



HANYANG UNIVERSITY

INTERNATIONAL SUMMER SCHOOL

Name	Dr. Michael Collins
E-mail	michael.collins@tudublin.ie
Home University	Technological University Dublin, Ireland
Department	Computer Science

Course Title	C++ Programming
Field of Study	Engineering
Credits	3
Contact Hours	45
Course Code/Number	ITE1010
Course Description	<p>This course introduces the basic concepts and fundamentals of C++ Programming and the techniques used in Object-Oriented Programming. Students will learn how to develop well-designed, efficient, and maintainable software using the C++ programming language. The course will be delivered using a combination of lectures and practical "hands-on" lab exercises with numerous programming examples.</p>
Course Objective	<p>Aims</p> <p>The aim of this course is to enable the student to learn and develop programming skills in C++ Programming.</p> <p>Lecture classes will teach the rules and syntax of C++. Each lecture will include many example programs to support the topics being taught.</p> <p>Due to the practical nature of programming, a large emphasis will be placed on allowing the student to practice writing C++ programs and solve programming problems. The student will be given programming exercises to practice what they learn.</p>



	<p>Learning Outcomes</p> <p>On completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Design, implement and execute a program using the C++ programming language. 2. Test and debug a program to correct errors. 3. Document a C++ program. 4. Demonstrate an understanding of the principles and concepts of Object-Oriented Programming.
<p>Preparations (Pre-Knowledge)</p>	<ol style="list-style-type: none"> 1. Students must have their own laptop computer. 2. Basic knowledge of Windows/MacOS/Unix-based Operating System required.
<p>Materials (Textbook/Websites link)</p>	<p>All electronic course material will be provided to the student.</p>

Lesson Plan:		
Week 1	1 st Day	Orientation & Opening Ceremony
	Class 1	<ul style="list-style-type: none"> • Overview, getting started with C++ • Simple C++ input/output program, Data types and variables
	Class 2	<ul style="list-style-type: none"> • Control-statements, Loops
	Class 3	<ul style="list-style-type: none"> • Arrays: defining and using arrays, single & multi-dimensional • Assessment 1
Week 2	Class 4	<ul style="list-style-type: none"> • C++ Strings • Functions
	Class 5	<ul style="list-style-type: none"> • Introducing Objects and Classes
	Class 6	<ul style="list-style-type: none"> • Constructors and Destructors, Method overloading
	Class 7	<ul style="list-style-type: none"> • Class Attributes: Class data and method members



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		<ul style="list-style-type: none"> • Assessment 2
Week 3	Class 8	<ul style="list-style-type: none"> • Inline class member functions • Documentation of a Class, Separation of Class interface and Class implementation
	Class 9	<ul style="list-style-type: none"> • Object-Oriented Programming Inheritance: Base and Sub-classes
	Class 10	<ul style="list-style-type: none"> • Different types of Inheritance, Multiple Inheritance
	Class 11	<ul style="list-style-type: none"> • Virtual Base Classes • Assessment 3
Week 4	Class 12	<ul style="list-style-type: none"> • Object-Oriented Programming Polymorphism
	Class 13	<ul style="list-style-type: none"> • Virtual functions, Abstract Base Classes
	Class 14	<ul style="list-style-type: none"> • Testing, Improving program efficiency techniques
	Class 15	<ul style="list-style-type: none"> • C++ summary, Quiz

Evaluation (%)								
Assignments	Attendance	Final	Group Project	Mid-term	Participation	Presentation	Quiz	Total
70%	10%	10%			10%			100%