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| **Óbudai University**<br>**Donát Bánki Faculty of Mechanical and Safety Engineering** | | | | **Institute of Mechatronics and Vehicle Engineering** | |
| **Course name and Neptun-code: Programming languages BMXPNE4BNE** **Credits: *4***<br>Full time, 2nd Semester of the Academic year 2019/20. | | | | | |
| Faculties in which the subject is taught: **BSc in Mechatronics** | | | | | |
| Supervised by**: Széll Boglárka** | **Csépke György** | | | | |
| Prerequisites conditions: (Neptun Codes) | | | | Informatics II. BMXI2EHBNE | |
| Lessons per week: | Theory: 2 | Practice (in Auditorium): 0 | | Lab: 2 | Consultation: |
| Exam type (s,v,f): | **midterm** | | | | |

**The Syllabus**

The Programming II. course provides an in-depth knowledge of the fundamental object oriented methodology, as well as the usage of modern technologies including Linq and version control. The practice-focused classes introduce an overhauled knowledge of C# programming through the implementation of modern coding techniques. During the semester the students are required to implement a home project using the OOP principles.

**Schedule**

| Weeks | Topics |
|---|---|
| 1. | *Theory:* Course introduction, requirements<br>*Practice:* C# fundamentals review |
| 2. | *Theory:* Principles of OOP I., abstraction, encapsulation<br>*Practice:* OOP basics, introducing classes |
| 3. | *Theory:* Principles of OOP II., inheritance, polymorphism<br>*Practice:* OOP oriented problem solving, interfaces |
| 4. | *Theory:* Introducing exception handling<br>*Practice:* Advanced OOP practice I., exception handling |
| 5. | *Theory:* Introducing home projects<br>*Practice:* Advanced OOP practice II. |
| 6. | **Theoretical midterm**, home project definition review |
| 7. | *Theory:* Home project definition due, consultation<br>*Practice:* Linq |
| 8. | Complex Linq and OOP exercises |
| 9. | *Theory:* Introducing version control<br>*Practice:* Git, Github, home project consultation |
| 10. | Implementation of an example home project |
| 11. | *Theory:* Home project due<br>*Practice:* Midterm practice |
| 12. | **Practical midterm** |
| 13. | **Home project presentation** |
| 14. | **Midterm retake** |

**Requirements**

| Weeks | Tests |
|---|---|
| 6 | Test I. (theoretical) |
| 12 | Test II. (practical) |
| 13. | Home project presentation |
| 14. | Midterm retake |

**The evaluation criterias**

The participation is governed by TVSZ III.23.§ (1)-(4).
All main areas of the course are evaluated by tests. The course is to be considered successfully executed if both tests and project work are successful (at least 40%).
**Midterm grade** is calculated in the following way: **20% theoretical midterm, 40% practical midterm, 40% project.**
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.

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| **Literature** | **Obligatory**: Course webpage<br>**Recommended**: Albahari, J. & Albahari, B.: C# 7.0 in a Nutshell: The Definitive Reference |