University of Gdańsk

Subject card

Subject name and code	Programming Methods, PG_00191646		
Field of study	Informatics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study 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	2	ECTS credits	3.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Tomasz Borzyszkowski	
	Teachers		

Lesson types

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	0.0	30.0	75

Subject objectives

Familiarisation with modern methods of quality assurance in IT projects through software testing and validation. Understand the requirements for IT systems (e.g. availability, performance) and the tools supporting automated software testing. To become familiar with the practices used in the automation of various types of tests (e.g. unit, integration and user interface tests).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFOL3_U06] is able to select and apply appropriate IT methods and tools to solve complex problems, is able to use acquired knowledge by appropriately selecting sources and information derived from them, and perform evaluation, critical analysis, and synthesis of this information	The student is able to plan the testing process by formulating test scenarios, select appropriate test automation tools and integrate them into the software deployment process (CI/CD), and carry out a critical assessment of the quality of the system under analysis based on the test results.	[SU2] presentation/project/paper/ report
[INFOL3_W05] knows and understands advanced concepts in the field of various programming paradigms and programming languages; as well as object-oriented design and programming methods and patterns	The student describes and explains advanced software testing methodologies (including the test pyramid model) and explains how the application of appropriate paradigms and design patterns (e.g. in testing frameworks) affects the testability of code and the quality assurance process.	[SW2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>Methodologies and types of software tests (test pyramid)Software test planning as part of the software development cycle (formulation of test scenarios)Test automation: - automation tools - automated testing as a means of quality assurance in the software development cycle - integration of automated testing into the implementation process</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>project presentation</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>1 Beck Kent, TDD. The art of creating good code Helion Publishing, 2020.2 Harry J.W. Percival. TDD in practice. Reliable code in Python. Helion Publishing, 2020.</td></tr><tr><td>Supplementary literature</td><td>None</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Using TDD methodology, write a class/function called hamming that calculates the Hamming distance for given test data.2. For given requirements, scenarios and use cases, design and implement behavioural tests using the behave library in Python.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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