NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

BCA GENRAL

LESSON PLAN

BCA (G)

1ST SEM

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (July-Dec 2025)

Name of Teacher. Mr. Ashish Designation. Astt. Professor
Subject Name: Mathematics foundation to computer science
Branch: BCA GENERAL Semester:1st Subject Code: BCG-101-V1
Date of Start:1/9/25 Total Load: 30 hrs Date of Completion: 30/11/25

Module/Unit-1: SET, RELATION AND FUNCTION

S.No	Name of Topic	Hours
1	Set, Set Operations, Properties of Set operations, Subset, Venn Diagrams	2
2	Cartesian Products. Relations on a Set, Properties of Relations, Representing Relations using matrices and digraphs,	2
3	Types of Relations, Equivalence Relation, Equivalence relation and partition on set, Closures of Relations, Warshall's algorithm.	2
4	Functions, properties of functions (domain, range), composition of functions, surjective (onto), injective (one-to-one) and bijective functions, inverse of functions. Some useful functions for Computer Science: Exponential and Logarithmic functions, Polynomial functions, Ceiling and Floor functions.	3
	Total	9

Module/Unit 2- COUNTING AND RECURRENCE RELATION:

S.No	Name of Topic	Hours
1	Basics of counting, Pigeonhole principle, permutation, combination, Binomial coefficients, Binomial theorem.	3
2	Recurrence relations, modelling recurrence relations with examples, like Fibonacci numbers, the tower of Hanoi problem.	2
3	Solving linear recurrence relation with constant coefficients using characteristic equation roots method.	2
	Total	7

Module/Unit-3: ELEMENTARY GRAPH THEORY:

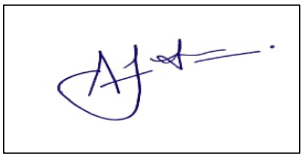
S.No	Name of Topic	Hours
1	Basic terminologies of graphs, connected and disconnected graphs	2
2	Subgraph, paths and cycles, complete graphs, digraphs, weighted graphs, Euler and Hamiltonian graphs.	2
3	Trees, properties of trees, concept of spanning tree. Planar graphs. Definitions and basic results on the topics mentioned.	2
6	Evaluation of definite integrals by substitution, using properties of definite integral.	2
	Total	8

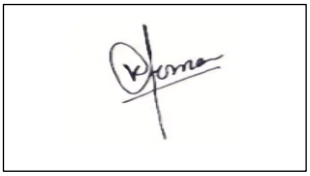
Module/Unit-4: MATRIX ALGEBRA

S.No	Name of Topic	Hours
1	Types of matrices, algebra of matrices–addition, subtraction, and multiplication of matrices	2
2	Determinant of a matrix, symmetric and skew-symmetric matrices, orthogonal matrix, rank of a matrix, inverse of a matrix	2
3	Applications of matrices to solve system of linear equations, Eigen values and Eigen vectors, Caley-Hamilton theorem.	2
	Total	6

TEXT BOOKS and REFERENCE BOOKS:

1. Garg, Reena, "Engineering Mathematics", Khanna Book Publishing Company, 2024.
2. Garg, Reena, "Advanced Engineering Mathematics", Khanna Book Publishing Company, 2023.
3. Deo Narsingh, "Graph Theory with Application to Engineering and Computer Science", Prentice Hall, India, 1979.
4. Vasishtha A. R. and Vasishtha A. K., "Matrices", Krishna Prakashan, 2022





Prof. (Dr.) Kuldeep Tomar

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

DEPARTMENT OF COMPUTER SCIENCE (BCA GENERAL)

LESSON PLAN (July-Dec 2025)

Name of Teacher: Bhawna Aggarwal **Designation: A.P** **Subject Nam: PST**
Branch: BCA-GEN **Semester: 1st** **Subject Code: BCG-103-V1**
Date of Start: 21/7/2025 **Total Load: 42 hrs.** **Date of Completion: 14/11/2025**

UNIT I: Problems And Problem Instances

S.No	Name of Topic	Hours
1	Generalization And Special Cases	50 Min
2	Types of Computational Problems	50 Min
3	Classification and analysis of problem	50 Min
4	Development and analysis of algorithm	50 Min
5	Role of Data structures in problem solving	50 Min
6	Problem solving steps	50 Min
7	Input/Output Specification, Validation, Pre &Post Conditions	50 Min
8.	Revision	50 Min
	Total	6

Unit 2- Structured Programming Concepts

S.No	Name of Topic	Hours
1	Sequence(Input /Output/assignment)	50 Min
2	Selection (If/If-Else)	50 Min
3	Repetition (for, while.do-while)	50 Min
4	Control structure (Stacking & Nesting)	50 Min
5	Entry Controlled &Exit Controlled statements	50 Min
6	Counter Controlled, Definite, Indefinite and Sentinel-Controlled Repetitions.	50 Min

7	Pseudocode and Flowcharts	50 Min
8	Displaying Different Patterns and Shapes Using Symbols and Numbers	50 Min
9	Generating Arithmetic and Geometric Progression	50 Min
10	Representation of Integers	50 Min
11	Representation of Real Numbers	50 Min
12	Representation of Characters	50 Min
13	Introduction To Programming Languages(C)	50 Min
14	Typed Vs Typeless Programming Languages,	50 Min
15	An Empty C Program. C Language Counterparts For Input (scanf()), Output (printf()) Statements, Assignment, Arithmetic, Relational and Logical Operators.	50 Min
16	Data Types. Translating Pseudocode/Algorithm to C Program.	50 Min
17	Incremental Compilation and Testing of The C Program	50 Min
18	Simple Problems Involving Input, Output, Assignment Statement, Selection and Repetition.	50 Min
19	Revision	100 Min
	Total	16.6

Unit 3- Problems on Numbers

S.No	Name of Topic	Hours
1	Extracting Digits of a Number (Left to Right and Right to Left)	50 Min
2	Palindrome, Prime Number,	50 Min
3	Prime Factors, Amicable Number, Perfect Number	50 Min
4	Armstrong Number, Factorial, Converting Number from One Base to Another.	50 Min

5	Statistics (Maximum, Minimum, Sum and Average) on a Sequence of Numbers which are Read using Sentinel-Controlled Repetition using only a few Variables.	50 Min
6	else-if Ladder	50 Min
7	switch Case	50 Min
8	Increment/Decrement Operators	50 Min
9	break and continue Statements.	50 Min
12	Revision	50 Min
	Total	8.3

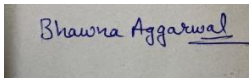
Unit 4- Modular Programming

S.No	Name of Topic	Hours
1	Top-Down and Bottom-Up Approaches to Problem Solving	50 Min
2	Recursion	50 Min
3	Problems on Arrays: Reading and Writing of Array Elements	50 Min
4	Maximum, Minimum, Sum, Average, Median and Mode.	50 Min
5	Sequential and Binary Search	50 Min
6	Function Definition and Declaration	50 Min
7	Role of Return Statement	50 Min
8	One Dimensional and Two-Dimensional Arrays	50 Min
9	String Functions	50 Min
10	Operator Precedence and Associativity	50 Min
11	Debugging	50 Min
12	Revision	50 Min
	Total	10

TEXT/REFERENCE BOOKS

1. Brian W. Kernighan and Dennis Ritchie, “The C Programming Language”, 2nd edition, Pearson, 2015.

2, Jeri Hanly and Elliot Koffman “Problem Solving and Program Design in C”, 8th edition, Pearson,



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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (June-Dec 2025)

Name of Teacher: Neha Jayant Designation: Assistant Professor Subject Name: Computer Architecture

Branch: BCA-G **Semester: 1st** **Subject Code: BCG-105-V1**

Date of Start: 01 sep 2025 **Total Load: 23 hrs 20 min** **Date of Completion: 30 sep 2025**

Module/Unit-1:

S.No	Name of Topic	Hours
1	Digital Principles: Definition for Digital signals, Digital logic, Digital computers	50 min
2	Von Neumann Architecture, Boolean Laws and Theorems,	50 min
3	K-Map: Truth Tables to K-Map, 2, 3 and 4 variable K Map,	50 min
4	K-Map Simplifications, Don't Care Conditions, SOP and POS.	50 min
5	Number Systems: Decimal, Binary, Octal, Hexadecimal,	50 min
6	Number System Conversions, Binary Arithmetic,	50 min
7	Addition and subtraction of BCD, Octal Arithmetic, Hexadecimal Arithmetic,	50 min
8	Binary Codes, Decimal Codes, Error detecting and correcting codes, ASCII, EBCDIC	50 min
9	Excess- 3 Code, The Gray Code.	50 min
	Total	7 hours 30 min

Module/Unit 2-

S.No	Name of Topic	Hours
1	Combinational Circuits: Half Adder and Full Adder, Subtractor, Logic	50 min
2	Decoders, Encoder, Multiplexer, Demultiplexer	50 min
3	Sequential Circuits: Flip-Flops- SR Flip- Flop, D Flip-Flop,	50 min
4	J-K Flip-Flop, T Flip-Flop. Register: 4 bit register with parallel load,	50 min
5	Shift Registers- Bidirectional shift register with parallel load,	50 min
6	Binary Counters-4 bit synchronous and Asynchronous binary counter.	50 min

	Total	5 hours

Module/Unit 3

S.No	Name of Topic	Hours
1	Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions,	50 min
2	Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output Interrupt,	50 min
3	Complete Computer Description, Design of Basic Computer, Design of Accumulator logic.	50 min
4	Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes,	50 min
5	Data Transfer and Manipulation, Program Control,	50 min
6	Reduced Instruction Set Computer(RISC), RISC Vs CISC.	50 min
	Total	5 hours

Module/Unit 4

S.No	Name of Topic	Hours
1	Pipeline and Vector Processing: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline.	50 min
2	Input-Output Organization: Peripheral Devices, Input Output Interface,	50 min
3	Asynchronous data transfer, Modes of Transfer, Priority Interrupt, Direct	50 min
4	Asynchronous data transfer, Modes of Transfer, Priority Interrupt,	50 min
5	Direct 12 memory Access, Input-Output Processor(IOP). Memory Organization: Memory Hierarchy,	50 min
6	Main Memory, Auxiliary memory, Associate Memory	50 min
7	Cache Memory, Virtual Memory, Memory Management Hardware.	50 min
	Total	**5 hours 50 min**

Text Books

1. 1. Donald P Leach, Albert Paul Malvino, Goutam Saha- “Digital
2. Principles & Applications” , Tata McGraw Hill Education Private

3. Limited,2011Edition.
4. 2. M. Morris Mano- “Computer System Architecture”, Pearson/Phi, Third Edition.

Reference Books

1 William Stallings- “Computer Organization and Architecture”, Pearson/PHI, Sixth Edition,
2 Andrew S. Tanenbaum- “Structured Computer Organization”, PHI /Pearson 4th Edition,

3 M.V .Subramanyam, “Switching Theory and Logic Design”, Laxmi Publications (P) Ltd.
4 Ikvinderpal Singh, “Computer Organization Architecture”, Khanna Book Publishing..

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE
LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Ritu Dagar **Designation:** Assistant Professor/COE Coordinator
Subject Name: IKS **Branch:** BCA General
Semester: 1st Sem **Subject Code:** VAC-104-V1
Date of Start: 1 Sept, 2025 **Total Load:** 22 Lectures (18 Hours, 20 Min) **Date of Completion:**

Module/Unit-1: Introduction and foundational concepts of IKS

S.No	Name of Topic	Hours
1	Overview of various streams of knowledge in India	50 minutes
2	Classification of ancient Indian texts;	50 minutes
3	Various philosophical systems of India and fundamental principles inlaid in them	50 minutes
4	Revision	50 minutes
	Total	3 Hours, 20 Minutes

Module/Unit- 2: Psychology from Indian perspective, Yoga and Indian Linguistics

S.No	Name of Topic	Hours
1	Introduction to Ashtanga Yoga	50 minutes
2	Rasa Siddhanta of Natyasastra (theory of emotions)	50 minutes
3	Panini's contribution to linguistics	50 minutes
4	Contributions of the Vakyasastra and Pramanasastra to linguistics	50 minutes
	Total	3 Hours, 20 Minutes

Module/Unit- 3: Indian Mathematics and Astronomy

S.No	Name of Topic	Hours
1	An overview of Indian mathematics	50 minutes

2	Development of arithmetic geometry and Trigonometry	50 minutes
3	Introduction to spherical geometry and calculus in India	50 minutes
4	Vedic system of arithmetic computation, Vedic sutra for arithmetic computation	50 minutes
5	An introduction to Indian Astronomy, Pre and Post Siddhantic period	50 minutes
	Total	4 Hours, 10 Minutes

Module/Unit-4: Medicinal traditions in India

S.No	Name of Topic	Hours
1	An Introduction to Ayurveda	50 minutes
2	Distinct features, of Ayurveda, as compared to Alopathy	50 minutes
3	Excerpts from Sutrasthana	50 minutes
	Total	2 Hours, 30 minutes

Module/Unit-5: Indian Architecture and Planning

S.No	Name of Topic	Hours
1	Traditional measurement system used in Vastusastra	50 minutes
2	Prescriptions for residential Vastu	50 minutes
3	City planning as per Vastusastra	50 minutes
	Total	2 Hours, 30 minutes

Module/Unit-6: Economics, Management and Governance

S.No	Name of Topic	Hours
1	An overview of Indian economic thought - Arthasastra and Nitisastra	50 minutes

2	Leadership and Motivation, Planning and Organizing	50 minutes
3	Financial Management etc.	50 minutes
	Total	2 Hours, 30 minutes

TEXT BOOKS / REFERENCE BOOKS:

1. Introduction to Indian Knowledge System, B. Mahadevan, V. R. Bhat, NagendraPavana R. N., PHI. 2022
2. Yoga System of Patanjali, J. H. Woods, Bharatiya Kala Prakashan 2009
3. Indian Philosophy Vol I and II, S. Radhakrishnan, Oxford University Press. 2009
4. Mayamatam Indian Treatise on Housing, Architecture and Iconography (2 volumes), Bruno Daegens, Indira Gandhi National centre for Arts. 2007
5. Vedanta and Management: Relevance of Vedantic Concepts in Modern Management Practices, N. V. Dave, Deep & Deep. 2002
6. Tantrasagraha with detailed Mathematical Explanatory Notes, K. Ramasubramanian, M. S. Sriram, Hindustan Book Agency. 2011
7. Karanapadhati of PutumanaSomayaji, VenkateswaraPai, Ramasubramanian, M. S. Sriram and M.D. Srinivas, Hindustan Book Agency 2018
8. New Delhi 2002
9. The NighaMotilalBanarsidass Publishers 2015
10. ga Literature, Archak K.B. Kaveri Books, New Delhi, 2012
11. Textbook of Ayurveda: Volume 1 - Fundamental Principles of Ayurveda, Vasant Lad, Ayurvedic Press; UK ed. Edition 2002
12. Sanskrit Academy, Hyderabad. 2010
13. Vedic Mathematics, Jagadguru Swami Sri BharatiKrsnaTirathjiMaharaj, MotilalBanarsidass Publishers, Delhi 1965
14. LilavatiBhaskaracarya: A Treatise of Mathematics of Vedic Tradition, K S Patwardhan, S A Naimpally and ShyamLal Singh, MotilalBanarsidass Publishers Pvt Ltd, Delhi 2006

Ritu Dagar

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN (July- Dec 2024)

Name of Teacher: Ms. Chaman lata Designation: Assistant Professor Subject Name: English

Branch: BCA G/DS Semester: I/II Subject Code: AEC-105-V1

Date of Start: 8 sep, 2025 Total Load: 28 hours

Date of Completion:

Module/Unit-1: Vocabulary building

S.No	Name of Topic	Hours
1	Primary words , Prefixes & Suffixes	1
2	Derivative Words and methods	1
3	Word formation V-N, V-Adj, V-N& Adj	1
4	Synonyms, antonyms, standard abbreviation	1
	Total	4

Module/Unit 2-Basic writing skills

S.No	Name of Topic	Hours
1	Sentence structures	1
2	Clause & phrases	2
3	Punctuation	1
4	Coherence and methods	1
5	Organizing principles of paragraph	1
6	Techniques of precise writing	1
	Total	7

Module/Unit 3-Identifying common errors

S.No	Name of Topic	Hours
1	S-V agreement	2
2	N-P agreement	1
3	Articles	1
4	Prepositions	2
5	Redundancy	1
6	Modifiers	1
	Total	8

Module/Unit 4 Nature & style of sensible writing

S.No	Name of Topic	Hours
1	Sentence structures	1
2	Clause & phrases	2
3	Punctuation	1
4	Coherence and methods	1
5	Organizing principles of paragraph	1
6	Techniques of precise writing	1
	Total	7

Module/Unit 4 Nature & style of sensible writing

S.No	Name of Topic	Hours
1	Describing & Defining	1
2	Classifying & Providing examples & evidences Providing examples & evidences	1
	Total	2

