

Asansol Engineering College
Department of Computer Applications

Curriculum

for

Bachelor of Computer Applications
(BCA)

Regulation-24

(Under Autonomy)



ASANSOL ENGINEERING COLLEGE
Vivekananda Sarani, Kanyapur, Asansol-713305

Affiliated to

Maulana Abul Kalam Azad University of Technology

(Formerly known as WBUT)

Asansol Engineering College
Department of Computer Applications

Program Structure							
SEMESTER	THEORY		PRACTICAL		SESSIONAL		Semester wise Credits [A+B+C]
	Courses	Credits [A]	Courses	Credits [B]	Courses	Credits [C]	
I	5	13	2	4	2	5	22
II	5	13	2	4	2	5	22
III	5	15	2	4	1	2	21
IV	6	17	1	2	0	0	19
V	4	12	2	4	1	4	20
VI	5	16	2	4	0	0	20
VII	5	15	1	2	1	3	20
VIII	2	8	2	4	1	8	20
TOTAL CREDIT							164

Asansol Engineering College
Department of Computer Applications

Credit Distribution												
Category	Sem – 1	Sem – 2	Sem – 3	Sem – 4	Sem – 5	Sem – 6	Total Credit to obtain UG Degree (Category Wise)	Credit Allocation as per NEP to obtain UG Degree	7th Sem	8th Sem	Total Credit (Category Wise)	Credit Allocation as per NEP
Core Course (CC)	10	10	10	11	12	10	63	60	8	12	83	80
Discipline Specific Elective (DSE)	2	2	3	6	4	6	23	24	9	0	32	32
Multi-Disciplinary Elective Course(MEC)	3	3	3	0	0	0	9	9	0	0	9	9
Ability Enhancement Course (AEC)	2	2	3	2	0	0	9	8	0	0	9	8
Skill Enhancement Course (SEC)	2	2	2	0	0	4	10	9	0	0	10	9
Value Added Courses (VAC)	3	3	0	0	0	0	6	6 to 8	0	0	6	6 to 8
Internship (INT)	0	0	0	0	4	0	4	2 to 4	0	0	4	2 to 4
Research Project (RP)	0	0	0	0	0	0	0	-	3	8	11	12
Total Credit (Semester Wise)	22	22	21	19	20	20	124	120	20	20	164	160

Asansol Engineering College
Department of Computer Applications

CURRICULUM
Course : Bachelor of Computer Applications (BCA)
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)

SEMESTER-I									
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit	
				L	T	P	TOTAL		
THEORY									
1	Core Courses (CC)	BCA24-CC-101	Digital Electronics	2	1	0	3	3	
2	Core Courses (CC)	BCA24-CC-102	Programming for Problem Solving through C	2	1	0	3	3	
3	Discipline Specific Elective (DSE)	BCA24-DSE-103	Principles of Management	2	0	0	2	2	
4	Ability Enhancement Courses (AEC)	BCA24-AEC-104	English & Professional Communication	2	0	0	2	2	
5	Multi-Disciplinary Elective Course(MEC)	**	Any one from GE baskets A or D	2	1	0	3	3	
PRACTICAL									
6	Core Courses (CC)	BCA24-CC-191	Digital Electronics Lab	0	0	4	4	2	
7	Core Courses (CC)	BCA24-CC-192	Programming for Problem Solving Lab	0	0	4	4	2	
SESSIONAL									
8	Skill Enhancement Courses (SEC)	BCA24-SEC-181	Life Skills & Personality Development	2	0	0	2	2	
9	Value Added Courses (VAC)	BCA24-VAC-182A	Yoga	0	0	6	6	3	
	Value Added Courses (VAC)	BCA24-VAC-182B	Health & Wellness	0	0	6			
	Value Added Courses (VAC)	BCA24-VAC-182C	Sports	0	0	6			
Total Credit								22	
Total Contact Hours								29	
** For Course Code - refer GE basket papers									

Asansol Engineering College
Department of Computer Applications

CURRICULUM								
Course : Bachelor of Computer Applications (BCA)								
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)								
SEMESTER-II								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-201	Computer Architecture	2	1	0	3	3
2	Core Courses (CC)	BCA24-CC-202	Basics of Web Design Using Html, CSS, Java Script	2	1	0	3	3
3	Discipline Specific Elective (DSE)	BCA24-DSE-203	Organization Behaviour	2	0	0	2	2
4	Ability Enhancement Courses (AEC)	BCA24-AEC-204	Modern Indian Languages and Literature	2	0	0	2	2
5	Multi-Disciplinary Elective Course(MEC)	**	Any one from GE baskets B or E	2	1	0	3	3
PRACTICAL								
6	Core Courses (CC)	BCA24-CC-291	Computer Architecture Lab	0	0	4	4	2
7	Core Courses (CC)	BCA24-CC-292	Basics of Web Design Using Html, CSS, Java Script	0	0	4	4	2
SESSIONAL								
8	Skill Enhancement Courses (SEC)	BCA24-SEC-281	IT Skills	2	0	0	2	2
9	Value Added Courses (VAC)	BCA24-VAC-282A	Critical Thinking	0	0	4	6	3
	Value Added Courses (VAC)	BCA24-VAC-282B	NSS	0	0	4		
	Value Added Courses (VAC)	BCA24-VAC-282C	Mental Health	0	0	4		
	Value Added Courses (VAC)	BCA24-VAC-282D	Environmental Studies	0	0	4		
Total Credit								22
Total Contact Hours								29
** For Course Code - refer GE basket papers								

Asansol Engineering College
Department of Computer Applications

CURRICULUM
Course : Bachelor of Computer Applications (BCA)
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)

SEMESTER-III								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-301	Python Programming	2	1	0	3	3
2	Core Courses (CC)	BCA24-CC-302	Data Structure through C	2	1	0	3	3
3	Discipline Specific Elective (DSE)	BCA24-DSE-303	Principles of Marketing	2	1	0	3	3
4	Ability Enhancement Courses (AEC)	BCA24-AEC-304	The Constitution, Human Rights and Law	2	1	0	3	3
5	Multi-Disciplinary Elective Course(MEC)	**	Any one from GE baskets C or F	2	1	0	3	3
PRACTICAL								
6	Core Courses (CC)	BCA24-CC-391	Python Programming Lab	0	0	4	4	2
7	Core Courses (CC)	BCA24-CC-392	Data Structure Lab	0	0	4	4	2
SESSIONAL								
8	Skill Enhancement Courses (SEC)	BCA24-SEC-381	Understanding Basics of Cyber Security	0	0	4	4	2
Total Credit								21
Total Contact Hours								27
** For Course Code - refer GE basket papers								

Asansol Engineering College
Department of Computer Applications

CURRICULUM
Course : Bachelor of Computer Applications (BCA)
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)

SEMESTER-IV								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-401	Data Base Management System	2	1	0	3	3
2	Core Courses (CC)	BCA24-CC-402	Operating System	2	1	0	3	3
3	Core Courses (CC)	BCA24-CC-403	Software Engineering	2	1	0	3	3
4	Discipline Specific Elective (DSE)	BCA24-DSE-404	Human resource Management	2	1	0	3	3
5	Discipline Specific Elective (DSE)	BCA24-DSE-405	E-Commerce	2	1	0	3	3
6	Ability Enhancement Courses (AEC)	BCA24-AEC-406	Society Culture and Human Behavior	2	0	0	2	2
PRACTICAL								
7	Core Courses (CC)	BCA24-CC-491	DBMS Lab	0	0	4	4	2
Total Credit								19
Total Contact Hours								21

Asansol Engineering College
Department of Computer Applications

CURRICULUM								
Course : Bachelor of Computer Applications (BCA)								
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)								
SEMESTER-V								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-501	PHP WITH MYSQL	3	1	0	4	4
2	Core Courses (CC)	BCA24-CC-502	Object Oriented Programming with Java	3	1	0	4	4
3	Discipline Specific Elective (DSE)	BCA24-DSE-503	Entrepreneurship	2	0	0	2	2
4	Discipline Specific Elective (DSE)	BCA24-DSE-504	Financial management	2	0	0	2	2
PRACTICAL								
5	Core Courses (CC)	BCA24-CC-591	PHP WITH MYSQL LAB	0	0	4	4	2
6	Core Courses (CC)	BCA24-CC-592	Object Oriented Programming with Java Lab	0	0	4	4	2
SESSIONAL								
7	Internship (INT)	BCA24-INT-581	Industrial Internship			4	4	4
		Total Credit						20
Total Contact Hours								24

Asansol Engineering College
Department of Computer Applications

CURRICULUM
Course : Bachelor of Computer Applications (BCA)
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)

