



**DEPARTMENT
OF
COMPUTER SCIENCE & ENGINEERING (AIML)**

Lesson Plan

Session: Aug. -Dec., 2025

Semester: 3RD

Name: _____

University Roll Number: _____

BUDDHA INSTITUTE OF TECHNOLOGY

CL-1 Sector - 7, GIDA, Gorakhpur - 273209 (U.P)

Phones: (0551) 2990413

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Time-table

Evaluation scheme

Subject 1 DATA STRUCTURES (DS)

Subject 2 COMPUTER ORGANIZATIONS AND ARCHITECTURE (COA)

Subject 3 DISCRETE STRUCTURES AND THEORY OF LOGIC (DSTL)

Subject 4 CYBER SECURITY

Subject 5 ENERGY SCIENCE AND ENGINEERING

Subject 6 UNIVERSAL HUMAN VALUE

Techedge (REACT JS)

Lab 1 DS LAB

Lab 2 COA LAB

Lab 3 WEB DESIGNING

TIME TABLE

BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR										
CLASS TIME TABLE: 2025-26 (ODD)										
Dept: CSE-AIML		w.e.f: 18 AUGUST, 2025		Semester: 3 RD		Section: D	Room No.: 413			
Day / Time	9:10-10:05 AM	10:05-11:00 AM	SHORT BREAK (15 Min.)	11:15-12:10 PM	12:10-01:05PM	LUNCH BREAK (40 Min.)	01:45-02:40 PM	2:40-3:35 PM	3:35-4:30 PM	
MON	DSTL (SKP)	CSEP (PC)		COA (KY)	DS (SS)		ESE (AK)	WD-LAB-(D1)-SF-L-310	COA-LAB-(D2)-PV-L-413	
TUES	DSTL (SKP)	CSS (PD)		PPC (AKT)	DS (SS)		COA (KY)	MP-LAB-(D1)-SV-L-401	WD-LAB-(D2)-SF-L-402	
WED	COA-LAB-(D1)-PV-L-413			DS (SS)	DSTL (SKP)		COA (KY)	TECH EDGE-LAB-(D1+D2)-VM-L-307		
THU	ESE (AK)	DS (SS)		CSS (PD)	DSTL (SKP)		COA (KY)	DS-LAB-(D1)-SS-L-401		
FRI	CSS (PD)	DS (SS)		UHVPE (RKT)	COA (KY)		DSTL (SKP)	MP-LAB-(D2)-SV-L-402		
SAT	DSTL (SKP)	ESE (AK)		DS (SS)	COA (KY)			TECH EDGE-LAB-(D1+D2)-VM-L-307		

	SUBJECT CODE	SUBJECT NAME	FACULTY NAME	LECTURE / WEEK
ACADEMICS	BCS - 301	DATA STRUCTURE (DS)	DR. SHASHANK SRIVASTAV (SS)	6
	BCS - 302	COMPUTER ORGANIZATION & ARCHITECTURE (COA)	MS. KANCHAN YADAV (KY)	6
	BCS - 303	DISCRETE STRUCTURES & THEORY OF LOGICS (DSTL)	MR. SHRRAWAN KUMAR PANDEY (SKP)	6
	BCC - 301	CYBER SECURITY (CSS)	MS. PALLAVI DIXIT (PD)	3
	BOE - 304	ENERGY SCIENCE & ENGINEERING (ESE)	MR. ARUN KUMAR (AK)	3
	BVE - 301	UNIVERSAL HUMAN VALUES (UHVPE)	DR. RAKESH KUMAR TIWARI (RKT)	1
	BCS - 351	DS LAB	DR. SHASHANK SRIVASTAV (SS)	2
	BCS - 352	COA LAB	MS. KANCHAN YADAV (KY)	2
	BCS - 353	WEB DESIGNING WORKSHOP (WD LAB)	MR. SOLAIM FAISAL (SF)	2
BCC - 351	MINI PROJECT LAB (MP LAB)	MS. SUSHILA VERMA (SV)	2	
SKILL DEVELOPMENT	-	CSEP	MR. PRASHANT CHATURVEDI (PC)	1
	-	PRE-PLACEMENT CLASS (PPC)	MS AKHITI TRIPATHI (AKT)	1
	-	TECHEDGE LAB	MR. VIVEK MISHRA (VM)	4
SELF-LEARNING	-	LIBRARY	--	0
TOTAL				39

Dr. Shashank Srivastav
HOD

EVALUATION SCHEME

Subject Code	Subject	Sessional Marks	Exam Marks	Total Marks
THEORY SUBJECTS				
BCS 301	DATA STRUCTURES (DS)	30	70	100
BCS 302	COMPUTER ORGANIZATIONS AND ARCHITECTURE (COA)	30	70	100
BCS 303	DISCRETE STRUCTURES AND THEORY OF LOGIC (DSTL)	30	70	100
BCC 301	CYBER SECURITY	30	70	100
BOE 304	ENERGY SCIENCE AND ENGINEERING	30	70	100
BVE 301	UNIVERSAL HUMAN VALUE	30	70	100
PRACTICAL/DESIGN/DRAWING				
BCS 351	DS LAB	50	50	100
BCS 352	COA LAB	50	50	100
BCS 353	WD LAB	50	50	100



BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (AIML)

ACADEMIC YEAR 2025-26 (ODD Semester)

LESSON PLAN DETAILS

Semester: III	Section: C	Course Code: BCS 301	Contact Hours /week: 6
Course Name: DATA STRUCTURE			# of credits: 3
Faculty name: Dr. Shashank Srivastav			Designation: Associate Professor
Sessional Marks: 30		End Semester Examination Marks:70	University Exam Hours: 3

Prerequisites if any:

Programming concepts of conditional statements, loops, functions etc.

