DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR DECLARING/CONDUCTING COURSE: prof. dr hab. inż. Dorota Kuchta
DEPARTMENT: K48/ W8
SCIENTIFIC DISCIPLINE: NZJ

COURSE CARD

Course name in Polish: Optymalizacja i jej zastosowania
Course name in English: Optimisation and its applications
Course language: English
University-wide general course type*:
The course is intended for all PhD students: YES / NO
1) BASIC COURSE
2) SPECIALIST COURSE
3) SEMINAR
4) HUMANISTIC COURSE
5) LANGUAGE

Subject code: NZQ100134W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	15		15	
Grading	Test		Oral presentation	

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. none

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COURSE OBJECTIVES
C1 to familiarise listeners with selected concepts and optimisation problems
C2 getting the listeners acquainted with selected methods of solving optimization problems
C3 to familiarise the audience with selected optimisation applications

PROGRAM CONTENTS

Lecture	Number of hours
1. Problems of graph colouring	1

2.	Knapsack problems	2
3.	Problems of optimal paths	2
4.	The Travelling Salesman Problem	1
5.	Scheduling problems	2
6.	The problem of maximum and cheapest flows	1
7.	Fuzzy optimization	2
8.	Test	2
	Total hours	15

	Seminar	Number of hours
1.	Organisational issues and choice of presentation topics	1
2.	Students presentations and discussion	2
3.	Students presentations and discussion	2
4.	Students presentations and discussion	2
5.	Students presentations and discussion	2
6.	Students presentations and discussion	2
7.	Students presentations and discussion	2
	Total hours	15

TEACHING TOOLS USED
N1. Traditional lecture N2. Multimedia presentations N3. Case studies presenations

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Learning about selected optimisation problems	E1	test
Ability to present a selected topic in the field of optimisation	E2	Oral resentation

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Roseaux, Exercices et problèmes résolus de recherche opérationnelle, tome 1, Dunod 2005;
[2] Roseaux, Exercices et problèmes résolus de recherche opérationnelle, tome 2, Dunod 2004;
[3] Michalewicz Z., Fogel D.B., How to solve it: modern heuristics, Springer 2010
[4] Smith D.K, Network optimization practice: A Computational Guide, John Wiley, 1982,

SECONDARY LITERATURE:

[5] Michalewicz Z , Genetic Algorithms + Data Structures = Evolution Programs, Springer 1996
[6] Kuchta D., Soft Mathematics in Management, Wrocław 2001

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

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