

Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering		Insitute of Mechatronics and Vehicle Engineering	
Subject title and code: Programming I. BMXI2YHBNE			Credits: 6
Full-time study 2023/2024 ac. 2 semester year			
The course is available at: mechatronical engineering			
Supervised by: Dr. habil Laufer Edit		Instructors: Dr. Frigyik András, Dr. habil Laufer Edit	
Prerequisite (neptun code): Basics of informatics, BMXIAYHBNE			
Weekly number of lessons			
Lecture: 2	Group seminar:	Lab: 3	Consultation:
Way of assessment: Exam (Oral)			
Online consultation (in case it's required): ... (BBB link)			
Educational goal:	Developing algorithmic thinking, introducing the basic tools of programming, which are needed during engineering work. The acquisition of basic algorithms and data structures. Show basic computer programming techniques and approaches. Students learn about the basic algorithms and data structures using an easy to learn programming language. This subject helps to solve complex engineering problems.		
Schedule			
Education week	Topics		
1.	<i>Theory:</i> The aim and tools of computer programming. Structured programming. Event-driven programming. <i>Practice:</i> Visual Studio environment Basic methods of Console class. Variables.		
2.	<i>Theory:</i> Basic data structures and their operations. (integers, real, boolean). Conditional statement. <i>Practice:</i> Application of mathematical functions. Conditional statement.		
3.	<i>Theory:</i> Loops. Array data structure. <i>Practice:</i> Loops. Random number generator.		
4.	<i>Theory:</i> Elementary programming theorems (result is a value) <i>Practice:</i> Array data structure. Operations with arrays.		
5.	<i>Theory:</i> Methods. Value and reference types. <i>Practice:</i> Methods. Elementary programming items.		
6.	<i>Practice:</i> Test 1		
7.	<i>Theory:</i> Character and string type. <i>Practice:</i> Character operations. Strings as character arrays.		
8.	<i>Theory:</i> File management. <i>Practice:</i> String operations.		
9.	<i>Theory:</i> Complex programming theorems (result is a set) <i>Practice:</i> File management basics.		
10.	<i>Theory:</i> Object oriented programming (abstraction, encapsulation) <i>Practice:</i> File management. Delimited text file.		
11.	<i>Theory:</i> Object oriented programming (properties, publicity levels, object arrays) <i>Practice:</i> File management.		
12.	<i>Theory:</i> Object oriented programming in practice. <i>Practice:</i> Complex task.		
13.	<i>Theory:</i> Database management. <i>Practice:</i> Test 2		
14.	<i>Theory:</i> Preliminary exam <i>Practice:</i> Retake test		
Mid-semester requirements			
Test		Assignment to be submitted	
amount	dates	amount	deadlines
		Lab measurement	
		amount	dates

2	6,13				
According to the Study and Examination regulations of Óbuda University attendance of group seminars and lab exercises are mandatory.					
Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions: The subject requires individual preparation based on the Moodle materials, supported by consultation. All main areas of the course are evaluated by tests. The course is to be considered successfully executed and a signature is obtained if and only if both tests (separately) are higher than 40%. Signature is denied if the student cannot justify the absence for the test, has failed to write both tests, or small tests more than twice. During the semester , the signature requirements can be replaced in the following cases: one of the laboratory tests failed; illness. In this way, only one of the tests can be rewritten. Based on the Study Regulations III.6.(4), the student receive offered grade if he/she has written all the tests with grades minimum 2 and passed the preliminary exam. Final grade is calculated in the following way: 50% average score of the lab tests, 50% oral exam. The oral exam must first be taken from a programming theorem. If it was successful, then a theory question follows.					
Test		Assignment to be submitted		Lab measurement	
maximum points available	minimum score required to pass /test	maximum points available	minimum score required to pass / assignment	maximum points available	minimum score required to pass /lab
100points	40points	...points	...points	...points	...points

Total number of points achievable in semester: 100points				
Grading thresholds	satisfactory 40 % and above	average 55 % and above	good 70 % and above	excellent 85 % and above
Other evaluation criteria:				
Receive a signature denied entry:	if the student cannot justify the absence for the test, has failed to write any of the tests, or small tests more than twice.			
Required references:	Moodle materials			
Recommended references:	Computer Programming: The Bible: Learn From The Basics to Advanced of Python, C, C++, C#, HTML Coding, and Black Hat Hacking Step-by-Step, Createspace Independent Publishing Platform, 2018. Robert Ciesla, Programming basics, Getting Started with Java, C#, Python, Apress, 2021			
Quality assurance methods of the subject:				

Things, that are not included, can be found within the regulations of Óbuda University.