

DELHI PUBLIC SCHOOL GHAZIABAD
CLASS –XI
COMPUTER SCIENCE LESSON PLAN
UNIT 4: PROGRAMMING IN C++

Unit 4	PROGRAMMING IN C++
Class Transaction	Total: 12 periods
Pre-requisite for the course	This lesson requires 1. Unit 1 and II and III of Computer Science
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. HW notebook
Objective	Students will learn some more keywords and different data structures used for storing different types of data in C++ , they will also learn loops and other control structures and develop an interest in the subject and hone their programming skill-sets thereby inculcating competencies like collaboration, critical thinking and creativity
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> 1. Flow of control 2. Conditional statements: if else, Nested if, switch..case..default, Nestedswitch..case, break statement (to be used in switch..case only); 3. Loops: while, do - while, for and Nested loops 4. user-defined function and its requirements 5. Structured Data Type: 6. Arrays: 7. User-defined Data Types 8. Structure <u>SKILLS</u>- <i>Students would be able to</i> 1. Understand what is C++ programming 2. Learn to write C++ programs 3. Solve complicated problems using C++ language. 4. Execute and debug programs
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- <i>Brain Storming</i>-The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying. <i>Introduction of the topic</i>- ppt and Digital Content would be shared <i>Guided practice followed by Independent Practice</i>- Spiral questions to be

	discussed in the classroom. Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Case Studies Lab Activities Any Other KEY COMPETENCIES: Communication and brainstorming: Students develop effective communication skills and learn to put across their views. Critical thinking and problem solving: Helps students to think critically and solve the given problem Collaboration: Students learn to work in collaboration to achieve a common goal. They learn to manage time and divide and delegate work and responsibilities.												
Resources	Reference Book 1. Sultan Chand 2. DPSG Spiral Weblinks: 1. http://Codeprojects//C++												
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks as mentioned in the monthly planner. H.W. notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks It is also advised that the students come to the class with previous knowledge of the topic being discussed. They can refer to the resources stated above.												
Assessments	<table> <tr> <td>UNIT TEST 1 :</td> <td>30 Marks,</td> </tr> <tr> <td>UNIT TEST 2 and 3 :</td> <td>35 Marks each</td> </tr> <tr> <td>HALF YEARLY EXAMINATION</td> <td>70 Marks</td> </tr> <tr> <td>ANNUAL BOARD EXAMINATION</td> <td>70 Marks</td> </tr> <tr> <td>INTERNAL ASSESSMENT 30 Marks</td> <td></td> </tr> <tr> <td>• Lab Assignment File</td> <td>05 Marks</td> </tr> </table>	UNIT TEST 1 :	30 Marks,	UNIT TEST 2 and 3 :	35 Marks each	HALF YEARLY EXAMINATION	70 Marks	ANNUAL BOARD EXAMINATION	70 Marks	INTERNAL ASSESSMENT 30 Marks		• Lab Assignment File	05 Marks
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	• Lab Practical 15 Marks • Notebook 05 Marks • Viva 05 Marks
Addressing Classroom Diversity	Due to various social backgrounds and multiple intelligences, the classroom might be a diverse arena. The following techniques can be used for various groups: <i>For High Scoring students::</i> • Spiral Level 3 questions to be done • Encouragement for referring other resources <i>For Low scoring students:</i> • Spiral Level 1 to be completed • Buddy help to be provided • Provide grade-up classes <i>For differently abled students:</i> • Ignore silly mistakes and comments ,if not written • Call parents at regular intervals • Provide grade-up classes • Encourage and motivate them at every level.
Marks	The weightage would be given by CBSE.

DELHI PUBLIC SCHOOL GHAZIABAD
CLASS XI
LESSON PLAN
UNIT 4: PROGRAMMING IN C++
(Based on DOL)

Anticipatory Set: Facilitator introduces the topic– **PROGRAMMING IN C++**

Objective: Given questions based on the topic. learners will be able to do learn the basic terms and definitions of programming language C++ . To make students able to learn basic working of C++ and questions based on the topics to be discussed .

Techniques to be used:

- Peer Assessment
- Quiz
- Case Study
- PPT

Materials required and Teaching Aids: Smart Class Modules, blackboard, chalk, duster, SPIRAL AND STUDY MATERIAL book

Strategy

Student – teacher interaction, collaborative learning, independent practice

DAY 1

TOPIC COVERED : Flow of control and Conditional statements in C++

Transaction hours: 50 minutes period

- **Previous knowledge:** Basic Knowledge to programming language and unit 3 Comp Sci class XI.

