

# BACHELOR IN COMPUTER APPLICATIONS

## Year 1: Semester I

### BCA-101 COMMUNICATIVE ENGLISH

#### Business Correspondence :

Structure of a Letter, Inquiry Letter, Sales Letter, Order Letter, Complaints, Complaint Handling, Routine letter

#### Government Correspondence :

Memo, Agenda, Minutes, Proposals

#### Writing Skills:

Report Writing, Composition (argumentative, explanatory, descriptive and narrative), Paragraph writing

#### Grammar :

Sentence Structure, Idiomatic Usage of Language, Tenses, Direct & Indirect Parts of Speech, Active & Passive Voice, Vocabulary.

#### Selected Short Stories:

Three short stories from the book, "Added Value: The Life Stories of Indian Business Leaders." by Peter Church, Lotus Collection, New Delhi

1. Rahul Bajaj/ Bajaj Group (Page No. 20)
2. Subhash Chandra/ Essel Group/Zee TV (Page No. 40)
3. NR Narayana Murthy/Infosys (Page No. 148)

#### Preparation for Job :

Writing Applications for Jobs, Preparing Curriculum Vitae, Preparing for Interviews, Preparing for Group Discussions.

#### Text Books:

1. Added Value: The Life Stories of Indian Business Leaders; Peter Church; Roli Books.
2. Organisations - Structures, Processes and Outcomes; Richard h Hall; Prentice Hall India.
3. English for the Secretary; Yvonne Hoban; Tata McGraw Hill.
4. Technical Communication : M. Raman & S. Sharma; Oxford University Press.
5. Business Communication Process and Product : M.E. Guffey; Thomson Learning.

#### Reference Book:

1. Human Behavior at Work; John W Newstorm & Keith Davis; Tata McGraw Hill.
2. The Most Common Mistakes in English Usage; Thomas Elliot Berry, Tata McGraw Hill.
3. Business Communication: R.K. Madhukar; Vikas Publication.

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## BCA-102 BASIC MATHEMATICS

**Objectives :** To know about Logical operators, validity of arguments, set theory and set operations, relations and functions, unary operations, Binary algebra, Permutations & Combinations, Differentiation, Straight lines, pair of straight lines, Circles

### MODULE I : SYMBOLIC LOGIC & SET THEORY :

Proposition, Logical operators, conjunction, disjunction, negation, conditional and bi-conditional operators, converse, Inverse, Contra Positive, logically equivalent, tautology and contradiction. Arguments and validity of arguments. Set operations, Venn diagram, Properties of sets, number of elements in a set, Cartesian product, relations & functions, Relations : Equivalence relation. Equivalence class, Partially and Totally Ordered sets, Functions: Types of Functions, Composition of Functions.

### MODULE II : DIFFERENTIAL CALCULUS

Differentiation, successive differentiation, Leibnitz theorem, partial differentiation, Applications of differentiation, Tangent and normal, angle between two curves, Maximum and Minimum values (Second derivative test), Curvature and radius of Curvature (Cartesian coordinates), Envelopes.

### MODULE III : INTEGRAL CALCULUS

Definite Integral and its application for area, length and volume. Multiple Integrals. Change of order of Integration. Transformation of integral from Cartesian to polar. Applications in Areas, volume and surfaces.

### MODULE IV : TWO DIMENSIONAL ANALYTICAL GEOMETRY

Straight Lines .Pair Straight Lines .Circles.

#### Text Books:

1. Das BC and Mukherjee, Differential Calculus, Calcutta, U.N. Dhar Publishers
2. Das BC and Mukherjee, Integral Calculus, Calcutta, U.N. Dhar Publishers
3. Grewal B.S., Higher Engineering Mathematics, Delhi Khanna Publishers.

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## **BCA-103 INFORMATION TECHNOLOGY AND APPLICATION**

### **Introduction To Computers**

Introduction, Characteristics of computers, Evolution of computers, Generation of Computers, Classification of Computers, The Computer System, Applications of Computers.

### **Input / Output devices and Memory**

Introduction, Keyboard, Pointing Devices, Speech Recognition, Digital Camera, Scanners, Optical Scanners. Classification of Output, Printers, Plotters, Computer Output Microfilm (COM), Monitors, Audio Output, Projectors. Random Access Memory (RAM), Read Only Memory (ROM), Types of ROM. Classification of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Optical Disk, Magneto Optical disk.

### **Software Concepts**

Introduction to Software, Relationship between Software and Hardware, System Software, Application Software Algorithm, Flowchart, Program, Pseudocode (P-Code). Features of a Good Programming Language.

Operating Systems: History & Evolution, Functions of an Operating System, A Brief History of MS-DOS, Linux, Windows System. Database Management System

### **Data Communication And Computer Network**

Introduction, Data Communication, Transmission Media, Multiplexing, Switching, Computer Network, Network Topologies, Communication Protocols, Network devices.

World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services, Case Study, Intranet.

MS-Office – MS-Word, MS-Excel, Ms-Power Point.

