University of Gdańsk

Subject card

Subject name and code	Industrial Applications, PG_00204178						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		4.0		
Learning profile	practical		Assessment form		credit		
Conducting unit	Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Jakub Neumann				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		0.0		40.0	100
Subject objectives	The aim of the course is to familiarize students with techniques, technologies, tools, solutions and design patterns characteristic of high-performance and scalable enterprise applications.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFPL3_K02] is ready to recognize the importance of knowledge in solving cognitive problems and practical and seeking opinions experts in case of difficulties with independent problem solving	can precisely formulate questions using a professional language related to multi-layer applications, in particular domain modeling and object-relational mappings, defining HTTP REST API	[SK2] presentation/project/paper/ report [SK4] test/exam - oral or written
[INFPL3_W07] knows and understands facts and methods to an advanced degree in the field of designing, developing, testing, implementing and maintaining web applications and their security; applies this knowledge in practical projects, creating web applications and preparing their functional and performance tests	has knowledge in the design, development, testing and deployment of multi-layer Spring/ SpringBoot framework applications and their security	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[INFPL3_U09] is able to - in accordance with the given specification - design and implement IT system	can create a multi-layer application using the Spring/ SpringBoot framework using advanced Object Relational Mapping techniques and HTTP REST API	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[INFPL3_U03] is able to cooperate with other people within teamwork, including being able to manage his/her time, make commitments, communicate using various techniques in the professional environment, including the use of dedicated tools; is able to present different opinions and alternative technical solutions in the project team, explaining their basis, consequences and impact on the project implementation	can implement an IT project in the form of a multi-layer Spring/ SpringBoot application within the declared time, using dedicated tools; can effectively cooperate with others using various IT tools	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[INFPL3_K01] is ready to critically assess the scope and quality of knowledge acquired and the content received, recognizing their limitations and the degree of credibility; demonstrates readiness to update one's own knowledge and confront it with various sources	understands the need for further education in the field of dynamically developing enterprise application techniques and technologies	[SK2] presentation/project/paper/ report [SK4] test/exam - oral or written
[INFPL3_U04] is able to use the acquired knowledge when creating, running and testing programs using dedicated tools and design patterns	can create, run and test multi-layer Spring/SpringBoot applications, using appropriate design patterns using an integrated development environment, HTTP API testing tools and database inspection	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written

Subject contents

- features of enterprise applications, multi-layer monolithic applications
- concepts of the Spring framework, the concept of Dependency Injection, the Inversion of Control container
- introduction to SpringBoot
- Spring/SpringBoot application development environment
- presentation layer of industrial applications, HTTP REST pattern on the example of the Spring Web project and a web application according to the Server Side Rendering pattern
- Java Object mappings JSON format
- designing, testing and documenting HTTP API applications
- domain modeling and Object-Relational Mapping on the example of the Spring project
- deployment of industrial applications

Prerequisites and co-requisites

Passed course Programowanie obiektowo-funkcyjne"

Passed course Protokoły sieci web

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tests	51.0%	60.0%
	projects	51.0%	40.0%
Recommended reading	Basic literature	Spring in Action, aut. Craig Walls, ISBN 9781617297571	
	Supplementary literature	Spring w praktyce, aut. Willie Wheeler, Joshua White, ISBN 9788324681846	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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