Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IT 515	Agile System Design	1	4	0	0	3	8

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	In this course, students are introduced to agile software development and agile project management. In this way, students will acquire the knowledge and skills necessary to effectively manage the projects they will be involved in throughout their professional and academic careers. The course aims to provide students with knowledge and skills in the fundamentals of agile management, designing a problem, creating user stories, planning design iterations, testing design iterations, managing agile teams, making decisions within agile teams, and testing in agile software development.
Content	1. Introduction to Software Engineering, Software Design, and Agile Product Development Methodology 2. Software Requirements Analysis 3. Object-Oriented Modeling, Design Concepts (wireframing, mockups, prototypes, responsive design) 4. Object-Oriented Modeling, Technical Design (UML) 5. Design Applications 6. System Design Principles (Scalability, Horizontal and Vertical Architectures) 7. Midterm Exam 8. System Design Principles (Database Selection, Architectures, and Real-Life Examples) 9. System Design Principles (Cache Architectures, Backup, and Real-Life Examples) 10. Agile Software Development Approaches 11. Student Presentations
References	1. Essential Scrum: A Practical Guide to the Most Popular Agile Process, Kenneth S. Rubin, Addison Wesley, 2012. 2. Information Technology Project Management, Jack T. Marchewka, Wiley, 2016. 3. Learning Agile: Understanding Scrum, XP, Lean, and Kanban, Andrew Stellman, Jennifer Greene, O'Reilly Media, 2013.

Theory Topics

Week	Weekly Contents
1	Introduction to Software Engineering, Software Design, and Agile Product Development Methodology
2	Software Requirements Analysis
3	Object-Oriented Modeling, Design Concepts (wireframing, mockups, prototypes, responsive design)
4	Object-Oriented Modeling, Technical Design (UML)
5	Design Applications
6	System Design Principles (Scalability, Horizontal and Vertical Architectures)
7	Midterm Exam
8	System Design Principles (Database Selection, Architectures, and Real-Life Examples)
9	System Design Principles (Cache Architectures, Backup, and Real-Life Examples)
10	Agile Software Development Approaches
11	Student Project Presentations