ARYAVART INTERNATIONAL UNIVERSITY

Tilthai, Dharmanagar, North Tripura-799250

Syllabus for BCA

Semester 1

Theory										
S. No.	Course Code	Topic	L	T	P	Credit	Theory Marks	Internal Marks	Practical Marks	Total Marks
1	BCA101	Fundamentals of IT	3	1	0	4	80	20	0	100
2	BCA102	C Programming	3	1	0	4	80	20	0	100
3	BCA103	Discrete Mathematical Structure	4	0	0	4	80	20	0	100
4	BM101	Principle of Management	4	0	0	4	80	20	0	100
5	BM102	Business Communication	3	1	0	4	80	20	0	100
		Total of Theory				20	400	100	0	500
Practical										
6	BCA191	C Programming Lab	0	0	6	6	0	20	80	100
7	BM191	Business Communication Lab	0	0	6	6	0	20	80	100
		Total of Practical				12	0	40	160	200
		Total				32	400	140	160	700

Detailed Syllabus

FUNDAMENTALS OF IT

Code: BCA101

Max Marks: 80

UNIT I (6 Hrs)

Introduction to Computers: Characteristics of computers, Evolution of computers, Generation of computers, Block diagram of computer & role of each block, classification of computers, applications of computers.

Input and Output Devices: Keyboard, pointing devices, speech recognition, digital camera, scanners, optical scanners. Classification of output devices, printers, plotters. computer output microfilm (COM), Classification of output devices, devices- monitors, audio output, projectors and terminals.

Primary and Secondary Memory: Memory hierarchy, Random access memory (RAM), types of RAM, Read only memory (ROM), types of ROM. Classification of secondary storage devices, magnetic tape, magnetic disk, optical disk.

UNIT II (6 Hrs)

Number Systems: Introduction to number system, Binary, Octal, Hexadecimal, conversion between number bases, Arithmetic operations on binary numbers.

Alphanumeric- BCD, EBCDIC, ASCII, Unicode.

Computer Software: Software definition, relationship between software and hardware. software categories, system software, application software, utility software.

Computer Languages: Introduction, classification of programming languages, generations of programming languages, features of a good programming language.

UNIT III (10 Hrs)

MS Word: Word processing, MS-Word features, creating saving and opening documents in Word, interface, toolbars, ruler, menus, keyboard shortcut, editing, previewing. printing & formatting a document, advance features of MS Word, find & replace. Using thesaurus, mail merge, handling graphics, tables, converting a Word document into various formats like-text, rich text format, Word perfect, etc.

UNIT IV (10 Hrs)

MS Excel: Worksheet basics, creating worksheet, entering data into worksheet, data, text. dates, alphanumeric values saving & quitting worksheet, opening and moving around in an existing worksheet, Toolbars and menus, Keyboard shortcuts, working with single and multiple workbook, working with formula & cell referencing, Auto sum, coping formulas. absolute and relative addressing, formatting of worksheet, previewing & printing worksheet, Graphs and Charts, Database, macros, multiple worksheets-concepts.

UNIT V (12 Hrs)

Power Point: Creating and viewing a presentation, managing Slide Shows, navigating through a presentation, using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master Slides, applying and modifying designs, adding graphics, multimedia and special effects.

Microsoft Access: Planning a database (tables, queries, forms, reports), creating and editing database, customizing tables, linking tables, designing and using forms. modifying database structure, Sorting and Indexing database, querying a database and generating reports.

Text Book:

1. Introduction to Computer, Peter Norton's, Tata McGraw Hill Publication

Reference Books:

1. Microsoft; 2007/2010 Microsoft Office System; PHI.
2. Microsoft; Microsoft Office 2007/2010: Plain & Simple; PHI.
3. Sanjay Saxena; A First Course in Computers 2003 Edition; Vikas Pub.
4. Computer Fundamentals by P.K. Sinha, BPB Publication.
5. Computer Fundamentals and Programming in C, Reema Thareja, OXFORD University Press.
6. MS-Office, Dr. S.S. Shrivastava, Published by Laxmi Publication.
7. Office 2019: In Easy Steps, Michal Price, BPB Publication.

C PROGRAMMING

Code: BCA102

Max Marks: 80

UNIT I   (8 Hrs)

Computer Programming: Basic Programming concepts, Modular programming and structured programming, Problem solving using Computers, Concept of flowcharts and algorithms.

Overview of C: Introduction, Importance of C, Sample C Programs, Basic structure of C programs, Programming style, Executing a C Program.

Constants, Variables and Data types: C Tokens, keywords, and identifiers, constants, variables, datatypes, declaration of variables, assigning values to variables, defining symbolic constants.

Operators and Expressions: Arithmetic operators, Relational operators, Logical operators, Assignment operators, increment and decrement operators, conditional operator, bitwise operators, type conversion in expressions, operator precedence and associativity.

Mathematical functions.

UNIT II   (12 Hrs)

Input and Output statements, reading a character, writing a character, formatted input, formatted output statements. Decision-making, Branching and Looping : Decision making with IF statement, simple IF statement, The IF-ELSE statement, nesting of IF .. ELSE statements, The ELSE -IF ladder, The switch statement, The ?: operator, The GOTO statement, The WHILE statement, The DO statement, The FOR statement, jumps in loops.

UNIT III   (10 Hrs)

Arrays: One dimensional arrays, Two-dimensional arrays, initializing arrays, Programs based on arrays such as sorting, Fibonacci sequence, matrix operations, etc.

Handling of Characters and Strings: Declaring and initializing string variables, reading string from terminal, writing string to screen, arithmetic operations on characters, putting strings together. Comparison of two strings, character and string handling functions.

UNIT IV   (8 Hrs)

User defined functions: Need for user-defined functions, a multi-functional program, the form of 'C' function, Return values and their types, calling a function, category of functions: No arguments and no return values, arguments but no return values, arguments with return values, nesting of functions, recursion, functions with arrays as parameters.

UNIT V   (5 Hrs)

Structure and Union: Structure definition, giving values to members, structure initialization; comparison of structure variables, array of structures, array within structure, union.

Pointers: Understanding pointers, accessing the address of variables, declaring and initializing pointers, accessing a variable through its pointer.

Text Book:

1. Kamthane, Programming with ANSI and Turbo C; Pearson Education 2003

Reference Books:

1. E.Balaguruswamy. : Programming in ANSI C", Tata McGraw-Hill (1998)
2. Yeshvant Kanetkar: "Let us C"
3. V. Rajaraman.: "Programming in C", PHI (EEE) (2000)
4. Rajesh Hongal : "Computer Concepts & C language"
5. Brain Kernighan & Dennis M. Ritchie "ANSI C Programming" (PHI)

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Tilthai, Dharmanagar, North Tripura

DISCRETE MATHEMATICAL STRUCTURE

Code: BCA103

Max Marks: 80

UNIT I (10 Hrs)

Set Theory : Relations and Functions : Set Notation and Description, subset, basic set operations, Venn Diagrams, laws of set theory, partitions of sets, min sets, duality principle, basic definitions of relations and functions, graphics of relations, properties of relations: injective, surjective and bijective functions, compositions.

UNIT II (8 Hrs)

Recurrence : Recurrence Relations and Recursive Algorithms – Linear-Recurrence Relations with Constant Coefficients; Homogeneous Solutions : Particular Solution, Total Solution, Solution by the Method of Generating functions.

UNIT III (8 Hrs)

Graph Theory : Graph and planar graphs – Basic Terminology, Multi-graphs, Weighted Graphs, Paths and Circuits, Shortest Paths, Eulerian Paths and Circuits.

Travelling Salesman Problem, Planar Graphs.

UNIT IV (10 Hrs)

Automata Theory : Finite State Machines–Equivalent Machines, Finite State Machines as language Recognizers; Analysis of Algorithms - Time Complexity, Complexity of Problems.

