GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Numerical methods in the LabVIEW environment , PG_00057513		
Field of study	Nanotechnology		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2023/2024
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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute Of Nanotechnology And Materials Engineering -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Chmielewski	
	Teachers		

Lesson types and methods of instruction

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	2.0	3.0	50

Subject objectives

The aim of the course is to prepare students to effectively use LabVIEW environment used as a tool for advanced digital signal processing

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_U05		
K7_U03		
K7_W05	The student is able to design computational algorithms and implement them directly in the programming environment. He/ she can use tools from the Advanced Signal Analazer package in LabVIEW. The student can effectively scale models of digital computing algorithms.	[SW1] Assessment of factual knowledge

Subject contents

The course contents include a comprehensive use of the LabVIEW package in the field of wide-area digital signal analysis. Methods of digital signal filtering, techniques of effective interpolation and extrapolation will be presented and tested. Activities in the field of mathematical processing of digital signals including integration and differentiation procedures, filtering using the Fourier transform and wavelet analysis, also in the time domain. Techniques for parameterization of noise signals will be presented.

Prerequisites and co-requisites

Basic knowledge of LabVIEW programming environment

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Projets in LV	100.0%	100.0%

Recommended reading

Basic literature	Website www.NI.com "Introduction to digital signal processing" Author: Lyons Richard G.
Supplementary literature	non
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

FFT, SFFT, RMS, DC analysis

Work placement	Not applicable

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