Introduction to Informatics

Module Description

Module code	CS101-F26	**Credits**	7 ECTS
Programme	Foundation programme	**Level**	Semester 1
Semester	Fall 2026	**Prerequisites**	None
Module leader	Dr. Ali Khudiyev	**Email**	ali.khudiyev@wosm.academy
Office hours	Monday–Friday, 10:00–17:00 (Baku time, UTC+4)		

1. Module Overview

Introduction to Informatics (ItI) is the first-semester lecture course introducing computer science and object-oriented programming. Each week the lecture introduces the concepts that are then supported with tests, quizzes, and other supplementary materials. The language of instruction and implementation is Java.

2. Aims

- Introduce the essential concepts of computer science: algorithms, data, programming languages, and how programs are executed.
- Teach programming in Java, with an emphasis on object-oriented design.
- Develop the habit of reasoning about programs: their syntax and semantics, their correctness, and their cost in time and memory.
- Prepare students to learn further programming languages independently and to continue with Data Structures and Algorithms I (CS103-S27).

3. Learning Outcomes

After completing this course, you will:

LO1. Understand the essential concepts of computer science and be able to apply them in a practical, scientifically grounded, and responsible way.

LO2. Learn key concepts such as algorithms, syntax and semantics, and how to evaluate program efficiency in terms of memory use and runtime.

LO3. Solve well-defined algorithmic problems and develop basic concurrent and distributed applications using Java or a similar object-oriented programming language. This foundation will help you learn other imperative and object-oriented programming languages independently.

4. Syllabus

Unit	Topic
1	Introduction
2	Control Structure
3	Data Types
4	Object Orientation I
5	Object Orientation II
6	Object Orientation III
7	Algorithms
8	Programming Languages
9	Graphical User Interfaces
10	Recursion
11	Syntax, Semantics, Verification
12	Beyond Programming
13	Course Review & Exam

5. Teaching and Learning Methods

The module is self-paced. All materials are provided on Moodle. Each week has lectures, programming exercises with worked solutions, and a tutorial in which the exercises are discussed. The team project is carried out in the second half of the module.

Activity	Hours
Lectures	36
Labs / Tutorials	34
Independent study	130
Total	**200**

6. Assessment

Your knowledge will be assessed throughout the course with quizzes, tutor and homework exercises, team project, and the final exam.

Component	Weight	Due	LOs
Quizzes	20%	Weekly	LO1, LO2
Tutor and homework exercises	15%	Throughout	LO2, LO3
Team project	25%	End of module	LO1, LO3
Final exam	40%	End of module	LO1–LO3
Total	**100%**		

7. Reading List

- R. Sedgewick, K. Wayne: *Computer Science: An Interdisciplinary Approach*, Addison-Wesley, 2016.
- R. Sedgewick, K. Wayne: *Introduction to Programming in Java: An Interdisciplinary Approach*, 2nd ed., Addison-Wesley, 2017. Companion material: introcs.cs.princeton.edu.

8. Materials and Licence

Course materials are published under the Creative Commons Attribution-ShareAlike 4.0 licence unless stated otherwise. See wosm.academy/licence for details.

9. Policies

- **Attendance:** Attendance is not mandatory. The module is self-paced, so you can study the materials when it suits you.
- **Late submissions:** Work submitted after the deadline is penalised.
- **Academic integrity:** All submitted work must be your own. See the Code of Conduct.