GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Advanced Object-Oriented Techniques, PG_00048008		
Field of study	Informatics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2028/2029
Education level	first-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	4	Language of instruction	Polish
Semester of study	7	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Algorithms And Systems Modelling -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Manuszewski	
	Teachers	dr inż. Krzysztof Manuszewski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

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	30	2.0	18.0	50

Subject objectives

The goal is to make student familiar with practical aspects of modern approaches like TDD/BDD/DDD and various tools/practices that support these approaches

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	Student is able to appply various technics typical for modern methodologies (i.e. UT, refactrisation) for purpose of improvement shape of implementation	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study	Student is able to effectively apply tools and techniques for code refactoring	[SU4] Assessment of ability to use methods and tools

Subject contents

- Technical Debt, refactoring and TDD/BDD
- Elements of DDD, AoP
- Construction of OO systems
- Solid principles in practice
- Importance of Design patterns
- Classification of patterns

Prerequisites and co-requisites

Modern, high level object oriented languagess. Prefered C#.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>homework</td><td>50.0%</td><td>20.0%</td></tr>
<tr><td>exam</td><td>50.0%</td><td>20.0%</td></tr>
<tr><td>laboratories</td><td>50.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Czysta architektura : struktura i design oprogramowania : przewodnik dla profesjonalistów, Robert C. Martin, Helion 2018

Adaptywny kod zwinne programowanie, wzorce projektowe i SOLID-ne zasady, Gary McLean Hall, Helion 2018.

R.Martin. Czysty kod, Helion 2014

Wzorce projektowe, Eric Freeman, Elisabeth Freeman, Bert Bates, Kathy Sierra, Helion 2017</td></tr>
<tr><td>Supplementary literature</td><td>Pragmatyczny programista : od czeladnika do mistrza, Andrew Hunt, David Thomas, Helion 2017

Oprogramowanie łatwe w utrzymaniu : pisz kod podatny na przyszłe zmiany, Joost Visser,

Helion. 2017

Wzorce projektowe, E. Gamma, R. Helm, R. Johnson, J.M. Vlissides., WNT 2005</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
</table>

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