COURSE SYLLABUS AND COURSE REQUIREMENTS
2022/2023 SEMESTER 1

Course title	***Algorithm Design***
Course Code	*IVB052ANMI*
Hours/Week: le/pr/lab	*2/0/0*
Credits	*4*
Degree Programme	*BSc*
Study Mode	*full-time*
Requirements	*midyear grade*
Teaching Period	*fall*
Prerequisites	*-*
Department(s)	*Department of Systems and Software Technologies*
Course Director	
Teaching Staff	*Dr. Levente Szabó*

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).
Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

Programming theorems, summation, counting, decision, selection, search, logarithmic search, maximum selection, picking out, classify, intersection, union, sorting, sorting with minimum selection, bubble sorting, data structures, pointers, array, set, record, queue (FIFO), stack, list, linked list, double linked list, circular lists, list without pointers, recursion, trees, binary tree, graphs, Hash tables

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.
Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

This lecture based course aims to give computer science engineering students a solid basis in designing algorithms.

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

TOPICS	
LECTURE	1. *Programming theorems, summation, counting, decision, selection*
	2. *Search, logarithmic search, maximum selection, picking out*
	3. *Classify, intersection, union, sorting*
	4. *Sorting with minimm selection, bubble sorting*
	5. *Data structures, pointers, array, set*
	6. *Record, queue (FIFO), stack*
	7. *List, linked list, double list, double linked list, circular lists, lists without pointers*
	8. *Recursion*
	9. *Trees, binary tree, graphs*
	10. *Hash tables*
PRACTICE	

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; number of lecture	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Programming theorems, summation, counting, decision, selection	1	...	...
2.	Search, logarithmic search, maximum selection, picking out	2		
3.	Classify, intersection, union, sorting	3		
4.	Sorting with minimum selection, bubble sorting	4		
5.	Data structures, pointers, array, set	5		
6.	Test 1		Test 1	
7.	Record, queue (FIFO), stack	6		
8.	List, linked list, double linked list, circular lists, list without pointers 1	7 / 1		
9.	Fall break			
10.	List, linked list, double linked list, circular lists, list without pointers 2	7 / 2		
11.	Recursion	8		
12.	Test 2		Test 2	
13.	Trees, binary tree, graphs	9		
14.	Hash tables	10		
15.	Test 3		Test 3	

PRACTICE, LABORATORY PRACTICE

week	Topic	Compulsory reading; chapter number	Required tasks (assignments, tests, etc.)	Completion date, due date
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course resulting in mid-term grade (PTE TVSz 40§(3))

Mid-term assessments, performance evaluation and their ratio in the final grade (The samples in the table to be deleted.)

Type	Assessment	Ratio in the final grade
Test 1	Max 100 points	33 1/3 %
Test 2	Max 100 points	33 1/3 %
Test 3	Max 100 points	33 1/3 %

Opportunity and procedure for re-takes (PTE TVSz 47§(4))

The specific regulations for improving grades and resitting tests must be read and applied according to the general Code of Studies and Examinations. E.g.: all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

Students whose midyear grade is at least 2 have the opportunity to improve it. A grade can be made better by demonstrating of a solution of a task based on the student's own idea. In a case like this the original grade can be incremented by maximum one.

In the case of having a performance evaluated on the closed range of 30 – 40%, the student can write a test to improve / correct his / her evaluation. In a case like this the test is about the material of the whole semester. The final grade is calculated according to the following expression:

final grade = ((test1 + test2 + test3) / 2 + corrective) / 2

Each test which has not been written during the semester counts with 0 value in the expression above.

Grade calculation as a percentage

based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	85 % …
good (4)	70 % … 85 %
satisfactory (3)	55 % … 70 %
pass (2)	40 % … 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

Prof. Dr. Péter Iványi's lecture slides (Teams)

RECOMMENDED LITERATURE AND AVAILABILITY

RECOMMENDED LITERATURE AND AVAILABILITY