



Korea University International Summer Campus (KU ISC) 2023

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June 27, 2023 ~ August 3, 2023

ISC293 – Introduction to Computer Science

I . Instructor

Professor	:	Dario Landa-Silva (http://www.cs.nott.ac.uk/~pszjds/)
E-mail	:	dalasi278@gmail.com
Home Institution	:	University of Nottingham
Class Time	:	Period 1 (9:00 ~ 10:40 KST)
Office	:	Woodang Hall, Room 305 (Subject to Change)
Office Hours	:	11:00 ~ 13:00 Monday to Thursday by Appointment

II. Textbook

Required Textbook	:	NA
Recommended Additional Readings	:	<p>Computer Science Illuminated. Nell Dale, John Lewis. Jones and Bartlett Publishers, 2019. Covers topics I, II and III of the course. ISBN 1284155617 or 978-1284155617.</p> <p>Computer Science: An Overview. J Glenn Brookshear. Pearson Addison-Wesley, 2018. Alternative to the above book. ISBN 013487546X or 978-0134875460.</p> <p>Java in Easy Steps. Mike McGrath. Easy Steps Ltd, 2017. Covers topics IV and V of the course. ISBN 1840787538 or 978-1840787535.</p> <p>Java Programming Fundamentals. Premchand S. Nair, CRC Press, 2009. Covers topics IV and V of the course. ISBN 9781420065473 or 978-1420065473.</p>

III. Course Description and Objectives

This course gives an introduction to the world of computer science and is designed for students from different backgrounds as no prior knowledge of computing is assumed. This course gives an insight into computer science as the discipline that studies computers and computer systems, how they work and how they are constructed and programmed. This is not simply a course in which students learn to use some specific software. Instead, this course will enable students to gain an understanding of: the way computers store and process information, the organization of hardware, the way computer networks work, the construction of computer programs with emphasis on algorithms and data structures to solve a variety of real-world problems. The course also gives a gentle introduction to computer programming using the Java programming language. Students will learn to understand, modify and write some simple Java programs. Since part of this

course involves learning some computer programming, it is essential that students have access to their own computer during the course.

Important: students will be provided with the course notes and worksheets once the course starts and these should be sufficient to prepare for the exams. However, it is also highly recommended to study from the books in the recommended additional readings. Please note that none of the recommended books covers all the material taught in the course but the notes and worksheets provided do that.

Topics Covered

- I. Fundamentals of Computing
 1. History of Computing
 2. Binary Numerical System
 3. Other Numerical Systems
 4. Data Representation and Storage
- II. Computer Architecture and Program Execution
 1. Basic Operation of a Computer
 2. Computer Architecture
 3. Assembly Language
 4. Introduction to Programming in Java
- III. Data Storage and Communication
 1. Networks and Internet Concepts
 2. Data Structures Fundamentals
 3. Implementing Data Structures
 4. Working With Data Types in Java
- IV. Computer Algorithms and Programming
 1. Algorithms Fundamentals
 2. Sequential and Selection Structures
 3. Iterative Structures
 4. Writing Algorithms in Java

IV. Grading

Participation	:	All students are given the opportunity to participate in problem solving and programming exercises during class. There is no grade allocated to this activity, its purpose is to enhance the learning.
Attendance	:	Korea University attendance policy
Exam 1	:	50% - Monday 17 July This exam will cover the content from weeks 1, 2 and 3 of the course.
Exam 2	:	50% - Wednesday 2 August This exam will cover the content from weeks 4, 5 and 6 of the course. This exam includes a practical test on computer programming. This test is about writing a computer program in the Java programming language. Each student should bring their own computer for taking this test.
Policy on Exams	:	A missed exam is counted as zero in the weighted average calculation. If there is a valid reason for missing an exam (e.g. serious illness, bereavement, etc.) the student should get in contact with the professor as soon as possible to explain the situation. Then, the student will have to provide valid evidence to justify the absence. This evidence will be

		checked by the ISC Program Staff (room 314). Only after the provided evidence has been accepted by the ISC office, an alternative arrangement may be made for the missed exam
In-class Formative Assessment	:	In addition to the summative assessment (two exams) there is a number of formative assessments (worksheets) in each class. These do not count towards the grade but are very useful to prepare for the exams. Students will be asked to work in small groups for completing these formative assessments.

V. Class Outline

Date	Topic	Chapter	Remarks
June 27 (Tue)	Orientation Day (no classes)		
June 28 (Wed)	Introduction to Course History of Computing	NA	Course Notes
June 29 (Thu)	Binary Numerical System Other Numerical Systems	NA	Course Notes
June 30 (Fri)	Data Representation and Storage	NA	Course Notes
July 3 (Mon)	Basic Operation of a Computer Computer Architecture	NA	Course Notes
July 4 (Tue)	Assembly Language	NA	Course Notes
July 5 (Wed)	Assembly Language	NA	Course Notes
July 6 (Thu)	Introduction to Programming in Java	NA	Course Notes
July 10 (Mon)	Networks and Internet Concepts	NA	Course Notes
July 11 (Tue)	Data Structures Fundamentals	NA	Course Notes
July 12 (Wed)	Implementing Data Structures	NA	Course Notes
July 13 (Thu)	Implementing Data Structures	NA	Course Notes
July 17 (Mon)	Exam 1	NA	Course Notes
July 18 (Tue)	Working With Data Types in Java	NA	Course Notes
July 19 (Wed)	Working With Data Types in Java	NA	Course Notes
July 20 (Thu)	Algorithms Fundamentals	NA	Course Notes
July 24 (Mon)	Sequential and Selection Structures	NA	Course Notes
July 25 (Tue)	Iterative Structures	NA	Course Notes
July 26 (Wed)	Iterative Structures	NA	Course Notes
July 27 (Thu)	Writing Algorithms in Java	NA	Course Notes
July 31 (Mon)	Writing Algorithms in Java	NA	Course Notes
Aug 1 (Tue)	Writing Algorithms in Java	NA	Course Notes
Aug 2 (Wed)	Exam 2		
Aug 3 (Thu)	Grade Consultation / Graduation Day (Available both Online / Offline)		