HANYANG UNIVERSITY

2018 HISS Syllabus

[Introduction to Computer Science]

Professor:	**Dr. Michael Collins**
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Home Univ.:	Dublin Institute of Technology, Ireland
Dept.:	Computer Science

Description:	This course will introduce you to the field of computer science and the fundamentals of computer programming. Introduction to Computer Science is specifically designed for students with no prior programming experience and taking this course does not require a background in Computer Science. This course will introduce a variety of fundamental topics within the field of Computer Science and will use Java, which is a high-level, portable, and well-constructed computer programming language, to demonstrate those principles. The course starts with an overview of the course topics followed by introducing the fundamentals of Java, common algorithms and design techniques as well as object-oriented programming terminology and concepts. By the end of the course, you will have a strong understanding of the fundamentals of Computer Science, programming design skills and the Java programming language. A combination of lectures and lab exercises will be used to teach this course.

Objective:	Upon completion of this course, the student will be able to: 1. Understand the fundamentals of Computer Science and Java programming. 2. Understand the fundamentals of object-oriented programming in Java, including defining classes, methods, using class libraries, etc. 3. Have awareness of the important topics and principles of software development. 4. Have the ability to write a computer program to solve specified problems. 5. Be able to design, develop, debug and execute simple Java programs.
Preparations:	Electronic text book and all supporting material will be provided. Basic knowledge of using a computer with Windows/Mac OS/Unix-style Operating System required.

Schedule:	Week 1	• Overview of Computer Science, Introduction to Java • Installing and configuring the Java compiler, Environment setup • Object-Oriented Programming (OOP) concept and Java • Objects and Classes, Constructors • Executing and debugging a Java program

Week 2	• Java Basics, Data Types, Variables, Expressions and Operators • Conditional statements, Iteration (loops) • Characters and Strings • Arrays, Declaring and Accessing an array Assignment 1
Week 3	• Methods – parameters, return types • Searching (Java Search algorithms), Sequential, Binary • Sorting (Java Sort algorithms), Bubble sort, Selection sort Assignment 2
Week 4	• Data Structures (Linked List, Stacks, Queue) • Object-Oriented Inheritance, Encapsulation and Polymorphism • Java Input / Output • Course refresh and overview Final Class Test

Evaluation:	Midterm (%)	Final (%)	Attendance (%)	Assignments (%)	Participation (%)	Etc. (%)
		20	10	60	10	