Content delivery methods:

By Face to face delivery, Presentation, Tutorial, Chalk & Board, PPT etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	<p>INTRODUCTION: Basic Terminology, Elementary Data Organization, Built in Data Types in C. Algorithm, Efficiency of an Algorithm, Time and Space Complexity, Asymptotic notations: Big Oh, Big Theta and Big Omega, Time-Space trade-off. Abstract Data Types (ADT)</p> <p>Arrays: Definition, Single and Multidimensional Arrays, Representation of Arrays: Row Major Order, and Column Major Order, Derivation of Index Formulae for 1-D,2-D,3-D and n-D Array Application of arrays, Sparse Matrices and their representations.</p> <p>Linked lists: Array Implementation and Pointer Implementation of Singly Linked Lists, Doubly Linked List, Circularly Linked List, Operations on a Linked List. Insertion, Deletion, Traversal, Polynomial Representation and Addition Subtraction & Multiplications of Single variable & Two variables Polynomial.</p>	14	CO1
2	<p>Stacks: Abstract Data Type, Primitive Stack operations: Push & Pop, Array and Linked Implementation of Stack in C, Application of stack: Prefix and Postfix Expressions, Evaluation of postfix expression, Iteration and Recursion- Principles of recursion, Tail recursion, Removal of recursion Problem solving using iteration and recursion with examples such as binary search, Fibonacci numbers, and Hanoi towers. Tradeoffs between iteration and recursion.</p>	12	CO2



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ACADEMIC YEAR 2025-26 (ODD Semester)

C03	3	3	3	3	3	1	1	1	2	2	2	2
C04	3	3	2	3	2	1	1	1	1	1	1	2
C05	3	3	3	3	3	2	2	1	2	2	3	3
Average	3.00	3.00	2.40	2.60	2.40	1.20	1.20	1.00	1.40	1.40	1.60	2.40

Mapping of CO v/s PSO:

	PS01	PS02	PS03
C01	1	1	1
C02	1	1	1
C03	1	1	1
C04	1	1	1
C05	1	1	1
Average	1.00	1.00	1.00

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Topics to be covered beyond syllabus



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ACADEMIC YEAR 2025-26 (ODD Semester)

LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	Introduction: Basic Terminology, Elementary Data Organization, Built-in Data types in C	L2	C01, C02, C04					
2		Algorithm definition, Efficiency of an Algorithm, Asymptotic notations: Big Oh,	L2						
3		Big Theta and Big Omega, Time-Space trade-off, Abstract Data Types (ADT)	L2						
4		Arrays: Definition, Single and Multidimensional Arrays,	L2						
5		Representation of Arrays: Row Major Order & Column Major Order	L2						
6		Derivation of Index Formulae for 1-D,2-D,3-D and n-D Array Application of arrays	L2						
7		Exercises to address calculation in 1D, 2D and 3D arrays	L2						
8		Tutorial - 1							
9		Introduction to Linked List, Advantages and disadvantages over Arrays.	L2						



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ACADEMIC YEAR 2025-26 (ODD Semester)

10		Implementation of Singly Linked Lists, Implementation of Doubly Linked Lists	L3					
11		Implementation of Circular Linked Lists, Implementation of Doubly Circular Linked Lists	L3					
12		Polynomial Representation and Implementation, Addition/Subtraction of Polynomial	L3					
13		Multiplications of Single variable & Two variables Polynomial	L3					
14		Tutorial - 2						
15	II	Stacks: Abstract Data Type, Stack operations: Push & Pop	L3	CO2, CO3, CO4				
16		Array Implementation and Linked List Implementation of Stack in C	L3					
17		Application of stack: Prefix and Postfix Expressions, Evaluation of postfix expression	L3					
18		Iteration and Recursion- Principles of recursion, Types of recursion and Tail recursion	L3					
19		Difference between Iteration and Recursion, Removal of recursion Problem solving using iteration	L3					
20		Problem of Hanoi towers and its solution, Tradeoffs between iteration and recursion.	L3					



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ACADEMIC YEAR 2025-26 (ODD Semester)

21		Tutorial - 3						
22		Introduction to Queue & types of queues, Operations on Queue: Create, Add, Delete, Full and Empty	L3					
23		Array Implementation of various Queues in C	L3					
24		Linked List Implementation of various Queue in C	L3					
25		Introduction and Implementation of Priority Queue	L3					
26		Tutorial - 4						
27	III	Searching: Concept of Searching, Sequential search,	L3	CO2, CO4				
28		Index Sequential Search, Binary Search.	L3					
29		Concept of Hashing, Types of Hashing	L2					
30		Collision resolution Techniques used in Hashing.	L3					
31		Tutorial - 5						
32		Introduction to Sorting Techniques, Types of sorting	L3					
33		Implementation of Insertion Sort, Selection Sort	L3					



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ACADEMIC YEAR 2025-26 (ODD Semester)

