Obuda University John von Neumann Faculty of Informatics			Software Engineering Institute	
Name and code: *NSXSFAEBNF Basics of Software Development*			**Credits*: 6*** *2025/26/2*	
Subject lecturers: Dr. Csink László				
Prerequisites (with code):	NSXPP1EBNF			
Weekly hours:	Lecture: 2	Seminar.:0	Lab. hours: 3	Consultation:0
Way of assessment:	written exam (vizsga)			

Course description:

Goal: Learning the principles of the object-oriented programming paradigm and developing algorithmic thinking, algorithm building skills, understanding how some essential algorithms work.

Course description: The course provides students with experience in the application of general software development techniques, the theory of advanced object-oriented development approaches and their practical application. The course will also provide an introduction to the principles of operation of some key algorithms, the implementation of operations on sorted arrays and array-represented sets, and the characteristics of the more familiar divide-and-conquer algorithms.

Lecture schedule

Education week	*Topic*
1.	Summary of OOP
2.	Inheritance, polymorphism
3.	Interfaces, abstract classes
4.	Testing
5.	Exceptions
6.	Delegates, event handling
7.	Compound basic programming algorithms 1
8.	break
9.	Compound basic programming algorithms 2
10.	Binary search
11.	Sets
12.	Mergesort
13.	Quicksort, k-th minimal element
14.	Summary

Midterm requirements

- **<u>Two midterms</u> in the labs (<u>dates given by lab teacher</u>)**

Education week	*Topic*

Final grade calculation method

Achieved result	Grade
86%-100%	excellent (5)
74%-85%	good (4)
62%-73%	average (3)
50%-61%	satisfactory (2)
0%-49%	failed (1)

Attendance of **labs** is **compulsory** at the times indicated in the timetable. Students will write **two midterm exams** during the semester at dates given by their lab teacher. To obtain a signature, **both midterms** must be passed with a **minimum of 50**% and the attendance must be satisfactory (number of absences of labs <= 30 %). Retake of the first or second midterm is possible at the end of the term.
No home project is required.

Type of exam

The exam is written (NO oral exam, NO entrance exam), only for those who have the signature (both midterm tests better than 50 %, possibly by retake, and attendance is satisfactory). The **final evaluaton will be the average of the lab results and the written exam**, provided that both are above 50 %.

Type of replacement

repeated exam if necessary

References

- Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein: Introduction to Algorithms, Second Edition, The MIT Press (downloadable)
- Moodle

Recommended:

- Troelsen, A. and P. Japikse: Pro C# 10 with .NET 6: Foundational principle and Practices in Programming. ISBN-13 (ppbk) 978-1-4842-7868-0, ISBN-13 (electronic) 978-1-4842-7869-7, Copyright 2022