



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Applications

Name of the Program: BCA +MCA (No Branch/ Banking Technology)

Semester I& II (Batch 2022-26)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME									
			THEORY			PRACTICAL			L	T	P	CREDITS
			END-SEM University Exams	Two Terms Exams	Teachers Assessment*	END-SEM University Exams	Teachers Assessment*					
ENG101	AEC	Foundation English	60	20	20	-	-	4	0	0	4	

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

- CEO 1 Understand the different nuances of communication.
- CEO2 understand the features of listening and reading skills.
- CEO3 Comprehend the factors that influence use of grammar and vocabulary in speech and writing
- CEO4 study the essential aspects of effective written communication through Business letters and email writing for professional success.
- CEO5 Develop competency in professional communication.

Course Outcomes (COs): The students will be able to

- CO1 develop a comprehensive understanding of the theoretical and practical aspects of communication.
- CO2 understand and the different aspects of listening and reading.
- CO3 Apply grammatical rules in speech and writing.
- CO4 Use proper formats of written business communication.
- CO5 Demonstrate different strategies for using professional communication skills.

ENG101 Foundation English

COURSE CONTENTS

UNIT I

Communication

Communication: Nature, Meaning, Definition, Process, Functions and importance, Characteristics of Communication, Verbal and Non-Verbal Communication, Barriers to Communication.

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UNIT II

Listening and Reading Skills

Listening: Process, Types, Difference between Hearing and Listening, Benefits of Effective Listening, Barriers to Effective Listening, Overcoming Listening Barriers, and How to Become an Effective Listener, Developing Reading Skills: Reading Comprehension, Process, Active & Passive reading, Reading speed Strategies, Benefits of effective reading, SQ3R Reading technique.

UNIT III

Basic Grammar

Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, Subject and Verb Agreement, Prepositions, Articles, Types of Sentences, Direct - Indirect, Active - Passive voice, Phrases & Clauses.

UNIT IV

Business Letters

Business Correspondence: Business Letters, Parts & Layouts of Business Letter, Job application and Resume, Application Calling/ Sending Quotations/ Orders/ Complaints. E-mail writing, Email etiquettes

UNIT V

Professional Skills

Negotiation Skills, Telephonic Skills, Interview Skills: Team building Skills and Time management

Suggested Readings:

- Adair John (2003). **Effective Communication**. London: Pan Macmillan Ltd.
- Thomson A.J. and Martinet A.V. (1991). **A Practical English Grammar** (4th ed). New York: Oxford IBH Pub
- Rizvi Ashraf (2005). **Effective Technical Communication**. New Delhi: Tata Mc Graw Hill
- Kratz Robinson (1995). **Effective Listening Skills**. Toronto: ON: Irwin Professional Publishing.

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			End Sem University Exam	Two Term Exam	Teachers Assessment*	End Sem University Exam	Teachers Assessment*				
BCCA 102N	BS	Mathematical Foundation of Computer Science I	60	20	20	0	0	3	1	0	4

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***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

To introduce the students with the basics of set theory, calculus, and linear algebra.

Course Outcomes (COs):

After the successful completion of this course students will be able to

- Understand the concepts of set theory.
- Learn the basics of differential and integral calculus.
- Apply the fundamentals of Calculus.
- Learn the basics of Linear algebra.

UNIT – I

Set Theory: Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations), Power set, Universal set, Venn diagrams, Union and Intersection of sets, Difference of sets, Complement of a set, Applications of sets.

UNIT – II

Function: Real Valued function, Classification of real valued functions, Pictorial representation of a function, domain, co-domain and range of a function, Real valued functions, domain and range of these functions: Constant, Identity, Polynomial, Rational, Modulus, Signum, Exponential, Logarithmic, Greatest integer functions (with their graphs) Sum, difference, product and quotients of functions.

