

General information		
Course leader	Danijel Kučak, Senior Lecturer	
Course title	Advanced Application Development Based on Development Templates	
Study programme		
Course status	Elective	
Year	Year 1, semester 1	
Number of credits and mode of teaching delivery	ECTS student workload coefficient	5
	Number of hours (L+E+S)	60 (30 P + 30 V + 0 S)

COURSE DESCRIPTION
<i>1.1. Course objectives</i>
Introducing students with benefits of use design patterns. Students will master concept of SOLID principles and its use. Students will master most of well known structural, behavioural and creational design patterns, and use it on given case study.
<i>1.2. Conditions for enrolment in the course</i>
No formal conditions. Student should be able to write programs comfortably in any object-oriented programming language.
<i>1.3. Expected learning outcomes of the course</i>
<ul style="list-style-type: none"> • LO1 - Determine the need to apply the SOLID principles in the given scenario, and implement them in the given scenario • LO2 - Identify the need to apply appropriate design patterns in the business logic layer and apply them in the given scenario • LO3 - Determine the need to apply form forms in the data and service layer and apply them in the given scenario • LO4 - Determine the need to apply design forms in the presentation layer and apply them in the given scenario • LO5 - Critically evaluate the final product in relation to the initial one, after applying the design patterns
<i>1.4. Course content</i>
SOLID principles Application anatomy and application layers Design patterns in business layer <ul style="list-style-type: none"> - Factory - Template - State - Strategy - Compositor - Decorator

Design patterns in service and data layer

- Facade
- Repository

Design patterns in presentation layer

- MVC
- Front controller
- Structure Map

Inversion of Control Containers

<i>1.5. Teaching delivery modes:</i>	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> remote learning <input type="checkbox"/> field work	<input checked="" type="checkbox"/> independent work <input type="checkbox"/> multimedia and network <input checked="" type="checkbox"/> laboratory <input checked="" type="checkbox"/> mentoring <input type="checkbox"/> other _____
<i>1.6. Comments</i>		

*1.7. Student obligations***STUDENT ATTENDANCE**

Class attendance is mandatory in the percentage prescribed by the Studies and examination regulations.

PASSING THE EXAM

The course has defined learning outcomes. In order for a student to pass the course, he/she must achieve a minimum of 50% of the points available for each learning outcome and collect a minimum of 50.01 points out of a possible 100 points per course.

1.8. Monitoring¹ student work

Class attendance		Activity during class		Seminar paper		Experimental work	
Written exam		Oral exam		Essay		Research	
Project	100%	Continuous assessment of knowledge		Student report		Practical work	
Portfolio		Homework					

1.9. Assessment and evaluation of student work during classes and the final exam

A grading system based is on a credit accumulation model combined with a defined sub-model, providing a model of the grading method and checking the satisfaction of learning outcomes used in this course.

¹ IMPORTANT NOTES: Next to each method of monitoring student work it is necessary to insert an adequate share of each activity in ECTS credits, so the total number of ECTS credits corresponds to the credit value of the course. You can use empty fields for additional activities.

CONCRETE REVIEW OF EVALUATION METHODS

The maximum number of points that a student can earn in a course is 100. Grades are calculated according to the following criteria table within which the distribution of passing grades in terms of the number of points is applied.

Points	Grade
0,00 - 50,00	(1) unsatisfactory
50,01 - 58,00	(2) sufficient
58,01 - 75,00	(3) good
75,01 - 92,00	(4) very good
92,01 - 100,00	(5) excellent

The method of accumulating points is determined in this course in accordance with the elements of scoring as follows:

Criterion	Maximum points
Project	100
TOTAL	100

The way of taking the colloquiums, the learning outcomes it covers, as well as the implementation of exams and remedial exams are defined by the "Instructions for attending and taking the course".

1.10. *Required reading (at the moment of submitting the joint study programme report)*

- **Martin Fowler: Patterns of Enterprise Application Architecture**
- **Freeman, Bates, Sierra, Robson: Head First Design Patterns**

1.11. *Additional reading (at the moment of submitting the joint study programme report)*

1.12. *Number of copies of required reading in relation to the number of students who currently attend a course*

<i>Title</i>	<i>Number of copies</i>	<i>Number of students</i>

1.13. *Methods of quality monitoring that ensure the acquisition of knowledge, skills and competencies.*

Monitoring the fulfilment of the desired learning outcomes is an important element of assessment because learning outcomes are the "guarantees" that the school gives to students, but also to employers and the wider community. Learning outcomes represent the minimum threshold that each student must achieve in order to pass the course. For a passing grade, the student must satisfy all the learning outcomes with the demonstrated knowledge, which corresponds to 50% of the points achieved for each learning outcome. The method of scoring based on learning outcomes is presented in the document "Instructions for attending and taking the course".