Chamanlata

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

LESSON PLAN (July-Dec 2025)

Name of Teacher: Yogita Sharma **Designation: A.P**
Subject Name: Environmental Science Sustainability
Branch: BCA(Gen) Semester: 1st **Subject Code: VAC 101-V**

Date of Start: 1/9/2025 **Total Load: 44 hrs.** **Date of Completion: 30/11/2025**

Unit 1

S.No	Name of Topic	Hours
1	Fundamental environmental concepts and their relevance to business operations	50 Min
2	Concept of sustainability; Classification of natural resources, issues related to their overutilization, and strategies for their conservation	50 Min
3	Sustainable practices in managing resources, including deforestation, water conservation	50 Min
4	The conservation and equitable use of resources	50 Min
5	A critical appraisal of the current scenario	50 Min
6	Importance of public awareness and education	50 Min
7.	Revision	50 Min
	Total	5.8

Unit 2

S.No	Name of Topic	Hours
1	Various natural ecosystems	100 Min
2	The importance of biodiversity, the threats it faces, and the methods used for its conservation	100 Min
3	Ecosystem resilience, homeostasis, and carrying capacity emphasizing the need for sustainable ecosystem management	50 Min
4	Strategies for in situ and exsitu conservation, nature reserves, and the significance of India as a mega diverse nation	50 Min
5	Group Discussion	100 Min
6	Revision	50 Min
	Total	14.2

Unit 3

S.No	Name of Topic	Hours
1	Various types of environmental pollution	100 Min
2	Air, water, noise, soil, and marine pollution, and their impacts on businesses and communities	100 Min
3	Causes of pollution Causes of pollution	100 Min
4	Solid waste management :- Natural and man-made disasters	50 Min
5	Role of businesses in mitigating disaster impacts	
	Total	5.8

Unit 4

S.No	Name of Topic	Hours

1	Dynamic interactions between society and the environment	50 Min
2	development and environmental ethics	50 Min
3	Role of businesses in achieving sustainable development goals and promoting responsible consumption	50 Min
4	Pollution, depletion of resources and role of technology etc.	100 Min
5	environmental legislation and the judiciary's role in environmental protection	100 Min
6	Water (Prevention and Control of Pollution) Act of 1974	50 Min
7	Environmental justice, environmental refugees	50 Min
	Ecological economics, human population growth	50 Min
	Total	7.5

REFERENCES:

Roy, M. G., "Sustainable Development: Environment, Energy and Water Resources". Ane Books.

- Pritwani, K., "Sustainability of business in the context of environmental management", CRC Press.
- Wright, R.T. & Boorse, D.F., "Environmental Science: Toward A Sustainable Future

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (July-Dec 2025)

Name of Teacher: Mr. Nakul Parashar **Designation: French Language Trainer**

Subject Name: Ability Enhancement Elective – 1, French - I

Branch: BCA(G) **Semester:Ist** **Subject Code: AEC-309-V**

Date of Start: 1- 09-2025 **Total Load: 25 hrs**

Date of Completion: 30-11-2025

Module/Unit-1: Objectifs Communication

S.No	Name of Topic	Hours
1	S'initier à la culture française:.	1
2	Décrire une personne:	1
3	Dire la nationalité:	2
4	Parler des saisons:	1
5	Demander et donner des goûts et des préférences:	1
	Total	6

Module/Unit 2- Grammaire/ Vocabulaire

S.No	Name of Topic	Hours
1	Les verbes en (er):	1
2	Les pronoms sujets:	1
3	Les articles définis:	1
4	Le corps humain:	2
5	Les verbes en (ir):	1
6	Les articles indéfinis:	1
7	La négation:	1
	Total	8

Module/Unit 3- Les verbes / Vocabulaire

S.No	Name of Topic	Hours
1	Les verbes en -ger	1
2	Le féminin et le pluriel	1
3	Les expressions avec faire	1

4	**Les nombres (1-100)**	**2**
5	**Les prépositions**	**1**
6	**L'interrogation**	**1**
7	**Les verbes en -re et irréguliers**	**1**
8	**Les repas français**	**1**
9	**Les adjectifs possessifs**	**1**
10	**Décrire une ville**	**1**
	Total	**11**

Signature of Teacher

Approved by HOD/Dean

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE (BCA -GEN)

LESSON PLAN (JUL-DEC 2025)

Name of Teacher: Bhawna Aggarwal **Designation: A.P** **Subject Name: PST LAB**
Branch: BCA-GEN **Semester: 1st** **Subject Code: BCG-107-V1**

Date of Start: 21/07/2025 **Total Load: 16.6 hrs** **Date of Completion: 14/11/2025**

Module: List of Experiments

S.No	Name of Topic	Hours
1	(i) Converting degrees Celsius to Fahrenheit and vice versa , (ii) Display three input numbers in sorted (non-decreasing) order .	100 Min
2	(i)Given a positive integer value n (>= 0) display number, square and cube of numbers from 1 to n in a tabular format (ii) Given an input positive integer number, display odd numbers from in therange [1,n]?	100 Min
3	Display first mathematical tables, each table up to 10 rows	100 Min
4	Display following patterns of n rows (n > 0), For the below examples n = 5? For each pattern write a separate algorithm/program? $ $ 12345 12345 $$ $$ 1234 1234 $$$ $$$ 123 123 $$$$ $$$$ 12 12 $$$$$ $$$$$ 1	100 Min
5	Compute approximate value of sin(x)/cos(x) considering first n (n > 0) terms ofthe Taylor series for sin(x)/cos(x)?	100 Min

6	Given a sequence of digits form the number composed of the digits. Use sentinel controlled repetition to read the digits followed by -1. For example, forthe input 2 7 3 2 9 -1 the output number is 27329 .	100 Min
7	Write a program to display a number in text form. For example If the number is 5432 the output should be “FIVE FOUR THREE TWO .	100 Min
8	Compute maximum, minimum, sum and average of a sequence of numbers which are read using sentinel controlled repetition using only few variables	100 Min
9	Design a modular algorithm/program which reads an array of n integer elements and outputs median .	100 Min
10	Recursive solutions for the following problems: a. Factorial of a number? b. Display digits of a number from left to right (and right to left)? c. Compute xy using only multiplication? d. To print a sequence of numbers entered using sentinel controlled repetition in reverse order?	100 Min
	Total	16.6 hrs

Reference Books

1. Brian W. Kernighan and Dennis Ritchie, “The C Programming Language”, 2nd edition,Pearson, 2015.

2. Jeri Hanly and Elliot Koffman, “Problem Solving and Program Design in C”, 8th edition, Pearson, 2015.

Bhawna Aggarwal

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

LESSON PLAN (JUNE-DEC 2025)

Name of Teacher: Neha jayant Designation: Assistant Professor Subject Name Computer Architecture lab
Branch: BCA-G Semester: 1st Subject Code: BCG-109-V1
Date of Start: 01 sep 2025 Total Load:26 hours 40 min Date of Completion: 30 Nov 2025

S.No	Name of Experiments	Hours
1	Verify logic behavior of AND, OR, NAND, NOR, EX-OR, EX-NOR, Inverter and Buffer gates, Familiarize the computer system layout: marking positions of SMPS, motherboard, FDD, HDD, CD, DVD and add-on cards.	100 min
2	To study and verify NAND as a Universal Gate, Identify the Computer Name and Hardware Specification (RAM capacity, Processor type, HDD, 32 bit/64 bit).	100 min
3	To verify De-Morgan's theorem for 2 variables. Identify and troubleshoot the problems of RAM, SMPS and motherboard.	100 min
4	Design and test an S-R flip-flop using NAND/NOR gate. Configure BIOS settings – disable and enable USB and LAN.	100 min
5	Convert BCD to Excess-3 code using NAND gate. Add additional RAM to the system (expand RAM size).	100 min
6	Convert Binary to Grey Code. Study motherboard layout of a system.	100 min
7	Verify Truth Tables of J-K Flip-Flop using NAND/NOR gate. Demonstrate the assembly of a PC.	100 min
8	Realize Decoder and Encoder circuits using Basic Gates. Demonstrate various ports: CPU, VGA, PS/2 (keyboard, mouse), USB, LAN, Speaker, Audio.	100 min
9	Design and implement a 4:1 Multiplexer using gates. Install and configure Windows Operating System.	100 min
10	Implement a 4-Bit Parallel Adder using 7483 IC. Study the installation and troubleshooting of a printer.	100 min
11	Design and verify operation of Half Adder and Full Adder.	100 min
12	Design and verify operation of Half Subtractor.	100 min
13	Design and implement a 4-bit Shift Register using Flip-Flops.	100 min

14	Implement Boolean function using logic gates in both SOP and POS forms.	100 min
15	Design and implement a 4-bit Synchronous Counter.	100 min
16	Design and verify operation of a 4-bit Asynchronous Counter.	100 min
	Total	26 hours 40 min

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BCA GENERAL
3RD SEMESTER

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Gourav **Designation: Asst. Prof.** **Subject Name: Data Structure**
Branch: BCA(G) **Semester:3rd** **Subject Code: BCA-23-201**
Date of Start: 21July 2025 **Total Load:30 hrs 50mns** **Date of Completion: 21Nov 2025**

UNIT – I: Introduction to Data Structure and Strings

S.No	Name of Topic	Hours
1	Elementary data organization, Data Structure definition	50
2	Data type vs. data structure	50
3	Categories of data structures	50
4	Data structure operations, Applications of data structures	50
5	Algorithms complexity and time-space tradeoff	50
6	Strings Introduction and Storing strings	50
7	String operations, Pattern matching algorithms	50
8	Linear search and binary search	50
Total		**6 Hrs 40 Mins**

UNIT – II: Arrays and Linked List

S.No	Name of Topic	Hours
1	Introduction and Linear arrays	50
2	Representation of Linear memory in array and address calculation	50
3	Array Traversal, Deletion and Insertion	50
4	Multidimensional array, Parallel array and Sparse array	50
5	Searching Algorithms	50
6	Sorting Algorithms	50

S.No	Name of Topic	Hours
7	Linked List Introduction and Arrays vs linked list	50
8	Representation of linked list in memory	50
9	Linked list traversal, deletion and insertion	50
10	Searching a Linked list and Header linked list	50
11	Circular linked list and Two-way linked list	50
12	Threaded list, Garbage Collection and Applications of Linked list	50
Total		**10 Hrs 00 Mins**

UNIT – III: Stack and Queues

S.No	Name of Topic	Hours
1	Introduction of Stack	50
2	Array and linked list representation of Stack	50
3	Operations on Stack and Applications of Stack	50
4	Polish notation, reverse polish notation	50
5	Recursion and Evaluation on Arithmetic operations	50
6	Introduction of Queue	50
7	Array and linked list representation of Queue	50
8	Operations on Queue and Dequeues	50
9	Priority Queues and Application of Queues	50
Total		**7 Hrs 30 Mins**

UNIT – IV: Tree and Graph

S.No	Name of Topic	Hours
1	Introduction to tree	50
2	Representation binary tree in memory	50
3	Traversing binary tree using recursion and stack	50
4	Introduction to Graph	50
5	Matrix, List and linked representation of graph	50
6	Traversal of the graph	50
7	Warshall's and Dijkstra algorithms for the shortest path	50
8	Minimum spanning tree: Prim's and Kruskal's algorithms	50
Total		**6 Hrs 40 Mins**

Text Books / Reference books

1 Seymour Lipschutz, “Data Structure”, Tata-McGraw-Hill
2 Aaron M. Tanenbaum, Data Structures using C/C++, PHI
Horowitz, Sahni & Anderson-Freed, “Fundamentals of Data Structures in C”, Orient Longman.
3 Trembley, J.P. And Sorenson P.G., “An Introduction to Data Structures With Applications”, Mcgrraw- Hill International Student Edition, New York.

4 Mark Allen Weiss Data Structures and Algorithm Analysis In C, Addison-Wesley, (An Imprint Of Pearson Education), Mexico City.Prentice- Hall Of India Pvt. Ltd., New Delhi.

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Rajan Kumar Designation:Assistant professor SubjectName:OOPS

Branch:BCA(G) Semester:3rD Subject Code: BCA-23-203

Date of Start: 21 july Total Load:20 Hours 22 min
Date of Completion:21 Nov

UNIT-1:-Object Oriented Programming concepts

Name	Mins
1 Comparison: Procedural vs OOP	50
2 Characteristics of OOP:	50
3 User-Defined Types:	50
4 CLASS AND OBJECT	50
5 Recursion	50
6 ARRAYS AND POINTERS	50

Total Hour:-5 Hours

UNIT-2:-Abstracting Mechanism and Memory Management

ame	Mins
1 Classes Private and Public	50
2 Constructor and Destructor Member function	50
3 Static members References	50
4 Memory Management: new delete Object copying	50
5 Copy constructor Assignment operator	50
6 this Input/Output	50

Total Hour:-5 Hours

UNIT-3:-Inheritance and Polymorphism

Name	Mins
1 Derived Class and Base Class Different types of Inheritance	50
2 Overriding member function Abstract Class	50
3 Public and Private Inheritance Ambiguity in Multiple Inheritances	50
4 Virtual function Friend function	50
5 Static function Operator Overloading	50
6 Template and Standard Template Library (STL): Template classes Declaration	50
7 Template functions Namespace String	50
8 Iterators Hashes Streams	50

Total Hour:-6 Hours 6min

UNIT-4:-Exception and file handling

Name	Mins
1 Exception and derived class Function exception declaration	50
2 Unexpected exception Exception when handling an exception	50
3 Resource capture and release	50
4 I/O streams fos.open	50
5 fos.close I/O stream libraries	

Total Hour:-4 H 16 min

Text Books / Reference books

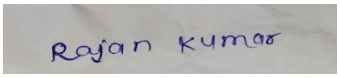
Text/ Reference Books:

1 Bjarne Stroustrup, The C++ programming language, Pearsons education

2 Robert Lafore, Object oriented programming using C++,PHI

3 Paul Deitel & Harvey Deitel, C++ How to program , Pearsons education

4. Yashawant Kanetkar, Let Us C++, BFB



Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Harshita **Designation: Assistant prof.**

Subject Name: IWT

Branch:BCA-GEN **Semester: III** **Subject Code: BCG-205-V**

Date of Start: **21-07-2025** **Total Load: 48hrs** **Date of Completion: 21-11-2025**

Unit-1: Introduction to Internet and World Wide Web

S.No	Name of Topic	Hours
1	Evolution and History of World Wide Web	50min
2	Basic features	50min
3	Web Browsers	50min
4	Web Servers	50min
5	Hypertext Transfer Protocol	50min
6	Overview of TCP/IP and its services	50min
7	URLs	50min
8	Searching and WebCasting Techniques	50min
9	Search Engines	50min
10	Search Tools.	50min
11	Revision	50min
	Total	9

Unit 2- HTML

S.No	Name of Topic	Hours
1	Introduction to HTML	50min
2	Hypertext and HTML	50min
3	HTML Document Features	50min
4	HTML command Tags	50min
5	HTML command Tags	50min
6	Creating Links	50min
7	Creating Links	50min
8	Headers	50min
9	Textstyles	50min
10	Text Structuring	50min

11	**Text colors and Background**	**50min**
12	**Formatting text**	**50min**
13	**Page layouts,**	**50min**
14	**Revision**	**50min**
	Total	**11hr**

Unit-3: Dynamic HTML

S.No	Name of Topic	Hours
1	**Ordered and Unordered lists**	**50min**
2	**Inserting Graphics**	**50min**
3	**Table Creation**	**50min**
4	**Table Creation and Layouts**	**50min**
5	**Frame Creation**	**50min**
6	**Frame Creation and Layouts**	**50min**
7	**Working with Forms**	**50min**
8	**Working with Forms and Menus**	**50min**
9	**Working with Radio Buttons**	**50min**
10	**Check Boxes**	**50min**
11	**Text Boxes**	**50min**
12	**Dynamic HTML**	**50min**
13	**Features of DHTML**	**50min**
14	**CSS**	**50min**
15	**CSS**	**50min**
16	**CSSP**	**50min**
17	**JSSS**	**50min**
18	**Architecture of Web Browser**	**50min**
19	**The ID attributes**	**50min**
20	**DHTML events**	**50min**
21	**Revision**	**50min**
	Total	**18 hr**

Unit-4: Web Publishing

S.No	Name of Topic	Hours
1	**Hosting your Site**	**50min**
2	**Internet Service Provider**	**50min**
3	**Web terminologies**	**50min**
4	**Phases of Planning and designing your Web Site**	**50min**
5	**Steps for developing your Site**	**50min**

6	Choosing the contents	50min
7	Home Page	50min
8	Domain Names	50min
9	Front page views	50min
10	Hosting website on server and on cloud	50min
11	Security issues related to website	50min
12	Revision	50min
	Total	10 hr

TEXT BOOKS:

1. **Douglas E. Comer : Computer Networks and Internets.**
2. **Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill**
3. **Thomas A. Powell, "Web Design: The Complete Reference" , 4/e, Tata McGraw-Hill**

.