UNIT V (8 Hrs)

Prepositional Logic: Logical Connectives, Well-formed Formulas, Tautologies, Equivalences, Inference Theory

Text Book:

1. Rosen, K.H., Discrete Mathematics and its Applications, McGraw Hill Education, 8th edition 2021

Reference Books:

1. Doerr, A. and Kenneth, L., Applied Discrete Structures for Computer Science, 1989, Galgotia Publications Pvt. Ltd.
2. Liu, C. L., 1985, Elements of Discrete Mathematics, McGraw Hill.
3. Seymour Lipschutz and Lipson, :2000 Solved Problems in Discrete Mathematics, McGraw- Hill., 1992

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PRINCIPLE OF MANAGEMENT

Code: BM101

Max Marks: 80

UNIT I   (8 Hrs)

Nature of Management: Meaning, Definition, it's nature purpose, importance & Functions, Management as Art, Science & Profession- Management as social System, Concepts of management-Administration Organization, Management Skills, Levels of Management.

UNIT II   (8 Hrs)

Evolution of Management Thought: Contribution of F.W.Taylor, Henri Fayol, Elton Mayo, Chester Barhard & Peter Drucker to the management thought. Business Ethics & Social Responsibility: Concept, Shift to Ethics, Tools of Ethics.

UNIT III   (10 Hrs)
Functions of Management: Part-I

Planning – Meaning- Need & Importance, types, Process of Planning, Barriers to Effective Planning, levels, advantages & limitations, Forecasting- Need & Techniques

Decision making-Types - Process of rational decision-making & techniques of decision-making

Organizing – Elements of organizing & processes: Types of organizations, Delegation of authority – Need, difficulties, Delegation – Decentralization

Staffing – Meaning & Importance, Direction – Nature – Principles, Communication – Types & Importance

UNIT IV   (8 Hrs)
Functions of Management: Part-II

Motivation – Importance – theories

Leadership – Meaning –styles, qualities & function of leader Controlling - Need, Nature, importance, Process & Techniques, Total Quality Management Coordination – Need –Importance

UNIT V   (8 Hrs)

Management of Change: Models for Change, Force for Change, Need for Change, Alternative Change Techniques, New Trends in Organization Change, Stress Management.

Strategic Management: Definition, Classes of Decisions, Levels of Decision, Strategy, Role of different Strategist, Relevance of Strategic Management and its Benefits, Strategic Management in India

Text Book:

1. Principles & Practice of Management - Dr. L.M. Prasad, Sultan Chand & Sons - New Delhi

Reference Books:

1. Essential of Management - Horold Koontz and Iteinz Weibrich - McGraw hills International
2. Management Theory & Practice - J.N. Chandan
3. Essential of Business Administration - K. Aswathapa Himalaya Publishing House
4. Business Organization & Management - Dr. Y.K. Bhushan
5. Management: Concept and Strategies By J. S. Chandan, Vikas Publishing
6. Principles of Management, By Tripathi, Reddy Tata McGraw Hill
7. Business organization and Management by Talloo by Tata McGraw Hill

BUSINESS COMMUNICATION

Code: BM102

Max Marks: 80

UNIT I (8 Hrs)

Means of Communication:

Meaning and Definition – Process – Functions – Objectives – Importance – Essentials of good communication – Communication barriers, 7C's of Communication

UNIT II (12 Hrs)

Types of Communication:

Oral Communication: Meaning, nature and scope – Principle of effective oral communication – Techniques of effective speech – Media of oral communication (Face -to-face conversation – Teleconferences – Press-Conference – Demonstration – Radio Recording – Dictaphone – Meetings – Rumour –Demonstration and Dramatisation – Public address system – Grapevine – Group Discussion –Oral report – Closed circuit TV). The art of listening – Principles of good listening.

UNIT III (5 Hrs)

Written Communication

Purpose of writing, Clarity in Writing, Principles of Effective writing, Writing Techniques, Electronic Writing Process.

UNIT IV (12 Hrs)

Business Letters & Reports:

Need and functions of business letters – Planning & layout of business letter – Kinds of business letters – Essentials of effective correspondence, Purpose, Kind and Objective of Reports, Writing Reports.

Drafting of business letters: Enquiries and replies – Placing and fulfilling orders – Complaints and follow-up Sales letters –Circular letters Application for employment and resume

UNIT V (6 Hrs)

Information Technology for Communication:

Word Processor – Telex – Facsimile(Fax) – E-mail – Voice mail –Internet – Multimedia –Teleconferencing – Mobile Phone Conversation – Video Conferencing –SMS – Telephone Answering Machine – Advantages and limitations of these types.

Text Book:

1. Business Communication - M. Balasubrahmanyan - Vani Educational Books

Reference Books:

1. Business Communication - K. K. Sinha - Galgotia Publishing Company, New Delhi.
2. Media and Communication Management - C. S. Rayudu - Himalaya Publishing House, Bombay.
3. Essentials of Business Communication - Rajendra Pal and J. S. Korlhalli - Sultan Chand & Sons, New Delhi.
4. Business Communication (Principles, Methods and Techniques) Nirmal Singh - Deep & Deep Publications Pvt. Ltd., New Delhi.
5. Business Communication - Dr. S.V. Kadvekar, Prin. Dr. C. N. Rawal and Prof. Ravindra Kothavade - Diamond Publications, Pune.
6. Business Correspondence and Report Writing - R. C. Sharma, Krishna Mohan - Tata McGraw Hill Publishing Company Limited, New Delhi.
7. Communicate to Win - Richard Denny - Kogan Page India Private Limited, New Delhi.
8. Modern Business Correspondence - L. Gartside - The English Language Book Society and Macdonald and Evans Ltd.

COMPUTER LAB-1

(BASED ON BCA102) C Programming:

Part A

1. To find the roots of the quadratic equation (ax2+bx+c=0) with different possible input values for a, b and c.

2. Write a program to take input of name, roll no and marks obtained by a student in 4 subjects of 100 marks each and display the name, roll no with percentage score secured.

3. To check whether the given integer is PALINDROME or NOT

4. To find Square Root of a given Number.

5. To check whether the given year is leap year or not.

6. To find the value of the polynomial Design and develop an algorithm for evaluating the polynomial f(x)=a4 x4+a3 x3+a2 x2+a1 x+a0,foragivenvalueofxandits coefficients using Horner's method.

7. To arrange given N integers in ascending order using Bubble Sort.

Part B

1. To read two matrices A(m x n)and B(p x q) and Compute the product A and B.

2. To search a name in list of names using Binary Searching Technique
    A) To execute a C program that Implements string copy operation STRCOPY(str1,str2) that copies a string str1 to another string str2 without using library function.
    B) To Read a sentence and prints frequency of each of the vowels and total count of consonants.

3. Design and develop a function is prime (x) that accepts an integer argument and returns 1if the argument is prime and 0 otherwise. The function must use plain division checking approach to determine if a given number is prime. Invoke this function from the main with different values obtained from the user and print appropriate messages

4. Draw the flow chart and write a Recursive C function to find the factorial of number n! defined by fact(n)=1, if n=0, otherwise fact(n)=n*fact(n-1),using this function write a c program to compute the binomial co-efficient nCr. Tabulate the results for different values of n and r using suitable messages.

5. Given two university information files "studentname.txt" and "usn.txt" that contains students names and USN respectively. Write a C program to a new file called "output.txt" and copy the content of files "studentname.txt" and "usn.txt" into output file in the sequence shows below. Display the content of output file "output.txt" on to the screen.

6. Write a C program to maintain a record of "n" student details sing an array of structures with four fields (Roll number, Name, marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given name as input.

BUSINESS COMMUNICATION LAB-1

(BASED ON BM102) Business Communication:

1. **Communication**: Objectives & Process of Communication, Essential Components of the process of Communication, Importance and Objectives of Communication, Differences between general and technical communication. Types of Communication (Extrapersonal, Intrapersonal, Interpersonal, Organizational & Mass Communication)
2. **Verbal & Non-Verbal Communication:** listening, Speaking, Reading and Writing, Verbal and Non-Verbal Communication, Intra, inter-personal and group communication skills. Gestures, postures, Proxemics, Kinesics, Listening to Lectures, Discussion, Talk Shows, News Programs.
3. **Writing Skills:** Formal & Informal writings, report writing, creative writing. Composition, Resume writing, cover letters, Business Letter Writing, Persuasive Letters, Job Applications and Official Correspondence, E-mail etiquette, Precise writing
4. **Presentation Skills:** Elements of effective presentation, structure of presentation, external factors and content, Seminar, Speeches, Lectures, Interviews, Mock Interviews
5. **Group Discussion**: Structure of GD, Moderator led and other GDs, Strategies in GD, Team work body language, Mock GD, Problem solving, Reflective thinking, Critical Thinking, Negotiation skills
6. **Career Skills:** Goal Settings, Work ethics, Problem Solving skills, Active listening, Dressing etiquette and office etiquettes. SWOT Analysis, IQ, EQ and SQ, Art of giving feedback, Decision making, Time management, Team Management and Leadership Skills, Habits of Successful people.

