GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Design patterns, PG_00031942		
Field of study	Technical Physics		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Katedra Fizyki Teoretycznej i Informatyki Kwant. -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bartosz Reichel	
	Teachers	dr inż. Bartosz Reichel	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	0.0	0.0	45

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	45	5.0	25.0	75

Subject objectives

The student will know the selected object design patterns, and some connected programming techniques. Will be able to use them in programs.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] Has general knowledge of current development paths and discoveries in the scope of physics and related fields of science and technology.	The student has knowledge of design patterns and is aware of their importance in the modern world.	[SW1] Assessment of factual knowledge
[K7_K05] Can communicate and present results of own work and transfer information in a commonly understandable manner.	Student has knowlwdge of the design patterns and is able to present them on the base of his own project.	[SK3] Assessment of ability to organize work

Subject contents

Discussed in lectures are creative patterns: Singleton, Factory Method, Prototype, Abstract Factory, Builder, Structural patterns: Proxy, Adapter, Facade, Bridge, Composite, Decorator, Flyweight, and functional patterns: Template Method, Memento, Command, Iterator, Observer , Strategy, State, Visitor. In addition, be submitted to the library collections of the standard C + + and Java, and input / output operations in C + + and Java. The present model is a design pattern Model - View - Coordinator.

During the laboratory exercises, students develop software using these techniques.

Prerequisites and co-requisites

Basic knowledge of programming in C + + and Java. Knowledge of basic algorithms and data structures.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	50.0%	100.0%

Recommended reading

Basic literature	E. Gamma, R. Helm, R. Johnson, J. Vlissides (the Gang of Four) "Design Patterns", Addison-Wesley, 1994 B. Eckel "Thinking in Patterns", dostępna za darmo w Internecie

	Supplementary literature	None
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	The project utilizing design patterns	
Work placement	Not applicable	

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