REFERENCE BOOKS:

1. **Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill.**
2. **Deitel and Goldberg, "Internet and World Wide Web, How to Program", PHI.**

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (July-Dec 2025)

Name of Teacher. Mr. Ashish Designation. Astt. Professor

Subject Name: Algebra & Calculus

Branch: BCA GENERAL Semester:3rd Subject Code: BCA-23-207

Date of Start: **Total Load: 28 hrs**

Date of Completion:

Module/Unit-1: MATRICES

S.No	Name of Topic	Hours
1	Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices	1
2	Adjoint, Inverse, solving system of linear equation Cramer's Rule	2
3	Symmetric, Skew-Symmetric, Orthogonal and Unitary matrices	1
4	Rank of a Matrix, Consistency, Characteristic equation – Eigen values and Eigen vectors.	2
	Total	6

Module/Unit 2- DIFFERENTIAL CALCULUS

S.No	Name of Topic	Hours
1	Derivative of a function, Derivatives of Sum, Differences, Product & Quotient of functions.	2
2	Derivatives of polynomial, trigonometric, exponential, logarithmic.	2
3	Inverse trigonometric and implicit functions.	1
4	Logarithmic Differentiation, Chain Rule and differentiation by substitution.	2
	Total	7

Module/Unit-3: INTEGRAL CALCULUS

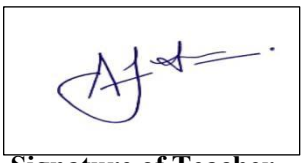
S.No	Name of Topic	Hours
1	Indefinite Integrals, Methods of Integration by Substitution	2
2	By Parts	1
3	Partial Fractions, Integration of Algebraic and Transcendental Functions	1
4	Reduction Formulae for simple and Trigonometric Functions	1
5	Definite Integral as Limit of Sum, Fundamental Theorem of Integral Calculus	2
6	Evaluation of definite integrals by substitution, using properties of definite integral.	1
	Total	8

Module/Unit-4: SEQUENCES AND SERIES

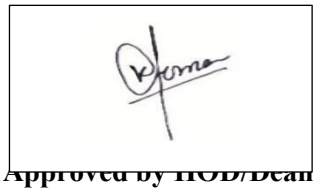
S.No	Name of Topic	Hours
1	Convergence of sequences and series, the convergence of geometric series and p-series (without proof)	2
2	Test of convergence (comparison, ratio and root tests without proof)	1
3	Alternating series and Leibnitz test, absolute and conditional convergence.	1
4	Taylor series (without proof, assuming the possibility of power series expansion in appropriate domains)	1
5	Binomial series and series representation of exponential, trigonometric, logarithmic functions (without proofs of convergence)	2
	Total	7

TEXT BOOKS and REFERENCE BOOKS:

1. H. Anton, I. Biven,S.Davis, "Calculus", Wiley, 10th edition, 2015.
2. Erwin Kreyszig, Advanced Engineering Mathematics, 10thEdition, John Wiley & Sons, 2016.
3. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
4. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36 Edition, 2010



Signature of Teacher



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Approved by IQAC Director/Dean Academics

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (Jan-July 2025)

Name of Teacher: Ms. Priyanka Designation:Assistant Professor Subject Name:ECC

Branch: BCA-Gen. Semester:III

Subject Code: AEC-103-V

Date of Start: 14/07/2025 Total Load: 26 Date of Completion: 21/11/2025

Unit-1: Writing skills and Basics of Grammar

S.No	Name of Topic	Hours
1	Subject-verb agreement	1
2	tense-verb usage	1
3	sentence correction	1
4	Composition of a Paragraph; Characteristics of a Good Paragraph	1
5	Use of Idioms and Proverbs	1
6	Literary Tropes and Use of Figures of Speech.	1
	Total	6

Unit 2-Technical Writing and Reports

S.No	Name of Topic	Hours
1	SPSE structure; IMRD structure	1
2	Report Writing: Types of Reports and Structure of a Long Report.	1
3	Hedging, Nominalization	1
4	Memos; Agenda and MoM; Case Study Method	1
5	Presentations.	1
6	Business Letters-quotation and placing order.	1
	Total	6

Unit 3- Drafting proposals

S.No	Name of Topic	Hours
1	From essays to proposals	1
2	types of essay Writing : structure of an essay	1
3	Argumentative essays;Expository essays; Narrative essays; and Descriptive essays;	1

4	Structure of an Essay Reading, Writing and Comprehension	1
5	Drafting proposals;	1
6	Synopsis Writing	1
7	Definitions; comparisons and contrasts	1
8	Hedging; Nominalization	1
9	proposal presentations	2
	TOTAL	10

Unit 4-Exercises in Proposal Presentations

S.No	Name of Topic	Hours
1	Drafting Proposals.	2
2	Presenting Proposals.	2
	Total	4

TEXT BOOKS/REFERENCE BOOKS:

A Handbook of Literary Terms – M. H. Abrams

ETC – Bharti Kukreja & Dr. Anupma Jain

Academic Writing: A Handbook for International Students – Stephen Bailey

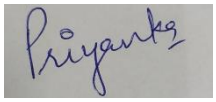
English for Academic Purposes – R. R. Jordan

Writing Successful Business Proposals – Richard C. Freed, Shervin Freed, Joe Romano

Proposal Writing: Effective Grantsmanship – Soraya M. Coley & Cynthia A. Scheinberg

Business Communication Today – Courtland L. Bovee & John V. Thill

The Craft of Research – Wayne C. Booth, Gregory G. Colomb, Joseph M. Williams



Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

Bachelor of Computer Applications (BCA)

LESSON PLAN (July-Dec2025)

Name of Teacher: Poonam chaudhary Designation: Astt. Professor SubjectName: Environment Science

Branch:BCA (G & DS) Semester:3rd Subject Code: VAC-102-N1

Date of Start: 21-July-2025 Total Load: 25 hrs Date of Completion: 21-Nov-2025

Module/Unit-1: Environment Pollution and Health

S.No	Name of Topic	Hours
1	Understanding pollution: Production processes and generation of wastes; Assimilative capacity of the environment; Definition of pollution; Point sources and non-point sources of pollution.	1
2	Air pollution: Sources of air pollution; Primary and secondary pollutants; Criteria pollutantscarbon monoxide, lead, nitrogen oxides, ground-level ozone, particulate matter, and sulphur dioxide; Other important air pollutants- Volatile Organic compounds (VOCs), Peroxyacetyl Nitrate (PAN), Polycyclic aromatic hydrocarbons (PAHs) and Persistent organic pollutants (POPs); Indoor air pollution; Adverse health impacts of air pollutants; National Ambient Air Quality Standards	2
3	Water pollution: Sources of water pollution; River, lake, and marine pollution, groundwater pollution; water quality. Water quality parameters and standards; adverse health impacts of water pollution on human and aquatic life.	1
4	Soil pollution and solid waste: Soil pollutants and their sources; Solid and hazardous waste; Impact on human health.	1
5	Noise pollution: Definition of noise; Unit of measurement of noise pollution; Sources of noise pollution; Noise standards; adverse impacts of noise on human health.	1
6	Thermal and Radioactive pollution: Sources and impact on human health and ecosystems	1
	Total	7

Module/Unit 2 Climate Change: Impacts, Adaptation and Mitigation

S.No	Name of Topic	Hours
1	Understanding climate change: Natural variations in climate; Structure of atmosphere; Anthropogenic climate change from greenhouse gas emissions–past, present and future	1
2	Projections of global climate change with special reference to temperature, rainfall, climate variability and extreme events; Importance of 1.5 °C and 2.0 °C limits to global warming; Climate change projections for the Indian sub-continent.	1

3	**Impacts, vulnerability and adaptation to climate change: Observed impacts of climate change on ocean and land systems; Sea level rise, changes in marine and coastal ecosystems; Impacts on forests and natural ecosystems; Impacts on animal species, agriculture, health, urban infrastructure; the concept of vulnerability and its assessment; Adaptation vs. resilience**	**2**
4	**Climate-resilient development; Indigenous knowledge for adaptation to climate change. Mitigation of climate change: Synergies between adaptation and mitigation measures; Green House Gas (GHG) reduction vs. sink enhancement;**	**1**
5	**Concept of carbon intensity, energy intensity, and carbon neutrality; Energy efficiency measures; Renewable energy sources; Carbon capture and storage, National climate action plan and Intended Nationally Determined Contributions (INDCs); Climate justice**	**1**
	Total	**6**