SEMESTER-VI								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-601	Advance Java With Web Application	2	1	0	3	3
2	Core Courses (CC)	BCA24-CC-602	Unix and Shell Programming	2	1	0	3	3
3	Skill Enhancement Courses (SEC)	BCA24-SEC-603	Networking	3	1	0	4	4
4	Discipline Specific Elective (DSE)	BCA24-DSE-604	Customer relationship management	2	1	0	3	3
5	Discipline Specific Elective (DSE)	BCA24-DSE-605	Career planning and management	2	1	0	3	3
PRACTICAL								
6	Core Courses (CC)	BCA24-CC-691	Advance Java With Web Application Lab	0	0	4	4	2
7	Core Courses (CC)	BCA24-CC-692	Unix and Shell Programming Lab	0	0	4	4	2
Total Credit								20
Total Contact Hours								24

Asansol Engineering College
Department of Computer Applications

CURRICULUM								
Course : Bachelor of Computer Applications (BCA)								
Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)								
SEMESTER-VII								
SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-701A	Data Mining & Data Warehousing	2	1	0	3	3
	Core Courses (CC)	BCA24-CC-701B	Machine Learning	2	1	0	3	
	Core Courses (CC)	BCA24-CC-701C	Pattern RecoAECion	2	1	0	3	
	Core Courses (CC)	BCA24-CC-701D	Algorithm Analysis	2	1	0	3	
2	Core Courses (CC)	BCA24-CC-702	Cyber Security	2	1	0	3	3
3	Discipline Specific Elective (DSE)	BCA24-SEC-703	Research Methodology	2	1	0	3	3
4	Discipline Specific Elective (DSE)	BCA24-DSE-704	Consumer Behavior	2	1	0	3	3
5	Discipline Specific Elective (DSE)	BCA24-DSE-705	Strategic management	2	1	0	3	3
PRACTICAL								
6	Core Courses (CC)	BCA24-CC-791A	Data Mining & Data Warehousing Lab	0	0	4	4	2
	Core Courses (CC)	BCA24-CC-791B	Machine Learning Lab	0	0	4	4	
	Core Courses (CC)	BCA24-CC-791C	Pattern RecoAECion Lab	0	0	4	4	
	Core Courses (CC)	BCA24-CC-791D	Algorithm Analysis Lab	0	0	4	4	
SESSIONAL								
7	Research Project (RP)	BCA24-RP-781	Project -1	0	0	6	6	3
Total Credit								20
Total Contact Hours								25

Asansol Engineering College
Department of Computer Applications

CURRICULUM

Course : Bachelor of Computer Applications (BCA)

Under Autonomy, following NEP-2020 structure (Course Duration - 4 years)

SEMESTER-VIII

SL. No.	Course Type	Course Code	Course Name	Contact Hours / Week				Credit
				L	T	P	TOTAL	
THEORY								
1	Core Courses (CC)	BCA24-CC-801A	Cloud Computing	3	1	0	4	4
	Core Courses (CC)	BCA24-CC-801B	Block Chain Technology	3	1	0	4	
	Core Courses (CC)	BCA24-CC-801C	Artificial Intelligence	3	1	0	4	
2	Core Courses (CC)	BCA24-CC-802	Statistical Analysis with R Programming	3	1	0	4	4
PRACTICAL								
3	Core Courses (CC)	BCA24-CC-891A	Cloud Computing Lab	0	0	4	4	2
	Core Courses (CC)	BCA24-CC-891B	Block Chain Technology Lab	0	0	4	4	
	Core Courses (CC)	BCA24-CC-891C	Artificial Intelligence Lab	0	0	4	4	
4	Core Courses (CC)	BCA24-CC-892	Statistical Analysis with R Programming Lab	0	0	4	4	2
SESSIONAL								
5	Skill Enhancement Courses (SEC)	BCA24-SEC-881	Research Project – 2	0	0	16	16	8
Total Credit								20
Total Contact Hours								32

Asansol Engineering College
Department of Computer Applications

Syllabus of BCA
(Effective from 2024-25 Academic Sessions)

SEMESTER – I

SUBJECT NAME: Digital Electronics

SUBJECT CODE: BCA24-CC-101

CREDIT: 3

CONTACT HOURS : 2 L + 1 T

COURSE OBJECTIVE:

The objective of the course "Digital Electronics" is to provide students with a comprehensive understanding of the principles, theory, and practical applications of digital circuits and systems. Throughout the course, students will explore the foundational concepts of digital electronics, enabling them to design, analyze, and troubleshoot digital circuits commonly used in various electronic devices and systems.

COURSE OUTCOME	
CO1	To gain basic knowledge of digital electronics circuits and its levels.
CO2	To understand and examine the structure of various number system and its conversation.
CO3	To learn about the basic requirements for a design application
CO4	To enable the students to understand, analyze and design various combinational and sequential circuits
CO5	To understand the logic functions, circuits, truth table and Boolean algebra expression

Asansol Engineering College
Department of Computer Applications

DETAILED SYLLABUS:

Module No:	NAME OF THE TOPIC	HOURS	MARKS
M1	Number Systems & Codes Decimal Number, Binary Number, Octal Number, Hexadecimal Number, Conversion – Decimal to Binary, Binary to Decimal, Octal to Binary, Binary to Octal, Hexadecimal to Binary, Binary to Hexadecimal, Octal to Binary to Hexadecimal, Hexadecimal to Binary to Octal; Floating Point Number Representation, Conversion of Floating Point Numbers, Binary Arithmetic, 1's and 2's Complement, 9's and 10's Complement, Complement Arithmetic, BCD, BCD addition, BCD subtraction, Weighted Binary codes, Non-weighted codes, Parity checker and generator, Alphanumeric codes.	5	10
M2	Logic Gates : OR, AND, NOT, NAND, NOR, Exclusive – OR, Exclusive – NOR, Mixed logic.	2	10
M3	Boolean Algebra: Boolean Logic Operations, Basic Law of Boolean Algebra, Demorgan's Theorem, Principle of Duality.	6	10
M4	Minimization Techniques Sum of Products, Product of Sums, Karnaugh Map [up to 4 variables].	4	10
M5	Multilevel Gate Network Implementation of Multilevel Gate Network, Conversion to NAND-NAND and NOR-NOR Gate Networks.	2	5
M6	Arithmetic Circuits Half Adder, Full Adder, Half Subtractor, Full Subtractor, Carry Look Ahead Adder, 4-Bit Parallel Adder	5	5
M7	Combinational Circuits Basic 2-input and 4-input multiplexer, Demultiplexur, Basic binary decoder, BCD to binary converters, Binary to Gray code converters, Gray code to binary converters, Encoder.	5	5
M8	Sequential Circuits Introduction to sequential circuit, Latch, SR Flip Flop, D Flip Flop, T Flip Flop, JK Flip Flop, Master Slave Flip Flop	8	5

Asansol Engineering College

Department of Computer Applications

M9	Basics of Counters Asynchronous [Ripple or serial] counter, Synchronous [parallel] counter	4	5
M10	Basics of Registers SISO, SIPO, PISO, PIPO, Universal Registers	4	5
	sub total	45	70
	Internal examination	3	30
	TOTAL	48	100

SUGGESTED READING:

- "Digital Design" by M. Morris Mano and Michael D. Ciletti Publisher: Pearson India Education Services Pvt. Ltd.
- "Digital Fundamentals" by Thomas L. Floyd and R. David Maki Publisher: Pearson India Education Services Pvt. Ltd.
- "Digital Electronics: Principles, Devices and Applications" by Anil K. Maini Publisher: John Wiley & Sons (Asia) Pte. Ltd.
- "Digital Electronics: A Practical Approach" by William Kleitz Publisher: Pearson India Education Services Pvt. Ltd.
- "Digital Logic Design" by Brian Holdsworth and Clive Woods Publisher: Pearson India Education Services Pvt. Ltd.
- "Digital Electronics: Principles and Applications" by Roger L. Tokheim Publisher: McGraw-Hill Education (India) Pvt. Ltd.
- "Fundamentals of Digital Logic with VHDL Design" by Stephen Brown and Zvonko Vranesic Publisher: McGraw-Hill Education (India) Pvt. Ltd.
- "Digital Electronics: A Primer" by Michael J. Ciletti Publisher: Pearson India Education Services Pvt. Ltd.
- "Analog Circuits" by A.K. Maini, Khanna Book Publishing Co.
- "Design of Analog Circuits" by A.V.N. Tilak, Khanna Book Publishing Co.

Asansol Engineering College

Department of Computer Applications

SUBJECT NAME: Programming for Problem Solving through C

SUBJECT CODE: BCA24-CC-102

CREDIT: 3

CONTACT HOURS : 2 L + 1 T

COURSE OBJECTIVE:

The objective of the course "Programming for Problem Solving through C" is to equip students with fundamental programming skills using the C programming language and foster a problem-solving mindset. Throughout the course, students will develop a solid foundation in computer programming concepts and techniques, enabling them to tackle real-world problems and develop efficient, structured, and modular solutions.

