Week 1:

- Introduction to computers and computer programs.

- Need for a programming language.

- Classification of programming languages (high level, low level, and machine level).

- Why use high-level programming languages.

- Assembler, Interpreter, and Compiler.

- Phases of a C++ program.

This is further explained in the pdf called Week 1.

Week 2:

- First program in C++ displaying "Hello C++".

- Analysis of the first program.

- Escape sequences and manipulators.

- Example programs.

<https://youtu.be/RSDzvlXmQi4?si=3ZWiRrZWlS-k84qe>

This link is only for this segment, it gives a short overview of C++.

Week 3:

- C++ variables and their data types. Already done in 1st sem.

- Representation of variables with respect to memory. The below exercise.

- Rules for constructing variable names. Already done in 1st sem.

- Input and output in C++. {cout , cin}

- Examples.

<https://www.programiz.com/cpp-programming/examples/sizeof-operator>

Do this exercise.

Week 4:

- Arithmetic operators.

- Arithmetic assignment operators.

- Relational operators.

- Logical operators.

- Postfix and Prefix increment and decrement operators.

- Assignment operator.

- Conditional operator.

- Precedence and associativity.

<https://youtu.be/JBgZxnAj4hg?si=pcprVLsOU2kKnHfP>

This link gives a brief overview on operators and their precedence.

Ghano Ali do manyyyyyy examples for this.

Programiz C++examples.

Week 5:

- One-way selection using the if-statement.

- Two-way selection using the if...else statement.

- Example programs.

- Nested if and if...else statements.

<https://youtu.be/AY96XFqb934?si=6Z43lO5U2BTDR5B9>

Week 6:

- Multiple selection using the switch statement.

- Practice on selection structures.

- Nested switch statements.

<https://youtu.be/uOlLs1OYSSI?si=2RIt5OCeFaIg8Tj5>

Week 7:

- Introduction to repetition structures.

- Repetition essentials.

- The for loop.

- Practice of for loops.

- The while loops.

- The do-while loop.

- Examples.

<https://youtu.be/a7dfSBrTZtE?si=6Cv14Skw8HJpHmHv>

Week 8:

- Nested loops.

- The break and continue statements.

<https://youtu.be/DJh5NfK7h-U?si=uQ4rKfyr6m1s48EY>

\*\*\*\*\*Very important\*\*\*\*\*

\*Do everything in this video\*

\*\*Especially boilerplate snippet\*\*

Week 9:

- Functions introduction.

- Passing arguments and returning values from functions.

- Passing arguments by value and reference.

<https://youtu.be/RFLFX1boGwo?si=ctHpNOCckBXixnzG>

<https://youtu.be/oQbyN-vDghA?si=oomAj-Y4ZqXB0GiS>

Week 10:

- Function overloading.

- Inline functions.

- Default arguments.

- Scope and storage classes.

- Built-in functions.

<https://youtu.be/oVvvwEx-gBw?si=09jMCd1n8rHM8phi>

Week 11:

- Introduction to Arrays.

- One-dimensional arrays.

- Initializing arrays at the time of declaration.

- Examples of one-dimensional arrays.

<https://youtu.be/ePJxpxsnkGw?si=9hIuJdvotCcUOadt>

Week 12:

- Two-dimensional arrays.

<https://youtu.be/Xx1tWbb37hY?si=Q72Tv6XpH2ZtSZQR>

- Arrays searching and sorting.

<https://youtu.be/dQa4A2Z0_Ro?si=bjyJi7VipjBB_WOh>

<https://youtu.be/13ocRMSJy5M?si=TvVOTY1WFiyjgOHD>

- Arrays as parameters in functions.

<https://youtu.be/gNlmJ2WrZSY?si=ECFxk4vY77N_Y4eu>

This is a bit complicated mujhe call krlena if you don’t understand.

Week 13:

- Pointer’s introduction.

<https://youtu.be/EvYmTCx9BFs?si=HkA9DaV3ZAT8_n-b>

- Pointer arithmetic.

<https://youtu.be/ePJxpxsnkGw?si=gsoQemhBMkODiGLk>

- Handling one-dimensional and two-dimensional arrays with pointers.

- Pointer to arrays.

- Array of pointers.

<https://youtu.be/cqX54iGlqBY?si=3AnV8pgBrT7P4xmv>

Week 14:

- One-dimensional and two-dimensional character arrays.

<https://youtu.be/J1aQ9JN4vZY?si=BUrg_VTmNx0u8g-X>

- Operations on character arrays using pointers.

<https://youtu.be/cqX54iGlqBY?si=3AnV8pgBrT7P4xmv>

- Dynamic memory allocation.

<https://youtu.be/wDUiDd3KmAA?si=Myfb895lbPzKwyPl>

Week 15:

- Structures introduction.

- Structure variables.

- Public and private members in structures.

- Accessing members of a structure.

- Passing structures through a function.

Week 16:

- File handling.

- Text files vs Binary files.