BARGAON INSTITUTE OF TECHNOLOGY

DEPARTMENT OF BASIC SCIENCE & HUMANITIES / COMPUTER SCIENCE

LESSON PLAN

DISCIPLINE:	All Branches	**SUBJECT:**	Fundamentals of Computing and Artificial Intelligence
COURSE CODE:	TH 5	**PERIOD PER WEEK:**	2
TOTAL PERIODS:	64	**DURATION OF END EXAM:**	3 Hours
PROGRESSIVE ASSESSMENT:	30 Marks	**END EXAM MARKS:**	70 Marks
NAME OF FACULTY:	_____	**NO. OF CREDITS:**	2

COURSE OUTCOMES (COs):

CO1: Explain the basic organization of a computer system, including input/output devices, CPU, and memory components.

CO2: Describe different types of software, operating systems, their functions, and classifications.

CO3: Explain fundamental concepts of computer networks, Internet, networking devices, and common Internet services.

CO4: Apply problem-solving techniques by developing algorithms and flowcharts for simple computational problems.

CO5: Develop Python programs using variables, data types, operators, conditional statements, and loops to solve basic problems.

CO6: Describe the fundamentals of Artificial Intelligence, Generative AI, Machine Learning, and Deep Learning along with their applications in daily life.

WEEK NO.	CLASS / NO. OF PERIOD	TOPICS PLANNED TO BE COVERED	CLASS DATE	SIGNATURE OF FACULTY
01	1	**UNIT 1: BASIC ORGANIZATION OF COMPUTER Introduction to Computer: Definition, History, Generations & Characteristics**		
01	2	Functional block diagram of computer and explanation of primary components		
02	3	Input units: Keyboard, Mouse, Scanner, Joystick (Working & Applications)		
02	4	Output units: Monitor, Printer, Speaker (Types & Functions)		
03	5	Central Processing Unit (CPU): ALU and Control Unit operations		
03	6	Memory Hierarchy: Primary vs Secondary Memory concepts		
04	7	Primary Memory: RAM (SRAM, DRAM) & ROM (PROM, EPROM, EEPROM)		
04	8	Secondary Memory: Hard Disk Drive (HDD) & Solid State Drive (SSD)		

05	9	Cache Memory & Registers: Function, Speed, and Capacity comparison		
05	10	Revision and Doubt Clearing Class on Unit 1		
06	11	**UNIT 2: COMPUTER SOFTWARE** **Types of software: System software, Application software, Utility software**		
06	12	System Software vs Application Software with real-world examples		
07	13	Operating Systems: Definition, Purpose, and Role in Computer Systems		
07	14	Functions of Operating Systems (Process, Memory, File, and Device Management)		
08	15	Types of Operating Systems: GUI, CUI, Multi-programmed		
08	16	Types of Operating Systems: Timesharing & Real-time OS		
09	17	Computer Virus: Definition, Overview, and Impact on Systems		
09	18	Types of Computer Viruses: Boot Sector, Macro, Memory Resident, File Infector, Polymorphic		
10	19	Anti-virus softwares & Prevention of Virus attacks		
10	20	Revision and Discussion of Questions on Unit 2		
11	21	**UNIT 3: COMPUTER NETWORKS AND INTERNET** **Basic concept of computer networking & Benefits of Networking**		
11	22	Types of Networks: PAN, LAN, MAN, WAN (Features & Differences)		
12	23	Transmission media: Wired Media (Twisted pair, Coaxial, Fiber Optic)		
12	24	Transmission media: Wireless Media (Radio, Microwave, Infrared)		
13	25	Networking Devices: Hub, Switch, Router (Definitions & Functions)		
13	26	Basic concept of Internet, ISP, Web browser, and Search engines		
14	27	Internet Services: E-Mail, WWW, Chatting, Conferencing		
14	28	Internet Services: Online Shopping & E-Commerce applications		
15	29	Awareness about Digital India portals (State level portals)		
15	30	Awareness about Digital India portals (National level portals & Services)		

16	31	Cyber Security Basics & Safe Browsing Practices		
16	32	Revision and Discussion on Computer Networks & Internet		
17	33	**UNIT 4: PROBLEM SOLVING METHODOLOGY** **Algorithm: Definition, Properties, and Steps in Algorithm Development**		
17	34	Flowchart: Definition, Symbols, Rules for drawing flowcharts		
18	35	Examples of Problem Solving: Algorithm & Flowchart to determine sum and average of 5 numbers		
18	36	Examples of Problem Solving: Algorithm & Flowchart to find the greatest number among two numbers		
19	37	Examples of Problem Solving: Algorithm & Flowchart to check if input number is even or odd		
19	38	Examples of Problem Solving: Algorithm & Flowchart to find average of 'n' numbers using loop		
20	39	Examples of Problem Solving: Algorithm & Flowchart to find the factorial of a number		
20	40	Complex Problem Analysis: Designing logic for multi-step problems		
21	41	Practice Session: Writing Algorithms for various mathematical problems		
21	42	Practice Session: Drawing Flowcharts for conditional and looping logic		
22	43	**UNIT 5: PYTHON ESSENTIALS** **Basic Python Syntax, Features, and Environment Setup**		
22	44	Input and Output statements in Python (input(), print())		
23	45	Variables, Constants, and Naming Conventions in Python		
23	46	Data Types in Python: Integer (int), Float (float), String (string)		
24	47	Operators in Python: Arithmetic and Assignment operators		
24	48	Operators in Python: Logical and Comparison operators		
25	49	Conditional Statements: Simple 'if' statement and 'if...else' statement		
25	50	Conditional Statements: 'if...elif...else' ladder with practical programs		
26	51	Python Program: Determine sum and average of 5 numbers		

26	52	Python Program: Find the greatest number among two numbers		
27	53	Python Program: Check whether input number is even or odd		
27	54	Loops in Python: Introduction to 'for' loop and range() function		
28	55	Loops in Python: Introduction to 'while' loop and syntax		
28	56	Python Program: Find average of 'n' numbers using for/while loop		
29	57	Python Program: Find the factorial of a given number		
29	58	**UNIT 6: INTRODUCTION TO AI & FUNDAMENTALS OF AI** **Definition of Artificial Intelligence (AI), History & Evolution**		
30	59	Goals and Characteristics of AI Systems		
30	60	Importance and Applications of AI in Daily Life		
31	61	Definition and Concepts of Generative AI		
31	62	Definition and Concepts of Machine Learning (ML)		
32	63	Definition and Concepts of Deep Learning (DL) along with daily life applications		
32	64	Course Review, Overview of Examination Pattern & Final Doubt Clearing		

INTERNAL ASSESSMENT & EXAM COVERAGE SCHEME:

EXAMINATION	UNITS TO BE COVERED
Internal Assessment - 1	Unit - 1, Unit - 2
Internal Assessment - 2	Unit - 3, Unit - 4
Internal Assessment - 3	Unit - 5, Unit - 6
End Exam	Unit - 1, Unit - 2, Unit - 3, Unit - 4, Unit - 5, Unit - 6

Signature of Faculty

Signature of Principal / HOD