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 2019/20 year II. semester*	
Subject lecturers: Dr. László Csink		

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 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

Attendance of lectures and lab sessions is compulsory. At each lab the presence of students is checked. In case you are absent more than 3 times from the labs your semester will be invalid (you will not get a signature) and you will not get the right to sit for the exam. You must write two midterm tests (computer programs) whose dates will be specified on the first lab. Both tests are expected to be not worse than 50 %. If you have not written either of the tests, or its result is less than 50 %, the test must be rewritten on the last week. The result of the test will be the result of the rewriting. If you have missed both tests, or you have missed one of the tests and the other's result is less than 50 %, or you have 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 %, you are allowed to rewrite the worse test at the last week. The final result of the test will be the result of the rewriting (even if it is worse than the previous result).

You will get a home project on the week of the first midterm that must be handed in personally on the lab of the second midterm test. If you fail to hand in the home project by the above deadline, you may get an extension until the last lab (also personal submission) provided you pay a special fee. (Ask about details in the Student Administration Office, in Hungarian Tanulmányi Osztály). The specification of the requirements concerning the home projects will be uploaded to the project web site. If you fail to hand in the home project even by the extended deadline, or your lecturer finds your project unacceptable, you cannot obtain the signature and you cannot sit for the exam.

Midterm Test Scheduling

Education week	Topic
7	22 Oct, 2019 - FIRST MIDTERM: algorithms in C#
13	03 Dec, 2019 - SECOND MIDTERM: OOP in C#
14	10 Dec, 2019 - REWRITING if necessary

Midterm grade calculation methods

A szorgalmi időszak végén a hallgató *aláírást* szerezhet.

Az aláírás megszerzésének négy feltétele van: (1) A hallgató legfeljebb a laborok 30%-áról hiányzott. (2) A hallgató a beadandó feladatot határidőig beadta, a laborvezető azt elfogadta és a hallgató megvédte. (3) A hallgató mindkét nagy labor zárthelyi dolgozata (az esetleges javítást is figyelembe véve) legalább 20 pontos. (4) A hallgató az alábbi pontokból összesítve legalább 50 pontot ért:
• Nagy labor zárthelyik (40 + 40 pont)
• Kiegészítő pontok (kis zárthelyik, próba zárthelyik, legfeljebb 20 pont)
"Aláírás megtagadva, pótolható" bejegyzést kap az a hallgató, akinek a laborfoglalkozásokról való hiányzásának mértéke nem haladja meg a 30%-ot, valamint a féléves feladatát határidőig beadta és azt a laborvezetője védés után elfogadta, azonban a félév során a gyakorlati részből nem szerzett legalább 50 pontot (esetleges javítás után, a pluszpontokat beleszámítva sem). "Letiltva" bejegyzést kap az a hallgató, aki a laborfoglalkozások több mint 30%-áról hiányzik (TVSZ 23.§), vagy nem adta be féléves feladatát, vagy azt a laborvezetője nem fogadta el, vagy a hallgató nem védte meg.

Method of replacement

You are expected to write both midterm tests with a result not lower than 50 % each. At the last week you can rewrite just one of tests, if necessary. If you have to write the signature test, you must achieve not less than 50 %. In case of success, your midterm activity will be evaluated 50 % even if your signature test result is higher.

Type of exam

The exam will be written (no oral exam).

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: