

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Concurrent and parallel programming, PG_00037344									
Field of study	Technical Physics									
Date of commencement of studies	October 2020		Academic year of realisation of subject			2022/2023				
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	3		Language of instruction			Polish				
Semester of study	5		ECTS credits			4.0				
Learning profile	general academic profile		Assessment form			assessment				
Conducting unit	Instytut Fizyki i Informatyki Stosowanej -> Faculty of Applied Physics and Mathematics									
Name and surname	Subject supervisor dr inż. Marcin Wilczewski									
of lecturer (lecturers)	Teachers		dr hab. Jan Franz dr inż. Marcin Wilczewski							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM		
of instruction	Number of study hours	15.0	0.0 30.0 0.0		0.0	0.0		45		
	E-learning hours included: 0.0									
	Additional information:									
Learning activity and number of study hours	Learning activity Participation in classes include plan		ed in study		Self-study SUM					
	Number of study 45 hours		10.0		45.0 100		100			
Subject objectives	The goal of the course is to introduce students into the area of design and programming concurrent and parallel programs. In particular will be shown how to design, implement and evaluate the quality of programs.									
Learning outcomes	Course outcome		Subject outcome			Method of verification				
	K6_K01		The student knows the scenarios where the use of concurrent or parallel programming is necessary to solve the problem			[SK5] Assessment of ability to solve problems that arise in practice				
	K6_W05		The student learns how to solve the classical concurrency problems			[SW1] Assessment of factual knowledge				
	K6_U03		The student practices Java programming			[SU1] Assessment of task fulfilment				
Subject contents 1. The fundamentals of concurrent programming: basic concepts.										
	2. Classical concurrent problems: readers-writers, consument-producers, etc.									
3. Centralized and distributed systems.										
4. Threads synchronization.										
	5. Fundamentals of concurrent programming in Java.									
	6. Fundamentals of Apache Spark ecosystem									
	7. The practice of Apache Spark									

Prerequisites and co-requisites	The fundamentals of Java and/or python programming.					
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade			
and criteria	Written test (10 points) and laboratory (30 points). Total 40 points.	0.0%	25.0%			
	Lab (30 points)	0.0%	75.0%			
Recommended reading	Basic literature	M. Ben-Ari, "Principles of Concurrent and Distributed Programming", Addison-Wesley, II edition, 2006.				
	Supplementary literature	none				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	1. Paradigm of concurrency.					
	2. Correctness evaluation of concurrent programs.					
	3. Thread and process synchronization.					
Work placement	Not applicable					