Óbuda University John von Neumann Faculty of Informatics	Institute of Software Engineering	
Name and code: Software Design and Development I. (NIXSF1EBNE)		**Credits:** 6
Computer Science BSc	*Daytime 2020/21 year I. semester*	

Subject lecturers: Dr. László Csink, Dániel Kiss				
Prerequisites: (with code)				
Weekly hours:	Lecture: 3	Seminar: 0	Lab. hours: 3	Consultation: 0
Way of assessment:	Examination			

Course description

Goal: Students will learn the rudiments and main methods of OOP, as well as get an introduction to a modern OO programming language.

Course description: The course is organised in the Internet. Students will get an invitation to join classes via video conferencing in the scheduled times.

The main competences: Algorithm design, control structures. Description of algorithms. Simple and Comopund Basic Programs. Combining Basic Programs. The OOP paradigm: objects, classes, encapsulation, hiding, inheritance, polymorphism. Sorting and searching. Sets. Recursion. Mergesort and Quicksort. Elementary number theoretical algorithms.

Lecture schedule

Education week	Topic
1	The basics of algorithms
2	Simple and Compund Basic Programs
3	Value and reference types
4	Combining Basic Programs
5	Sorting 1
6	Sorting 2
7	Searching
8	Sets
9	Recursion
10	Mergesort and Quicksort
11	Dynamic Programming
12	Number Theoretical Algorithms
13	Summary

Midterm requirements

Students must write two midterm tests (computer programs) on weeks 7 and 13 (October 19 and November 30 in lecture time 10:45 – 13:20). Both tests are expected to be at least 50

Students will get a home project on the week of the first midterm that must be handed in until November 27. It is possible to get a one-week extension of this deadline, but in this case, a special fee must be paid. The specification of the requirements concerning the home projects will be uploaded to the Moodle.

To get a signature, students must (i) not miss joining the online lab practice more than 4 times; (ii) complete and upload at least 50% of the home works until the deadline; (iii) have both midterm test at least 50% (see above); and (iv) hand in and defend the home project.

Midterm Test Scheduling

Education week	Topic
7	FIRST MIDTERM: algorithms in C#
13	SECOND MIDTERM: OOP in C#
14	REWRITING if necessary

Midterm grade calculation methods

Method of replacement

Students are expected to write both midterm tests with a result not lower than 50

Type of exam

The exam will have a written part and an oral part. To pass the written part, you have to complete an online test in the Moodle system. If you fail the written part, you cannot continue the oral part. Your final grade will be determined by taking your lab points as well as your written and oral part results into account, however, the final grade is not simply the arithmetical mean of those grades.

Exam grade calculation methods

	Achieved result	Grade	
	89-100		
	76-88		
	63-75		
	51-62		
	0-50		

References

Obligatory:

Al Aho and Jeff Ullman: Foundations of Computer Science

http://infolab.stanford.edu/ ullman/focs.html

Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein: Introduction to Algorithms, The MIT Press; 3rd edition (July 31, 2009).

Recommended:

http://users.nik.uni-obuda.hu/csink/aao

Others: