

# Course: Cpp

**Course Code:** Cpp

**Session:** 2019-20

**Duration:** 4 months

**Assessment procedures:** Proctored certification Exam (100%)

## Curriculum of the Course:

- 1 Introduction to C
- 2 Basic Level
- 3 Intermediate level
- 4 Advanced level

## Basic Level

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### 1) First C Program

- -Header Files
  - example: `#include <stdio.h>`
- `main()`
- Curly braces { }
- `printf()`
- semicolon ;
- Compiling a C program
  - example: `gcc filename.c -o output parameter`
- Executing a C program
  - example: `./output parameter`
- Errors

### 2) First C++ Program

- Header files
  - --example: `#include <iostream>`
- `main()`
- Curly braces { }
- `-cout<<`
- semicolon ;
- Compiling a C++ program
  - example: `g++ filename.cpp -o output parameter`
- Executing a C program

- example: ./output parameter

### 3) Tokens in C and C++

- Data types, constants, identifiers
- Keywords
  - example: if, break, else
- Constants
- Data types
  - example: int, float, char, double
- Format specifiers
  - example: %d, %f, %c, %lf
- Range of data types
- Variables
- Identifier
- Errors

### 4) Functions in C and C++

- What is a function
- Syntax for declaration of a function
- Function with arguments
  - example: return-type function-name(parameter);
- Function without arguments
  - example: return-type function-name;
- Calling a function
- Errors

### 5) Scope of Variables in C and C++

- Introduction
- Syntax of declaring a variable
  - example: data-type var-name;
- Syntax for initializing a variable
  - example: data-type var-name = value;
- Scope of variables
- Global variable
- Local variable
- Error

### 6) If And Else If statement in C and C++

- What are Statements.

- Syntax for if and
- If-else Statement
- Errors

#### **7) Nested if and switch statement in C and C++**

- Nested if statement.
- Switch statement.
- Syntax for nested-if statement
- Syntax for switch statement
- break statement
- Comparison between nested if-else and switch statement
- Errors

#### **8) Increment and Decrement Operators in C and C++**

- Increment Operator
  - example: ++
- Postfix increment
  - example: a++
- Prefix increment
  - example: ++a
- Decrement Operator
  - example: --
- Postfix decrement
  - example: a--
- Prefix decrement
  - example: --a
- Typecasting
- Errors

#### **9) Arithmetic Operators in C and C++**

- Arithmetic Operators
- Addition Operator
  - example: a + b
- Subtraction Operator
  - example: a - b
- Multiplication Operator
  - example: a \* b
- Division Operator

- example: a \ b
- Modulus Operator
  - example: a % b
- Errors

#### 10) Relational Operators in C and C++

- Double Equal to
  - example: a == b
- Not Equal to
  - example: a != b
- Greater Than
  - example: a > b
- Less Than
  - example: a < b
- Greater than Equal To
  - example: a >= b
- Less Than Equal To
  - example: a <= b
- Errors

#### 11) Logical Operators in C and C++

- And &&
- Or ||
- Not !
- Errors

### Intermediate level

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#### 12) Loops in C and C++

- Loops
- Syntax for while and do-while loop
- Comparison of while and do-while loop
- Syntax for
  - for loop
- Errors

#### 13) Arrays in C and C++

- What are arrays
- 1-D Arrays
- Syntax for Declaration of arrays

- example: data type array\_name [size];
- Syntax for Initialization of arrays
  - example: data type array\_name [size]=value;
- Accepting values from the user
- Errors

#### 14) Working with 2-D Arrays in C and C++

- What are 2-D Arrays.
- Range of arrays
- Syntax for Declaration of 2-D arrays
  - example: data type array\_name[row][column];
- Syntax for initialization of 2-D arrays
  - example: data type array\_name[row][column]=  

```
{
{row-val},{col-val}
};
```
- Errors

#### 15) Strings in C and C++

- What is a string
- Syntax for declaring a string
- Syntax for initializing a string
- To read a string from keyboard
- Errors

#### 16) String Library Functions in C and C++

- What are string library functions.
- Types of string library functions
  - Strcpy
  - Strlen
  - Strcmp
  - Strcat
- Errors

