Course Code (BCA-Cr1102) Semester-I
Course Title: Foundation Course on Computers Total Credits: 06

Course Objective

To familiarize students with fundamentals of computers and basics of office automation.

UNIT-I

Computer Fundamentals: Introduction, Characteristics of Computers, Block diagram of computer, Types of computers and features (Mini Computers, Micro Computers, Mainframe Computers, Super Computers) Data Organization (Drives, Files, Directories) Types of Memory (Primary And Secondary) RAM, ROM, PROM, EPROM, Secondary Storage Devices (FD, CD, HD, Pen drive) I/O Devices (Scanners, Plotters, LCD, Plasma Display).

UNIT-II

Computer Software: Definition, Relationship between Hardware and Software, Types of Software: System Software, Application Software, Firmware; Functions of System Software
Types of System Software: Operating Systems, Language Translators, Utility Programs, Communications Software; Introduction to Commonly Used Application Software**:** Word Processing, Spread Sheet, Database, Graphics, Education & Entertainment.

UNIT-III

Word Processing- **MS-Word:** Introduction to word processing, Objectives, Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Editing, Previewing, Printing, & Formatting a Document, Find & Replace, Using Thesaurus, Using Auto- Multiple Functions, Mail Merge, Handling Graphics, Tables, Table Manipulations, & Charts, Macros.
Worksheet- MS-Excel: **MS-Excel**: Introduction to Worksheet, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, Toolbars and Menus, working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Previewing & Printing worksheet, Graphs and Charts.

UNIT IV

MS Power Point: Introduction, Creation of Presentation (Creating a Presentation Using a Template , Creating a Blank Presentation), Entering and Editing Text, Inserting And Deleting Slides in a Presentation, Preparation of Slides, Inserting Word Table or an Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Using hyperlinks, Adding Movie and Sound, Adding Headers and Footers, Presentation of Slides, Choosing a Set Up for Presentation, Printing Slides and Hand-outs, Running a Slide Show, Transition and Slide Timings, Animating a Slide Show.

References:

1. **P.K. Sinha and P. Sinha**, "Foundations of Computing", BPB publication.
2. **A. Goel**, “Computer Fundamentals”, Pearson Education.
3. **Susan. H Cooperman**, “Professional Office Procedure”, PHI.
4. **Suresh Basandra**,“Computers Today” , Galgotia Publications.
5. **Bott Ed** , “Microsoft Office Inside Out”,2013 edition, PHI.

Course Code (BCA-Cr1102) **Semester-I**
Course Title: Problem Solving & Programming with C
Total Credits: 06

Course Objective

To develop logical ability and basic programming skills of students to pave the way for problem solving

Unit I

Problem Solving: Introduction, Steps in Problem Solving, Using Computer as a Problem-Solving Tool, Flowcharts and Algorithms (Definition, Symbols & Characteristics), Simple Examples of Flowcharts and Algorithms, Analysis of Algorithm Efficiency, Concept of Programming Languages and Categories of Computer Languages.

Unit-II

C- Language Fundamentals: History, Features, Structure & Life Cycle of a C- Program Data types and sizes, Variables, Constants, Keywords, Storage Classes, Operators (Unary, Arithmetic, logical, Bitwise, Assignment, Ternary), Expressions, Priority of Operators, Control statements: (if-else, switch, break, continue, go to), Loops (for, while, do-while).

Unit III

Arrays, Functions & Pointers: Arrays (Linear and Multi-dimensional); Functions (declaration, definition, and function call), parameter passing and return types; Recursion, String Handling (built-in functions); Pointers, Array of pointers, Call by Value and Call by Reference.

Unit IV

Structure, Union & File Handling: Declaration, Accessing structure and union elements, Difference between Structure and Union, Array of structures; Introduction to File handling in C, File Access Modes, File I/O Operations, Random Access to Files, Command Line Arguments.

Reference Books

1. **H. Schildt,** A Complete Reference in C", **Tata McGraw Hills**, **New Delhi**.
2. **E. Balagurusamy,** Programming in ANSI C, **Tata McGraw Hills, New Delhi**
3. **Y. Kanetkar,** Let Us C, **BPB, New Delhi.**
4. **B. W. Keringhan & D.M Ritche ,** C Programming Language**, PHI Pvt. Ltd.**

Course Code (BCA-GE1103) **Semester-I**
Course Title: Fundamentals of Mathematics **Total Credits: 06**

Course Objective

To promotes mathematical skills for developing proficiency in analytical reasoning.

Unit-I

Determinants: Determinants of order 2 and 3, properties of determinants; evaluation of determinants, crammer's rule.
Matrices: Definition, equality, addition and multiplication of matrices, Adjoint and inverse of a matrix, Transpose of matrix; Solution of a system of linear equations: homogeneous and non- homogeneous; Elementary row transformations, rank of a matrix.

Unit -II

Sequence and Series: Definition of sequence and series; A.P, G.P & H.P, Σn, Σn^2 and Σn^3, Concept of limit of a sequence.
Complex Numbers: Complex number in the form of a+ib; Addition, multiplication, division of complex numbers ;Conjugate and modulus of complex numbers; De Moivre's Theorem without proof.

Unit-III

Limits and Functions: Definition: function, limit of a function and derivative; Evaluation of
a limit of a function; Derivatives of some important function by first principle(Ab initio method);Differentiation of logarithmic functions, exponential functions and trigonometric functions.

Unit-IV
Theory of Equations : Elements of theory of polynomial equations, relation between roots and coefficients of an equation; Transformation of equations; Solution of quadratic , cubic and bi-quadratic equations; Newton's method of finding the sum of powers of the roots of the equations.

References:

1. **R.S.Agarwal**, "Text Book of Mathematics", S. Chand.
2. **Shanti Narayan,"** Integral calculus".
3. **Erwin Kreyszig,"** Engineering Mathematics ".
4. **G.M.Shah,** "Theory of Equations", Kashmir Book Depot.