COURSE OUTCOME	
CO1	Apply programming constructs of C language to solve the real world problem
CO2	To implement conditional branching, iteration and recursion
CO3	Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting
CO4	Explore user-defined data structures like structures, unions and pointers in implementing solutions
CO5	Create problem-solving solutions utilizing modular programming elements and functions.
CO6	Use files to store information after solving the problem related to the real world

DETAILED SYLLABUS:

Module No:	NAME OF THE TOPIC	HOURS	MARKS
M1	Introduction to components of a computer system: Memory, processor, I/O Devices, storage, operating system, Concept of assembler, compiler, interpreter, loader and linker. Representation of Algorithm, Flowchart, Pseudo code with examples, From algorithms to programs, source code. Compilation process of C program; .asm file, .obj file and .exe file. Number Systems: Binary, Octal, Decimal, Hexadecimal format.	4	5
M2	Introduction to 'C' Language: C Language - Background, C Programs, Identifiers, Data Types, Variables, Constants, Input / Output Statements Arithmetic Operators and Expressions: Evaluating Expressions, Precedence and Associativity of Operators, Type Conversions.	4	2

Asansol Engineering College
Department of Computer Applications

M3	Conditional Statements and loops : Decision making within a program, Conditions, Relational Operators, Logical Connectives, if statement, if-else statement, Loops: while loop, do while, for loop, Nested loops, Infinite loops, Switch statement, structured Programming	7	15
M4	Arrays: One dimensional arrays: Array manipulation; Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in an array; Two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix; Null terminated strings as array of characters, Standard library string functions	8	15
M5	Pointers : Address operators, pointer type declaration, pointer assignment, pointer initialization, pointer arithmetic, functions and pointers, Arrays and Pointers, pointer arrays, pointers and structures, dynamic memory allocation.	8	8
M6	Functions: Top-down approach of problem solving, Modular programming and functions, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Block structure, passing arguments to a Function: call by reference, call by value, Recursive Functions, arrays as function arguments. Storage Classes : Scope and extent, Storage Classes in a single source file: auto, extern and static, register, Storage Classes in a multiple source files: extern and static	8	15
M7	File Processing : Concept of Files, File opening in various modes and closing of a file, Reading from a file, Writing onto a file	6	10
	INTERNAL EXAMINATION	3	30
	TOTAL	48	100

SUGGESTED READING:

- "AICTE's Programming for Problem Solving" by Khanna Book Publishing Co.
- "Let Us C" by Yashavant Kanetkar Publisher: BPB Publications
- "C Programming: A Modern Approach" by K. N. King Publisher: W. W. Norton & Company India Pvt. Ltd.

Asansol Engineering College
Department of Computer Applications

- "C Programming for the Absolute Beginner" by Perry, Greg Publisher: Course Technology PTR (Cengage Learning)
- "C How to Program" by Deitel, Paul, and Deitel, Harvey Publisher: Pearson Education India
- "Programming in ANSI C" by Kochan, Stephen G. Publisher: Pearson Education India
- "C Primer Plus" by Prata, Stephen Publisher: Pearson Education India
- "C Programming Absolute Beginner's Guide" by Perry, Greg Publisher: Pearson Education India
- "Programming with C" by Gottfried, Byron S. Publisher: Tata McGraw-Hill Education

Asansol Engineering College
Department of Computer Applications

SUBJECT NAME: Principles of Management

SUBJECT CODE: BCA24-DSE-103

CREDIT: 2

CONTACT HOURS : 2 L

COURSE OBJECTIVE:

Sl. No.	Course Objective	
1	To help the students to develop cognizance of the importance of management principles.	
2	To enable them to analyze and understand the environment of the organization.	
3	To study the all-management functions of organization.	
4	To enable them to understand the structure and changes of the organization.	
	Course Outcomes	Mapped module/Unit
CO 1	Students will be able to have clear understanding of managerial functions, theories and same basic knowledge on management.	U1
CO 2	Students will be able to have clear understanding planning function in detail.	U1,U2
CO 3	Students will be able to have clear understanding of organization structure.	U2,U3
CO 4	Students will be able to have clear understanding of how to lead and motivate.	U3,U4
CO 5	Students will be able to have clear understanding of managerial change and resistance.	U5

Asansol Engineering College

Department of Computer Applications

Learning Outcome/Skills:

The candidate will be able to focus on the critical domains of management, planning and decision making moreover he will he will gain the expertise on the organisational skills leading and motivation and the techniques adopted for controlling and resisting the managerial skills.

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to Management <ul style="list-style-type: none">• Definition and nature of management• Evolution of management theories• Functions of management (planning, organizing, leading, controlling)• Roles and skills of managers• Managerial levels and hierarchy	10
Unit-II	Planning and Decision Making <ul style="list-style-type: none">• Importance and benefits of planning• Types of plans (strategic, tactical, operational)• Steps in planning• Environmental scanning• Decision-making process and techniques	10
Unit-III	Organizing <ul style="list-style-type: none">• Organizational structure• Departmentalization and span of control• Authority, responsibility, and delegation	8
Unit-IV	Leading and Motivating <ul style="list-style-type: none">• Leadership-- definition and styles• Communication and its importance• Motivation theories	8
Unit-V	Controlling and resistance to management <ul style="list-style-type: none">• Elements of control process• Types of control (feedforward, concurrent, feedback)• Concept of resistance to change• Overcoming resistance to change	9
Total		45

Asansol Engineering College

Department of Computer Applications

SUBJECT NAME: English & Professional Communication

SUBJECT CODE: BCA24-AEC-104

CREDIT: 2

CONTACT HOURS : 2 L

COURSE OBJECTIVE:

Sl. No.	Course Objective	
1	To lay emphasis on the development of linguistic competence and honing skills in the domain of communication and its allied affairs.	
	Course Outcomes	Mapped module/Unit
CO 1	To improve communicative competence of the students.	U1
CO 2	To enable the students converse in the real-life situations.	U1, U2
CO 3	To make the effective use of English for practical purposes.	U1, U2, U3
CO 4	To enable the students, acquire phonetic skills.	U1, U3, U4

Asansol Engineering College
Department of Computer Applications

Learning Outcome/Skills:

The candidate will be able to have a deep insight into the areas of grammar, communication, reading aspects and practical skills and preparation to face the corporate world and the general life with confidence. There should be a close linkage between the various elements of language and communication for a flawless reflection.

Contents		
Chapter	Name of the topic	Hours
Unit-I	Grammar: Tense, Voice, Phrases and Clauses, Narration, Transformation of Sentences, Vocabulary.	6
Unit-II	Communication: Definition, importance, purpose, elements, barriers, body language and strategies.	8
Unit-III	Reading Skills: Purpose, Articulation, Syllables, Accent and Voice Modulation.	7
Unit-IV	Presentation Skills, its structure, speech preparation, public speaking on special occasion. Interview, types, Group Discussion, Mock Sessions for practice.	9
	Total	30

Asansol Engineering College
Department of Computer Applications

List of Books

Name of Author	Title of the Book	Name of the Publisher
K C Verma	The Art of Communication	Kalpaz Publication.
B K Mitra	Personality Development and Soft Skills	Oxford Publication
Wren and Martin	High School Grammar and Composition, Wren and Martin	S Chand Publication

SUBJECT NAME: Digital Electronics Lab

SUBJECT CODE: BCA24-CC-191

CREDIT: 2

CONTACT HOURS : 4 P

List of Practicals

- Realization of basic gates using Universal logic gates.
- Code conversion circuits- BCD to Excess-3 and vice-versa.3 Four-bit parity generator and comparator circuits.
- Construction of simple Decoder and Multiplexer circuits using logic gates.
- Design of combinational circuit for BCD to decimal conversion to drive 7-segment display using multiplexer.
- Construction of simple arithmetic Circuits-Adder, Subtractor.
- Realization of RS-JK and D flip-flops using Universal logicgates.
- Realization of Universal Register using JK flip-flops and logicgates.
- Realization of Universal Register using multiplexer and flip-flops.
- Realization of Asynchronous Up/Down counter.
- Realization of Synchronous Up/Down counter.
- Realization of Ring counter and Johnson's counter.
- Construction of adder circuit using Shift Register and full Adder.

