

C++ COURSE CONTENTS

C++	
<p>CHAPTER 1: PERSPECTIVE</p> <ul style="list-style-type: none"> • The Software Crisis • Design Techniques • Large Software Systems • Roots of Object Technology • What Is Object-Oriented Programming? • C++ and Object-Oriented Programming • Why C++? • Features of C++ • Pros and Cons of C++ 	<p>CHAPTER 2: OBJECT-ORIENTATION CONCEPTS</p> <ul style="list-style-type: none"> • What Is an Object? • What Is a Class? • Encapsulation • Data Hiding • The Public Interface • Relationships Among Classes • Inheritance • Polymorphism • Object-Oriented Design
<p>Assignments / Case Studies will be provided on above topics which needs to be completed</p>	
<p>CHAPTER 3: C VS. C++</p> <ul style="list-style-type: none"> • Comments • Namespaces • Simple Output • Simple Input • Definitions Near to First Use • Function Prototypes • The inline Specifier • const • Structure Members • The Reference Type • Overloading Function Names • Default Parameters • The Scope Resolution Operator • Aggregates • Operators new and delete • The bool Data Type • The string Data Type 	<p>CHAPTER 4: FUNDAMENTALS OF CLASSES</p> <ul style="list-style-type: none"> • Data Types • User Defined Data Types • Using the Class Concept • Defining a Class • public and private Access Levels • The Scope Resolution Operator :: • Using Class Objects Like Built-in Types • Scope • Constructors • Member Initialization Lists • Destructors • Array of Objects • Pointers • The this Pointer • Passing Objects to Functions • Returning Objects From Functions • static Class Members
<p>CHAPTER 5: OPERATOR OVERLOADING</p> <ul style="list-style-type: none"> • Introduction • Rules for Operator Overloading • Rationale for Operator Overloading 	<p>CHAPTER 6: COMPOSITION OF CLASSES</p> <ul style="list-style-type: none"> • Relationships • Composition of Classes • The Point Class

- Overloading Member Functions
- Overloading Non-Member Functions
- friend Functions
- The Copy Constructor
- The Assignment Operator
- Overloading []
- Overloading Increment and Decrement Operators
- const Objects and References

- The Line Class
- Member Initialization Lists
- An Application With Composition
- The Copy Constructor under Composition
- operator= under Composition

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CHAPTER 7: INHERITANCE

- Introduction
- Public Base Classes
- The protected Access Level
- Member Initialization Lists
- What Isn't Inherited
- Assignments Between Base and Derived Objects
- Compile-Time vs. Run-Time Binding
- virtual Functions
- Polymorphism
- virtual Destructors
- Pure virtual Functions
- Abstract Base Classes
- An Extended Inheritance Example

CHAPTER 8: I/O IN C++

- The iostream Library
- Predefined Streams
- Overloading operator<<
- Overloading operator>>
- Manipulators
- Stream States
- Formatted I/O
- Disk Files
- Reading and Writing Objects

CHAPTER 9: ADVANCED TOPICS

- Template Functions
- Template Classes
- Multiple Inheritance
- User-Defined Conversions
- Data Structures
- An Iterator Class
- Exceptions
- The Standard Template Library

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