Objectives:

- Introduce if else,
- Use of Nested if,
- Use of switch..case..default,
- Use of Nestedswitch..case, break statement (to be used in switch..case only);
- Understand the difference between all three **Conditional statements**

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

SUMMARIZE AND CHECK FOR UNDERSTANDING

Group discussion on various related topics, question-answer session. (Communication, collaboration). Some questions will be asked based on the day's teaching and doubts will be cleared.

GUIDED PRACTICE cases and application-based questions relating to the above topics (critical thinking, Collaboration and creativity)

DAY 2

TOPIC COVERED : Different types of Loops in C++.

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.
- **Objectives:** To make students learn the use and syntaxes of
 - while,
 - do - while,
 - for and Nested loops
 - Difference between all three loops

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
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DAY 3

TOPIC COVERED : Header File

Transaction hours: 50 minutes period

- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.
- **Objectives:** Students will learn about different header files and the functions defined in them their use in programming language.

Techniques to be used:

- Lecture method **communication,**
- Group discussion **collaboration,**
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation,**
- Case studies **creativity and innovation,**
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DAY 4

TOPIC COVERED : user-defined function and its requirements

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.
- **Objectives:** Students will learn
 - Defining a function; function prototype,
 - Invoking/calling a function,
 - passing arguments to function,
 - specifying argument data types,
 - default argument,

Techniques to be used:

- Lecture method **communication,**
- Group discussion **collaboration,**
- Peer assessment **character and citizenship**

- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
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DAY 5

- **TOPIC COVERED :** constant argument, call by value, call by reference,

Transaction hours: 50 minutes period

- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives:

- Understand constant argument,
- call by value, call by reference and difference between the both.
- returning values from a function, scope rules; local and global variables

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
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DAY 6

TOPIC COVERED : Structured Data Type:

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn about

- **Arrays:** Introduction to Array and its advantages
- Use of arrays in solving problems
- Different types of arrays(int, float, char etc)

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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DAY 7

TOPIC COVERED : One Dimensional Array

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn about

- Declaration/initialization of One-dimensional array,
- inputting array elements
- accessing array elements
- manipulation of array elements (sum of elements, product of elements, average of elements)
- linear search, finding maximum/minimum value)

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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DAY 8

TOPIC COVERED : Strings

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn

- Declaration / Initialization of a String,
- string manipulations (counting vowels/ consonants/ digits/ special characters
- case conversion
- reversing a string
- reversing each word of a string

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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DAY 9

TOPIC COVERED : Two-dimensional Array:

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn about

- Declaration/initialization of a two-dimensional array, inputting array elements accessing array elements
- manipulation of array elements (sum of row element, column elements, diagonal elements, finding maximum / minimum values)

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
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DAY 10

TOPIC COVERED : User-defined Data Types

Transaction hours: 50 minutes period

- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn about

Structure

- Defining a Structure
- declaring structure variables
- accessing structure elements
- **Techniques to be used:**
 - Lecture method **communication**,
 - Group discussion **collaboration**,
 - Peer assessment **character and citizenship**
 - Quiz **creativity and innovation**,
 - Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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DAY 11

TOPIC COVERED : User Defined data types - Structures

- **Transaction hours:** 50 minutes period
- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn about

- passing structure to functions as value and reference,
- function returning structure
- array of structure

Techniques to be used:

- Lecture method **communication**,
- Group discussion **collaboration**,
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation**,
- Case studies **creativity and innovation**,
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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DAY 12

TOPIC COVERED : typedef keyword and #define preprocessor directive

Transaction hours: 50 minutes period

- **Previous knowledge:** Topics of Unit 4 covered in previous classes, unit 3 Comp Sci class XI.

Objectives: Students will learn

- Defining a symbol name using **typedef** keyword
- defining a macro using **#define** preprocessor directive.
- Their use in problem solving .

Techniques to be used:

- Lecture method **communication,**
- Group discussion **collaboration,**
- Peer assessment **character and citizenship**
- Quiz **creativity and innovation,**
- Case studies **creativity and innovation,**
- **Teaching aids used:** Black board, chalk, duster, NCERT Book, self- prepared modules, recorded videos

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