Module/Unit 3: Environmental Management

S.No	Name of Topic	Hours
1	**Introduction to environmental laws and regulation: Constitutional provisions- Article 48A, Article 51A (g) and other derived environmental rights. Environmental legislations in India: The Wild Life (Protection) Act, 1972; The Water (Prevention and Control of Pollution) Act, 1974; The Forest (Conservation) Act, 1980;**	**2**
2	**The Air (Prevention and Control of Pollution) Act, 1981; The Environment (Protection) Act, 1986; The Biological Diversity Act, 2002; The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006;**	**1**
3	**Noise Pollution (Regulation and Control) Rules, 2000; Industry-specific environmental standards; Waste management rules. Environmental management system: ISO 14001**	**1**
4	**Concept of Circular Economy, Life cycle analysis; Cost-benefit analysis, Environmental audit and impact assessment; Environmental risk assessment,**	**1**
5	**Pollution control and management; Waste Management- Concept of 3R (Reduce, Recycle and Reuse) and sustainability; Ecolabeling /Eco mark scheme.**	**1**
	Total	**6**

Module/Unit 4 Environmental Treaties and Legislation

S.No	Name of Topic	Hours
1	**An overview of the following national and international cooperation, agreements, conventions, protocols - adoption, signature, ratification and entry into force; binding and nonbinding measures; Conference of the Parties (COP)**	**1**
2	**Vienna Convention for the Protection of the Ozone Layer; Montreal Protocol on Substances that Deplete the Ozone Layer and the Kigali Amendment; Status phase-out of production and consumption of Ozone Depleting Substances by India**	**1**

3	**Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; Stockholm Convention on Persistent Organic Pollutants; Minamata Convention on Mercury**	**1**
4	**United Nations Framework Convention on Climate Change (UNFCCC); Kyoto Protocol; Paris Agreement; India's status as a party to major conventions.**	**1**
5	**National Green Tribunal; Some landmark Supreme Court judgements.**	**1**
6	**Major International organisations and initiatives: United Nations Environment Programme (UNEP), International Union for Conservation of Nature (IUCN), World Commission on Environment and Development (WCED), United Nations Educational, Scientific and Cultural Organization (UNESCO), Intergovernmental Panel on Climate Change (IPCC), and Man and the Biosphere (MAB) programme.**	**1**
	Total	**6**

TEXT BOOKS:

1. Environment Management –tiefenbacher

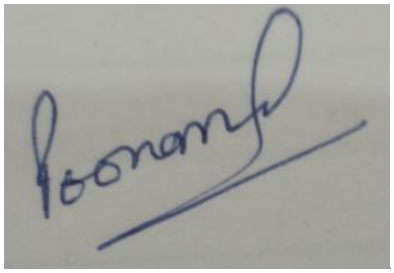
2. Kaushik a and CP

3.Jackson A.R and Jackson J.M

REFERENCE BOOKS:

1.ANUBHA KAUSHIK & CP KAUSHIK (NEW AGE INTERNATIONAL PUBLISHERS)

2 Miller, G. T., & Spoolman, S. (2015) Environmental Science. Cengage Learning.



Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

NGF COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE
LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Gaurav **Designation: Asst. Pro.** **Subject Name: Data structure**

Branch: BCA(G) **Semester:3rd** **Subject Code: BCA-23-209**

Date of Start: 21July 2025 **Total Load: 16 hrs 40 min**
Date of Completion: 21Nov 2025

List of Experiments

1. Write a program to find an element in list using linear search	**100 min**
2.Write a program to find an element in list using binary search.	**100 min**
3.Write a program to concatenate two strings of different lengths	**100 min**
4. Write a program to transpose a given matrix	**100 min**
5. Write a program to implement various Sorting Algorithms.	**100 min**
6. Write a program for Implementation of stacks using array.	**100 min**
7. Write a program to perform all operations of queues.	**100 min**
8. Write a program to perform infix to postfix using stack	**100 min**
9. Write a program to implement Link List.	**100 min**
10. Write a program to implement (preorder, in order,postorder) traversal in a tree..	**100 min**
Toatal Hours = 16 hrs 40 min	

Text Books / Reference books

1. **Kevin Murphy, *Machine Learning: A Probabilistic Perspective*, MIT Press, 2012.**
2. **Trevor Hastie, Robert Tibshirani, Jerome Friedman, *The Elements of Statistical Learning*, Springer, 2009 (freely available online).**
3. **Ethem Alpaydin, *Introduction to Machine Learning* (Adaptive Computation and Machine Learning Series), 3rd Edition, MIT Press, 2014.**
4. **Tom M. Mitchell, *Machine Learning*, 1st Edition, McGraw Hill Education.**

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Harshita **Designation: Assistant professor** **Subject Name: IWT Lab**

Branch: BCA(Gen) **Semester:3rd** **Subject Code: BCG-211-V**

Date of Start: 21July 2025 **Total Load:16 hrs 40mins**
Date of Completion: 21Nov 2025

List OF Experiment

S.No	Name of Topic	Hours
1	1. Write a program using basic tags:- a)Bold b) Italic c) underline d) paragraph	100min
2	create a table for railway time table	100min
3	create a student table with attributes (name,age,roll no,class, semester)using cell spacing(4) and cell padding (3,4,5) .	100min
4	Write a program to insert an image in the web page,use atleast 2 attributes of image ising H1 H2 tags.also write description of image	100min
5	Wap to use frames in a web page implementing different elements	100min
6	WAP to create a University Website	100min
7	WAP to add two numbers using JavaScript	100min
8	Wap to find a factorial of number using recursion in JS.	100min
9	Wap to add two numbers make use of the functions called sum and pass tha parameter	100min
10	WAP to create a University Website	100min
	Total	16 hrs 40 mins

Toatal Hours = 16 hrs 40 mins

TEXT BOOKS:

4. **Douglas E. Comer : Computer Networks and Internets.**
5. **Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill**

6. **Thomas A. Powell, "Web Design: The Complete Reference" , 4/e, Tata McGraw-Hill**

.

REFERENCE BOOKS:

3. **Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill.**

Deitel and Goldberg, "Internet and World Wide Web, How to Program", PHI.

Signature of Teacher **Approved by HOD/Dean** **Approved by IQAC Director/Dean Academics**

BCA (GENERAL)

5th

SEMESTER

NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (July-Dec 2025)

Name of Teacher: Neha Khanna **Designation: A.P** **Subject Nam: Java Programming**
Branch: BCA-GEN **Semester: 5th** **Subject Code: BCA-23-301**
Date of Start: 21/7/2025 **Total Load: 31 hrs.** **Date of Completion: 14/11/2025**

Module/Unit-1: Java Language Basics

S.No	Name of Topic	Hours
1	Introduction to Java	50 Min
2	Basic Features	50 Min
3	Virtual machine architecture	50 Min
4	Primitive data types	50 Min
5	Variables	50 Min
6	Expressions	50 Min
7	Statements and Arrays	50 Min
8.	Revision	50 Min
	Total	6

Module/Unit 2- Classes, Inheritance and Polymorphism

S.No	Name of Topic	Hours
1	Classes and Objects	50 Min
2	Array of objects	50 Min
3	Object as function argument	50 Min
4	Scope resolution operator	50 Min
5	static data members	50 Min
6	Inheritances	50 Min
7	types of inheritance	50 Min
8	Containership	50 Min
9	Constructors and it's types	50 Min
10	Polymorphism	50 Min
11	Abstract class	50 Min
12	Interface and Packages	50 Min
13	Revision	50 Min
	Total	10

Module/Unit 3- Exceptions and Multithreading

S.No	Name of Topic	Hours
1	Exception handling in java-tries and catch	50 Min
2	throw and catch with blocks	50 Min
3	Multiple throw and catch blocks	50 Min
4	throwing objects	50 Min
5	Exception classes	50 Min
6	User defined thread creation through class and interface	50 Min
7	User defined classes	50 Min
8	Multithreading :concept of process and thread	50 Min
9	Life cycle of a thread	50 Min
10	Priority and synchronisation in threads	50 Min
11	Producer- consumer problems	50 Min
12	Revision	50 Min
	Total	10

Module/Unit 4- I/O in java

S.No	Name of Topic	Hours
1	I/O basics	50 Min
2	Types of streams and streams classes	50 Min
3	The predefined streams	50 Min
4	Reading and writing to console	50 Min
5	Reading and writing files	50 Min
6	Object serialization	50 Min
7	Revision	50 Min
	Total	5

TEXT/REFERENCE BOOKS

1. H M Deitel and P J Deitel, "C++ How to Program". by Pearson Education.
2. Robert Lafore, "Object Oriented Programming in Turbo C++", The WAITE Group Press, 1994.
3. E Balagurusamy, "Programming in Java", McGraw Hill.

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (July-Dec 2025)

Name of Teacher: Ms. Pinkee Designation: Assistant Professor Subject Name: ADA
Branch: BCA(G) Semester: 5th Subject Code: BCG-305-V
Date of Start: 14/07/25 Total Load: 33 hrs Date of Completion: 21/11/25

Module/Unit-1: Introduction and Divide and Conquer Approach

S.No	Name of Topic	Hours
1	Basic characteristics of algorithm,	50 Min
2	Empirical and analytical analysis of algorithms,	50 Min
3	analysis of algorithms in terms of space and time complexity	50 Min
4	Asymptotic notations	50 Min
5	binary search	50 Min
6	ternary search algorithm,	50 Min
7	merge sort	50 Min
8	quick sort,	50 Min
9	selection,	50 Min
10	strassen's matrix multiplication.	50 Min
	Total	9 Hrs.

Module/Unit 2- Analysis of Greedy Methods

S.No	Name of Topic	Hours
1	Greedy Method: General method,	50 Min
2	knapsack problem	50 Min

3	job sequencing with deadlines	100 Min
4	minimum spanning trees,	100 Min
5	single source paths	100 Min
6	the travelling salesman problem,	50 Min
7	optimal storage on tapes,	50 Min
8	optimal merge patterns	50 Min
9	analysis of these problems.	50 Min
	Total	10 Hrs

Module/Unit 3- Dynamic Programming

S.No	Name of Topic	Hours
1	General method	50 Min
2	single source shortest path	100 Min
3	all pair shortest path	50 Min
4	optimal binary search trees	100 Min
5	0/1 knapsack	50 Min
6	the travelling salesman problem.	100 Min
	Total	9 Hrs

Module/Unit 4- Back Tracking

S.No	Name of Topic	Hours
1	General method of backtracking	50 Min
2	8 queen's problem	50 Min
3	graph coloring,	50 Min

4	sum of subsets	50 Min
5	Hamiltonian cycles	50 Min
6	analysis of these problems.	50 min
	Total	5 Hrs

TEXT BOOKS/ REFERENCE BOOKS:

1. Thomas H Cormen, Charles E Lieserson, Ronald L Rivest and Clifford Stein, "*Introduction to Algorithms"*, MIT Press/McGraw-Hill; 3rd edition, [ISBN: 978-0262533058], 2009.
2. Ellis Horowitz, Sartaj Sahni and SanguthevarRajasekaran, "*Fundamentals of Algorithms",* Universities Press; 2nd edition [ISBN:978-8173716126],2008.
3. Jon Kleinberg and ÉvaTardos, "*Algorithm Design",* Pearson Publisher; 1st edition [ISBN:978-0321295354],2012.
4. Michael T Goodrich and Roberto Tamassia, "*Fundamentals of Algorithms"* Wiley Press; 1st edition [ISBN:978-8126509867],2006.

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Keshav Maheshwari **Designation: Lecturer** **Subject Name: Machine learning**
Branch: BCA(G) **Semester:5th** **Subject Code: BCA-321-V**
Date of Start: 21July 2025 **Total Load:15hrs 50mns** **Date of Completion: 21Nov 2025**

Unit – 1: Introduction of Machine Learning (ML)

S.No	Name of Topic	Hours
1	Machine Learning basic concepts	50
2	Perspectives and Issues in Machine Learning	50
3	Types of Machine Learning: Supervised – Unsupervised – Reinforcement	50
4	Data Representations: Numerical representation, Graph representation	50
5	Applications of Machine Learning	50

TOTAL: 4 Hrs 10 Mins

Unit – 2: Supervised Learning (Regression/Classification)

S.No	Name of Topic	Hours
1	Linear Models: Linear Regression	50
2	Logistic Regression	50
3	Nearest-Neighbours	50
4	Decision Trees	50
5	Support Vector Machines	50

TOTAL: 4 Hrs 10 Mins

Unit – 3: Unsupervised Learning

S.No	Name of Topic	Hours
1	K-means / Kernel K-means	50
2	Dimensionality Reduction	50
3	Principal Component Analysis (PCA)	50
4	Matrix Factorization and Matrix Completion	50
5	Separating Hyperplanes: RPL Algorithm, Optimal separating hyperplane	50

TOTAL: 4 Hrs 10 Mins

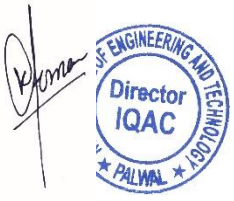
Unit – 4: Techniques and Applications

S.No	Name of Topic	Hours
1	Scalable Machine Learning	50
2	Naïve Bayes	50
3	Recent trends in various learning techniques & classification methods	50
4	Introduction to Bayesian Learning and Inference	50

TOTAL: 3 Hrs 20 Mins

Text Books / Reference books

1. Kevin Murphy, *Machine Learning: A Probabilistic Perspective*, MIT Press, 2012.
2. Trevor Hastie, Robert Tibshirani, Jerome Friedman, *The Elements of Statistical Learning*, Springer, 2009 (freely available online).
3. Ethem Alpaydin, *Introduction to Machine Learning* (Adaptive Computation and Machine Learning Series), 3rd Edition, MIT Press, 2014.
4. Tom M. Mitchell, *Machine Learning*, 1st Edition, McGraw Hill Education.



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LESSON PLAN (july-dec 2025)

Name of Teacher: Ms.Reetu **Designation: Assistant Professor**
Subject Name: Software Engineering **Branch: Computer Science**
Semester: BCA (G) 5th **Subject Code: (BCA-23-303)**
Date of Start: 21 July 2025 **Total Load: 20 hr.20 min**
Date of Completion: 21 Nov. 2025

Module/Unit-1: Introduction and Software Requirement

S.No	Name of Topic	Hours
1	Software Processes & Characteristics,	50
2	Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models.	50
3	Requirement engineering,	50
	Total	2.5 hr

Module/Unit 2- Software Requirements Analysis & Specifications

S.No	Name of Topic	Hours
1	Requirement engineering,	50
2	requirement elicitation techniques like FAST, QFD	50
3	requirements analysis using DFD	50
4	Data dictionaries & ER Diagrams,	50
5	Requirements documentation, Nature of SRS	50
6	Characteristics & organization of SRS .	50
	Total	5 hr

Module/Unit 3- Software Project Management Concepts and Software Project Planning

S.No	Name of Topic	Hours
1	The Management spectrum, The People, The Problem,	50
2	The Process, The Project, Project Planning:	50
3	Project Planning: Size Estimation like lines of Code & Function Count,	50
4	Cost Estimation Models, COCOMO,	50
5	McCabe cyclomatic complexity, Risk Management.	50
	Total	4 hr.10 min

Module/Unit 4- Software Design

S.No	Name of Topic	Hours
1	Cohesion & Coupling, Classification of Cohesiveness & Coupling	50
2	Function Oriented Design, Object Oriented Design,	50
3	Software Metrics: Software measurements: What & Why,	50
4	Token Count, Halstead Software Science Measures	50
5	Token Count, Halstead Software Science Measures	50
	Total	4 hr.10 min

Module/Unit 5 - Software Testing

S.No	Name of Topic	Hours
1	Testing Process, Design of Test Cases,	50
2	Types of Testing, Functional Testing, Structural Testing,	50
3	Test Activities, Unit Testing,	50
4	Integration Testing and System Testing, Debugging Activities.	50
	Total	3 hr 20 min

TEXT BOOKS:

1. Pressman, “Software Engineering”, TMH.
2. K.K Aggarwal & Yogesh Singh, “Software Engineering”, New Age International Publishers.
3. Jalote, Pankaj, “An Integrated Approach to Software Engineering”, Narosa Publications.
4. Lewis, T.G, “Software Egineering”, McGraw-Hill.
5. Shere, “Software Engineering & Management”, Prentice Hall.
6. Fairely, R.E., “Software Engineering Concepts”, McGraw-Hill.

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DEPARTMENT OF COMPUTER SCIENCE
LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Rajan Kumar **Designation:Assistant professor**
SubjectName:SAP
Branch:BCA(G) **Semester:5th** **Subject Code: BCA-23-309**
Date of Start: 21 july **Total Load:19 Hours 10 min** **Date of Completion:21 Nov**

UNIT-1:- Introduction speech and audio processing

Name	Mins
1 Speech production and modelling - Human Auditory System; General structure of speech coders; Classification of speech coding techniques – parametric,	50
2 waveform and hybrid, Requirements of speech codecs – quality, coding delays	50
3 robustness. Speech Signal Processing-: Pitch-period estimation, all-pole and all-zero filters, convolution	50
4 Power spectral density, periodogram, autoregressive model,	50
5 autocorrelation estimation	50

TOTAL:-4 Hour 10min

UNIT:2-Linear Prediction Of Speech and speech Quantization

Name	Mins
1 Basic concepts of linear prediction; Linear Prediction Analysis of non-stationary signals prediction gain, examples;	50
2 Levinson-Durbin algorithm; Long-term andshort-term linear prediction models;	50
3 Moving average prediction. Scalar quantization–uniform quantizer,	50
4 optimum quantizer, logarithmic quantizer, adaptive quantizer, differential quantizers;	50
5 Vector quantization: distortion measures, codebook design	50

TOTAL:-4 Hour 10min

UNIT-3:- Scalar Quantization Of LPC and Linear prediction coding

Name	Mins
1 Spectral distortion measures, Quantization based on reflection coefficient and log area ratio,	50
2 bit allocation; Line spectral frequency:	50
3 LPC to LSF conversions, quantization based on LSF	50
4 Linear Prediction Coding- LPC model of speech production;	50
5 Structures of LPC encoders and decoders; Voicing detection	50

Name	Mins
6 Limitations of the LPC model.	50

Total:-5 Hours

UNIT-4:- Code Excited Linear Prediction

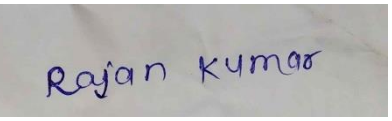
Name	Mins
1 Code Excited Linear Prediction- CELP speech production model; Analysis-by-synthesis;	50
2 Generic CELP encoders and decoders;	50
3 Excitation codebook search – state-save method, zero-input zero state method;	50
4 CELP based on adaptive codebook, Adaptive Codebook search	50
5 Low Delay CELP and algebraic CELP.	50
6 Speech Coding Standards: An overview of ITU-T G.726	50
7 G.728 and G.729standards	50

Total:-5 H 50min

Text/ Reference Books:

1 A.M.Kondoz, "Digital Speech", Second Edition (Wiley Students‟ Edition), 2004.

2 W.C. Chu, "Speech Coding Algorithms: Foundation and Evolution of Standardized Coders", Wiley Inter science, 2003.



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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JUL-DEC 2025)

Name of Teacher: Neha Khanna **Designation: A.P** **Subject Name: JAVA LAB**
Branch: BCA-GEN **Semester: 5th** **Subject Code: BCA-23- 311**
Date of Start: 21/07/2025 **Total Load: 16.6 hrs** **Date of Completion: 14/11/2025**

Module: List of Experiments

S.No	Name of Topic	Hours
1	Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result. Handle any possible exceptions like divide by zero.	100 Min
2	(i) Write a Java program to develop an applet that displays a simple message (ii) Develop an Applet that receives an integer in one text field & compute its factorial value & returns it in another text filed when the button "Compute" is clicked	100 Min
3	Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers(Use StringTokenizer class of java.util)	100 Min
4	Write a java program to create an abstract class named Shape that contains two integers and an empty method named printArea (). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea ( ) that prints the area of the given shape.	100 Min
5	Write a java program that implements a multi-thread application that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.	100 Min
6	Write a java program that connects to a database using JDBC and does add, deletes, modify and retrieve operations.	100 Min
7	Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.	100 Min
8	Write a Java program that reads a file and displays the file on the screen, with a line number before each line.	100 Min

9	Write a Java program that displays the number of characters, lines and words in a text file.	100 Min
10	Write a Java program to make frequency count of words in a given text.	100 Min
	Total	16.6 hrs

Text/ Reference Books:

1. H M Deitel and P J Deitel, "C++ How to Program". by Pearson Education.
2. Robert Lafore, "Object Oriented Programming in Turbo C++", The WAITE Group Press, 1994.
3. E Balagurusamy, "Programming in Java", McGraw Hill

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Keshav Maheshwari **Designation: Lecturer** **Subject Name: Machine learning**
Branch: BCA(G) **Semester:5th** **Subject Code: BCA-G-23-313**
Date of Start: 21July 2025 **Total Load:20 hrs** **Date of Completion: 21Nov 2025**

List OF Experiment	
1. Write a program to implement k-Nearest Neighbour algorithm to classify the iris	100min
data set.	
2. Print both correct and wrong predictions.	100min
3. Write a program to implement feature scaling & feature standardization of	100min
preprocessing & compare its result with KNN algorithm.	
4. Write a program to demonstrate the working of the decision tree based ID3	100min
algorithm	
5. Use an appropriate data set for building the decision tree and apply this knowledge	100min
to classify a new sample.	
6. Estimate the accuracy of decision classifier on cancer dataset using 5-fold cross	100min
validation.	
7. Write a program to implement Support vector machine algorithm on sample dataset.	100min
8. Write a program to implement Simple Linear Regression on a sample dataset.	100min
9. Write a program to implement Multi-Variate Linear Regression on a sample dataset.	100min
10. Write a program to implement the naïve Bayesian classifier for a sample training	100min
data set stored as a .CSV file. Compute the accuracy of the classifier, considering	
few test data sets	
11. Write a program to construct a Bayesian network considering medical data like	100min
heart patient or diabetes dataset.	

12. Using a dataset with known class labels compare the labeling error of the K-means 100min
algorithm. Measure the error by assigning a class label to each example. Assume
that the number of clusters is known. Write a program to implement k-Nearest
Neighbour algorithm to classify the iris data set.

Toatal Hours = 20 hrs

Text Books / Reference books

1. **Kevin Murphy, *Machine Learning: A Probabilistic Perspective*, MIT Press, 2012.**
2. **Trevor Hastie, Robert Tibshirani, Jerome Friedman, *The Elements of Statistical Learning*, Springer, 2009 (freely available online).**
3. **Ethem Alpaydin, *Introduction to Machine Learning* (Adaptive Computation and Machine Learning Series), 3rd Edition, MIT Press, 2014.**
4. **Tom M. Mitchell, *Machine Learning*, 1st Edition, McGraw Hill Education.**

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NGF COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

LESSON PLAN (JULY-DEC 2025)

Name of Teacher: Anuradha Assistant Professor Subject Name Minor project lab
Branch: Bca(gen) Semester: 3rd Subject Code:BCA-23-315
Date of Start: 28-07-25 Total Load:26 hours 40 min Date of Completion: 21-11-25

S.No	Name of Topic	Hours
1	Objective: Introduce students to the concept of project-based learning and allow them to choose a project of interest.	100 min
2	Discuss the importance of projects in understanding real-world applications. Present examples of successful projects from previous years. Guide students in selecting a project based on their interests and skills	100min
3	Initial project proposal and rationale.	100 min
	Total	5 hours

S.No	Name of Topic	Hours
1	Help students research and plan their projects, defining goals, milestones, and required resources.	100 min
2	Provide guidance on conducting research and gathering relevant information. Help students create a project plan outlining key tasks and deadlines. Conduct individual or group consultations to refine project ideas.	100 min
3	Submission of a detailed project plan	100 min
	Total	5 hours

S.No	Name of Topic	Hours
1	Assist students in implementing their projects, providing technical support and troubleshooting	100 min
2	Conduct workshops or tutorials on relevant tools and technologies. Facilitate peer collaboration and feedback sessions. Monitor progress through regular check-ins	100 min
3	Progress reports and demonstration of initial project implementation.	100 min

	Total	5 hours

S.No	Name of Topic	Hours
1	Help students refine their projects, prepare presentations, and reflect on the learning process.	100 min
2	Provide feedback on project progress and offer suggestions for improvement. Guide students in preparing a final presentation or demonstration. Facilitate peer evaluations and reflections on the learning journey.	100 min
3	Final project presentation and submission. Reflective essays on the challenges and learning experiences.	100 min
	Total	**5 hours**

S.No	Name of Topic	Hours
1	Project Documentation,	100 min
2	Technical Competence: Assess the technical aspects of the project and the mastery of relevant tools and technologies.	100 min
3	Collaboration and Communication: Evaluate how well students collaborate with peers, seek feedback, and communicate their ideas.	100 min
4	Problem Solving: Assess the ability of students to overcome challenges and solve problems encountered during the project.	100 min
	Total	**6 hours 40 min**

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