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UNIT – III: Calculus

Differentiation: Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function, Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions (Quotient formula) – Without Proof, Derivative of x^n w.r.t. x , where n is any rational number, Derivative of e^x , Derivative of $\log_e x$, Derivative of a^x , Derivative of trigonometric functions from first principles (Without Proof). Applications.

UNIT – IV

Integration: Introduction, Definition, Standard formulae, Rules of integration, Method of substitution, Integration by parts, definite integrals. Applications.

UNIT – V

Matrices and Determinant: Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-factors, Adjoint of square matrix, Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method, Cramer's rule,

Reference books:

1. Paria G., Differential Calculus, Scholar's Publications, Indore.
2. Paria G., Integral Calculus, Scholar's Publications, Indore.
3. Dr. B. S. Grewal, Higher Engineering Mathematics.
4. Differential Calculus by Shanthi Narayan.
5. Integral Calculus by Shanthi Narayan.

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BCCA104	DCC	Fundamentals of Computers and IT	3	1	0	4	60	20	20	0	0

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***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

- To create basic understanding of Computer System
- To provide knowledge of concepts of Operating Systems
- To familiarize the students with the need, goal, function and architecture of various operating system available
- To develop the understanding of trends of IT industry, safe and ethical use of IT

Course Outcomes (COs): students will be able to

- To understand the need, goal and function of the OS
- Understand and use Windows and Linux operating systems commands.
- Organizing and manipulating files and folders.
- Understand and Use different editors of Linux
- Manipulating data using input output redirection
- Writing shell scripts
- To exercise the safe computer practices

Unit-I

Introduction to Computer Fundamentals: Introduction to Computer, Computer System Hardware, Computer Memory, Input and Output Devices, Interaction between User and Computer, Introduction to Free and Open Source Software, Definition of Computer Virus, Types of Viruses, Use of Antivirus software.

Unit-II

Computer: Definition, Classification, Organization i.e. CPU, register, Bus architecture, Instruction set, Memory & Storage Systems, I/O Devices, and System & Application Software. Computer Application in e-Business, Bio-Informatics, health Care, Remote Sensing & GIS, Meteorology and Climatology, Computer Gaming, Multimedia and Animation etc.

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BCCA104	DCC	Fundamentals of Computers and IT	3	1	0	4	60	20	20	0	0

Unit-III

Basics of Operating System, Definition of Operating System, Objectives, types, and functions of Operating Systems. Working with Windows Operating System: Introduction, The Desktop, Structure of Windows, Windows Explorer, File and Folder Operations, The Search, The Recycle Bin, Configuring the Screen, Adding or Removing New Programs using Control Panel, Applications in windows (Paint, Notepad, WordPad, Calculator).

Unit-IV

Introduction of Basic Commands of LINUX and Editors, Managing Files and Directories in LINUX, Programming Environment in LINUX, Writing and executing programs in LINUX.

Unit-V

Compilers & Interpreters: aspects of compilation, memory allocation, compilation of expression compilation of control structures, code optimization, interpreters. Software Tools: Software tools for program development, editors, debug monitors, programming environment, user interfaces

Text Books:

- 1.V. Rajaraman, "Fundamentals of Computers", PHI.
- 2.Peter Norton's, "Introduction to Computers", TMH.
- 3.Operating Systems –Silberschatz and Galvin -Wiley India.
4. Andrew Tananbaum, Computer Networks:, PHI
5. PramodKoparkar "Unix for You":, TMH.
6. MachteltGarrels, " Introduction to Linux".
7. Sanders, D.: Computers Today, Tata McGraw-Hill

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BCCA105	AEC	Programming Methodology and C	3	1	0	4	60	20	20	0	0

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Course Educational Objectives (CEOs):

- To familiarize the students with programming and to encourage them to develop their logic.
- To make students well versed with C language to solve problems efficiently.
- Using simple and well drawn illustrations develop their programming skills using modular programming.
- To cover the various data structures and their applications.

Course Outcomes (COs): Student will be able to:

- Develop algorithms for problems.
- Apply the programming concepts to solve the given problems.
- Write the programs using modular programming.
- Understand and write programs using various data structures very efficiently.
- Write the programs using pointers and to manage memory.
- Implement programs of file handling.

Unit-I

An overview: Problem identification, analysis, design, coding, testing & debugging, implementation, modification & maintenance; algorithms & flowcharts; Characteristics of a good program - accuracy, simplicity, robustness, portability, minimum resource & time requirement, modularization; Rules/ conventions of coding, documentation, naming variables; Top down design; Bottom-up design.

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BCCA105	AEC	Programming Methodology and C	3	1	0	4	60	20	20	0	0

Unit-II

Fundamentals of C Programming: History of C; Structure of a C Program; Data types; Constant & Variable, naming variables; Operators & expressions; Control Constructs – if-else, for, while, do-while; Case switch statement; Arrays; Formatted & unformatted I/O; Type modifiers & storage classes; Ternary operator; Type conversion & type casting; Priority & associativity of operators.

Unit-III

Modular Programming: Functions; Arguments; Return value; Parameter passing – call by value, call by reference; Return statement; Scope, visibility and life-time rules for various types of variable, static variable; Calling a function; Recursion – basics, types of recursion- direct, indirect.

Unit-IV

Advanced Programming Techniques: Special constructs – Break, continue, exit (), goto & labels; Pointers - & and * operators, pointer expression, pointer arithmetic, dynamic memory management functions like malloc(), calloc(), free(); String; Pointer v/s array; Structure – basic, declaration, membership operator.

Unit-V

Miscellaneous Features: printf & scanf family; C preprocessor – basics, #Include, #define, #undef, conditional compilation directive like #if, #else, #elif, #endif, #ifdef and #ifndef

Text Books:

1. Kanitkar Yashwant, 'Let us C', BPB New Delhi
2. Balaguruswami, 'Ansi C', TMH, Delhi
3. Kerninghan & Ritchie "The C programming language", PHI
4. Schildt, "C: The Complete reference" 4th ed TMH.
5. Cooper Mullish, "The Spirit of C", Jaico Publishing House, Delhi

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							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA106	AEC	Programming Lab using C	0	0	4	2	0	0	0	30	20

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- To make students well versed with C language to solve problems efficiently.
- Using simple and well drawn illustrations develop their programming skills using modular programming.
- To cover the various data structures and their applications.

Course Outcomes (COs):

Student will be able to:

- Develop algorithms for problems.
- Apply the programming concepts to solve the given problems.
- Write the programs using modular programming.
- Understand and write programs using various data structures very efficiently.
- Write the programs using pointers and to manage memory.
- Implement programs of file handling.

List of Experiments:

1. Define an algorithm and flowchart. Draw algorithm and flow chart for a program that converts an input Fahrenheit degree into Celsius equivalent.
2. Write an algorithm and a C program to find the greatest among three numbers.
3. WAP to print an input string in lower case, upper case and mixed case using library function.

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BCCA106	AEC	Programming Lab using C	0	0	4	2	0	0	0	30	20

- WAP to read in a three digit number produce following output (assuming that the input is 679)
6 hundreds
7 tens
9 units
- WAP a C program to reverse an input number.
- Draw a flow chart to find prime number from 1 to 100.
- WAP to find factorial of accepted number.
- WAP to calculate factorial of a number using recursion.
- WAP in C to generate Fibonacci series.
- WAP in C to generate Pascal triangle.
- WAP in C to swap values of two variables.
- WAP in C to search a given element in an array using linear search.
- WAP to sort an integer array in ascending and descending order according to user's choice.
- Write a menu driven program to perform matrix addition, subtraction and multiplication.
- WAP a C program to reverse a string by recursion.
- WAP to read and write a structure.

Text Books:

- Kanitkar Yashwant, 'Let us C', BPB New Delhi
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