Óbuda University John von Neumann Faculty of Informatics	Institute of Software Engineering

Name and code: Software design and Development II. (NIXSF2EBNE) **Credits:** 6

Computer Science BSc *Daytime 2019/20 year II. semester*

Subject lecturers: Dr. László Csink				
Prerequisites: (with code)	Software design and development I (NIXSF1EBNE)			
Weekly hours:	Lecture: 3	Seminar: 0	Lab. hours: 3	Consultation: 0
Way of assessment:	Examination			

Course description

Goal: Based on SWDD I, the goal is to deepen theoretical and practical knowledge in software design and development.

Course description: Programming paradigms. Inheritance. Method hiding. Polymorphism. Abstract classes and interfaces. Iterators. Components. Operator overloading. Exceptions. Generic classes. Advanced sorting. Dynamic arrays. Lists. Queue and stack. Binary search tree. Red and black tree. B-tree. Heaps. Directed and undirected graphs. Trees. Spanning trees. Kruskal and Prim algorithm. Connected components. Search for a path in the graph. Hashing. Maximal flow.

Lecture schedule

Education week	Topic
1	Programming paradigms.
2	Advanced object oriented programming 1.
3	Advanced object oriented programming 2.
4	Lists.
5	Graphs.
6	Trees. BST.
7	B-tree, red and black tree.
8	Heaps.
9	Spanning trees. Kruskal and Prim algorithm.
10	Advanced sorting
11	Hashing.
12	Maximal flow.

Midterm requirements

Attendance of lectures and lab sessions is compulsory. In case you miss more than 3 lectures or more than 3 labs, your semester will be invalid (you will not get a signature) and you will not get the right to sit for the exam. Attendance of lectures and labs will be checked.
You must write two midterm tests in the LAB. Both results must be over 50 %. If you have not written a test, its result is 0 %. If one of the two tests is under 50 %, a retake test must be written on the last week. If you have missed both tests, or you have missed one test 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.
Each student will be given a home project (exact date will be specified by the lab teacher) that must be handed in by the deadline (exact date will be specified by the lab teacher). If you fail to hand in the home project by the deadline, you may get an extension of one week, provided you pay a special fee. (Ask about details in the Student Administration Office, in Hungarian Tanulmányi Osztály). If you fail to hand in the home project even by the extended deadline, or your teacher finds your project unacceptable, you will not get the signature, i.e. the right to sit for the exam (letiltva).
If you miss more than 3 lectures or more than 3 labs, you will not get the signature, i.e. the right to sit for the exam (letiltva).

Midterm Test Scheduling

Education week	Topic
5	mid-semester (exact date to be determined at the first week) - first lab test (computer program)
12	last but one week - second lab test (computer program)
13	last week - retake of the first or the second test, if necessary
12	deadlines specified by the lab teacher - home project

Midterm grade calculation methods

Aláírást az a hallgató kaphat, aki mindkét zárthelyit legalább 50-50%-os szinten teljesítette, valamint a beadandó feladatot maradéktalanul megvalósította és azt az oktatója elfogadta.
"Aláírás megtagadva, pótolható" bejegyzést kap az a hallgató, aki a fentiek alapján nem szerez a szorgalmi időszakban aláírást, viszont az előadásokról és laborfoglalkozásokról való hiányzásának mértéke nem haladja meg a 30-30%-ot.
"Aláírás megtagadva, nem pótolható" bejegyzést kap az a hallgató, aki az előadások vagy a laborfoglalkozások több mint 30%-áról hiányzik. (TVSZ 23.§)

Method of replacement

Repeated exam if necessary.

Type of exam

Written exam, only for those who have the signature (both midterm tests better than 50 %, possibly by retake, and successful home project, and attendance).

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:

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

Recommended:

Others: