

Kumaun University, Nainital, Uttarakhand

BACHELOR OF COMPUTER APPLICATION

Session 2019-2020

BCA 111: Communicative English

Unit I

Communication:

What is Communication, Levels of Communication, Importance, Scope and Process of communication, Essentials of good communication, 7 Cs of communication, Channels of communication, Verbal and Non-Verbal communication, Formal and Informal communication, Barriers to communication.

Unit II

Written Communication:

Objectives of written Communication, Media of written communication, Merits and demerits of written communication. Words and Phrases, Guidelines for Effectiveness, Sentence Construction, Paragraph Development, Essay writing, Precise Writing.

Unit III

Oral Communication:

Principles of effective oral communication, Media of oral communication, Advantages of oral communication, Disadvantages of oral communication, Styles of oral communication.

Unit IV

Oral Forms of Communication:

Effective listening, Active vs. Passive Listening, Effective Presentation Strategies, Effective Use of Visual Aids, Interviews, Types of Interviews, Group Discussion, Meetings, Conferences

Unit V

Written Forms of Communication:

Business letters, Preparation of resume, Office memorandum, Letter writing, Memorandums, E-mails, Report Writing, Technical Proposals.

Recommended Books:

1. Technical Communication – Principles and Practice by Meenakshi Raman & Sangeeta Sharma, Oxford University Press, Sixteenth Impression 2007.
2. High School English Grammar and Composition by Wren & Martin
3. Business Communication by Meenakshi Raman & Prakash Singh, Oxford University Press, Seventh Impression 2008.
4. Technical Writing by B.N.Basu, Prentice-Hall India Pvt. Ltd., 2007

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BCA 112: Basic Mathematics

Unit I

Integral Calculus: Integral as an inverse of Differentiation. Integration by parts. Methods of substitution & use of partial fractions, standard forms and simple examples, Definite integral & their applications to areas and length & Curves.

Unit II

Limits and Continuity: Definition of Limit, Algebra of limits, Right & left-hand limits, Infinite limits, Continuity (Definitions & examples, Algebra of Continuous functions), Differentiability, Rolle's. Mean value theorem with numerical problems.

Unit III

Co-ordinate Geometry: System of lines, System of Circles, Standard equations & properties of parabola & ellipse.

Unit IV

Matrices: Definition, Types of matrices, Laws of operations on matrices, Transpose, adjoint and inverse of matrices, solution of linear system of equations, and Cramer's rule, Rank of Matrices, square Matrices, Eigen values, Eigen Vectors, Characteristic polynomials, Cayley Hamilton theorem.

Unit V

Differential Equation: First order and first-degree differential equations, separation of variables, Homogeneous, linear, exact differential equations, second order linear equations with constant coefficients, Orthogonal trajectories.

Recommended Books:

5. Bansi lal & S. Arora" Two-Dimensional Co-ordinate Geometry" S. chand
6. S.C.Gupta 'Matrices", S. Chand
7. R.S. Agarwal Differential Calculus S. Chand
8. Harikrishna Real Analysis S.Chand

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BCA 113: Computer Fundamentals

UNIT I

Introduction to Computer: Evolution of computers, Generation of Computers, Classification of Computers, Analog Digital and Hybrid Computers, Classification of Computers according to size, Super Computers, Mainframe Computers, Personal Computers (Different Types), Components of Computer System, Advantages and Disadvantages of Computer System, Block Diagram of a Digital Computer, Basic introduction to Input/ Output Devices.

UNIT II

Data Representation: Different number systems and their conversions (Decimal, Binary, Octal, and Hexadecimal), 1's Complement and 2's complement, Floating Point numbers, Binary arithmetic, Coding Techniques – BCD, EBCDIC, Gray, and Excess-3.

UNIT III

Memory: Memory hierarchy, Registers (Types of Registers), Cache Memory, **Primary Memory** (RAM, how data is stored in a RAM, DRAM and SRAM. ROM (BIOS/ Firmware & Types of ROM). **Secondary Memory** (Hard disk: Structure of a hard disk, how data is stored in a hard disk, concept of tracks, sectors, clusters, cylinders, Various Storage Devices (Magnetic Tape, Floppy Disks, Optical Disks, SD/MMC Memory cards, USB Pen drive).

UNIT IV

Software: Software and its Need, Types of Software: - System software, Application software. Definition of Operating System, History of Operating System, Function of Operating System, OS classification (Batch, Multiprogramming, Multitasking, Multithreading, Multiprocessing, Multiuser, Time sharing, Real time).

UNIT V

High level language and low-level language, Hardware, Firmware, Compiler, Interpreter and Assembler. **Introduction:** Virtual reality, augmented reality, Bluetooth, Wi-Fi, **Network Fundamental:** Categories, Data flow, Topology. **Introduction:** UNIX, Basic Commands

Recommended Books:

1. Fundamentals of Computers- V. Rajaraman
2. Fundamentals of Computers- P. K. Sinha

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BCA 114: Introduction to C Language

UNIT I:

Evolution of C, Programming languages, Structure of a C program, Compiling a C program, Character set in C, Keywords in C, Hierarchy of operators, Basic data types, Qualifiers used with basic data types, Variables in C, Type declaration, Output function, Input function and format specifiers, arithmetic operators, Unary operators, Relational and logical operators.

UNIT II:

if statement, if else statement, for statement, while loop, do while statements, break statements, continue statements, switch statement, goto statement, ternary operators.

UNIT III:

Advantages of arrays, types of arrays, array declaration, array initialization, accessing data from array, array inside the memory, multidimensional arrays. Character arrays, Array overflow, String Variables, Reading & writing strings, string handling functions.

UNIT IV:

Advantages of functions, declaring a function, calling a function, variables, passing arguments to a function, nested functions, passing array to functions, recursion in functions, Call by value and Call by reference. Pointers and function, Array of pointers, Pointer and Strings, Pointer to structure, Pointers within structure, Introduction of Static and Dynamic memory allocation, Dynamic memory allocation, DMA functions, malloc () function, Size of () operator, Function free (), Function realloc ().

UNIT V:

Introduction, File structure, File handling function, File types, Streams, Text, Binary, File system basics, The file pointer, Opening a file, Closing a file, Writing a character, Reading a character, Using fopen (), getc (), putc (), and fclose (), Using feof ().

Recommended Books:

1. E. Balagurusamy, "PROGRAMMING IN ANSI C" McGraw-Hill publication, New Delhi
2. Let us C-Yashwant Kanetkar
3. K.R.Venugopal, S.R.Prasad, "Mastering C" McGraw-Hill Education India