Theory Paper

Total: 100 Marks

External: 80 Marks

Internal: 20 Marks

External : 80 Marks

15 Question (MCQ): 1 marks each (1x15 = 15)
10 Question (Very Short 20-30 Words): 2 marks each (2x10 = 20)
5 Question (Short 50-70 Words): 3 marks each (3x5 = 15)
Answer any 5 out of 6 (Long 100 Words): 4 marks each (4x5 = 20)
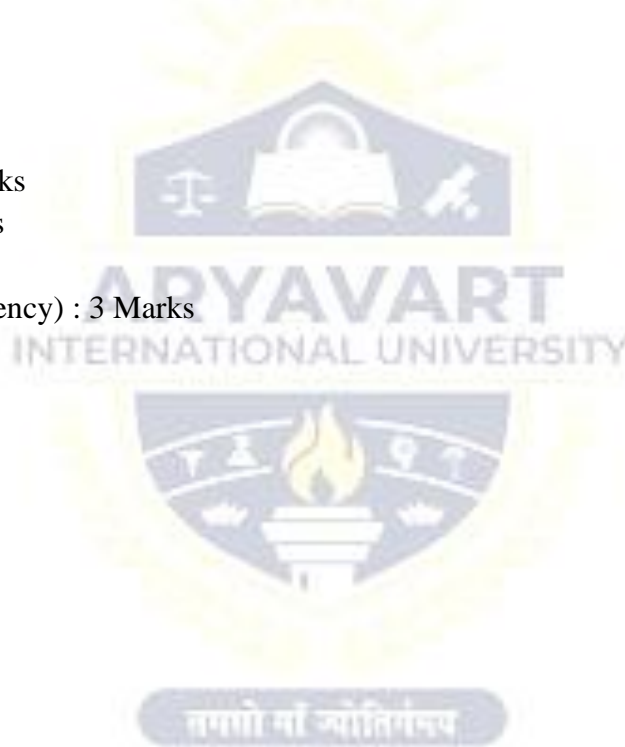Answer any 1 out of 2 (Very Long 150-200 Words): 10 marks each (10x1 = 10)

Internal : 20 Marks

Internal Exam: 8 Marks
Assignment : 6 Marks
Attendance : 3Marks
G.P. (General Proficiency) : 3 Marks

<u>**Programming Lab**</u>

Practical: 100 Marks

External: 80 Marks

Internal: 20 Marks

External (Two programs) : 80 Marks

Program Writing: 10 marks each (10x2 = 20)
Algorithm: 5 marks each (5x2 = 10)
Flowchart: 5 marks each (5x2 = 10)
Program execution: 15 marks each (15x2 = 30)
Viva: 10 marks

Internal : 20 Marks

Record: 4 Marks
Algorithm : 5 Marks
Flowchart : 5 Marks
Attendance : 3Marks
G.P. : 3 Marks

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BUSINESS COMMUNICATION LAB

Total: 100 Marks

External: 80 Marks

Internal: 20 Marks

External : 80 Marks

Personal Grooming & Hygiene: 10 marks
Basic Etiquettes: 5 marks
Presentation Skills: 5 marks
Reading Skills: 10 marks
Listening Skills: 10 marks
Speaking Skills: 10 marks
Presentation (two): 10 marks each (10x2 = 20)
Viva: 10 marks

Internal : 20 Marks

Attendance : 3 Marks
Assignments & Presentations : 4 Marks
Class tests : 8 Marks
Projects and Field Work : 5 Marks