Óbuda University John von Neumann Faculty of Informatics	Institute of Software Engineering
Name and code: Software technology and Graphical User Interface design (NIXSG1EBNE) **Credits:** 5	
Computer Science BSc *Daytime 2020/21 year II. semester*	

Subject lecturers: Albert Áron, Balázs Elemér, Benkő Gábor, Dr. Erdélyi Krisztina, Haydu Lénárt, Dr. Kertész Gábor, Nagy Dávid, Romhányi Ármin, Röhberg Péter, Simon-Nagy Gabriella, Sipos Miklós, Szabó-Resch Zsolt, Tóth Norbert			
Prerequisites: (with code)			
Weekly hours:	Lecture: 2	Seminar: 0	Lab. hours: 3	Consultation: 0
Way of assessment:	Examination		

Course description

Goal: During the practices, the students familiarize with the MVVM/MVC patterns using the C# language. During the lectures, the students familiarize with the GoF Basic Design Patterns.

Course description: MVVM design pattern in the WPF framework (controls, events, data binding). Using the MVC design pattern in the ASP.NET framework (razor, controllers, API endpoints, API access). Simple game development in WPF framework. GoF Basic Design Patterns.

Lecture schedule

Education week	Topic
1	*Lecture*: Architectural patterns, UI+WPF introduction, Project Work introduction *CSharp*: MVVM: controls and events, calculator, tax calculator, AndroidPass
2	*Lecture*: Project management, Scrum *CSharp*: MVVM: Editor window, data binding
3	*Lecture*: GIT conflicts, GIT branching models *CSharp*: MVVM: Notifications/Templates
4	*Lecture*: UML 1 *CSharp*: MVVM: Separating the logic, commands
5	*Lecture*: UML 2 *CSharp*: MVVM: ZH practice, dialog windows *CSharp*: HW1
6	*Lecture*: GoF 1. Creational patterns + IoC/DI/Locator *CSharp*: Game development: Pong
7	*Lecture*: GoF 2. Behavioral patterns *CSharp*: Game development: Flappy Birds
8	*Lecture*: ASP.NET MVC in the practice *CSharp*: Game development: Labyrinth
9	*Lecture*: GoF 3. Behavioral/Structural patterns *CSharp*: MVC: Basic principles, Razor
10	*Lecture*: GoF 4. Structural patterns *CSharp*: MVC: Forms, MVC crud
11	*Lecture*: Fowler Patterns, DDD, CQRS *CSharp*: MVC: API+Console+WPF *CSharp*: HF2
12	*Lecture*: MicroServices, IoT Mediators, MQTT *CSharp*: FF + HF3

Midterm requirements

Lab: Going to the labs is obligatory. Before the labs, the watching the lecture videos is obligatory.

Project: The students have to do a project work in teams, that uses the students' knowledge in C#/WPF and in layered application-development. The solution must be presented and defended according to the rules specified during the practices.

Signature: Requirement for the signature is completing the three homeworks and defending the project work. Failure to do so means that the signature can only be obtained in the exam season's signature retake.

Midterm Test Scheduling

Education week	Topic
5	HF1: Prog3 FF + WPF crud
11	HF2: Prog3 FF + MVC crud
12	HF3: Prog3 FF + API + WPF crud

Midterm grade calculation methods

"Denied" entry is given to those who are missing from more than 30% of the lab sessions. Also "Denied" entry is given to those who do not participate at all in any project works (no GIT repo).

For the project work, students get individual grades.

Method of replacement

To successfully hand in a homework, the good source code must be present in the personal Prog4HF git repository, and a git diff must be uploaded to the Moodle system with a maximum 2 minute-long videofile. For the signature, all three homeworks must be handed in and the Project Work must be handed in + must be defended.

If the number of homeworks that are handed in is 0 or 1, then re-uploading homeworks is only possible in the date of the signature retake. If there is a handed in Project Work, but only 2 homeworks are handed in, then the single missing homework can be re-uploaded in the last week (in this case, the grade for the Project Work is lowered by one).

In the signature retake, all missing HomeWorks can be re-uploaded, the missing Project Works can be defended, and ALL students must solve a combined practice exercise from the WPF/ASP materials of the semester.

Type of exam

Oral exam from the contents of the lectures.

Exam grade calculation methods

In the exam grade, the grade of the project work is calculated with a weight of $1/3$. If the student cannot obtain a signature during the regular semester, then the maximum project work grade will be "average" (3).

References

Obligatory:

Lab presentations, practice materials
All materials listed in the course page inside the University e-learning system
https://users.nik.uni-obuda.hu/prog4/
prog_tools_en.pdf, prog4_game_requirements_en.pdf

Recommended:

Others: