter and Memo including Requests, Complains, asking quotation etc.
- 2.5. Technical Report writing

3. Speaking and Discussion Skills
- 3.1. Components of Effective talk / presentation
- 3.2. Planning of content of a talk / presentation
- 3.3. Use of Visual aids
- 3.4. Effective speaking skills
- 3.5. Discussion skills

Reference Books:

1. Handbook of practical Communication skills – Chrisle W. JAICO
2. Basic Managerial Skills for all – S. J. McGrath - PHI
3. Reading to learn – Sheila Smith & Thomas M. Methuen (London)
4. Communication conversation Practice _ Tata McGraw Hill
5. Communication in English – R. P. Bharnagar & R. T. Bell – Orient Longman
6. Good English – G. H. Vallins – Rups & Co.
7. Let's talk English – M. I. Joshi
8. Essentials of Business Communications – Pat & Sons, S. Chand

Paper: 102 / Subject: Mathematics

Credits 3 **Total Hrs/Week: 3**

Aim: **Objective is to provide develop Mathematical Abilities relevant to Computer Science**

Prerequisite: **School Mathematics**

1. Set Theory
- 1.1. Introduction
- 1.2. Representation
- 1.3. Operation and its properties
- 1.4. Venn Diagram
- 1.5. Cartesian product and graph

2. Functions
- 2.1. Definition
- 2.2. Types – Domain and Range
- 2.3. Construction and functions

3. Mathematical Logic & Boolean Algebra
- 3.1. Introduction to logic
- 3.2. Truth Table
- 3.3. Definition & Examples of Boolean Algebra
- 3.4. Boolean Functions
- 3.5. Representation and minimization of Boolean Functions
- 3.6. Design example using Boolean algebra

4. Matrices and Determinants
- 4.1. Matrices of order M * N
- 4.2. Row and Column transformation
- 4.3. Addition, Subtraction and multiplication of Matrices
- 4.4. Computation of Inverse
- 4.5. Cramer's Rule
- 4.6. Business Application of Matrices

Reference Books:

1. Co-ordinate Geometry – Shanti Narayan
2. Linear Algebra – Sushoma Verma
3. Advanced Mathematics – B.S. Shah & Co.
4. Schaum's Outline of Boolean algebra and swathing circuits – Elliot Mendelson

Paper: 103 / Subject: Introduction to Computers

Credits 4 **Total Hrs/Week: 4**

Aim: **Objective is to provide knowledge of functional units, number System, devices and memory & its storage.**

Prerequisite: **Fundamental knowledge of Computers**

1. Introduction
- 1.1. History of Development
- 1.2. Generation of Computers
- 1.3. Types of Computers-Microcomputers, Minicomputers, Mainframes, Super Computers
- 1.4. Hardware, Software & Firmware

2. Basic Computer Architecture
- 2.1. Block Diagram & Functional Units
- 2.2. Various hardware components: Mother board, Processor, Memory, ports
- 2.3. Phases of Machine cycle
  - 2.3.1. Fetch Cycle
  - 2.3.2. Execution Cycle
- 2.4. BIOS, POST

3. Number Systems
- 3.1. Various number systems (Binary, Octal, Hexadecimal, Decimal)
- 3.2. Conversion among various number systems
- 3.3. Binary addition & subtraction
- 3.4. Hexadecimal addition & subtraction
- 3.5. Parity Scheme
- 3.6. ASCII Character Code

4. Memory
- 4.1. Memory organization
- 4.2. Addressing Modes
- 4.3. Memory types: RAM, ROM, FLASH, PROM, EPROM, EEPROM
- 4.4. Concepts of virtual memory, Cache memory

5. **Storage Devices**
- 5.1. Floppy Disks: structure, reading/writing, formatting
- 5.2. Hard disk and its architecture
- 5.3. CD-ROM, DVD ROM
- 5.4. Back up Devices

6. I/O Devices
- 6.1. Printers: Line printer, DOT matrix, Laser, Inkjet
- 6.2. Plotters: Scanners, OCR, OMR
- 6.3. Keyboard, Mouse
- 6.4. Other Devices: Joysticks, Touch pads, pens etc.

