



Subject card

Subject name and code	Concurrent programming in Linux - II, PG_00048388						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
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	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Marine Electronic Systems -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Iwona Kochańska					
	Teachers	dr hab. inż. Iwona Kochańska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	15.0	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 aim of the course is to provide knowledge and skills with concurrent programming methods and techniques in linux operating system.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_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, making assessment and critical analysis of the prepared software as well as a synthesis and creative interpretation of information presented with it	The student knows and understands in advanced method synchronization and scheduling processes and threads in concurrent programs working in systems built into the system Linux operating system.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	The student knows and understands in advanced rule programming methods and techniques concurrent in the system Linux operating system			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	Organizational matters: credit rules, consultations, literature Basic concepts of concurrent programming Classic problems of concurrent programming Processes on the system on Linux Signals and links Programs in the kernel space Time management - system clocks and counters Parallel work mechanisms semaphores mutexes Conditional variables Monitors Message queues algorithms Correctness of concurrent programs and its verification											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Subject passing criteria</th> <th style="width: 30%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>project</td> <td>50.0%</td> <td>50.0%</td> </tr> <tr> <td>laboratory excercises</td> <td>50.0%</td> <td>50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	project	50.0%	50.0%	laboratory excercises	50.0%	50.0%
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Recommended reading	Basic literature	R. Love, Linux System Programming: Talking Directly to the Kernel and C Library 2nd Edition, O'Reilly										
	Supplementary literature	J. Corbet, A. Rubini, G. Kroah-Hartman, „Linux Device Drivers, Third Edition”, O'Reilly										
	eResources addresses	Adresy na platformie eNauzanie:										
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											