

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 szak			Daytime tagozat 2022/23 tanév I. félév		
Subject lecturers: Dr. László Csink, Dániel Kiss					
Prerequisites: (kóddal)					
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 Compound 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	
<p>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%. If a student has not written either of the tests, or its result is less than 50%, the test must be rewritten in the last week (December 7). The result of the test will be the result of the rewriting. If a student missed both tests, or missed one of the tests and the other's result is less than 50% or has written both tests but both results are weaker than 50%, the signature can be obtained only at the so-called signature test that will take place in the examination period. Even if both tests are better than 50%, students are allowed to rewrite the worse test. The final result of the test will be the result of the rewriting (even if it is worse than the previous result).</p> <p>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.</p> <p>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.</p>	
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	
<p>Students are expected to write both midterm tests with a result not lower than 50% each. At the last week one of tests can be rewritten, if necessary. If one has to write the signature test, must achieve not less than 50%. In case of success, the midterm activity will be evaluated 50% even if your signature test result is higher.</p>	

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%	excellent (5)
76-88%	good (4)
63-75%	average (3)
51-62%	satisfactory (2)
0-50%	failed (1)

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: