



The C++20 Masterclass (Full Syllabus Roadmap)

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2. Getting the most out of the course
3. Source code, Slides and Questions [Important]

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3. Microsoft Visual Studio Install - Windows
4. VS Code setup with MSVC
5. Install GCC & Clang - Windows
6. Configure VS Code for GCC - Windows
7. Configure VS Code for Clang - Windows
8. Window template project- All compilers
9. Windows Developement Environment setup - Summary

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- 9. C++ core language Vs Standard library Vs STL
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- 10. Math Functions
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- 9. If constexpr
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- 12. Variable Scope Revisited
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- 10. Fun with character arrays: Fortune Teller V1
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11. Pointer arithmetic : Introduction
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20. Dangling Pointers
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6. C-String concatenation and copy
7. Coding Exercise 20: Making sense of the gibish
8. Introduction std::string
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12. Accessing Characters in std::string
13. std::string size and capacity
14. Modifying std::string
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16. Coding Exercise 22: Who's the greatest?
17. Comparing with std::string::compare()
18. std::string : Replacing, copying, resizing and swapping
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27. std::string_view
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- 6. Multiple Files : Revisit the Linker stage
- 7. Coding Exercise 26: Palindromes!
- 8. Pass by value
- 9. Pass by const value
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- 13. Quiz 20: Zooming in on function parameters
- 14. Pass by reference
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- 17. Passing function parameters :Summary
- 18. Coding Exercise 27: Who has character?
- 19. Array function parameters
- 20. Coding Exercise 28: Insertion sort - Challenging
- 21. Sized array function parameters
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- 24. Multi dimensional array function parameter
- 25. Default function arguments
- 26. Implicit Conversions
- 27. Implicit conversions with references
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- 30. `string_view` Parameters
- 31. Implicit conversions from `std::string_view` to `std::string`
- 32. `constexpr` functions
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- 2. Enumerated type (Enum Class)
- 3. Coding Exercise 30: Day of the week
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- 8. Returning array element pointer
- 9. Coding Exercise 32 : We messed up!
- 10. Bare auto type deduction
- 11. Function return type deduction
- 12. Return type deduction with references
- 13. Function definitions with return type deduction
- 14. Quiz 28: Type deductions : Throwing you off!
- 15. Optional output from functions
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- 6. Overloading with const parameters by value
- 7. Overloading with const pointer and pointer to const parameters
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- 8. Template Specialization
- 9. Coding Exercise 39: Find'em const char* 's
- 10. Quiz 34: Where do specializations go : Throwing you off!
- 11. Function templates with overloading
- 12. Coding Exercise 40: const char* function template overloads
- 13. Function templates specialization Vs Overloads : Some additional reading.
- 14. Function templates with multiple parameters
- 15. Coding Exercise 41: Put'em numbers together!
- 16. Templates return type deduction with auto
- 17. Quiz 35: Function templates in multiple files : Throwing you off!
- 18. Decltype and trailing return types
- 19. decltype and trailing return types : Throwing you off
- 20. Decltype auto
- 21. Default arguments
- 22. Non type template parameters
- 23. Coding Exercise 42: Find'em values!
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- 2. Using Concepts
- 3. Quiz 38: Adding stuff up : Throwing you off!
- 4. Building your own concepts
- 5. Assignment 11: Put'em std::string together!
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- 7. Zooming in on the requires clause
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- 2. Your First Class
- 3. Coding Exercise 43: You're a box maker!
- 4. Coding Exercise 44: Building for the 2D space!
- 5. C++ Constructors
- 6. Coding Exercise 45: Box Constructors
- 7. Coding Exercise 46: Costrcut'em Points!
- 8. Defaulted constructors
- 9. Quiz 41: Constructors : Throwing you off!
- 10. Setters and Getters
- 11. Coding Exercise 47: Point printing like a gentleman!
- 12. Class Across Multiple Files
- 13. Coding Exercise 48: Split your boxes in parts
- 14. Creating class through IDEs
- 15. Arrow pointer call notation
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- 17. Destructors
- 18. Order of Constructor Destructor Calls
- 19. The this Pointer
- 20. Coding Exercise 49: Setter Chains for Points with pointers
- 21. Coding Exercise 50: Setter Chain for Points with references
- 22. struct
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- 2. const objects
- 3. Quiz 44: Const objects : Throwing you off!
- 4. Const objects as function arguments
- 5. Quiz 45: Tricky arguments : Throwing you off
- 6. const member functions
- 7. Coding Exercise 51: Fixing up your Point
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- 10. Dangling pointers and references in objects
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- 7. Initializer lists Vs Member wise copy initialization
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- 9. Constructor delegation
- 10. Coding Exercise 55: Delegated constructor for Box
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14. Coding Exercise 56: You're a Point fixer!
15. Objects stored in arrays are copies
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18. Move constructors
19. Quiz 51: The need for move constructors
20. Deleted constructors
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- 9. Coding Exercise 98: Moving from CU::string's
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- 11. Invalidating pointers after std::move
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- 4. Callback Functions
- 5. Coding Exercise 100: Modifying scores
- 6. Function Pointer Type Aliases
- 7. Function Pointer Type Aliases with Templates
- 8. Functors
- 9. Coding Exercise 101: Functors score modifiers
- 10. Standard Functors (in the <functional> header)
- 11. Functors with parameters
- 12. Coding Exercise 102: Color Printer
- 13. Functors and lambda functions
- 14. Lambda functions as callbacks
- 15. Capturing by value under the hood
- 16. Capturing by value reference under the hood
- 17. Mixin capturing
- 18. Capturing the this pointer
- 19. std::function
- 20. Coding Exercise 103: scores modifying std::function
- 21. Summary