SUBJECT NAME: Programming for Problem Solving Lab

SUBJECT CODE: BCA24-CC-192

CREDIT: 2

CONTACT HOURS : 4 P

List of Practical:

- Write a c program to display the word "welcome".
- Write a c program to take a variable int and input the value from the user and displayit.
- Write a c program to add 2 numbers entered by the user and display the result. Write a c program to calculate the area and perimeter of a circle.
- Write a C program to find maximum between two numbers.
- Write a C program to check whether a number is divisible by 5 and 11 or not.
- Write a C program to input angles of a triangle and check whether triangle is valid ornot.
- Write a C program to check whether a year is leap year or not.
- Write a C program to input basic salary of an employee and calculate its Grosssalary according to following:
Basic Salary <= 10000 : HRA = 20%,DA = 80% Basic
Salary <= 20000 :
HRA = 25%, DA = 90% Basic Salary
> 20000 : HRA = 30%, DA = 95%
- Write a c program to print “welcome” 10 times.
- Write a c program to print first n natural numbers using whileloop.
- Write a c program to print all the odd numbers in a givenrange.
- Write a c program to add first n numbers using while loop.
- Write a c program to print all numbers divisible by 3 or 5 in a givenrange.
- Write a c program to add even numbers in a given range.
- Write a c program to find the factorial of a given number.
- Write a c program to find whether a number is prime or not.
- Write a c program to print the reverse of a number.
- Write a c program to add the digits of a number.
- Write a c program to print the fibonacci series in a given range.
- Write a c program to check whether a number is an Armstrong number or not.
- Write a c program to find g.c.d. and l.c.m. of two numbers.
- Write a C program that writes “hello File Handling” to the File.
- Write a C program that reads the information from the file.
- Write a C program that defines a structure for student. Then Create five instance of thestudent and find who scores the highest marks. Write the information of the student whoscores the highest marks.

SUBJECT NAME: Life Skills & Personality Development

SUBJECT CODE: BCA24-SEC-181

CREDIT: 2

CONTACT HOURS : 2 L

Sl. No.	Course Objective	
1	To understand the importance of the fundamental skill practices of life.	
2	To analyze the necessity of growth and expansion of personality to cater a complete look to life.	
3	To showcase the extreme necessity of the use and application of soft skills in organization.	
4	To comprehend the hand in glove relation between the life skill practices and the subtle nuances of personality.	
	Course Outcomes	Mapped module/Unit
CO 1	To enable the students, understand the essence of career growth and improvement of professional skills.	U1
CO 2	To enable the students, realize the importance of attitude and its relation to the motivational acumen to manage the daily stress issues for a sum total development.	U1, U2
CO 3	To acquire deemed knowledge on the various tentacles of communicative skills and their subsequent application for a complete reflection.	U1, U2, U3
CO 4	To make the students realize the use and necessity of soft skills in the corporate domain and job searching scenario.	U1, U3, U4

Learning Outcome/Skills:

The candidate is able to have a detailed understanding of the importance of career and the skills which are high required to pave the path for a distinct destination. There is a perfect blend of the various categories required for the growth and expansion of life and career.

Contents		
Chapter	Name of the topic	Hours
Unit-I	Career and Professional Skills: Listening skills, Reading skills, Writing skills, Resume preparation, exploring career opportunities, coAECive skills, presentation skills, social and cultural etiquettes, digital literacy, ethics and security.	7
Unit-II	Attitude and Motivation: Attitude: Concept, meaning, types, applicable factors in daily life. Motivation: Concept, meaning, types, causes of de motivation, remedial measures. Stress Management and Development of Capabilities: Stress: meaning, causes, solutions. Development of Capacities: Leadership qualities, time management, decision making, team work, work ethics, good manners and etiquettes.	8
Unit-III	Introduction to Soft Skills: Personal Skills, knowing oneself, confidence building, defining strengths and weaknesses, developing positive attitude, thinking positively, perceptions, values in daily life. Inter and Intra personal skills, Group Dynamics, the importance of a good networking system, troubleshooting method and problem solving tools and techniques.	9
Unit-IV	The various branches of Communication Skills: Reading texts, Speaking fluently, Writing effectively. E mail writing and etiquettes followed. Corporate and Job hunting Skills: The Behavioral etiquettes, mannerisms, Stress Management, Time Management, importance of proper body language, writing a good CV (with job application), career planning, importance of goal settings in different spheres and conducting of mock GD.	6
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Meena and V. Ayothi (2013)	A Book on Development of Soft Skills	PR Publisher and Distributor
Patra Avinash	The Spiritual Life and Culture of India	London, OUP.
Shiv Khera	You can win	MacMillan Books, New York,2003.
B K Mitra	Personality Development and Soft Skills	Oxford Publication.
Alex K	Soft Skills - Know Yourself and Know yourWorld	S Chand and Company Ltd.

SUBJECT NAME: Yoga

SUBJECT CODE: BCA24-VAC-182A

CREDIT: 3

CONTACT HOURS : 6 P

Sl. No.	Course Objective	
1	To impart the students with basic concepts of Yoga for health and wellness.	
2	To familiarise the students with health-related Yoga for Overall growth & development	
3	To create a foundation for the professionals in Yoga.	
4	To impart the basic knowledge and skills to teach Yoga activities.	
	Course Outcomes	Mapped module/Unit
CO 1	To explain the meaning of Yoga, & its importance.	U1
CO 2	To know the classification of Yoga & its values	U1
CO 3	To know the different yogic practices and their significance. To understand the effects of kriyas, pranayam and asanas on our body.	U2
CO 4	To comprehend the concept of health, healing, and disease by the influence of Yoga	U3
CO 5	To know the way of Stress management through Yoga and Yogic dietary considerations.	U3
CO 6	To know the need of Yoga for healthy living & Effects of Meditation on our body.	U3

Learning Outcome/Skills:

The candidate is able to understand the tenets of the theory of yoga, the forms and the application in the regular life to keep the health fit and fine. The candidate will be able to gain the expertise on the various postures of yoga in the accepted sense of term.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Practical	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to Yoga Concept & principles, aims and objectives, classifications, Role of Yoga in character building, Therapeutic values of Yoga, Role of Yoga practices in developing concentration, will power and discipline, Difference between Yoga Asana and physical exercises, Importance of Yoga in daily life.	12
Unit-II	Asanas, Kriya & Pranayam Positions of Asanas: Guidelines, importance and limitations. Standing, Sitting, Supine, Proline and Balancing Asanas. (Any three asanas from each)	12
	Definitions of kriyas, Types, brief ideas of each kriya and importance. Pranayam: Definition, guidelines for the practice of pranayama, importance, limitations	
Unit-III	Yoga and Health Need of Yoga for health, concept of health and healing: yogic perspectives Yogic principles of healthy living and the role of Yoga in stress management and yogic dietary considerations	8
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Nagendra, H. R. & Nagarathna,R.	Samagra Yoga Chikitse	Bengaluru: Swami Vivekananda Yoga Prakasana
Kumar, Ajith	Yoga Pravesha	Bengaluru: Rashthrothanna Prakashana
D.M Jyoti	Yoga and Physical Activities	lulu.com3101, Hills borough,NC27609, United State

SUBJECT NAME: Health & Wellness

SUBJECT CODE: BCA24-VAC-182B

CREDIT: 3

CONTACT HOURS : 6 P

Sl. No.	Course Objective	
1	To help understand the importance of a healthy lifestyle	
2	To familiarize students about physical and mental health	
3	To create awareness of various lifestyle related diseases	
4	To provide understanding of stress management	
	Course Outcomes	Mapped module/Unit
CO 1	Explain the meaning of health & wellness and its importance.	U1
CO 2	Role of essential components in balanced diet for good health	U1
CO 3	Role of healthy food for prevention of various disease	U2
CO 4	Effect of exercise on hypokinetic disease	U2
CO 5	Stress management through Yoga	U3
CO 6	Importance of sleep on mental and physical health	U3

Learning Outcome/Skills:

The candidate will be able to understand the importance of wellbeing and the path which would help to manage a healthy lifestyle, keeping the negative factors at bay. There is a huge possibility of the practical approach of health style and fitness.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Practical	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to Health and Wellness <ul style="list-style-type: none"> • Define and differentiate health and wellness. • Importance of health and wellness Education. • Local, demographic, societal issues and factors affecting health and wellness. • Diet and nutrition for health & wellness. • Essential components of balanced diet for healthy living with specific reference to the role of carbohydrates, proteins, fats, vitamins & minerals. • Malnutrition, under nutrition and over nutrition. • Processed foods and unhealthy eating habits. • Body systems and common diseases. • Sedentary lifestyle and its risk of disease. 	15
Unit-II	Management of Health & Wellness <ul style="list-style-type: none"> • Healthy foods for prevention and progression of Cancer, Hypertension, Cardiovascular, and metabolic diseases (Obesity, Diabetes, Polycystic Ovarian Syndrome). • Types of Physical Fitness and its Health benefits. • Modern lifestyle and hypo-kinetic diseases; prevention and management through exercise. • Postural deformities and corrective measures. 	10
Unit-III	Anxiety, Stress and Aging <ul style="list-style-type: none"> • Meaning of Anxiety, Stress and Aging • Types and Causes of Stress • Stress relief through Exercise and Yoga • Role of sleep-in maintenance of physical and mental health. 	5
	Total	30

List of Books

Name of Author	Title of the Book
Steven N. Blair, William L. Haskell	Physical Activity and Health
Emily Attached & Marzia Fernandez	Mental Health Workbook
Nashay Lorick	Mental Health Workbook for Women: Exercises to Transform Negative Thoughts and Improve Well-Being
C. Nyambichu & Jeff Lumiri	Lifestyle Diseases: Lifestyle Disease Management
Angela Clow & Sarah Edmunds	Physical Activity and Mental Health

SUBJECT NAME: Sports

SUBJECT CODE: BCA24-VAC-182C

CREDIT: 3

CONTACT HOURS : 6 P

Sl. No.	Course Objective	
1	To help understand the importance of sports.	
2	To familiarise students about sports and mental health	
3	To provide understanding of conditioning of exercise	
4	To provide understanding of stress management	
5	To gain knowledge about event management	
	Course Outcomes	Mapped module/Unit
CO 1	Explain the meaning of sports & physical education and its importance.	U1
CO 2	Role of sports in daily life	U1
CO 3	Types of exercises and activities for healthy lifestyles	U2
CO 4	Concept of sports event management	U3
CO 5	Concept of Traditional games	U3

Learning Outcome/Skills:

The candidate will be able to gain a clear conception on the importance of sports, types, managerial techniques and their relevant applications in the practical domain. Through intense practice the candidate will be able to gain an expertise in sports and its adjoining areas.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Practical	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to Sports Meaning and definition of Sports. Aims, Objectives and Importance of Sports. Modern trends of Sports Brief concept of Education in relation to Sports	8
Unit-II	Physical Education & Sports General warmup exercises Specific warmup exercises Conditioning Relaxation Techniques Cardiac Exercise Exercises/Activities for stress management Assessment of BMI	10
Unit-III	Sports Event Management Meaning, Definition and importance of Sports Management Scope of Sports Event Management Principles of Sports Event Management Major and Minor Sports Events Traditional Games Management	12
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Coalter, F.	Sport for Development: What game are we playing?	Routledge.
Singh Hardayal	Science of Sports Training	DVS Publication, New Delhi
Muller, J. P.	Health, Exercise and Fitness	Delhi: Sports

Syllabus of BCA
(Effective from 2024-25 Academic Sessions)

SEMESTER – II

SUBJECT NAME: Computer Architecture

SUBJECT CODE: BCA24-CC-201

CREDIT: 3

CONTACT HOURS : 2 L + 1 T

COURSE OBJECTIVE:

The objective of the course "Computer Architecture" is to provide students with a comprehensive understanding of the fundamental principles, components, and design principles that govern modern computer systems. Throughout the course, students will delve into the intricate workings of computer hardware, its organization, and how it interacts with software. The main goals are to enable students to grasp the inner workings of computers, analyze their performance, and make informed design decisions for efficient and reliable computing systems.

COURSE OUTCOME	
CO1	To enable the students to understand the functionality and implementation of computer system.
CO2	To familiarize with the various instruction codes and formats of different CPUs.
CO3	To introduce the students to I/O and memory organization of computer system
CO4	To deliver an overview of Control Unit of a computer system
CO5	To learn the usage of parallel and vector processing.

Guru Nanak Institute of Technology

Department of Computer Applications

DETAILED SYLLABUS:

Module No:	NAME OF THE TOPIC	HOURS	MARKS
M1	Data Representation: Number Systems – decimal, binary, octal, hexadecimal, alphanumeric representation, 2. Complements – 1's complement, 2's complement, 9's complement, 10's complement, [r-1]'s complement, r's complement, 3. Fixed point representation – Integer representation, arithmetic addition, arithmetic subtraction, overflow, decimal fixed point representation, 4. Floating point representation, 5. IEEE 754 floating point representation	4	5
M2	Computer arithmetic: Addition algorithm of sign maAECudenumbers, Subtraction algorithm of sign maAECude numbers, Addition algorithm of signed 2's complement data, Subtraction algorithm of signed 2's complement data, Multiplication algorithm, Booth's algorithm, Division algorithm	4	5
M3	Register transfer and micro-operations: Register transfer language, Register transfer, Bus system for registers, Memory transfers – memory read, memory write, Micro operations – register transfer micro operations, arithmetic micro operations, logic micro operations, shift micro operations, Binary adder, binary adder subtractor, binary incrementer, arithmetic circuit for arithmetic micro operations, One stage logic circuit, Selective set, Selective complement, Selective clear, ask, Insert, Clear	5	5
M4	Basic Computer organization and design: Instruction codes, Direct address, Indirect address & Effective address, List of basic computer registers, Computer instructions: memory reference, register reference & input – output instructions, Block diagram & brief idea of control unit of basic computer, Instruction cycle	4	5
M5	Micro programmed control: Control memory, Address sequencing, Micro program examples	4	5

Guru Nanak Institute of Technology

Department of Computer Applications

M6	Central processing unit: General register organization, Stack organization, Register stack, Memory stack, Stack operations – push & pop, Evaluation of arithmetic expression using stack, Instruction format, Types of CPU organization [single accumulator, general register & stack organization] & example of their instructions, Three, two, one & zero address instruction, Definition and example of data transfer, data manipulation & program control instructions, Basic idea of different types of interrupts [external, internal & software interrupts], Difference between RISC & CISC	6	5
M7	Pipeline and vector processing: Parallel processing, Flynn’s classification, Pipelining, Example of pipeline, space time diagram, speedup, Basic idea of arithmetic pipeline, example of floating point addition/ subtraction using pipeline	6	10
M8	Input – output organization: Peripheral devices, Input – output interface, Isolated I/O, Memory mapped I/O, Asynchronous data transfer: strobe & handshaking, Programmed I/O, Interrupt initiated I/O, Basic idea of DMA & DMAC Input – output processor	6	10
M9	Memory organization: Memory hierarchy, Main memory definition, types of main memory, types of RAM, ROM, difference between SRAM & DRAM, Cache memory, Cache memory mapping – Direct, Associative, Set Associative, CAM, hardware organization of CAM, Virtual memory, mapping using pages, page fault, mapping using segments, TLB, Auxiliary memory, diagrammatic representation of magnetic disk & hard disk drive, Definitions of seek time, rotational delay, access time, transfer time, latency	6	20
	INTERNAL EXAMINATION	3	30
	TOTAL	48	100

SUGGESTED READING:

- V. Carl, G. Zvonko and S. G. Zaky, “Computer organization”, McGraw Hill, 1978.
- B. Brey and C. R. Sarma, “The Intel microprocessors”, Pearson Education, 2000.
- J. L. Hennessy and D. A. Patterson, “Computer Architecture A Quantitative Approach”, Morgan Kauffman, 2011.
- W. Stallings, “Computer organization”, PHI, 1987.
- M. Morris Mano “Computer System Architecture “ PEARSON
- Rajaraman – “Computer Organization & Architecture”, PHI
- B.Ram – “Computer Organization & Architecture”, Newage Publications
- J.P. Hayes “ Computer Architecture & Organisation”, TATA MCGRAW HILL

Guru Nanak Institute of Technology

Department of Computer Applications

SUBJECT NAME: Basics of Web Design Using Html, CSS, Java Script

SUBJECT CODE: BCA24-CC-202

CREDIT: 3

CONTACT HOURS : 2 L + 1 T

COURSE OBJECTIVE:

The objective of the course "Basics of Web Design Using HTML, CSS, JavaScript, and Web Hosting" is to provide students with a solid foundation in web development, enabling them to create and publish static websites. Throughout the course, students will learn essential technologies and techniques for designing and building web pages, as well as the basics of hosting and deploying websites on the internet. By the end of the course, students should be proficient in creating static websites using HTML, CSS, and JavaScript, and have a clear understanding of web hosting and deployment procedures.

COURSE OUTCOME	
CO1	To gain knowledge about the protocols used in various services of internet.
CO2	Use different HTML components for designing the Web page for solving real world application
CO3	Students can implement modern, responsive, mobile first CSS framework.
CO4	to gain knowlegge about synchronous and asynchronous Java script
CO5	Student knows the different methodologies realted to the hosting web application

DETAILED SYLLABUS:

Module No:	NAME OF THE TOPIC	HOURS	MARKS
M1	Introduction to Web Design: Introduction of Internet, WWW, Website, Working of Websites, Web pages, Front End, Back End, Client and Server Scripting Languages, Responsive Web Designing, Types of Websites (Static and Dynamic Websites), representation of URL format, port number, Http and https protocol, IP addressing Internet Applications: Internet services, Electronic Mail(E-Mail), File Transfer, Real-Time User Communication, Remote Login	4	10

M2	<p>HTML Basics</p> <p>HTML: Introduction, Basic Structure of HTML, Head Section and Elements of Head Section, Formatting Tags: Bold, Italic, Underline, Strikethrough, Div, Pre Tag Anchor links and Named Anchors Image Tag, Paragraphs, Comments, Tables: Attributes –(Border, Cellpadding, Cell spacing , height , width), TR, TH, TD, Rowspan, Colspan Lists : Ordered List , Unordered List , Definition List, Forms,Form Elements, Input types, Input Attributes, Text Input Text Area, Dropdown, Radio buttons , Check boxes, Submit and Reset Buttons Frames: Frameset, nested Frames.</p> <p>HTML 5 Introduction, HTML5 New Elements: Section, Nav, Article, Aside, Audio Tag, Video Tag, HTML5 Form Validations: Require Attribute, Pattern Attribute, Autofocus Attribute, email, number type, date type , Range type, HTML embed multimedia, HTML Layout, HTML Iframe</p>	9	25
M3	<p>CSS: Introduction to CSS, Types of CSS, CSS Selectors : Universal Selector ,ID selector, Tag Selector, Class Selector, Sub Selector, Attribute Selector, Group Selector, CSS Properties: Back Ground properties, Block Properties, Box properties, List properties, Border Properties, Positioning Properties, CSS Lists CSS Tables, CSS Menu Design CSS Image Gallery,</p>	12	20
M4	<p>CSS Framework: Web Site Development using W3.CSS Framework, W3.CSS Intro, W3.CSS Colors, W3.CSS Containers, W3.CSS Panels, W3.CSSBorders, W3.CSS Fonts, W3.CSS Text, W3.CSS Tables, W3.CSS List, W3.CSSImages, W3.CSS Grid</p>	8	20
M5	<p>JavaScript and Angular Js: Introduction to Client Side Scripting Language, Variables in Java Script, Operators in JS, Conditions Statements, JS Popup Boxes, JS Events, Basic Form Validations in JavaScript. Introduction to Angular JS: Expressions, Modules and Directives.</p>	8	18

Guru Nanak Institute of Technology

Department of Computer Applications

M6	Web hosting Basics, Documents Interchange Standards, Components of Web Publishing, Document management, Web Page Design Considerations and Principles, Search and Meta Search Engines, WWW, Browser, HTTP, Publishing Tools	4	7
	INTERNAL EXAMINATION	3	30
	TOTAL	48	100

SUGGESTED READING:

- "Learning Web Designing" by Ramesh Bangia, Khanna Book Publishing Co.
- "HTML, CSS, and JavaScript All in One: Covering HTML5, CSS3, and ES6" by Julie C.Meloni and Jennifer Kyrnin Publisher: BPB Publications
- "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and WebGraphics" by Jennifer Niederst Robbins Publisher: O'Reilly Media
- "HTML and CSS: Design and Build Websites" by Jon Duckett Publisher: Wiley IndiaPvt. Ltd.
- "JavaScript and JQuery: Interactive Front-End Web Development" by Jon DuckettPublisher: Wiley India Pvt. Ltd.
- "Web Design with HTML, CSS, JavaScript and jQuery Set" by Jon Duckett Publisher:Wiley India Pvt. Ltd.
- "Head First HTML and CSS: A Learner's Guide to Creating Standards-Based WebPages" by Elisabeth Robson and Eric Freeman Publisher: O'Reilly Media
- "A Smarter Way to Learn HTML & CSS: Learn it faster. Remember it longer." by MarkMyers Publisher: CreateSpace Independent Publishing Platform
- "Web Development and Design Foundations with HTML5" by Terry Felke-MorrisPublisher: Pearson Education India
- "Web Designing & Development" by Tanweer Alam, Khanna Book Publishing.

SUBJECT NAME: Organization Behaviour

SUBJECT CODE: BCA24-DSE-203

CREDIT: 2

CONTACT HOURS : 2 L

COURSE OBJECTIVE:

Sl. No.	Course Objective	
1	Understand the fundamental concepts and theories of organizational behaviour.	
2	Explore group dynamics, teamwork, and decision-making processes within organizations.	
3	Examine the challenges and opportunities of managing diversity and inclusion in organizations.	
4	Analyze the role of leadership, power, and politics in shaping behaviour and organizational outcomes.	
5	Gain insights into global and cross-cultural aspects of organizational behaviours.	
	Course Outcomes	Mapped module/Unit
CO 1	Students will be able to have clear understanding of basic and history of Organization behaviour	U1
CO 2	Students will be able to have clear understanding about individual behaviour aspects.	U1,U2
CO 3	Students will be able to have clear understanding about group dynamics	U3
CO 4	Students will be able to have clear understanding about power and political behaviour.	U1,U4
CO 5	Students will be able to have clear understanding of global organization behaviour.	U5

Learning Outcome/Skills:

The candidate will acquire the skill to understand the basic tenets of organizational behaviour individual behaviour group and team dynamics power and political behaviour and international organizational behaviour. This skill will highly enable the candidate to carve a niche in the desired domain.

Chapter	Name of the Topic	Hours
Unit-I	Introduction to Organizational Behaviour <ul style="list-style-type: none">• Definition and scope of organizational behaviour• Historical development of organizational behaviour• Importance of studying organizational behavior• Individual behaviour in organizations	10
Unit-II	Individual Behaviour <ul style="list-style-type: none">• Personality definition, theories• Perception, attribution, and attitudes• Learning theories• Job satisfaction	10
Unit-III	Group and Team Dynamics <ul style="list-style-type: none">• Types of groups in organizations• Stages of group development• Conflict management and negotiation skills	8
Unit-IV	Power and Political behaviour <ul style="list-style-type: none">• Definition,• Power Dynamics• Sources• Power tactics• Essence of politics• Types of political activities.	9
Unit-V	International Organizational Behaviour <ul style="list-style-type: none">• Definition, nature, characteristics• Cross-cultural differences and their impact on behaviour• Organizational behaviour trends and future challenges	8
	Total	45

List of Books

Sr. No.	Name of Author	Title of the BOOK	Publication
1	K. Aswathappa	Organizational behaviour, Text, Cases and Games	Himalaya Publishing House
2	Stephen P. Robbins	Organizational Behaviour, Eighteen Edition	Pearson
3	Stephen P. Robbins	Essentials of Organizational Behavior, Fourteenth Edition	Pearson
4	Fred Luthans	Organizational behavior: A modern behavioral approach to management	McGraw-Hill
5	Khanka S.S	Organizational Behaviour	S Chand & Company

SUBJECT NAME: Modern Indian Languages and Literature

SUBJECT CODE: BCA24-AEC-204

CREDIT: 2

CONTACT HOURS : 2 L

COURSE OBJECTIVE:

Sl. No.	Course Objective	
1	To understand the basics of the functional grammar, its usage and relevant application.	
2	To understand technique, style, pattern and the logical development of thoughts in writing various different kinds of prose.	
3	To understand the text and the key features associated with the literary aspects of MIL.	
4	To understand the need and development of the structure of the contemporary communication skills and its relevant application.	
	Course Outcomes	Mapped module/Unit
CO 1	Enable the students comprehend and grip the fundamentals of English Grammar and its allied features applicable in the world.	U1, U2
CO 2	Enable the students develop the skills for writing prose and essays of variety to widen their mental horizon.	U2, U3
CO 3	Enable the students take interest in the selected literary pieces and their relevance as well as purpose in the modern world.	U3
CO 4	Enable the students develop the expertise in the matter of communication and its practical application to add an extra dimension to their learning process.	U1, U4

Learning Outcome/Skills:

The candidate will not only have an exposure to the fundamentals of English grammar and writing features but also develop a keen interest in the literary domain linked with the rich communications skills. The use of modern technology in the world of communication will also widen their mental horizon.

Chapter	Name of the topic	Hours
Unit-I	Functional Grammar and its usage: Formation of tenses, gerund, infinitive, verbalnoun, synthesis of sentences, idioms and proverbs.	6
Unit-II	Develop the Writings in a New Pattern and Style: Expository, Descriptive, Reflective, Narrative, Biographical and Autobiographical. Letters (Formal type) and Report Scripting (News Paper style) and Features.	7
Unit-III	Selected Literary Pieces: Poetry: JACK (E V Lucas), SNAKE (D H LAWRENCE). Prose: KITE (Somerset Maugham), THE HUNGRY STONE (RABINDRANATH TAGORE)Drama: TARA (MAHESH DATTANI)	9
Unit-IV	Communication: Debate, Discussion, Public interaction, Safety measures of Communication, Power of Convincing others and Audio-Visual technology used for the contemporary communication system.	8
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Wren and Martin	High School Grammar and Composition	S Chand Publication
Palgrave	Golden Treasury	Oxford Publication
B K Mitra	Personality Development and Soft Skills	Oxford Publication
H.N. Kashyap	A Pageant of Poems (English, Paper back)	Selina Publishers

Link:<https://everyvillagehasitsjack.wordpress.com/tag/e-v-lucas/>(For the poem Jack by E V Lucas)

SUBJECT NAME: Computer Architecture Lab

SUBJECT CODE: BCA24-CC-291

CREDIT: 2

CONTACT HOURS : 4P

COURSE OBJECTIVE:

List of Practical:

- Basic gates and Universal gates. Implementation of Half & full adder. Half & fullsubtractor,
- 4 bit logical unit, 4 bit arithmetic unit, BCD adder, 4 bit adder/ subtractor, Carrylook ahead adder, Design of ALU for multi bit operation, comparators.
- 8:1 MUX IC verification, 16:1 MUX using IC 74151, dual 2 to 4 Decoder/Demultiplexer IC evaluation. Priority encoder.
- Read/ write operation using RAM IC, Cascading RAM ICs

SUBJECT NAME: Basics of Web Design Using Html, CSS, Java Script Lab

SUBJECT CODE: BCA24-CC-292

CREDIT: 2

CONTACT HOURS : 4P

COURSE OBJECTIVE:

Practical Assignment: Building a Personal Portfolio Website

Objective: The objective of this practical assignment is to apply the concepts learned in the course "Basics of Web Design Using HTML, CSS, and JavaScript" to create a personal portfolio website. The portfolio website will showcase your skills, projects, and accomplishments, and demonstrate your understanding of web design principles, responsive design, and JavaScript interactivity.

Requirements: Your personal portfolio website should meet the following criteria:

- Home Page: Create an attractive and informative home page that introduces yourself and includes a brief summary of your background, skills, and interests.
- About Me Page: Design an "About Me" page that provides more detailed information about your education, work experience, and personal interests.
- Projects Page: Showcase your projects with descriptions and images. Use a grid or card layout to present the projects neatly.
- Contact Page: Include a contact form or your contact information (email, phone number, LinkedIn profile, etc.) to allow visitors to reach out to you.
- Responsive Design: Ensure that your website is responsive and displays correctly on various devices, including desktops, tablets, and mobile phones.
- Navigation: Implement a navigation bar or menu that allows visitors to easily navigate between different pages of your website.
- CSS Styling: Apply CSS styles to enhance the overall appearance of your website, including fonts, colors, backgrounds, and layout.
- JavaScript Interactivity: Incorporate JavaScript to add interactive elements to your website, such as a responsive navigation menu, image sliders, or a contact form validation.
- External Resources: Utilize external resources, such as Google Fonts or Font Awesome icons, to enhance the design and functionality of your website.
- Code Organization: Organize your HTML, CSS, and JavaScript code into separate files and link them appropriately in your web pages.
- Valid HTML and CSS: Ensure that your HTML and CSS code is valid, following W3C standards.

SUBJECT NAME: IT Skills

SUBJECT CODE: BCA24-SEC-281

CREDIT: 2

CONTACT HOURS : 2L

Sl. No.	Course Objective	
1	To understand the usage of various IT tools and software applications commonly used in business environments.	
2	Understand the role and importance of IT tools in enhancing productivity, efficiency, and communication in business operations.	
3	To understand the utilization of IT tools for data management, analysis, and reporting to support decision-making processes.	
4	To understand CRM and technologies such as SEO and use it for business advancement.	
5	To understand the importance of cyber security and IT governance.	
	Course Outcomes	Mapped module/Unit
CO 1	Students should have a good knowledge on range of IT tools and software applications to support and enhance business operations.	U1
CO 2	Students should have a good knowledge to streamline processes, improve productivity, and optimize resource utilization in business settings.	U1, U2
CO 3	Students should have a good knowledge to utilize data management and analysis skills acquired through IT tools to make informed decisions and drive business performance.	U1, U2, U3
CO 4	Students should have a good knowledge of CRM and technologies such as SEO.	U1, U3, U4
CO 5	Students should have a good knowledge of basic of cyber security and IT governance in India.	U5

Learning Outcome/Skills:

The candidate will be able to have an overview of the use of various IT tools and their corresponding business important apart from gaining knowledge on the other relevant areas of marketing, HR, cyber security and IT governance. This put further prepare the candidate for a more rational and practical approach.

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to IT Tools in Business: Overview of IT tools and their importance in business, Role of IT tools in enhancing productivity and efficiency, Operating systems and software applications used in business, Introduction to internet and its impact on business, Overview of business information systems and databases, Introduction to ERP and its usages, ERP systems (e.g., SAP, Oracle, Microsoft Dynamics).	7
Unit-II	Communication and Collaboration Tools: Email communication and management, Instant messaging and online chat tools, Video conferencing and web conferencing tools, Document sharing and version control tools, Virtual team communication and coordination.	5
Unit-III	Data Management and Analysis Tools: Introduction to spreadsheets and data analysis, Advanced features of spreadsheet software (e.g., formulas, functions, pivot tables), Database management systems and their role in business, Business intelligence and data analytics tools.	6
Unit-IV	Marketing, HR Tools: Customer relationship management (CRM) systems, Marketing automation tools, Email marketing tools, HRIS (Human Resource Information System) concept and tools, Web analytics and search engine optimization (SEO) tools.	6
Unit-V	Cybersecurity and IT Governance: Importance of cybersecurity in business, Types of cyber threats and attack vectors, Network security and firewalls, Data encryption and secure communication, Risk assessment and management, IT governance frameworks and compliance standards.	6
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Mayank Bhusan Rajkumar Singh Rathore Aatif Jamshed	Fundamentals of Cyber Security (Principle, Theory and Practices)	BPB Publications
Nippani K.S	Digital India Governance Transformation	Nippani K.S
Nigam Manisha	Data Analysis with Excel	BPB
Jagdish N Sheth , Parvatiyar Atul , G Shainesh	Customer Relationship Management: Emerging Concepts, Tools and Applications	McGraw Hill Education
Upendra Rana	Step By Step Guide to SEO	Prabhat Prakashan
Taprial Varinder	Search Engine Optimisation	Pustak Mahal

SUBJECT NAME: Critical Thinking

SUBJECT CODE: BCA24-VAC-282A

CREDIT: 3

CONTACT HOURS : 6P

Sl. No.	Course Objective	
1	To understand key concept of critical thinking	
2	To Clarify the difference in coAECion, reasoning and logics. Improve their decision making based on facts, assumptions, arguments etc.	
3	Able to see a problem with a logical approach to find a quick solution.	
	Course Outcomes	Mapped module/Unit
CO 1	Explain the meaning of critical thinking and its components.	U1
CO 2	To know the importance of critical thinking in every day's life	U1
CO 3	To know the different kinds of arguments, its validity and evaluation	U2
CO 4	To understand the logical fallacies during arguments	U2
CO 5	Influence of biases during decision making	U3
CO 6	To learn the different techniques to analyze problem and find out the solutions	U3

Learning Outcome/Skills:

The candidate will have an exposure to the intricacies of critical thinking, arguments, logical fallacies and the ability to analyse the complex problems. This would further help the candidate develop a logical and rational bent of mind to face the practical texture with confidence.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Project/Report writing	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction of Critical Thinking <ul style="list-style-type: none"> ● Define Critical thinking ● Components of critical thinking ● Recognize clear thinking, critical thinking & clear writing ● Benefits of critical thinking in everyday life 	8
Unit-II	Arguments & Logical Fallacies <ul style="list-style-type: none"> ● Constitution of an argument ● Describe Types of Inductive arguments ● Evaluating the validity and reliability of an argument ● Contextual evaluation of arguments ● What are logical fallacies ● Recognizing logical fallacies in arguments ● Spotting and refuting logical fallacies 	10
Unit-III	CoAECive Biases & Analyzing complex problems <ul style="list-style-type: none"> ● What are coAECive biases? ● How coAECive biases can lead to poor decision-making ● Avoiding common coAECive biases ● Breaking down complex problems ● Analyzing complex problems using critical thinking techniques ● Using creative problem-solving skills to arrive at innovative solutions 	12
	Total	30

List of Books

Name of Author	Title of the Book
M. Neil Browne, 2011	Asking the Right Questions: A Guide to Critical Thinking
Rolf Dobelli., 1981	The Art of Thinking Clearly
Anthony Weston 1986	A Rulebook for Arguments
Adam M. Grant, 2021	Think Again: The Power of Knowing What You Don't Know
Tom Chatfield, 2017	Critical Thinking: Your Guide to Effective Argument, Successful Analysis and Independent Study (Kindle Edition)