34		Implementation of Bubble Sort	L3					
35		Implementation of Quick Sort	L3					
36		Implementation of Merge Sort	L3					
37		Implementation of Heap Sort	L3					
38		Implementation of Radix Sort	L3					
39		Tutorial - 6						
40	IV	Trees: Basic terminology used with Tree,	L3	C02, C04, C05				
41		Binary Trees, types of Binary tree	L3					
42		Array Representation and Linked List Representation of Binary Tree	L3					
43		Operation of Binary Tree	L3					
44		Introduction to Binary Search Tree and its operation	L3					
45		Introduction to Strictly Binary Tree and its operation	L3					
46		Introduction to Complete Binary Tree and its operation	L3					
47		Introduction to An Extended Binary Trees and its operation	L3					



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ACADEMIC YEAR 2025-26 (ODD Semester)

48		Tree Traversal algorithms: In-order, Pre-order and Post-order	L3					
49		Tutorial - 7						
50		Constructing Binary Tree from given Tree Traversal,	L3					
51		Operation of insertion in BST	L3					
52		Operation of Deletion in BST	L3					
53		Operation of Searching in BST	L3					
54		Modification of data in Binary Search.	L3					
55		Threaded Binary trees, Traversing Threaded Binary trees	L3					
56		Huffman coding using Binary Tree	L3					
57		Concept of AVL Tree, Basic Operations for AVL Tree	L3					
58		Concept of B Tree	L3					
59		Concept of Binary Heaps	L3					
60		Tutorial - 8						
61	V	Graphs: Terminology used with Graph	L3	C02, C04,				



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ACADEMIC YEAR 2025-26 (ODD Semester)

62	Data Structure for Graph Representations	L3	CO5					
63	Adjacency Matrices, Adjacency List	L3						
64	Graph Traversal- Depth First Search	L3						
65	Graph Traversal-Breadth First Search	L3						
66	Connected and disconnected Component	L3						
67	Tutorial - 9							
68	Concept of spanning trees	L3						
69	Minimum Cost Spanning Trees	L3						
70	Concept of Prims algorithm	L3						
71	Concept of Kruskals algorithm	L3						
72	Transitive Closure and Shortest Path	L3						
73	All pair shortest path: Warshal Algorithm	L3						



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ACADEMIC YEAR 2025-26 (ODD Semester)

74		Single pair shortest path: Dijkstra Algorithm	L3					
75		Tutorial - 10						
76		Revision Class 1						
77		Revision Class 2						
78		Revision Class 3						
79		Revision Class 4						
80		Revision Class 5						

Class Test	Syllabus
CT-01	Class 1-Class 20
CT-02	Class 21-Class 45
PRE-AKTU	Full Syllabus

***Revised Bloom's Taxonomy (RBT) Levels:**

L1 - Remembering; L2 - Understanding; L3 - Applying; L4 - Analysing; L5 - Evaluating; L6 - Creating

Text Books:

- T1.** Aaron M. Tenenbaum, Yedidyah Langsam and Moshe J. Augenstein, "Data Structures Using C and C++", PHI Learning Private Limited, Delhi India.
T2. Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

Faculty Sign

HOD's Sign



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-AIML

ACADEMIC YEAR 2024-25 (ODD Semester)

LESSON PLAN

Semester: III	Section: D	Course Code: BCS 302	Contact Hours /week: 6
Course name: Computer Organization & Architecture			# of credits: 4
Teacher's name: Ms. Kanchan Yadav			Designation: Asst. Prof.
Sessional Marks:30	End Semester Examination Marks: 70		University Exam Hours: 3

Prerequisites if any:			
Course Code	Course Name	Topic/s	Semester
-	-	-	-

Content delivery by using	Chalk and Board, PPT
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introduction: Functional units of digital system and their interconnections, buses, bus architecture, types of buses and bus arbitration. Register, bus and memory transfer. Processor organization, general registers organization, stack organization and addressing modes.	15	C01
2	Arithmetic and logic unit: Look ahead carries adders. Multiplication: Signed operand multiplication, Booths algorithm and array multiplier. Division and logic operations. Floating point arithmetic operation, Arithmetic & logic unit design. IEEE Standard for Floating Point Numbers.	14	C02
3	Control Unit: Instruction types, formats, instruction cycles and sub cycles (fetch and execute etc), micro-operations, execution of a complete instruction. Program Control, Reduced Instruction Set Computer, Pipelining. Hardwire and micro programmed control: micro programme sequencing, concept of horizontal and vertical microprogramming.	17	C03
4	Memory: Basic concept and hierarchy, semiconductor RAM memories, 2D & 2 1/2D memory organization. ROM memories. Cache memories: concept and design issues & performance, address mapping and replacement Auxiliary memories: magnetic disk, magnetic tape and optical disks Virtual memory: concept implementation.	16	C04
5	Input / Output: Peripheral devices, I/O interface, I/O ports, Interrupts: interrupt hardware, types of interrupts and exceptions. Modes of Data Transfer: Programmed I/O, interrupt initiated I/O and Direct Memory Access., I/O channels and processors. Serial Communication: Synchronous & asynchronous communication, standard communication interfaces.	12	C05



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ACADEMIC YEAR 2024-25 (ODD Semester)