Section.47 : STL, Containers and Iterators

- 1. Introduction
- 2. std::vector
- 3. std::array
- 4. Iterators
- 5. Traversing container subsets with iterators
- 6. Reverse iterators
- 7. Constant iterators
- 8. Iterator types
- 9. std::begin and std::end
- 10. Coding Exercise 104: Unions
- 11. Summary

Section.48 : Zooming in on STL Containers

- 1. Introduction
- 2. Sequence Containers : Deque
- 3. Sequence Containers : Forward List
- 4. Sequence Containers : List
- 5. Coding Exercise 105: Print positions
- 6. Sequence containers : std::vector revisited
- 7. Sequence Containers : std::array revisited
- 8. Associative Containers : Intro
- 9. Associative Containers : Pair
- 10. Associative Containers : Set
- 11. Associative Containers : Map
- 12. Associative Containers : Multiset & multimap
- 13. Unordered Associative Containers
- 14. Container Adaptors : Intro
- 15. Container Adaptors : Stack
- 16. Container Adaptors : Queue
- 17. Container Adaptors : Priority queue
- 18. Summary

Section.49 : STL Algorithms

- 1. Introduction
- 2. All of
- 3. for_each
- 4. max_element and min_elements
- 5. find
- 6. copy
- 7. sort
- 8. Transform

Section.50 : C++20 Ranges and Range Algorithms

- 1. Introduction
- 2. Range Algorithms
- 3. C++20 Ranges Library Iterator Pair Algorithms
- 4. Projections
- 5. Views and Range Adaptors
- 6. Vie composition and Pipe operator
- 7. Range Factories
- 8. Summary

Section.51 : Building Custom Iterators for Your Containers

- 1. Introduction
- 2. Iterator Powers
- 3. Custom Iterator Theory
- 4. Building Custom Input Iterators
- 5. Building Custom Output Iterators
- 6. Building Custom Forward Iterators
- 7. Building Custom Bidirectional Iterators
- 8. Building Custom Random Access Iterators
- 9. Custom Iterators with C++20 Ranges and Views
- 10. Constant Iterators
- 11. Raw Pointers as Iterators
- 12. Wrapping Iterators From Other Containers
- 13. Summary

Section.52 C++20 Coroutines

- 1. Introduction
- 2. Coroutine workflow
- 3. Coroutine keywords
- 4. Coroutine Infrastructure
- 5. co_await
- 6. co_yield
- 7. co_return
- 8. Custom Generator Coroutine Type
- 9. Third Party Generator
- 10. Summary

Section.53 : C++20 Modules

- 1. Introduction
- 2. Your First Module
- 3. Block Export
- 4. Separating the Module Interface from the Implementation (Same File)
- 5. Separating the Module Interface from the Implementation (Different Files)
- 6. Multiple Implementation Files
- 7. Multiple Interface Files
- 8. Export Import
- 9. Sub-Modules
- 10. Module Interface Partitions
- 11. Custom Class Templates as Module (BoxContainer)
- 12. Modules with Namespaces
- 13. Visibility and Reachability
- 14. Private Module Fragments
- 15. Do's and Don'ts
- 16. Summary
- 17. Course List - Discount