

Design Patterns

1. SYLLABUS INFORMATION

1.1. Course title

Design Patterns

1.2. University

Pázmány Péter Catholic University

1.3. Semester

1st year, 1st semester

2. COURSE DETAILS

2.1. Course nature

Elective

2.2. ECTS Credit allotment

5

2.3. Faculty data

Dr. István Zoltán Regulý

3. COMPETENCES AND LEARNING OUTCOMES

3.1. Course objectives

The goal of the course is for students to learn to recognize the principal software design patterns, understand their pros and cons, know what kinds of problems they are appropriate for, and how to implement them. Furthermore, students will learn to read the UML diagrams that describe these patterns. There will be discussions on the importance of code clarity and structure, as well as their practical implications.

3.2. Course contents

Clear Code, UML, Basics of Object-Oriented Design, Creational Patterns, Structural Patterns, Behavioral Patterns, Software Architecture Patterns, Antipatterns, other patterns

3.3. Course bibliography

Gamma, Erich; Helm, Richard; Johnson, Ralph; Vlissides, John (1995). Design Patterns: Elements of Reusable Object-Oriented Software. Addison-Wesley. ISBN 0-201-63361-2

Robert Cecil Martin (2008). Clean Code: A Handbook of Agile Software Craftsmanship. Prentice Hall. ISBN-13: 978-0132350884

4. TEACHING AND LEARNING METHODOLOGIES AND STUDENT WORKLOAD

4.1. Contact hours

- Lecture: 2 hours/week
- Practice: 2 hours/week
- Lab: 0 hour/week

5. EVALUATION PROCEDURES AND WEIGHT OF COMPONENTS IN THE FINAL GRADE

- Attending lectures is mandatory; a maximum of three absences is allowed.
- There will be 10 short written tests.
- There will be 8 assignments, each tied to a deadline within a larger project. The submission deadline is always noon on the day before the lecture.
- *Conditions for the end-term exam:* Attendance at a minimum of 8 lectures, submission of at least 7 assignments, and an average score of more than 50% on both the assignments and the written tests
- The end-term exam will be oral, and at least one exam session must be attended before the last week of the exam period
- Final grade calculation: 30% - short tests, 40% - assignments, 30% - end-term exam