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

C01	Explain the basic structure and operation of a digital computer system.
C02	Apply the fixed point and floating-point arithmetic operations in number system.
C03	Explain the concept of pipelining in control unit.
C04	Solve the problem related to various memory mapping techniques in memory system.
C05	Illustrate the ways of communication between various Input/ Output devices in computer system.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	1	1	1	1	-	-	-	-	-	-	-	2
C02	2	2	1	1	-	-	-	-	-	-	-	2
C03	1	1	1	1	-	-	-	-	-	-	-	2
C04	2	2	1	1	-	-	-	-	-	-	-	2
C05	1	1	1	1	-	-	-	-	-	-	-	2
Average	1.4	1.4	1.0	1.0	-	-	-	-	-	-	-	2.0

	PS01	PS02	PS03
C01	1	1	-
C02	1	2	-
C03	1	1	-
C04	1	2	-
C05	1	1	-
Average	1.0	1.4	-

Correlation levels: 1-Slight (Low)

2-Moderate (Medium)

3-Substantial (High)

Gap in the syllabus	NA
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Topics to be covered beyond syllabus	Introduction to Digital Logic Circuits and Digital Components.
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ACADEMIC YEAR 2024-25 (ODD Semester)

LESSON PLAN

Lecture #	Module #	Topics	*RBT Levels	Course Outcome Mapping	Planned Date	Actual Date	Faculty Sign	Remarks
1	I	Introduction about COs & Pos related to the course and subject	L2	C01				
2		Functional units of digital system and their interconnections	L2					
3		Buses, bus architecture	L2					
4		Types of buses	L2					
5		Bus arbitration	L2					
6		Tutorial-1						
7		Introduction to digital logic circuits, Multiplexer	L2					
8		Decoder, Encoder	L2					
9		Register, bus and memory transfer	L2					
10		Processor organization	L2					
11		Stack organization	L2					
12		General registers organization	L2					
13		Addressing modes	L2					
14		Addressing modes (contd..)	L2					
15		Tutorial-2						
16		Arithmetic and logic unit: Lookahead carries adders	L3					
17		Multiplication: Signed operand multiplication	L3					
18		Booth algorithm	L3					
19		Booth algorithm (contd..)	L3					
20		Array multiplier	L2					



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ACADEMIC YEAR 2024-25 (ODD Semester)

21	II	Tutorial-3		CO2				
22		Division: Restoring	L3					
23		Non- Restoring	L3					
24		Logic operations	L3					
25		Floating point arithmetic operation	L3					
26		Arithmetic & logic unit design	L3					
27		IEEE Standard for Floating Point Numbers	L3					
28		IEEE Standard for Floating Point Numbers (contd..)	L3					
29		Tutorial-4						
30		III	Control Unit: Instruction types		L2	CO3		
31	Instruction Formats		L2					
32	Instruction cycles		L2					
33	Sub cycles (fetch and execute etc)		L2					
34	Micro operations		L2					
35	Tutorial-5							
36	Execution of a complete instruction		L2					
37	Revision Class 1							
38	Program Control		L2					
39	RISC, CISC		L2					
40	Pipelining		L2					
41	Pipelining (contd..)		L2					
42	Hardwire control		L2					
43	Micro programmed Control		L2					
44	Concept of horizontal and vertical microprogramming		L2					
45	Revision Class 2							
46	Tutorial-6							



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ACADEMIC YEAR 2024-25 (ODD Semester)

47	IV	Memory: Basic concept and hierarchy.	L2	C04				
48		Semiconductor RAM memories	L2					
49		ROM and RAM chip	L2					
50		2D&2.5 D memory organization	L2					
51		Revision Class 3						
52		Tutorial-7	L2					
53		ROM memories	L2					
54		Cache memories: concept and design issues & performance	L2					
55		Revision Class 4						
56		Address mapping	L3					
57		Address mapping: Associative & Direct Mapping	L3					
58		Set-Associative Mapping, Replacement Algorithm	L3					
59		Auxiliary memories: magnetic disk, Magnetic tape and Optical disks	L2					
60		Virtual memory: concept, Implementation	L2					
61		Revision Class 5						
62	Tutorial-8							
63	V	Input / Output: Peripheral devices, I/O interface	L2	C05				
64		I/O ports, Interrupts: Interrupt hardware	L2					
65		Types of Interrupts: Exception	L2					
66		Modes of Data Transfer: Programmed I/O	L2					
67		Revision Class 6	L2					
68		Interrupt initiated I/O	L2					
69		Tutorial 9						



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ACADEMIC YEAR 2024-25 (ODD Semester)

70	Direct Memory Access, DMA Controller	L2					
71	I/O channels and processors	L2					
72	Serial Communication: Synchronous & asynchronous communication	L2					
73	Standard communication interfaces	L2					
74	Tutorial 10	L2					
75	Revision Class 6	L2					

***Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

References:

Text books :(As per University / Board syllabus)

T1.Computer System Architecture - M. Mano

T2.Carl Hamacher, Zvonko Vranesic, Safwat Zaky Computer Organization, McGraw-Hill, Fifth Edition, Reprint 2012

T3. John P. Hayes, Computer Architecture and Organization, Tata McGraw Hill, Third Edition, 1998.