SUBJECT NAME: NSS

SUBJECT CODE: BCA24-VAC-282B

CREDIT: 3

CONTACT HOURS : 6P

Sl. No.	Course Objective	
1	The course help students to understand rich cultural diversity of India and have pride through a better knowledge of the country	
2	Students should be able to understand the community in which they work and their relationship	
3	Identify the needs and problem of the community and involve them in problem solving	
4	Develop capacity to meet emergencies and natural disasters	
5	Practice national integration and social harmony	
	Course Outcomes	Mapped module/Unit
CO 1	Explain the meaning NSS and its importance in society.	U1
CO 2	Organizational structure and responsibilities	U1
CO 3	Basic activities, method and adaptation done by NSS	U2
CO 4	Concept of volunteerism & leadership	U3
CO 5	Concept of disaster management	U3

Learning Outcome/Skills:

The candidate will have a detailed exposure on the basic ideas, approaches, activities and management of NSS. Moreover, the candidate will be able to understand the role of volunteers and their subsequent needs and importance to manage the crucial hours.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Practical	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Chapter	Name of the topic	Hours
Unit-I	Introduction & Basics Concept of NSS History and Philosophy Aims, Objectives of NSS. Emblem Sign, NSS Badge, Clap, Flag NSS Song: Lakshya Geet, Sadbhavna Geet, Rastriya Yuba Geet Organizational Structure, Role and Responsibilities	8
Unit-II	NSS Programme & Activities Concept of Regular activities Visit and survey -orphanage, old age home & child care Methodology of conduct survey Basics of adaptation of village/slums Calender of NSS activities & maintenance of NSS work dairy Understanding Youth: Definition, Profile of youth, Challenges & opportunities of youth	10
Unit-III	Volunteerism & Disaster Management Volunteerism: Needs and importance, Shramdan as a part of volunteerism Meaning and types of Leadership, Qualities of good leadership, Importance and role of youth leadership Introduction of disaster management, Classification of disaster Role of youth in disaster management	12
	Total	30

Recommended Books and Links:

Sl. No.	Books and Links:
1	"Ministry of Youth Affairs and Sports".
2	"Contact Us National Service Scheme".
3	"National Service Scheme Ministry of Youth Affairs and Sports GoI".
4	https://nss.gov.in/sites/default/files/Gujarat_0.pdf [bare URL PDF]
5	https://nss.gov.in/sites/default/files/Madhya%20Pradesh.pdf
6	NSS Manual: 2020

SUBJECT NAME: Mental Health

SUBJECT CODE: BCA24-VAC-282C

CREDIT: 3

CONTACT HOURS : 6P

Sl. No.	Course Objective	
1	Fundamentals of Mental Health gives students in depth understanding about different mental health problems.	
2	It will help them in the diagnosis, assessment and prevention of mental health related issues. Students will learn about different psychological disorders, their diagnostic criteria, causes and treatments. They will also learn about different assessment techniques.	
3	It will help them to take care of their mental health and also the mental health of other people in the society.	
4	After successful completion of the course student will be able to differentiate among different psychological disorders.	
	Course Outcomes	Mapped module/Unit
CO 1	To understand and explain the introduction to mental health models, potential identification, wellness and above all the criteria for normal and abnormal behaviour and their subsequent classification and remedial measures.	U1
CO 2	To understand and analyse the concepts of neurotic psychotic disorders, models of psychopathology and overview analysis of the disorders and their diagnostic procedures.	U2
CO 3	To comprehend the impact of different therapies, counselling to cure different disorders and their practical solutions.	U3
CO 4	To learn and assess the different techniques that will help to make a correct judgement of different mental health disorders and the ways of treatment and relief.	U4

Learning Outcome/Skills:

The candidate will gain intense drive to gather a substantial knowledge on the health of mind, different models of psychopathology, roles, assessment and an overview to tackle any kind of related situation in a hassle-free manner.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Practical	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Introduction to Mental Health - What is Mental Health • What is Mental Illness • Wellness Cycle • Models of Mental Health • Criteria of Normality and Abnormality	5
Unit-II	Introduction to Psychopathology - Models of Psychopathology • Concept of Neurosis and Psychosis • DSM & ICD- Classification of Disorders • Some Major psychological disorder: Anxiety related disorder, Mood Disorder, Personality disorder, Stress related disorder, Schizophrenia, Childhood developmental disorder, Eating disorder, Geriatric disorders.	8
Unit-III	Psychotherapy - Introduction to psychotherapy. • Different models of psychotherapy: Psychoanalysis, Behaviour Therapy, Cognitive Behaviour Therapy, Rational Emotive Behaviour Therapy, Client Centred Therapy, Gestalt Therapy, Mindfulness based psychotherapy etc. • Introduction to Counselling • Different counselling techniques	7
Unit-IV	Psychological Assessment - Personality assessment • IQ assessment • Assessment of some psychological disorder: Anxiety, Mood, Stress • Case History Taking • Mental Status Examination	10
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
Sadock, B. J, & Sadock V. A Kaplan& Sadock's	Synopsis of Psychiatry: BehavioralSciences/Clinical Psychiatry	Lippincott Williams and Wilkinsand Wolter Kluwer Health, Philadelphia Indian Reprint
Hooley, Butcher, Nock	Abnormal Psychology	Pearson Publication
American Psychiatric Association	Diagnostic & Statistical Manual of MentalDisorders, 5th ed	
	The Icd-10 Classification of Mental & Behavioural Disorders: Clinical Descriptionsand Diagnostic Guidelines	
Woolfe, R., Strawbridge, S et all	Handbook of Counselling	
Sharf R. S	Theories of Psychotherapy & CounsellingConcepts & Cases	
Palmer, S	Introduction to Counselling & Psychotherapy	
Brems, C (2001)	Basic Skills in Psychotherapy & Counselling	
Rao, S	Counseling and Guidance	McGraw Hill Education.
Morrison, J	The Mental Health Clinician's Workbook:Locking in your professional skills	Guildford Press

SUBJECT NAME: Environmental Studies

SUBJECT CODE: BCA24-VAC-282D

CREDIT: 3

CONTACT HOURS : 6P

Sl. No.	Course Objective	
1	The course is designed to provide a working knowledge of environment, ecology and physical sciences for problem solving.	
2	The learner will be able to remember, understand and apply the taught concepts and methods involving social and environmental processes for betterment of environmental health and safety.	
	Course Outcomes	Mapped module/Unit
CO 1	Be able to remember the basic concepts related to environment & ecology	U1, U2
CO 2	Be able to remember & understand the scientific problem related to air, water, noise & land pollution	U3
CO 3	Be able to understand environmental Protection, different renewable energy sources and environmental movements.	U4

Learning Outcome/Skills:

The candidate will be able to acquire a comprehensive knowledge on the fundamental domains of environment, ecosystem, pollution and the ways and means developed to protect the environment for our future generation. This would also create a sense of responsibility and sharp awareness on the role and importance of environment in our life.

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Field Survey/Project	25 Marks
Assignments	25 Marks
Theory Exam	25 Marks
PowerPoint Presentation	25 Marks

Contents		
Chapter	Name of the topic	Hours
Unit-I	Fundamentals of Environment: Introduction, Multidisciplinary nature, Scope and importance; the need for environmental education. Concept of sustainability and sustainable development	4
Unit-II	Ecosystems Ecosystems: Definition, Structure: food chains, food webs and function of ecosystem: Energy flow, nutrient cycle and ecological succession. Ecological Interactions, Biodiversity and Conservation – Levels, India as a mega-biodiversity nation, Threats to biodiversity, Ecosystem and biodiversity services.	8
Unit-III	Environmental Pollution Environmental Pollution - Types: - Air pollution, Water pollution, Land pollution, Noise pollution; pollutants, Effects of pollution, Control and Remedial measures.	10
Unit-IV	Environmental Protection Environmental Protection- Report of the Club of Rome: Sustainable Development, Different Renewable Energy Sources- Wind Power, Water Power, Bio Fuel/Solid Bio Mass, Geothermal Energy, Nuclear Power, Environmental Movements- Chipko movement; Narmada Bachao movement; Tehri Dam conflict.	8
	Total	30

List of Books

Name of Author	Title of the Book	Name of the Publisher
G.N. Pandey	Environmental Management	Vikas Publishing House Pvt. Ltd.
Cunningham	Environmental Science	TMH.
R. Rajagopalan	Environmental Studies	Oxford
R. Joshi & MunishKapila	Environment Management	Kalyani Publishers.
C.S. Rao	Environmental Pollution Control Engineering	New Age International Publication.