### **Text Books:**

1. V. Rajaraman, Fundamentals Of Computers, 3rd Edition , PHI Publications
2. Nasib S. Gill, Essentials of Computer & Network Technology, Khanna Publications.
3. Deepak Bharihoke, Fundamentals of Information Technology, Excel Books.

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## BCA-104 PRINCIPLES OF MANAGEMENT & ORGANIZATION

**Concept of Management:** Definition, Nature, and scope, and overall view of Management, Relation with other social sciences and industry.

### Evolution of Management thought:

- (A) Classical Theory of Management.
  - (A1) Bureaucracy- Introduced by Max Weber.
  - (A2) Scientific Management - F.W. Taylor and his followers.
  - (A3) Process Management - H. Fayol and others.
- (B) Neoclassical Theory of Management.
  - (B1) Human Relations - B.E. Mayo and Roethlisberger
  - (B2) Behavioral Science approach - By D. McGregor, A. Maslow & others.
- (C) Modern Management theories: Peter Drucker.

**Management Functions:** Planning, Organizing, Staffing, Directing, and Controlling.

**Executive Functions:** Production, Marketing, Finance, Personnel.

**Planning:** Concept, Nature, Importance, Objectives, Policies, Procedure, Strategies and Method of Decision Making

**Organization:** Definition, Theories of Organization, Forms of organization, Formal and Informal Organization, Types of Formal Organizations, Departmentation, Line and Staff Relationship, Span of Management, Authority, Responsibility, Delegation, Centralization, Decentralization, Committees.

**Staffing:** Selection, Recruitment, Training, Development and Welfare

**Directing:** Leadership and Supervision, Motivation and Communication

**Controlling:** The Elements, Process and style of Control, Techniques of control. Social Responsibility of business

### Text Books:

1. Koontz and O'Donnel - Principles of Management, Essentials of Management.
2. Theo Haiman - Management Theory and Practice.

### Reference Books:

1. P.F. Drucker - Management - Task and Responsibility
2. P.F. Drucker - The Practice of Management
3. Newman and Warren - Process of Management
4. E.F.L. Beach- The Principles and Practical Management
5. H.F. Merrill - Classics in Management – Preface
6. Mee J.E. - Management Thought in a Dynamic Economy
7. Daniel A. Wren - The Evolution of Management – Thought
8. S. N. Banerjee - Principles of Management

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### **BCA-105: Python Programming (Elective 1)**

**Overview:** Environment, Basic Syntax, Variable Types, Basic Operators, Installing Python. Very Simple Programs, Scripts Loops, Conditionals Functions. Tuples, Lists, Dictionaries for Loop Classes Importing Modules File I/O Error Handling.

**Structures:** if...else , while Loop , for Loop , Loop Control. Numbers, Strings, Lists, Tuples, Dictionary, Date & Time. Functions, Modules, Files I/O, Exceptions. Classes / Objects, Reg Expressions, GUI Programming.

#### **Text Books and References:**

1. Programming Python: Powerful Object Oriented Programming; Mark Lutz; Shroff/O'Reilly; 2010.
2. Beginning Python: Using Python 2.6 & Python 3.1; James Payne; Wiley India; 2011.
3. Head First Programming: A Learner's Guide to Programming using Python Language; Barry & Griffiths; Shroff/O'Reilly; 2009.

### **BCA-106 : PROBLEM SOLVING AND PROGRAMMING CONCEPTS (Elective 2)**

**Introduction to Problem Solving and Programming :** Problem Solving Concepts – Problem Solving in everyday life, types of problems, problem solving concepts for computers, Algorithms and Flow charts; Programming Concepts.

**Logic Structures :** Introduction to Programming structure – Modules and their functions – Local and Global Variables – Four Logic structures – Problems solving with Sequential and Decision Logic Structures.

**Loop & Case Logic Structure :** Loop Logic structure – While/While Wend Structure, Repeat / Until Structure, Automatic Counter loop, Nested Loops and Recursion.

**Array Data Structure & File Concepts :** Processing Arrays – Arrays, one dimensional arrays, 2D arrays, Multidimensional arrays – Searching and Sorting Techniques. Definition – Record, File – Primary and Secondary Keys – Sequential Access File Applications.

**Application Domains :** Bio-informatics and medical Applications – Business Applications – Law Enforcement and political Process – Ecommerce – Manufacturing – Education – Entertainment and Agriculture.

#### **Text Books and References:**

1. Maureen Sprankle, Problem solving and Programming Concepts, Pearson Education, New Delhi.
2. Compilation Notes, Department of Information Technology, SRM University.
3. Elizabeth A. Dickson, Computer Program Design, Tata McGraw Hill.
4. Kenneth C. Loudon, Programming Languages – Principles and Practice, Thomson Asia Pvt. Ltd.
5. Yuskel Uckan, Problem Solving Using C, McGraw Hill.



**PRACTICALS**

**BCA 107 LAB: (103)**

**BCA-108 LAB: (105)**

**BCA-109 LAB: (106)**

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