Faculty Sign

HOD's Sign



BUDDHA INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING Allied (AIML)
ACADEMIC YEAR 2025-26 (ODD Semester)

LESSON PLAN DETAILS

Semester: III	Section: D	Course Code: BCS 303	Contact Hours /week: 6
Course Name: Discrete Structures and Theory of Logic			# of credits: 3
Faculty name: Mr. Shrawan Kumar Pandey			Designation: Assistant Professor
Sessional Marks: 30	End Semester Examination Marks:70		University Exam Hours: 3

Prerequisites if any:
Set Theory

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Set Theory & Relations: Introduction, Combination of sets. Relations: Definition, Operations on relations, Properties of relations, Composite Relations, Equality of relations, Recursive definition of relation, Order of relations. POSET & Lattices: Hasse Diagram, POSET, Definition & Properties of lattices – Bounded, Complemented, Distributed, Modular and Complete lattice.	14	CO1
2	Functions: Definition, Classification of functions, Operations on functions. Growth of Functions. Boolean Algebra: Introduction, Axioms and Theorems of Boolean algebra, Algebraic manipulation of Boolean expressions. Simplification of Boolean Functions, Karnaugh maps.	12	CO2
3	Theory of Logics: Proposition, Truth tables, Tautology, Satisfiability, Contradiction, Algebra of proposition, Theory of Inference. Predicate Logic: First order predicate, wellformed formula of predicate, quantifiers, Inference theory of predicate logic.	13	CO3
4	Algebraic Structures: Definition, Groups, Subgroups and order, Cyclic Groups, Cosets, Lagrange's theorem, Normal Subgroups, Permutation and Symmetric groups, Group Homomorphisms, Definition and elementary properties of Rings and Fields.	14	CO4



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5	Graphs: Definition and terminology, Representation of graphs, Multigraphs, Bipartite graphs, Planar graphs, Isomorphism and Homeomorphism of graphs, Euler and Hamiltonian paths, Graph coloring. Combinatorics: Introduction, Counting Techniques, Pigeonhole Pigeonhole Principle	17	C05
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COURSE OUTCOMES: At the end of the Course, the Student will be able to:

C01	Make use of Knowledge of sets and relations for solving the problems of POSET and lattices.
C02	Apply fundamental concepts of functions and Boolean algebra for solving the problems of logical abilities.
C03	Utilize the rules of propositions and predicate logic to solve the logical problems.
C04	Apply the concepts of group theory and their applications for solving the problems.
C05	Utilize the principles and concepts of graph theory for solving problems.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	2	2	2	2	-	-	-	-	-	-	-	-
C02	1	1	1	1	-	-	-	-	-	-	-	-
C03	3	3	3	3	-	-	-	-	-	-	-	-
C04	2	2	2	2	-	-	-	-	-	-	-	-
C05	2	2	2	2	-	-	-	-	-	-	-	-
Average	2.00	2.00	2.00	2.00	-	-	-	-	-	-	-	-

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
C01	1	-	-



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ACADEMIC YEAR 2025-26 (ODD Semester)

C02	1	-	-
C03	1	-	-
C04	1	-	-
C05	1	-	-
Average	1.00	-	-

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Topics to be covered beyond syllabus

Havel-Hakimi Algorithm



BUDDHA INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING Allied (AIML)
ACADEMIC YEAR 2025-26 (ODD Semester)

LESSON PLAN

Lecture	Module	Scheduled			Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students
1	I	Set Theory & Relations: Introduction	L3	CO1				
2		Combination of sets	L3	CO1				
3		Relations: Definition, Operations on relations	L3	CO1				
4		Properties of relations,	L3	CO1				
5		Composite Relations, Equality of relations,	L3	CO1				
6		Recursive definition of relation	L3	CO1				
7		Tutorial 1	L3	CO1				
8		Order of relations.	L3	CO1				
9		POSET & Lattices: Hasse Diagram, POSET	L3	CO1				



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10		Definition & Properties of lattices	L3	CO1				
11		Bounded, Complemented,	L3	CO1				
12		Distributed, Modular	L3	CO1				
13		Complete lattice	L3	CO1				
14		Tutorial 2	L3	CO1				
15	II	Functions: Definition, Classification of functions	L3	CO2				
16		Operations on functions.	L3	CO2				
17		Growth of Functions.	L3	CO2				
18		Boolean Algebra: Introduction, Axioms and Theorems of Boolean algebra	L3	CO2				
19		Boolean Algebra: Introduction, Axioms and Theorems of Boolean algebra (Contd.)	L3	CO2				
20		Tutorial 3	L3	CO2				
21		Algebraic manipulation of Boolean expressions	L3	CO2				
22		Algebraic manipulation of Boolean expressions (Contd.)	L3	CO2				



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ACADEMIC YEAR 2025-26 (ODD Semester)

23		Algebraic manipulation of Boolean expressions (Contd.)	L3	C02				
24		Simplification of Boolean Functions, Karnaugh maps	L3	C02				
25		Simplification of Boolean Functions, Karnaugh maps (Contd.)	L3	C02				
26		Tutorial 4	L3	C02				
27	III	Theory of Logics: Proposition,	L3	C03				
28		Truth tables, Tautology, Satisfiability, Contradiction,	L3	C03				
29		Algebra of proposition, Theory of Inference.	L3	C03				
30		Predicate Logic: First order predicate,	L3	C03				
31		Revision Class 1	L3	C03				
32		Tutorial 5	L3	C03				
33		Well-formed formula of predicate	L3	C03				
34		Quantifiers	L3	C03				
35		Quantifiers	L3	C03				
36		Inference theory of predicate logic	L3	C03				



