Óbudai University **Donát Bánki Faculty of Mechanical and Safety Engineering**				**Institute of Mechatronics and Vehicle Engineering**	
Course name and Neptun-code: Programming I. BMXI2YHBNE					**Credits*: 4***
Full time, 2nd Semester of the Academic year 2019/20.					
Faculties in which the subject is taught: **BSc in Mechatronics**					
Supervised by: **Dr. Laufer Edit**					
Prerequisites conditions: (Neptun Codes)			Basics of informatics, BMXIAYHBNE		
Lessons per week:	Theory: **2**	Practice (in Auditorium): **0**	Lab: **3**	Consultation:	
Exam type (s,v,f):	**exam**				

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The Syllabus

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Aim: 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.

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Schedule

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Weeks	Topics
1.	*Theory*: The aim and tools of computer programming. Structured programming. Event-driven programming. *Practice*: Visual Studio environment Event management. Basic components.
2.	*Theory*: Basic data structures and their operations. (integers, real, boolean). Conditional statement. *Practice*: Application of mathematical functions. Calculator. Conditional statement.
3.	*Theory*: Loops. Array data structure. *Practice*: Loops. Random number generator.
4.	*Theory*: Elementary programming items (result is a value) *Practice*: Array data structure. Operations with arrays.
5.	*Theory*: Elementary programming items (result is a set) *Practice*: Methods. Elementary programming items.
6.	*Theory*: **Test 1** *Practice*: **Test 1**
7.	*Theory*: Character and string type. *Practice*: Character operations. Strings as character arrays.
8.	*Theory*: Sort and search algorithms. *Practice*: String operations.
9.	*Theory*: File management. *Practice*: Holiday
10.	*Theory*: Easter *Practice*: File management.
11.	*Theory*: Object oriented programming (inheritance, encapsulation) *Practice*: Objects.
12.	*Theory*:. Object oriented programming (polymorphism, static and virtual methods) *Practice*: Complex task
13.	*Theory*: **Test 2** *Practice*: **Test 2**
14.	*Theory:* **Retake test** *Practice:* **Retake test**

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Requirements

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Weeks	Test papers
6	Test I.
13	Test II.
14	Retake test
The evaluation criterias	

The participation is governed by TVSZ III.23.§ (1)-(4).

All main areas of the course are evaluated by test papers. The course is to be considered successfully executed and a **signature** is obtained if and only if both tests are successful (minimum 40%).

Signature is **denied** if the student cannot justify the absence for the test, has failed to write both tests, or absences exceed the number of classes specified in TVSZ.

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 the average of the test results is minimum 3.

Final grade: The average score of the laboratory tests is 40% of the exam mark, written exam is 60% of the exam mark.

All matters which are not covered in this document, the Study and Examination Rules and the provisions of the Study Regulations, valid at Óbuda University, prevails.

The semester closing method (method of examination: written, oral, testing, etc.).
Written exam
Literature: Moodle
Quality Assurance: