

GOVERNMENT POLYTECHNIC, GAJAPATI

Department of Mathematics & Sciences

Academic Lesson Plan for 1st Year - 2026-27

Subject: FUNDAMENTALS OF COMPUTING & ARTIFICIAL INTELLIGENCE (Th.5)(Credit-2)

Name of the teaching faculty- Dr. Sisira Kumar Kapat, Lecturer-II(CSE)

Semester from
date: 17/08/2026

No. of periods per week: 2
No. of weeks: 32
Total periods: 64

Internal Exam. : 30 Marks
End Semester Exam.: 70 Marks
Total Marks: 100 Marks

Academic session:
2026-27

Classes up to:
17/04/2027

Duration of End Exam.: 3 Hours
Credit: 2

WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
1ST	1ST	Unit 1: Basic Organization of Computer – Introduction to Computer; functional block diagram of computer.
	2ND	Unit 1: Input units – Keyboard, Mouse, Scanner and Joystick.
2ND	1ST	Unit 1: Output units – Monitor, Printer and Speaker; CPU – ALU and Control Unit.
	2ND	Unit 1: Memory – Primary memory and Secondary memory (HDD, SSD).
3RD	1ST	Unit 1: Memory Hierarchy; review and consolidation of Unit 1.
	2ND	Unit 2: Computer Software – Types of software: System software, Application software and Utility software.
4TH	1ST	Unit 2: Operating System – Definition and functions of Operating Systems.
	2ND	Unit 2: Types of Operating Systems – GUI, CUI, Multi-programmed, Timesharing and Real-time.
5TH	1ST	Unit 2: Computer Virus – Boot Sector Virus, Macro Virus, Memory Resident Virus, Polymorphic Virus and File Infector Virus.
	2ND	Unit 2: Anti-virus software and prevention of virus; review and consolidation of Unit 2.
6TH	1ST	Unit 3: Computer Networks and Internet – Basic concept of computer networking; Types of Networks: PAN, LAN, MAN and WAN.
	2ND	Unit 3: Transmission media – Wired and Wireless media.
7TH	1ST	Unit 3: Networking Devices – Hub, Switch and Router (definitions only).
	2ND	Unit 3: Basic concept of Internet, ISP, Web browser and Search engines.
8TH	1ST	Unit 3: Internet Services – E-Mail, WWW, Chatting, Conferencing and Online Shopping.
	2ND	Unit 3: Awareness about Digital India portals (state and national portals); review of Unit 3.
9TH	1ST	Unit 4: Problem Solving Methodology – Algorithm: concept, purpose and basic structure.
	2ND	Unit 4: Flowchart – symbols, conventions and basic flowchart construction.
10TH	1ST	Unit 4: Problem solving through Flowchart – Sum and average of 5 numbers.
	2ND	Unit 4: Problem solving through Flowchart – Greatest number among two numbers; even or odd number.
11TH	1ST	Unit 4: Problem solving through Flowchart – Average of n numbers using for loop; factorial of a number.
	2ND	Unit 4: Review and practice of Algorithms and Flowcharts.
12TH	1ST	Unit 5: Python Essentials – Basic Python Syntax; input and print statements.
	2ND	Unit 5: Variables and Constants; Data Types – int, float and string.
13TH	1ST	Unit 5: Operators – Arithmetic and Assignment operators.
	2ND	Unit 5: Operators – Logical and Comparison operators.
14TH	1ST	Unit 5: Conditional Statements – if statement and if...else statement.
	2ND	Unit 5: Conditional Statements – if...elif...else statement; simple problem solving.
15TH	1ST	Unit 5: Loops – for loop; applications of for loop.
	2ND	Unit 5: Loops – while loop; applications of while loop.
16TH	1ST	Unit 5: Python problem solving – use of variables, data types, operators and conditional statements.
	2ND	Unit 5: Python problem solving – use of for and while loops; practice and consolidation.
17TH	1ST	Unit 5: Review and practice of Python Essentials – syntax, input/print, variables, constants and data types.
	2ND	Unit 5: Review and practice of Python Essentials – operators, conditional statements and loops.
18TH	1ST	Unit 5: Python Essentials – integrated simple problem-solving exercises.

WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
	2ND	Unit 5: Unit review and assessment-oriented practice.
19TH	1ST	Unit 6: Introduction to AI & Fundamentals of AI – Definition of Artificial Intelligence (AI).
	2ND	Unit 6: Goals and Characteristics of AI.
20TH	1ST	Unit 6: Importance and Applications of AI.
	2ND	Unit 6: AI in Daily Life.
21ST	1ST	Unit 6: Definition of Generative AI.
	2ND	Unit 6: Definition of Machine Learning.
22ND	1ST	Unit 6: Definition of Deep Learning; relationship of AI, Machine Learning and Deep Learning.
	2ND	Unit 6: Review and consolidation of Unit 6.
23RD	1ST	Revision: Unit 1 – Basic Organization of Computer.
	2ND	Revision: Unit 2 – Computer Software.
24TH	1ST	Revision: Unit 3 – Computer Networks and Internet.
	2ND	Revision: Unit 4 – Problem Solving Methodology.
25TH	1ST	Revision: Unit 5 – Python Essentials: Basic syntax, input/print, variables, constants and data types.
	2ND	Revision: Unit 5 – Operators and conditional statements.
26TH	1ST	Revision: Unit 5 – for and while loops; problem-solving practice.
	2ND	Revision: Unit 6 – Introduction to AI and fundamentals of AI.
27TH	1ST	Model/Question-based practice: Unit 1 – Basic Organization of Computer.
	2ND	Model/Question-based practice: Unit 2 – Computer Software.
28TH	1ST	Model/Question-based practice: Unit 3 – Computer Networks and Internet.
	2ND	Model/Question-based practice: Unit 4 – Problem Solving Methodology.
29TH	1ST	Model/Question-based practice: Unit 5 – Python Essentials.
	2ND	Model/Question-based practice: Unit 6 – Introduction to AI & Fundamentals of AI.
30TH	1ST	Comprehensive Revision: Units 1–3.
	2ND	Comprehensive Revision: Units 4–6.
31ST	1ST	Comprehensive Revision: Important concepts, definitions and short-answer questions.
	2ND	Comprehensive Revision: Algorithms, Flowcharts and Python problem-solving questions.
32ND	1ST	Final Revision: Artificial Intelligence, Generative AI, Machine Learning and Deep Learning.
	2ND	Final Revision: End Examination-oriented comprehensive revision.

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-6