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 2019/20 year II. semester*

Subject lecturers: Balázs Elemér, Kovács András, Dr. Kertész Gábor, Pintér Ádám, Simon-Nagy Gabriella, Sipos Miklós, Szabó-Resch Zsolt

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*: MVC vs MVVM, UI history, WPF introduction, Project Work introduction *CSharp*: MVVM: controls and events, calculator
2	*Lecture*: Project management, Scrum *CSharp*: MVVM: Editor window, data binding
3	*Lecture*: GIT branching models, UML 1 *CSharp*: MVVM: Separating the logic, commands
4	*Lecture*: UML 2 *CSharp*: MVVM: Notifications/Templates
5	*Lecture*: UML 3, Software reuse, DRY/OOP/SOLID/Clean Code evolution *CSharp*: MVVM: ZH practice, dialog windows
6	*Lecture*: GoF 1. Creational patterns + IoC/DI/Locator *CSharp*: ZH1 (in a separated timeslot) *CSharp*: Game development: Pong
7	*Lecture*: GoF 2. Behavioral patterns *CSharp*: Game development: Flappy Birds
8	*Lecture*: GoF 3. Behavioral/Structural patterns *CSharp*: Game development: Labyrinth
9	*Lecture*: GoF 4. Structural patterns *CSharp*: MVC: Basic principles, Razor
10	*Lecture*: Fowler Patterns, DDD, CQRS *CSharp*: MVC: Model validation, Forms
11	*Lecture*: MicroServices *CSharp*: MVC: Simple CRUD+Razor+API
12	*Lecture*: Anti-patterns *CSharp*: MVC: Simple CRUD+API+WPF
13	*Lecture*: Consultation *CSharp*: ZH2 (in a separated timeslot) *CSharp*: ZH retake (in a separated timeslot)

Midterm requirements

Lab: Going to the labs is obligatory. There will be to midterm tests (weeks 6 and 13), and one of them can be re-written in the last week.

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 two tests 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
6	First C# midterm: MVVM
13	Second C# midterm: MVC+MVVM
14	Midterm retakes

Midterm grade calculation methods

Requirement for the signature is completing the two tests and defending the project work.

"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.

Method of replacement

In the midterm retake, one practice test can be re-written.

In the signature retake, a combined task has to be solved.

The presentation of the project work is done afterwards.

Type of exam

Oral exam from the contents of the lectures.

Exam grade calculation methods

The exam grade can be increased/decreased by one grade with the results of the practice tests and the project work.

References

Obligatory:

Lab presentations, practice materials
http://nik.uni-obuda.hu/prog4/

Recommended:

Others: