

**Syllabus for BCA 1<sup>st</sup> year (Semester-I)**

Effective from Academic Session-2015

Subject Code	Subject Name	Theory				Practical			
		External		*Internal Assessment		External		Internal	
	Paper	Max	Min	Max	Min	Max	Min	Max	Min
BCA	Bachelors of Computer Application								
BCAS101	Computer Fundamentals	80	29	20	08	---	---	---	---
BCAS102	Programming concepts And Problem solving through C	80	29	20	08	---	---	---	---
BCAS103	Mathematics in Computing	80	29	20	08	---	---	---	---
BCAS104	Technical Communication	80	29	20	08	---	---	---	---
BCAS105	Lab -I Computer Fundamental Lab (Based on BCAS101)	---	---	---	---	25	09	25	09
BCAS106	Lab-II Programming Concepts Using C (Based on BCAS102)	---	---	---	---	25	09	25	09

<b>*Internal Assessment</b>	<b>Theory paper carrying 100 marks</b>
<b>Attendance</b>	<b>10 marks</b> 03 mark (upto 75.99%) 05 marks (76-84.5%) 07 marks (84.6-90.5%) 10 marks (90.6 and above %)
<b>Internal/Continuous Assessment/Class Test</b>	<b>10 marks</b>
	<b>Total:- 10+10=20</b>

Course Code: **BCASI01**

**Course Title:** Computer Fundamentals

**Unit – I: Computer appreciation**

Introduction, Characteristics of Computer, History of Computers, Classification of Computers of Size, Architecture and Chronology, Applications of Computers, Commonly used Terms: Hardware, Software, Firmware, Units of Measurement of Storage, Input/Output Devices, Secondary Storage Devices, Generation of Languages, Types of Software, Flowcharts and Algorithms, Translators ó Interpreters, Compilers and Assemblers. Introduction to Internet & E-Mail.

**Unit – II: Introduction to Operating Systems**

Functions of Operating Systems, evaluation, Batch Processing, Multiprogramming, Multiprocessing, Time Sharing, Real-Time Processing, Advantages and Disadvantages, Single User, Multi-User O.S. Viruses: Types and Control Measures.

**Profiling an Operating System:** Booting sequence, Operating Systems, File and Command Processor File, Definition of File, File Naming, Booting from Floppy and HDD, Warm and Cold Reboot, Types of Dos Commands, Internal and External , Introduction of Autoexec.bat, Versions of Dos Commands, Directory Commands, Copy, X-Copy, Del, Rename, Attrib, Backup, Restore, Find Sys, Filter Commands, General Commands, Types, Data, Time , Prompt, Disk Organization and Disk Storage, Disk Management, Format, CHKSk, DISK COPY, LABEL, VOL, DISKCOMP, COMP, RECOVER, Redirecting Commands Input and Output.

**Unit –III: GUI Using MS-Windows & MS- Word**

**Windows Basics:** Start Windows, Using Different Windows Simultaneously, Moving Through a Windows and Mouse, Min/Max Windows, Use of Help Feature; Exit Windows, Starting an Application, Run Manage Multiple Applications, Close Applications, File Management Through Windows ,Copy, Delete Directories/Folders, Drag and Drop Features, Working With the Windows Accessories, Starting and Using Write/Word Pad, Format text in Write/ WordPad Documents, My Documents, Recycle Bin, Desktop, Taskbar, Save & Print a Document File in the Write/WordPad. Starting and using Paint Brush, Printing a drawing, OLE Object.

**Word Processing Package:** Basics of Word Processing, Text Selection , Opening Documents and Creating Documents , Saving Documents/Quitting Documents, Cursor Control, Prints Documents Using the Interface (Menu Toolbars), Editing Text (copy, Delete, move Etc.). Finding and replacing text, Special check Feature/ Auto correct Feature, Grammar Facility, Retrieving Often Used Text, Auto Text Character, Formatting and Editing Mail Merge, Bullets & Numbering, Borders and Shadings Etc.

**Unit –IV: Introduction to MS Excel, MS-Access and MS power point**

**Introduction to Spreadsheets:** Worksheet Workbook, Workspace Basics, Data Entry in cell, Entry of Numbers, Text and Formulate, Moving Data in the Worksheet, Moving Around in Worksheet, Selecting Data Range, Using the Interface (Toolbars, Menus), Editing basics, Working with Workbooks Saving and Quitting , Cell Reference, Formatting, Editing, What If Analysis, , Filtering, Sorting, Search, Goal Seek, Solver Functions Etc.

**Ms Access Basics:** Introduction, Create Database, Create Table: Fields, Data Types, Queries, Form, Report, etc.

**Power Point Basics:**Use of existing templates, fonts and drawing.

**Reference Books:**

1. Computer today, Donald H. Sanders, McGraw Hill Publishing Company.
2. Microcomputers Software and Applications, Dennis P. Curtin and Leslie R. Portel, PHI.
3. Data Processing: An Introduction, Donald P. Spencer and Charles R. Merril Pub. And Co.
4. Computers and Their Applications, Larry Joel Goldestein, PHI.
5. Windows-2000, kethy, Tata McGraw Hill Publishing Company.

**Course Code: BCASI02**

**Course Title: Programming concepts And Problem solving through C**

**Unit –I.**

Problem - Solving Techniques, Steps for Problem ó Solving, Using Computer as a Problem-Solving Tool, Design of

Algorithms, Definition, Features of Algorithm, Criteria to be followed by an Algorithm, Top Down Design, Analysis of Algorithm Efficiency, Analysis of Algorithm Complexity, Comparative efficiencies of algorithms, Flowcharts, Basic Symbols used in Flowchart Design.

**Unit –II.**

Fundamental algorithms: Exchanging the values of two variables, counting, Summation of a set of numbers. Trigonometric function computation. Factorial computation. Generating Fibonacci series, base conversion and reversing the digits of a number.

Factoring Methods: The greatest common divisor, finding square root of a number, the smallest divisor of an integer, generating primes and pseudo random numbers

**Unit –III.**

C language fundamentals: Character Set, Identifiers and Keywords, Rules for Forming Identifiers, Keywords, Data Types and Storage, Data Type Qualifiers, Variables, Declaring Variables, Initializing Variables, Constants, Types of Constants.

Assignment Statements, Arithmetic Operators, Relational Operators, Logical Operators, Comma and Conditional Operators, Type Cast Operator, Size of Operator, C Shorthand, Priority of Operators.

**UNIT –IV.**

Decision and Loop Control Statements Decision Control Statements, The if Statement, The switch Statement, Loop

Control Statements, The while Loop, The do-while Statement, The for Loop, The Nested Loop, The Goto Statement, The Break Statement, The Continue Statement

Arrays Array Declaration, Syntax of Array Declaration, Size Specification , Array Initialization, Initialization of Array Elements in the Declaration, Character Array Initialization, Subscript, Processing the Arrays, Multi-Dimensional Arrays, Multi-Dimensional Array Declaration, Initialization of Two-Dimensional Arrays.

Declaration and Initialization of Strings, Display of Strings Using Different Formatting Techniques, Array of Strings, Built-in String Functions and Applications, *Strlen* Function, *Strcpy* Function, *Strcmp* Function, *Strcat* Function, *Strlwr* Function, *Strrev* Function, *Strspn* Function, Other String Functions.

**Reference Books:**

1. Programming in ANSI C By E Balaguruswamy Tata Mcgraw Hill
2. How to Solve it By Computer By RG Dromey PHI Publications
3. Programming With C By Byron Gotterfried Tata Mcgraw Hill
4. Let us C By Yeshvant Kannelkar BPB Publications.

**Course Code: BCASI03**  
**Course Title: Mathematics in Computing**

**UNIT-I**

Determinants of order 2 and 3, properties of determinants; evaluation of determinants. Area of triangles using determinants, Cramer's rule.

Definition, equality, addition and multiplication of matrices. Adjoint and inverse of a matrix. Solution of a system of linear equations  $\hat{U}_n$  homogeneous and non-homogeneous.

Elementary row operations; rank of a matrix, reduction to normal form, Inverse of a matrix using elementary row operations.

**UNIT-II**

Sequence and Series: Definition of sequence and series; A.P, G.P, H.P and A.G.P.  $\hat{U}_n$ ,  $\hat{U}_{n^2}$  and  $\hat{U}_{n^3}$ , Idea of limit of a sequence.

Complex Number: Complex number in the form of  $a+ib$ . Addition, multiplication, division of complex numbers. Conjugate and modulus of complex numbers. De Moivre's Theorem

**UNIT-III**

Differential Calculus: Concept of limit and continuity; Differentiation of the sum, difference, product and quotient of two functions, chain rule. Differentiation of parametric functions.

Integration: Integration as an anti-derivative. Integration by substitution and by parts.

**UNIT-IV**

Equations: Quadratic, cubic and biquadratic equations. Relationship between roots and coefficient. Symmetric functions of roots.

Inequalities: Solution of linear and quadratic inequalities.

**Reference Books:**

1. A text book of Mathematics by R.S. Agarwal
2. Integral calculus by Shanti Narayan
3. Differential Calculus by Shanti Narayan
4. Engineering Mathematics by Grewal
5. Engineering Mathematics by Erwin Kreyzing

**Course Code: BCASI04**  
**Course Title: Technical communication**

**OBJECTIVES**

- " By the end of the course the students should be able to :
- " Read and comprehend a text efficiently
- " Write English coherently
- " Use grammar communicatively and effectively
- " Grasp mechanics of writing

**The course shall comprise the following items:**

- " Reading comprehension 15 marks
- " Paragraph writing 15 marks
- " Précis 15 marks
- " Letter writing 10 marks
- " Writing email 10 marks
- " Applied Grammar 25 marks
- " Punctuation 10 marks

**Books recommended**

1. An intermediate Grammar of English by Raymond Murphy. Published by Cambridge University Press.
2. Strengthen your writing by V.P.Narayanaswami. Published by Orient Longman

**Scheme/Instructions for teachers/paper setters**

1. *Semester end examination question paper will consist of two sections viz; A and B. Section A will contain 4 questions, one question with an alternate from each unit. Section B will consist of 4 questions also, on each unit and the examinees will be required to attempt only two questions. In all, each student will be required to attempt 6 questions- 4 medium type and 2 long answer type questions.*
2. *Division of marks between section A and Section B will be in the ratio of 60:40. For non-lab courses weightage of Section A will be 48 marks, while as it will be 36 marks in case of lab courses. In case of section B, the weightage will be 32 and 24 marks for non-lab and lab courses respectively.*
3. *While Internal Assessment Test will be conducted by the concerned college, semester end examination will be held by the University of Kashmir;*
4. *The question paper shall be of 2:30 hours duration.*