DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE: prof. Krzysztof Szabat
DEPARTMENT of Electrical Engineering

COURSE CARD

Course name in Polish: Zaawansowane algorytmy regulacji w sterowaniu ruchem
Course name in English: Advanced control algorithms for motion control
Course language ~~Polish~~ / English*
University-wide general course type*:

Specialized courses for PhD students receiving education in discipline*: ……..……..……
1) specialized course in discipline: ……..
Subject code: …AEQ100154W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Electrical engineering
2. Control theory
3.

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COURSE OBJECTIVES

C1. Acquisition of in-depth knowledge of linear control algorithms used in motion control systems.
C2. Acquisition of in-depth knowledge about nonlinear control algorithms used in motion control systems.

PROGRAM CONTENTS

Form of classes – lecture (Lec)		Number of hours
Lec1	Introduction, review of control algorithms	2
Lec2	Actuators in motion control - motors and converters	2
Lec3	Actuators in motion control - motors and converters	2
Lec4	Linear PID controllers and their modifications	2
Lec5	State controllers and their modifications	2

Lec6	The FDC control algorithm	2
Lec7	Introduction of fuzzy control	2
Lec8	Fuzzy control - Mamdani controllers	2
Lec9	Fuzzy control – TSK controllers	2
Lec10	Petri Nets in fuzzy control	2
Lec11	Predictive control - introduction	2
Lec12	Continuous and finite set predictive control	2
Lec13	State estimators - introduction	2
Lec14	State estimators – advanced strategies	2
Lec15	Summary	2
	Total hours:	**30**

Form of classes – foreign language course (Lng)		Number of hours
Lng1		
Lng2		
Lng3		
..		
	Total hours:	

Form of classes – seminar (Sem)		Number of hours
Sem1		
Sem2		
Sem3		
…		
	Total hours:	

Form of classes – mixed forms (mix)		Number of hours
Mix1		
Mix2		
Mix3		
…		
	Total hours	

TEACHING TOOLS USED
N1. Traditional lecture with multimedia presentation N2. N3.

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	C1	exam
Knowledge	C2	exam

…		
Skills		
Skills		
…		
Social competence		
Social competence		
…		

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Piegat A. Fuzzy Modeling and Control
[2] Tatjewski P. Advanced Control for Industrial Processes, Structures and Algorithms
[3] Ogata K. Modern Control Engineering
[4]

SECONDARY LITERATURE:

[1] Dodds. J. Feedback Control – Linear, Nonlinear and Robust Techniques
[2]
[3]
[4]

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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