### Advanced level

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#### 17) Working with Structures in C and C++

- Introduction
- Syntax of structures
- Declaration and initialization
- Declaration of structure variable
- Accessing structure variables

## 18) Understanding Pointers in C and C++

- Introduction
- Syntax of Pointer
  - example: `int *iptr;`
- Declaration
  - example:

`int a; (integer a) int *aptr; (pointer to an integer *aptr) aptr = &a; (aptr set to address of a)`  
Address Pointer

- Errors

## 19) Function call in C and C++

- types of function calls
- function pass by value
- function pass by reference

## 20) File Handling in C

- File handling functions
- Opening a File closing a file
  - example: `fopen`, `fclose`
- Reading data from a File

## List of Students Enrolled

| #  | First Name | Last Name |
|----|------------|-----------|
| 1  | Apoorva    | Dubey     |
| 2  | Abhishek   | Yadav     |
| 3  | Akhilesh   | Choudhary |
| 4  | Akshat     | Jain      |
| 5  | Akshat     | Nama      |
| 6  | Akshat     | Sharma    |
| 7  | Akshat     | Sharma    |
| 8  | Amisha     | Aggarwal  |
| 9  | Amit       | Sharma    |
| 10 | Anagh      | Kumar     |
| 11 | Anjali     | Sharma    |
| 12 | Ansh       | Pancholi  |
| 13 | Ansh       | Shahara   |
| 14 | Anshshikha | Agarwal   |
| 15 | Anurag     | Joshi     |
| 16 | Arpit      | Katare    |
| 17 | Arushi     | Arora     |
| 18 | Ashik      | Saini     |
| 19 | Ashita     | Rathi     |

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|----|---------------|--------------|
| 20 | Ayush         | Garg         |
| 21 | Ayush         | Jhanwar      |
| 22 | Ayush         | Podar        |
| 23 | Chandrabhan   | Sherawat     |
| 24 | Chhavi        | Jangid       |
| 25 | Chirag        | Bhayana      |
| 26 | Chirag        | Bohra        |
| 27 | Deepesh       | Yadav        |
| 28 | Dinesh Kumar  | Jajoo        |
| 29 | Disha         | Goyal        |
| 30 | Divyansh      | Sharma       |
| 31 | Eklavya       | Joshi        |
| 32 | Farhan        | Rehman       |
| 33 | Gagandeep     | Singh        |
| 34 | Gauransh      | Sharma       |
| 35 | Gaurav        | Malani       |
| 36 | Gaurav        | Vijayvergiya |
| 37 | Gautam        | Khatri       |
| 38 | Harsh Vardhan | Goel         |
| 39 | Harshit       | Gupta        |

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|----|----------------|--------------|
| 40 | Hemant         | Patwari      |
| 41 | Himanshu       | Gupta        |
| 42 | Hritik         | Khatri       |
| 43 | Iqjot Singh    | Valecha      |
| 44 | Jayesh         | Singh        |
| 45 | Sunidhi        | Sharma       |
| 46 | Sagar          | Alwani       |
| 47 | Naman          | Bachlas      |
| 48 | Gaurav         | Gahlot       |
| 49 | Aditi          | Shah         |
| 50 | Divyansh       | Shukla       |
| 51 | Aditi          | Jain         |
| 52 | Darshan        | Kothari      |
| 53 | Devang         | Sharma       |
| 54 | Khushi         | Chaplot      |
| 55 | Anshul         | Ranka        |
| 56 | Gurjar Bhanwar | Singh        |
| 57 | Lav Kumar      | Pareva       |
| 58 | Ashutosh       | Sharma       |
| 59 | Harshita       | Dadhich      |
| 60 | Jash           | Jain         |
| 61 | Anushka        | Sharma       |
| 62 | Akshita        | Sopra        |
| 63 | Devesh         | Agarwal      |
| 64 | Ayush          | .            |
| 65 | Dhananjay      | Gupta        |
| 66 | Jatin          | Hazrati      |
| 67 | Devang         | Vashistha    |
| 68 | Shivam         | Tailor       |
| 69 | Vishwanath     | Hosmane      |
| 70 | Praveen        | Chordia      |
| 71 | Ritesh         | Jain         |
| 72 | Sarvesh        | Kumar Saini  |
| 73 | Shreyash       | Lata         |
| 74 | Punit          | Agarwal      |
| 75 | Yash           | Agarwal      |
| 76 | Pooja          | Jain         |
| 77 | Anurag         | Mathur       |
| 78 | Vishakha       | Agarwal      |
| 79 | Yashwant       | Tejwani      |
| 80 | Yashika        | Jain         |
| 81 | Harshita       | Sharma       |
| 82 | Yugank         | Sharma       |
| 83 | Yash           | Khandelwal   |
| 84 | Ritika         | Jain         |
| 85 | Anil           | Kumar Jangid |
| 86 | Vijay          | Choudhary    |

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|-----|------------|-------------|
| 87  | Sourav     | Shandilya   |
| 88  | Vishnu     | Sharma      |
| 89  | Vishal     | Prajapat    |
| 90  | Syed Urooj | Kamal       |
| 91  | Livisha    | Jain        |
| 92  | Vishal     | Sharma      |
| 93  | Rishabh    | Pandey      |
| 94  | Saijal     | Gulyani     |
| 95  | Vedika     | Chandaliya  |
| 96  | Amandeep   | Singh       |
| 97  | Divyanshi  | Khandelwal  |
| 98  | Samarth    | Saxena      |
| 99  | Shivam     | Agarwal     |
| 100 | Sanskar    | Dutt Sharma |
| 101 | Samyak     | Bardiya     |
| 102 | Saurabh    | Gupta       |
| 103 | Sanidhya   | Saxena      |
| 104 | Seenu      | Mangal      |
| 105 | Seva Ram   | Gedar       |
| 106 | Yuvraj     | Jhurani     |
| 107 | Rounak     | Mathur      |
| 108 | Sanket     | Sawarn      |
| 109 | Bilal      | Hussain     |
| 110 | Rythm      | Thakral     |
| 111 | Priyanka   | Kumari      |
| 112 | Riya       | Agarwal     |
| 113 | Sajal      | Birla       |
| 114 | Robins     | Kumar       |
| 115 | Rivanshu   | Bansal      |
| 116 | Rishabh    | Sharma      |
| 117 | Sahil      | Singh       |
| 118 | Rangnath   | Ram         |
| 119 | Ravi       | Gupta       |
| 120 | Saumya     | Chauhan     |
| 121 | Sahil      | Khandelwal  |
| 122 | Sahil      | Mehra       |
| 123 | Kanishka   | Singh       |
| 124 | Dinesh     | Prasad      |
| 125 | Harsh      | Modi        |
| 126 | Gaurav     | Agarwal     |
| 127 | Ayush      | Mishra      |
| 128 | Himank     | Shah        |
| 129 | Chitwan    | Agarwal     |
| 130 | Aditya     | Tanwar      |
| 131 | Aman       | Singh       |
| 132 | Aditi      | Sharma      |
| 133 | Aman       | Chaturvedi  |

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|-----|-------------|-------------|
| 134 | Abhishek    | Tripathi    |
| 135 | Aashna      | Puri        |
| 136 | Anshita     | Raghuvanshi |
| 137 | Anshuman    | Yadav       |
| 138 | Aditya      | Pandita     |
| 139 | Aditya      | Mishra      |
| 140 | Aniruddh    | Bhardwaj    |
| 141 | Abhishek    | Sharma      |
| 142 | Mansi       | Jain        |
| 143 | Priyansh    | Bansal      |
| 144 | Shobhit     | Maheshwari  |
| 145 | Sudarshan   | Saxena      |
| 146 | Swapnil     | Agarwal     |
| 147 | Sparshi     | Gupta       |
| 148 | Sakshi      | Sharma      |
| 149 | Yameen      | Khan        |
| 150 | Mayank      | Nahar       |
| 151 | Suryapratap | Singh       |
| 152 | Preeti      | Indoriya    |
| 153 | Nimisha     | Sharma      |
| 154 | Piyush      | Sharma      |
| 155 | Pallav      | Vyas        |
| 156 | Satyam      | Raj         |
| 157 | Mohit       | Gupta       |
| 158 | Shradha     | Sharma      |
| 159 | Harsh       | Gupta       |
| 160 | Arpit       | Somani      |
| 161 | Divanshu    | Agarwal     |
| 162 | Kriti       | Sharma      |
| 163 | Chirag      | Jain        |
| 164 | Govind      | Sharma      |
| 165 | Hitesh      | Gupta       |
| 166 | Abhishek    | Sharma      |
| 167 | Sachin      | Yadav       |
| 168 | Aouchitya   | Kumar Sen   |
| 169 | Yash        | Agarwal     |
| 170 | Karan       | Choudhary   |
| 171 | Om          | Prakash     |
| 172 | Pooja       | Rathore     |
| 173 | Naman       | Porwal      |
| 174 | Naman       | Joshi       |
| 175 | Pulkit      | Jain        |
| 176 | Rachit      | Gupta       |
| 177 | Pranjal     | Khandelwal  |
| 178 | Priyanshu   | Tali        |
| 179 | Rahul       | Bhati       |
| 180 | Pravesh     | Jain        |

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|-----|------------|--------------|
| 181 | Priyanshu  | Pandey       |
| 182 | Nikhil     | Agarwal      |
| 183 | Radhika    | Sodhani      |
| 184 | Puneet     | Alwani       |
| 185 | Radhika    | Malpani      |
| 186 | Nitin      | Khandelwal   |
| 187 | Muzamil    | Riyaz        |
| 188 | Pranjal    | Gupta        |
| 189 | Nihal      | Singh Chawla |
| 190 | Nikhil     | Sharma       |
| 191 | Nitin      | Sharma       |
| 192 | Priti      | Agarwal      |
| 193 | Muskan     | Gupta        |
| 194 | Niramay    | Vyas         |
| 195 | Pragati    | Agrawal      |
| 196 | Prachi     | Chittora     |
| 197 | Parakh     | Bansal       |
| 198 | Nishita    | Tolani       |
| 199 | Jahanvi    | Rathi        |
| 200 | Lakshya    | Sharma       |
| 201 | Md Shoaib  | Akhtar       |
| 202 | Khushboo   | Rathore      |
| 203 | Kashish    | Agarwal      |
| 204 | Mansi      | Pareek       |
| 205 | Kshitij    | Mittal       |
| 206 | Mudit      | Maheshwari   |
| 207 | Kriti      | Kothari      |
| 208 | Nitish     | Panjwani     |
| 209 | Krati      | Chauhan      |
| 210 | Kshitij    | Kumawat      |
| 211 | Kushagra   | Singhal      |
| 212 | Jaspreet   | Singh        |
| 213 | Karan      | Chauhan      |
| 214 | Kartik     | Saini        |
| 215 | Jinendra   | Jain         |
| 216 | Mrityunjai | Kaushik      |
| 217 | Karan      | Aggarwal     |
| 218 | Joginder   | Singh        |
| 219 | Mohit      | Agarwal      |
| 220 | Lovish     | Chittora     |
| 221 | Mahesh     | Malpani      |
| 222 | Mohit      | Sharma       |
| 223 | Mohd       | Mohseen      |
| 224 | Hitesh     | Kumar        |
| 225 | Kalpana    | Modi         |
| 226 | Shruti     | Mehta        |
| 227 | Shyam      | Varshney     |

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|-----|-----------|------------|
| 228 | Shradha   | Jain       |
| 229 | Shruti    | Harlalka   |
| 230 | Sourabh   | Sharma     |
| 231 | Sourabh   | Mishra     |
| 232 | Shivangi  | Koul Naqib |
| 233 | Shruti    | Agarwal    |
| 234 | Shreyansh | Jain       |
| 235 | Shubham   | Kumar      |
| 236 | Suraj     | Kumar      |

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|-----|----------|--------------|
| 237 | Swati    | Gupta        |
| 238 | Suryansh | Gahlot       |
| 239 | Surishti | Raj          |
| 240 | Sumedha  | Sharma       |
| 241 | Srishti  | Naruka       |
| 242 | Srishti  | Gupta        |
| 243 | Shubham  | Menroy       |
| 244 | Shubham  | Agarwal Jain |