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37		Inference theory of predicate logic (Contd.)	L3	C03				
38		Revision Class 2	L3	C03				
39		Tutorial 6	L3	C03				
40	IV	Algebraic Structures: Definition, Groups	L3	C04				
41		Subgroups and order	L3	C04				
42		Subgroups and order (Contd.)	L3	C04				
43		Cyclic Groups, Cosets,	L3	C04				
44		Lagrange's theorem	L3	C04				
45		Tutorial 7	L3	C04				
46		Revision Class 3	L3	C04				
47		Normal Subgroups	L3	C04				
48		Permutation and Symmetric groups	L3	C04				
49		Group Homomorphisms	L3	C04				
50		Definition and elementary properties of Rings and Fields	L3	C04				



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51		Definition and elementary properties of Rings and Fields (Contd.)	L3	C04				
52		Revision Class 4	L3	C04				
53		Tutorial 8	L3	C04				
54	V	Graphs: Definition and terminology	L2	C05				
55		Graphs: Definition and terminology (Contd.)	L2	C05				
56		Representation of graphs	L2	C05				
57		Multigraphs, Bipartite graphs	L2	C05				
58		Planar graphs,	L3	C05				
59		Isomorphism and Homeomorphism of graphs	L3	C05				
60		Revision Class 5	L3	C05				
61		Tutorial 9	L3	C05				
62		Euler and Hamiltonian paths	L3	C05				
63		Euler and Hamiltonian paths,	L3	C05				
64		Graph coloring.	L3	C05				
65		Graph coloring (Contd.)	L3	C05				



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66	Combinatorics: Introduction, Counting Techniques,	L3	C05					
67	Combinatorics: Introduction, Counting Techniques (Contd.)	L3	C05					
68	Pigeonhole Pigeonhole Principle	L3	C05					
69	Havel-Hakimi Algorithm	L3	C05					
70	Tutorial 10	L3	C05					
71	Revision Class 6							
72	Revision Class 7							
73	Revision Class 8							
74	Revision Class 9							
75	Revision Class 10							
76	Revision Class 11							
77	Revision Class 12							
78	Revision Class 13							
79	Revision Class 14							



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ACADEMIC YEAR 2025-26 (ODD Semester)

80	Revision Class 15							
81	Revision Class 16							
82	Revision Class 17							
83	Revision Class 18							
84	Revision Class 19							
85	Revision Class 20							
86	Revision Class 21							
87	Revision Class 22							
88	Revision Class 23							
89	Revision Class 24							
90	Revision Class 25							
91	Revision Class 26							



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ACADEMIC YEAR 2025-26 (ODD Semester)

Class Test	Syllabus
CT-01	Class 1-Class 28
CT-02	Class 29-Class 58
PRE-AKTU	Full Syllabus

***Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Text Books:

T1. Swapan Kumar Sarkar, " A Text book of Discrete Mathematics", S. Chand.

Faculty Sign

HOD's Sign



BUDDHA INSTITUTE OF TECHNOLOGY

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(AI&ML)

ACADEMIC YEAR 2025-26 (ODD Semester)

LESSON PLAN DETAILS

Semester: III	Section: A	Course Code: BCC-301	Contact Hours /week: 3
Course Name: Cyber Security			# of credits: 2
Faculty name: MS.Pallavi Dixit			Designation: Associate Professor
Sessional Marks: 50	End Semester Examination Marks:100		University Exam Hours: 3

Prerequisites if any:
Hacking tools

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	INTRODUCTION TO CYBER CRIME : Cybercrime- Definition and Origins of the word Cybercrime and Information Security, Who are Cybercriminals? Classifications of Cybercrimes, A Global Perspective on Cybercrimes, Cybercrime Era: Survival Mantra for the Netizens. Cyber offenses: How Criminals Plan the Attacks, Social Engineering, Cyber stalking, Cybercafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Attack Vector	10	CO1
2	CYBER CRIME : Mobile and Wireless Devices-Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication Service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for organizations, Organizational Measures for Handling Mobile, Organizational Security Policies and Measures in Mobile Computing Era	14	CO2



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3	TOOLS AND METHODS USED IN CYBERCRIME : Introduction, Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan-horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection, Buffer Overflow, Attacks on Wireless Networks. Phishing and Identity Theft: Introduction to Phishing, Identity Theft (ID Theft).	16	C03
4	UNDERSTANDING COMPUTER FORENSICS : Introduction, Digital Forensics Science, The Need for Computer Forensics, Cyber forensics and Digital Evidence, Forensics Analysis of E-Mail, Digital Forensics Life Cycle, Chain of Custody Concept, Network Forensics, Approaching a Computer Forensics Investigation. Forensics and Social Networking Sites: The Security/Privacy Threats, Challenges in Computer Forensic	8	C04
5	INTRODUCTION TO SECURITY POLICIES AND CYBER LAWS : Need for An Information Security Policy, Introduction to Indian Cyber Law, Objective and Scope of the Digital Personal Data Protection Act 2023, Intellectual Property Issues, Overview of Intellectual Property Related layer connectivity and TCP IP connectivity , Packet filtering firewall ,Intrusion detection	8	C05

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

C01	Understand the basic concepts of cyber security and cybercrimes.
C02	Understand the security policies and cyber laws.
C03	Understand the tools and methods used in cyber crime
C04	Understand the concepts of cyber forensics
C05	Understand the cyber security policies and cyber laws



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Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	1	-	-	-	-	1	-	2	-	-		1
C02	1	-	-	-	-	1	-	2	-	-	-	1
C03	1	-	-	-	-	1	-	2	-	-	-	1
C04	1	-	-	-	-	1	-	2	-	-	-	1
C05	1	-	-	-	-	1	-	2	-	-	-	1
Average	1					1		2				1

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
C01	1		
C02	1		
C03	1		
C04	1		
C05	1		
Average	1		

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Topics to be covered beyond syllabus

Hacking and other security tools



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LESSON PLAN

Lecture	Module	Scheduled			Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students
1		Cybercrime- Definition and introduction	L2	CO1				
2		Information Security,	L2	CO1				
3		Who are Cybercriminals? Classification of cyber crime	L2	CO1				
4		A Global Perspective on Cybercrimes, Cybercrime Era: Survival Mantra for the Netizens	L2	CO1				
5		Cyber stalking,	L2	CO1				
6		Cybercafé and Cybercrimes	L2	CO1				
7		Botnets	L2	CO1				
8		The Fuel for Cybercrime	L2	CO1				



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9	Attack Vector	L2	CO1					
10	Mobile and Wireless Devices-Introduction	L2	CO1					
11	Proliferation of Mobile and Wireless Devices	L2	CO1					
12	Trends in Mobility	L2	CO1					
13	Credit Card Frauds in Mobile and Wireless Computing Era	L2	CO2					
14	Security Challenges Posed by Mobile Devices	L2	CO2					
15	Registry Settings for Mobile Devices	L2	CO2					
16	Predictive parsers (Cont.)	L2	CO2					
17	Authentication Service Security	L2	CO2					
18	Attacks on Mobile/Cell Phones	L2	CO2					
19	Mobile Devices: Security Implications for organizations	L2	CO2					
20	Organizational Measures for Handling Mobile	L2	CO2					



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ACADEMIC YEAR 2025-26 (ODD Semester)

21	Organizational Security	L2	C02					
22	Organizational Measures for Handling Mobile	L2	C02					
23	Policies and Measures in Mobile Computing	L2	C02					
24	Policies and Measures in Mobile Computing with network.	L2	C02					
25	TOOLS AND METHODS USED IN CYBERCRIME : Introduction	L2	C02					
26	Proxy Servers and Anonymizers	L2	C02					
27	Phishing	L2	C02					
28	Password Cracking	L2	C02					
29	Keyloggers and Spywares	L2	C02					
30	Virus and Worms,	L2	C02					
31	Trojan-horses and Backdoors, Steganography	L2	C02					
32	DoS and DDoS At-tacks	L2	C02					



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33	SQL Injection	L2	C02					
34	Buffer Overflow	L2	C02					
35	Attacks on	L2	C02					
36	Phishing and Identity Theft		C02					
37	Introduction to Phishing	L2	C03					
38	Identity Theft (ID Theft).	L2	C03					
39	UNDERSTANDING COMPUTER FORENSICS: Introduction	L2	C03					
40	Digital Forensics Science, The Need for Computer Forensics,	L2	C03					
41	Cyber forensics and Digital Evidences	L2	C03					
42	Forensics Analysis of E-Mail, Digital Forensics Life Cycle Class	L2	C03					
43	Chain of Custody Concept, Network Forensicsvision Class	L2	C03					
44	Computer Forensics Investigation.on Class	L2	C03					
45	Forensics and Social Networking Sites	L2	C03					



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46	The Security/Privacy Threats, Challenges in Computer Forensics	L2	C03					
47	INTRODUCTION TO SECURITY POLICIES AND CYBER LAWS : Need for An Information Security Policy,	L2	C03					
48	Introduction to Indian Cyber Law	L2	C03					
49	Objective and Scope of the Digital Personal Data	L2	C03					
50	Protection Act 2023, revision Class							
51	Intellectual Property Issues	L2	C03					
52	Overview of Intellectual Property Related	L2	C04					
52	Revision- 1							
53	Revision- 2							

Class Test

Syllabus



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ACADEMIC YEAR 2025-26 (ODD Semester)

CT-01	Class 1-Class 1-24
CT-02	Class 24-Class 46
PRE-AKTU	Full Syllabus

*Revised Bloom's Taxonomy (RBT) Levels:

L1 - Remembering; L2 - Understanding; L3 - Applying; L4 - Analysing; L5 - Evaluating; L6 - Creating

Text Books:

Text books:

1. Sunit Belapure and Nina Godbole, "Cyber Security: Understanding Cyber Crimes, Computer Forensics And Legal Perspectives", Wiley India Pvt Ltd, ISBN: 978-81- 265-21791, Publish Date 2013.
2. Basta, Basta, Brown, Kumar, Cyber Security and Cyber Laws, 1st edition , Cengage Learning publication
3. Dr. Surya PrakashTripathi, RitendraGoyal, Praveen Kumar Shukla, KLSI. "Introduction to information security and cyber laws". Dreamtech Press. ISBN: 9789351194736, 2015.
4. Cyber Security and Date Privacy by Krishan Kumar Goyal , Amit Garg , Saurabh Singhal , HP HAMILTON LIMITED Publication, ISBN-13-978-1913936020
5. Thomas J. Mowbray, "Cybersecurity: Managing Systems, Conducting Testing
6. Investigating Intrusions", Copyright © 2014 by John Wiley & Sons, Inc, ISBN: 978 - 1-118 -84965 -1.
7. James Graham, Ryan Olson, Rick Howard, "Cyber Security Essentials", CRC Press, 15-Dec 2010.
8. Anti- Hacker Tool Kit (Indian Edition) by Mike Shema, McGraw-Hill Publication

