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*: 6***

Full time, 2nd Semester of the Academic year 2021/22.

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**			

The Syllabus

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.

Schedule

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

Requirements

Weeks	Test papers
7	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. **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 retake. 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 is calculated** in the following way: 40% average score of the lab tests, 60% written exam. 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: