

# Lesson Plan:

## Computer Science (Class XI) – 2026-27

**.TERM 1: Introduction to Programming & Python (April – September)**

**April - May: Computer System Overview & Introduction to Python**

Topics Covered	Teaching Methods	Activities
Computer System Overview	Lecture + Discussion	Identify computer hardware components
Introduction to Problem Solving	Interactive Session	Discuss problem-solving approaches in computing
Basics of Python	Hands-on Lab	Write a simple "Hello, World!" program
Python Installation & Setup	Practical Demo	Install Python & run basic scripts

**June: Getting Started with Python & Fundamentals**

Topics Covered	Teaching Methods	Activities
Python Syntax & Indentation	Lecture + Hands-on	Identify syntax errors
Variables & Data Types	Hands-on Lab	Write a program using variables
Operators in Python	Live Coding	Perform arithmetic and logical operations
Type Casting & Input/Output Functions	Interactive Coding	Convert data types in Python

**July: Data Handling & Flow of Control**

Topics Covered	Teaching Methods	Activities	Assessment
Lists, Tuples, Sets & Dictionaries	Hands-on Coding	Perform operations on lists & dictionaries	
Conditional Statements (if-else, elif)	Interactive Lab	Check whether a number is even/odd	
Loops (for, while, break, continue)	Live Demo	Create a program to print patterns	Unit Test

Topics Covered	Teaching Methods	Activities	Assessment
Nested Loops & Iterations	Hands-on Practice	Solve mathematical problems using loops	

### August: Flow of Control (Advanced Topics)

Topics Covered	Teaching Methods	Activities
Loop Control Statements ( <code>pass</code> , <code>break</code> , <code>continue</code> )	Hands-on Lab	Modify loops for specific conditions
Functions in Python	Interactive Session	Define & call functions
Arguments & Return Values	Hands-on Coding	Use functions for calculations
Lambda Functions	Live Demo	Create one-line functions using lambda

### September: String & List Manipulation, Debugging

Topics Covered	Teaching Methods	Activities	Assessment
String Methods ( <code>upper()</code> , <code>lower()</code> , <code>strip()</code> )	Lecture + Hands-on	Manipulate strings	
String Indexing & Slicing	Hands-on Lab	Extract parts of a string	
List Operations ( <code>append()</code> , <code>insert()</code> , <code>remove()</code> )	Live Demo	Modify lists dynamically	
Debugging Techniques	Hands-on Practice	Debug given code snippets	Term One Examination

## TERM 2: Advanced Python & Computer Science Concepts (October – February)

### October: Tuples & Dictionaries

Topics Covered	Teaching Methods	Activities
Tuples in Python	Lecture + Hands-on	Create immutable sequences
Dictionary Basics	Hands-on Coding	Store key-value pairs

Topics Covered	Teaching Methods	Activities
Dictionary Methods ( <code>keys()</code> , <code>values()</code> , <code>items()</code> )	Live Demo	Retrieve data from a dictionary
Nested Dictionaries & Operations	Hands-on Lab	Manipulate nested dictionaries

### November: Understanding Sorting

Topics Covered	Teaching Methods	Activities
Bubble Sort & Selection Sort	Lecture + Hands-on	Sort lists using basic sorting algorithms
Insertion Sort	Hands-on Lab	Implement insertion sort on a dataset
Python's Built-in Sorting Functions ( <code>sorted()</code> , <code>.sort()</code> )	Live Demo	Compare sorting techniques
Performance Analysis of Sorting Algorithms	Discussion + Coding	Analyze efficiency of different sorting methods

### December: Boolean Logic

Topics Covered	Teaching Methods	Activities
Introduction to Boolean Algebra	Lecture + Hands-on	Solve Boolean expressions
Logical Operators ( <code>and</code> , <code>or</code> , <code>not</code> )	Hands-on Coding	Create expressions using Boolean logic
Truth Tables & Logic Gates	Live Demo	Represent Boolean expressions in truth tables

### January: Computer Security, Law & Ethics, Cyber Safety

Topics Covered	Teaching Methods	Activities
Basics of Cyber Security	Lecture + Discussion	Discuss cybersecurity threats
Cyber Laws & Ethical Hacking	Case Study Discussion	Analyze real-world cases
Cyber Safety & Privacy Measures	Hands-on Lab	Identify phishing & online frauds

## February: Revision & Final Assessments

<b>Topics Covered</b>	<b>Teaching Methods</b>	<b>Activities</b>	<b>Assessment</b>
Concept Revision	Hands-on Coding	Practice Python problems	
Practical Revision	Coding Practice	Debug & optimize code	
Final Assessment & Project Submission	Viva + Evaluation	Present final projects	Term Two Examination