6.5. Monitors (CRT Flat Screen LCD)

Reference Books:

1. How computer work: Ron White – Tech media
2. Introduction to computers: 4th Edition – Peter Norton
3. Fundamentals of Computers: V. Rajaraman
4. Computer Fundamentals: Pradeep K. Sinha & Priti Sinha (BPB)

Paper: 104 / Subject: Computer Programming & Programming Methodology

Credits 4 **Total Hrs/Week: 4**

Aim: **To introduce to the students the rudiments of Computer Programming & Programming Methodology using 'C' language.**

Prerequisite: **Basic knowledge of computers**

1. **Algorithm and Flowchart**

2. **Programming Languages & Structured Programming**
   - 2.1. Structured Programming
   - 2.2. Concepts of Compiler / Interpreter Editor

3. **Constraints & Variables, Data Types**
   - 3.1. Character Set
   - 3.2. Identifiers, Keywords, Data types
   - 3.3. Constants- needs & Definition
   - 3.4. Variables- needs & Definition
   - 3.5. Storage Classes

4. **Expression & Operators**
   - 4.1. Operators
     - 4.1.1. Arithmetic Operators
     - 4.1.2. Unary Operators
     - 4.1.3. Relational Operators
     - 4.1.4. Logical Operators
     - 4.1.5. Assignment Operators
     - 4.1.6. Conditional Operator (Ternary)
   - 4.2. Expression
     - 4.2.1. Arithmetic Expression
     - 4.2.2. Boolean Expression
   - 4.3. Evaluation & Assignment of Expression

5. **Input & Output (I/O) Statements**
   - 5.1 Formatted I/O Statements (like *scanf*, *printf*)
   - 5.2 Unformatted I/O Statements (like *getchar()*, *getch()*, *getche()*, *putchar()*)

6. **Control Statements**
   - 6.1 *if* Statement
     - 6.1.1 Simple *if* statement
     - 6.1.2 *if…else* statement
     - 6.1.3 Nested *if* statement.
   - 6.2 *while* loop
   - 6.3 *do…while* loop
   - 6.4 *for* loop
   - 6.5 *break* & *continue* statements

6.6 *switch* statement

7. **Arrays**
   7.1. One Dimensional Arrays
   7.2. Sorting using One Dimensional Arrays
   7.3. Concept of Two Dimensional Arrays
   7.4. String-Array of characters
   7.5. String Manipulation

8. **Built-in Functions : Mathematical and String Functions**
   8.1 Mathematical Functions
   8.2 String Functions
   8.3 Conversion Functions

9. **Debugging and testing**

Reference Books:

1. Programming in C - Balaguruswami - TMH
2. C Programming Language - Kernigham & Ritchie - TMH
3. The spirit of C - Cooper H & Mullish H - Jaico Pub.
4. Programming in C - Stephan Kochan – CBS
5. Mastering Turbo C - Kelly & Bootle – BPB
6. C Language Programming - Byron Gottfried –TMH
7. Mastering Turbo C - Stan Kelly – BPB
8. Let us C – Yashwant Kanetkar - BPB Publication
9. Magnifying C – Arpita Gopal, PHI
10. Problem Solving with C – Somashekara PHI
11. Programming with ANSI and TURBO C - Ashok Kamthane, Pearson Education
12. Programming in C by Pradip Dey & Manas Ghosh, Oxford

Paper: 105 / Subject: Office Automation Tools

Credits 4 **Total Hrs/Week: 4**

Aim: **To make students understand and learn various Office Automation Tools like MS Word, MS Excel & MS PowerPoint.**

Prerequisite: **Basic knowledge of computers**

1. **Introduction**
   - 1.1. Concept of Windows, Icon, Menu
   - 1.2. Desktop
   - 1.3. Creating Folders and Shortcuts
   - 1.4. Finding Files & Folders
   - 1.5. Creating, Copying, Moving and Deleting files
   - 1.6. Windows Explorer
   - 1.7. Basic DOS Commands

2. **Word Processing Package**
   - 2.1. Typing, Editing, Proofing & reviewing
   - 2.2. Formatting text & Paragraph
   - 2.3. Automatics Formatting and Styles
   - 2.4. Working with Tables
   - 2.5. Graphics and Frames
   - 2.6. Mail Merge

3. **Spreadsheet package**
   - 3.1. Concept of worksheet
   - 3.2. Working & Editing in Workbooks
   - 3.3. Creating Formats & Links
   - 3.4. Protecting and Hiding data
   - 3.5. Built in Functions (Mathematical, Statistical, String & Date)
   - 3.6. Formatting a Worksheet & Creating graphics objects
   - 3.7. Creating Charts (Graphics), Formatting and analyzing data
   - 3.8. Organizing Data in a List (Data Management)
   - 3.9. Sharing & Importing Data
   - 3.10. Printing

4. **Presentation Package**
   - 4.1. Creating and Editing Slides
   - 4.2. Creating and Editing objects in the slide
   - 4.3. Animation
   - 4.4. Creating and Running Slide Show
   - 4.5. Templates

5. **Internet**
   - 5.1. Concepts
   - 5.2. Working

5.3. Mailing & surfing tools

Reference Books:

1. EXCEL 2007 Made Simple by Satish Jain, BPB
2. Word 2007 by Rutkosky, BPB
3. PowerPoint 2007 Made Simple by Satish Jain, BPB
4. Mastering EXCEL 4 for Windows - Chester – BPB
5. Microsoft Office Word 2007 Plain & Simple, Joyce & Moon, PHI
6. Microsoft Office Excel 2007 Plain & Simple, Frye, PHI
7. Microsoft Office PowerPoint 2007 Plain & Simple, Muir, PHI
8. 2007 Microsoft Office System Plain & Simple, Joyce & Moon, PHI
9. EXCEL 5 for Windows Quick & Easy -Jones TECH
10. Excel Functions & formulas by Bernd Held, BPB
11. Mastering Windows 2000 Cowat-BPB
12. MS OFFICE 2007 - TRAINING GUIDE by Satish Jain, BPB
13. Internet : An Introduction Cisiems – Tata Mac , D. Boody –BPB
14. Internet 6 in 1 – Joe Krayuak & Harbraken, PHI
15. Internet access essential – Tittle & M. Robbins, AP professional
16. P C Software for Windows 2003 Made Simple, R K Taxali, TMH

Paper: 106 / Subject: Practical
(Based on Papers 104 & 105)

Credits 6 **Total Hrs/Week: 12**

1. Batch Size – 30 Maximum

2. In case of more than 10 students in a batch, separate batch should be considered.

3. The journal should be certified by the concerned faculty and also by the Head of the Department, failing which the student should not be allowed to appear for External Practical Examination.

TEACHING & EVALUATION SCHEME

No.	Course Type	Subject	Credit	Hrs./ Week	Internal Marks	External Marks	External Exam Duration	Total Marks
101	Foundation Compulsory	Communication Skills	2	2	30	70	3 Hrs	100
102	CORE Elective	Mathematics	3	3	30	70	3 Hrs	100
103	CORE	Introduction to Computers	4	4	30	70	3 Hrs	100
104	CORE	Computer Programming & Programming Methodology	4	4	30	70	3Hrs	100
105	CORE	Office Automation Tools	4	4	30	70	3 Hrs	100
106	CORE	Practical (Based on Papers 104 & 105)	6	12	60	140	5 Hrs	200
	Foundation Elective	To be Selected from the list (eg NCC/NSS/Saptdhara	2	2				
TOTAL			25		210	490		700