

Course syllabus

binding for the doctoral students of the CUT Doctoral School commencing their studies
in the academic year 2022/2023

Information on the course

Name of the course in Polish	Sygnaly i systemy dynamiczne
Name of the course in English	Signals and dynamic systems
Number of the ECTS points	1
Language of instruction	Polish
Category of the course	Elective
Field of education	Engineering and Technology
Discipline of education	Automatic Control, Electronics and Electrical Engineering
Person responsible for the course Contact	Krzysztof Tomczyk, <i>doctor habilitatus</i> in Engineering, prof. of CUT krzysztof.tomczyk@pk.edu.pl

Type of course, number of hours in the study programme curriculum

Semester	Credit type (G / NG)*	Lecture	Practical class	Laboratory	Computer laboratory	Project class	Seminar
2, 3, 4, 5	G	8	0	0	7	0	0

*G – graded credit, NG – non-graded credit

Course objectives

Code	Objective description
Objective 1	Introduction to the problems of signal theory and the processing of signals by dynamic systems.
Objective 2	Introduction to computer-based methods of signal processing by dynamic systems.

Learning outcomes

Code	Description of the learning outcome adjusted to the specific characteristics of the discipline	Learning outcome symbol in the CUT DS	Methods of verification
OUTCOMES RELATED TO KNOWLEDGE			
EUW1	The doctoral student knows and understands the theoretical principles related to the dynamic signal theory.	E_W01 E_W02	Attendance in class, written test
EUW2	The doctoral student knows and understands the theoretical principles related to signal processing by dynamic systems.	E_W01 E_W02	Attendance in class, written test
OUTCOMES RELATED TO SKILLS			
EUU1	The doctoral student is able to prepare a report on signal processing by dynamic systems.	E_U01	A computer laboratory report

OUTCOMES RELATED TO SOCIAL COMPETENCES

EUK1	The doctoral student is prepared to critically evaluate the problems related to signals and dynamic systems, presented in subject-related literature.	E_K01 E_K03	Discussion
------	---	----------------	------------

Course outline

No.	Contents	Learning outcomes for the course	No. of hours
LECTURE			
W1	The classification and characteristics of dynamic signals.	EUW1	2
W2	Transforms in dynamic signal analysis.	EUW1	2
W3	Procedures dedicated to signal processing by dynamic systems.	EUW2	4
COMPUTER LABORATORY			
Lk1	Basic transforms in dynamic signal analysis. Applications in the MathCad software.	EUW1, EUW2, EUU1, EUK1	2
Lk2	Signal processing by dynamic systems. Applications in the MathCad software.	EUW1, EUW2, EUU1, EUK1	5

The ECTS points statement

WORKING HOURS SETTLEMENT	
Type of activity	Average number of hours (45 min.) dedicated to the completion of an activity type
SCHEDULED CONTACT HOURS WITH THE ACADEMIC TEACHER	
Hours allotted in the syllabus	15
Consultations	1
Course credit assignment	2
HOURS WITHOUT THE PARTICIPATION OF THE ACADEMIC TEACHER	
Independent study of the course contents	6
Preparation of a paper, report, project, presentation, discussion	6
ECTS POINTS STATEMENT	
Total number of hours	30
The ECTS points number	1

Preliminary requirements

No.	Requirements
1	Knowledge of basic problems related to signal theory and dynamic systems.

Course credit assignment conditions / method of the final grade calculation

No.	Description
COURSE CREDIT ASSIGNMENT CONDITIONS	

1	Attendance in class, a positive grade on the test of knowledge covered in the lecture, submission of computer laboratory reports.
METHOD OF THE FINAL GRADE CALCULATION	
The final grade is the arithmetic mean of the grade on the test of knowledge covered in the lecture and the final grade in the computer laboratory class.	

Additional information

None

The course reading list

1	Jakubiec J., Roj J. Pomiarowe przetwarzanie próbkujące. WPS, 2000.
2	Zieliński T. Cyfrowe przetwarzanie sygnałów. Od teorii do zastosowań. WKiŁ, 2005.
3	Layer E., Tomczyk K. Measurements, Modelling and Simulation of Dynamic Systems. Springer-Verlag Berlin Heidelberg, 2010.