

SYLLABUS

FOR

Bachelor of Computer Application (BCA) Programme



H. N. B. GARHWAL UNIVERSITY
SRINAGAR (GARHWAL)

S. No	Course No.	Subject	Evaluation – Scheme								Credit
			Period			Sessional			Examination		
			L	T	P	TA	CT	TOT	ES E	Sub. Total	
Theory											
1.	SET/CSE/BCA/AEC1	General English	2	-	-	10	20	30	70	100	2

AECC: General English

Introduction: Theory of Communication, Types and modes of Communication

Language of Communication: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication

Speaking Skills: Monologue Dialogue Group Discussion Effective Communication/ Mis- Communication Interview Public Speech

Reading and Understanding Close Reading Comprehension Summary Paraphrasing Analysis and Interpretation Translation(from Indian language to English and vice-versa) Literary/Knowledge Texts

Writing Skills Documenting Report Writing Making notes Letter writing

References :

1. Fluency in English - Part II, Oxford University Press, 2006.
2. Business English, Pearson, 2008.
3. Language, Literature and Creativity, Orient Blackswan, 2013.
4. Language through Literature (forthcoming) ed. Dr. Gauri Mishra, Dr Ranjana Kaul, Dr Brati Biswas

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Theory											
2.	SET/CSE/BCA/C101	Computer Fundamental	4	1	-	10	20	30	70	100	5

Computer Fundamental

Introduction to Computers: Computer hardware Components, Disk Storage, memory, keyboard, mouse, printers, monitors, CD etc., and their functions, Comparison Based analysis of various hardware components.

Basic Operating System Concepts: MS-DOS, WINDOWS, Functional knowledge of these operating systems. Introduction to Basic Commands of DOS, Managing File and Directories in various operating Systems, Introduction to internet, Basic terms related with Internet, TCP/IP.

Algorithm development, techniques of problem solving, flowcharting, stepwise refinement algorithms for searching, sorting (exchange and insertion), merging of ordered lists.

Programming : Representation of integer, character, real, data types, constraints and variables, arithmetic expressions, assignment statement, logical expression; sequencing, alteration and interaction, arrays, string processing sub programs, recursion, files and pointers.

Structured programming concepts : Top down design, development of efficient programs; Program correctness; Debugging and testing of programs.

Element of a computer processing system : Hardware CPU, storage devices and media, VDU, input-output devices, data communication equipment software-system software, application software.

Programming languages : Classification, machine code, assembly language, higher level languages, fourth generation languages.

References :

1. Raja Raman V : Fundamentals of Computers
2. Sanders D.H. : Computers Today

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Theory											
3.	SET/CSE/BCA/C102	Programming in ‘C’	4	-	-	10	20	30	70	100	4

Programming in 'C'

Programming in C: History, Introduction to C Programming Languages, Structure of C programs, compilation and execution of C programmes. Debugging Techniques, Data Types and Sizes, Declaration of variables, Modifiers, Identifiers and keywords, Symbolic constants, Storage classes (automatic, external, register and static), Enumerations, command line parameters, Macros, The C Preprocessor

Operators: Unary operators, Arithmetic & logical operators, Bit wise operators, Assignment operators and expressions, Conditional expressions, precedence and order of evaluation. Control Statements: if-else, switch, break, continue, the comma operator, go to statement.

Loops: for, while, do-while.

Functions: built-in and user-defined, function declaration, definition and function call, parameter passing: call by value, call by reference, recursive functions, multifile programs.

Arrays: Linear arrays, multidimensional arrays, Passing arrays to functions, Arrays and strings.

Structure and Union: Definition and differences, self-referential structure. And address of (&) operator, pointer to pointer, Dynamic Memory Allocation, calloc and malloc functions, array of pointers, function of pointers, structures and pointers.

File: File Handling in C

References:

1. V. Rajaraman, "Fundamentals of Computers", PHI
2. Pater Norton's "Introduction to Computer", TMH
3. Hahn, "The Internet complete reference", TMH
4. Peter Nortton's, "DOS Guide", Prentice Hall of India
5. Gottfried, "Programming in C, Schaum's Series Tata McGraw Hill

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Theory											
4.	SET/CSE/BCA/C103	Mathematical Foundation of Computer Science	4	1	-	10	20	30	70	100	5

Mathematical foundation of Computer Science

Relation: Type and compositions of relations, Pictorial representation of relations, Equivalence relations, Partial ordering relation.

Function: Types, Composition of function, Recursively defined function.

Mathematical Induction: Piano's axioms, Mathematical Induction, Discrete Numeric Functions and Generating functions, Simple Recurrence relation with constant coefficients, Linear recurrence relation without constant coefficients, Asymptotic Behaviour of functions

Algebraic Structures: Properties, Semi group, monoid, Group, Abelian group, properties of group, Subgroup, Cyclic group, Cosets, Permutation groups, Homomorphism, Isomorphism and Automorphism of groups.

Propositional Logic: Preposition, First order logic, Basic logical operations, Tautologies, Contradictions, Algebra of Proposition, Logical implication, Logical equivalence, Normal forms, Inference Theory, Predicates and quantifiers, Posets, Hasse Diagram.

References:

1. Liptschutz, Seymour, "Discrete Mathematics", TMH.
2. Trembley, J.P. & R. Manohar, "Discrete mathematical Structure with Application to Computer Science", TMH.
3. Kenneth H. Rosen, "Discrete Mathematics and its applications", TMH.
4. Doerr Alan and Levasseur Kenneth, "Applied Discrete Structure for Computer Science, Galgotia Pub. Pvt. Ltd.
5. Gersting "Mathematical Structure for Computer Science", WH freeman and Macmillan
6. Kumar Rajendra, "Theory of Automata: Languages and Computation", PPM
7. Hopcroft J.E. Ullman J.D., "Introduction to Automata Theory, Language and Computation" Narosa Pub. House, New Delhi.
8. C.L.Liu "Elements of Discrete Mathematics", McGraw Hill.
9. Peter Grossman, "Discrete Mathematics for Computer", Palgrave Macmillan.