Web References:

<https://www.geeksforgeeks.org/credit-card-frauds/>

<https://www.geeksforgeeks.org/cyber-security-types-and-importance/>

Course Faculty

HOD



BUDDHA INSTITUTE OF TECHNOLOGY

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(AI&ML)**

ACADEMIC YEAR 2025-26 (ODD Semester)



SKILL DEVELOPMENT CELL

Lesson Plan

Course- TechEdge (C++ Programming with DSA)

College- BIT

Department-CSE-AIML/CSE-DS

Class/Section-3rd Semester

Faculty- Mr. Vivek Mishra

Lecture#	Scheduled Topics	Conducted			
		Date	No Of Students	Faculty Sign	Topic
1	Introduction to C++ <ul style="list-style-type: none">• Overview of C++ and its importance in software development.• Setting up C++ environment (IDE / Compiler).• Structure of a C++ program.• Input/Output using cin and cout.				
2	<ul style="list-style-type: none">• Variables, Data Types, and Constants.• Operators (Arithmetic, Relational, Logical, Assignment, Bitwise).• Type Casting.• Comments and Formatting.				
3	Control Structures <ul style="list-style-type: none">• Conditional Statements (if, if-else, nested if, switch-case).• Loops (for, while, do-while).				

4	<ul style="list-style-type: none"> • break and continue statements. • Practice Questions Functions in C++ <ul style="list-style-type: none"> • Defining and calling functions. • Function parameters (pass by value, pass by reference). 				
5	<ul style="list-style-type: none"> • Default arguments. • Function overloading. • Inline functions. • Practice Questions 				
6	Arrays and Strings <ul style="list-style-type: none"> • Single and multi-dimensional arrays. • String handling using character arrays. • String functions from <cstring>. • Introduction to strings. 				
7	Array and Strings Practice Questions				
8	Pointers and References <ul style="list-style-type: none"> • Basics of pointers. • Pointer arithmetic. • Pointers and arrays. 				
9	<ul style="list-style-type: none"> • References and their usage. • Dynamic memory allocation (new, delete). • Practice Questions 				
10	Structures and Enumerations <ul style="list-style-type: none"> • Defining and using struct. • Nested structures. 				

	<ul style="list-style-type: none"> enum usage. Difference between struct and class. 				
11	Object-Oriented Programming Basics <ul style="list-style-type: none"> Classes and Objects. Access specifiers (public, private, protected). Practice Questions 				
12	<ul style="list-style-type: none"> Constructors and Destructors. Member functions Practice Questions 				
13	OOP Advanced Concepts <ul style="list-style-type: none"> Inheritance (Single, Multiple, Multilevel). Function overriding. Polymorphism (Compile-time & Runtime). Virtual functions and Abstract classes. 				
14	Operator Overloading & Friend Functions <ul style="list-style-type: none"> Overloading arithmetic and relational operators. Friend functions and classes. Practice concepts 				
15	Introduction to Data Structures in C++ <ul style="list-style-type: none"> Overview of Data Structures. Arrays and Linked Lists theory. 				
16	Programs of Array (Searching, Sorting) Largest element, 2 nd largest element etc. Other practice problems of Array				
17	Linked List <ul style="list-style-type: none"> Basic concepts Representation of Linked List Types of Linked List 				

18	<p>Programming Implementation of Linked List</p> <p>Insertion and Deletion in various types of Linked List.</p> <p>Questions of Linked List</p>				
19	<p>Stack</p> <ul style="list-style-type: none"> • Explanation and its Stack • Declaration and its initialization • Programming implementation 				
20	<ul style="list-style-type: none"> • Inserting Elements • Accessing Elements • Deleting Elements • Traversal • Time complexity 				
21	<p>Queue</p> <ul style="list-style-type: none"> • Explanation • Declaration and its initialization • Programming implementation 				
22	<ul style="list-style-type: none"> • Inserting Elements • Accessing Elements • Deleting Elements • Traversal • Time complexity 				
23	<p>Searching and Sorting Algorithms</p> <ul style="list-style-type: none"> • Linear Search and Binary Search. • Bubble Sort, Selection Sort, Insertion Sort. • Time complexity basics. 				
24	<p>Recursion</p> <ul style="list-style-type: none"> • Concept and working of recursion. • Recursive vs Iterative approach. • Examples: Factorial, Fibonacci, Tower of Hanoi. 				
25	<p>Standard Template Library (STL)</p> <ul style="list-style-type: none"> • Overview of STL. • Vectors, Lists, and Maps. • Iterators. • Common STL algorithms (sort, find, reverse). 				

26	HashMaps in C++ <ul style="list-style-type: none"> • Syntax • Declaration and Initialization • Program Demonstration • Use of HashMaps 				
27	<ul style="list-style-type: none"> • Inserting Elements • Accessing Elements • Updating Elements • Finding and deleting Elements 				
28	Lab Work <ul style="list-style-type: none"> • Applying C++ and DS concepts to a small project. • Example: Student Management System, Inventory System, or Simple Game. 				
29	Practice Questions and Doubts				
30	Practice Questions and Doubts				

Faculty/ Trainer Sign: