DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE: Katarzyna Matczyszyn
DEPARTMENT: Chemical Department
SCIENTIFIC DISCIPLINE:, Chemical Sciences

COURSE CARD

Course name in Polish Interdyscyplinarne seminarium o nowych materiałach II
Course name in English: Interdisciplinary seminar on new materials
Course language ~~Polish~~ / 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: NCQ100119S

* delete as applicable

	Lecture	Foreign language course	**Seminar**	Mixed forms
Number of hours of organized classes in university (ZZU)			**15**	
Grading	Exam	Exam	**Oral presentation**	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basis of physics – high school level
2. Basis of chemistry – high school level
3. Basis of biology – high school level

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COURSE OBJECTIVES

C1 To provide students with a general knowledge about new materials
C2 To provide student with a ability to present their knowledge and opinion about new materials
C3 To get students interested in the modern materials research and development
C4 To enhance the ability of the presentation of the own results in the field of new materials

PROGRAM CONTENTS

Form of classes – seminar (Sem)		Number of hours
Sem1	Materials used in photodynamic therapy	2
Sem2	Materials for biocatalysis	2
Sem3	Photochromic materials	4

Sem4	Plasmonic nanomaterials	4
Sem5	Biomaterials	2
Sem6	Toxicity of new materials	1
	Total hours:	15

TEACHING TOOLS USED
N1. Multimedia presentation N2. Conversation N3.Disscuctions

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
related to knowledge: P8S_WG student knows the principles of photochemistry, photobiology and photophysics P8S_W student knows modern materials technologies P8S_WK student knows and understands the principles of the light-matter interactions **related to skills:** P8S_U student can apply the principles of the light-matter interactions P8S_UW student is able to analyze and critically evaluate the photo **related to social competences:** P8S_UO student understands the need to inform the public about the need to achieve the goals of sustainable development in technologies for the production of chemicals, fuels, energy and environmental protection. P8S_K student is able to work in a group, performing various roles including group leader P8S_KK student is aware of the social role of the engineer P8S_KO student is ready to critically evaluate his/her knowledge and received content		

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Paras Prasad „Introduction to biophotonics" Wiley-Interscience, 2003
[2] Vasily Klimov „Nanoplasmonic" Stanford Publishing, 2014
[3] Gregory Barbillon "Nanoplasmonics - Fundamentals and Applications" 2017
[4] Jürgen Popp, Valery V. Tuchin, Arthur Chiou, Stefan H. Heinemann "Handbook of Biophotonics: Vol. 2: Photonics for Health Care" Wiley, 2016

SECONDARY LITERATURE:

[5] Katharina Hüll, Johannes Morstein, and Dirk Trauner „In Vivo Photopharmacology" *Chem. Rev.* 2018, 118, 21, 10710–10747
[6] Velema, W. A.; Szymanski, W.; Feringa, B. L. Photopharmacology: Beyond Proof of Principle. J. Am. Chem. Soc. 2014, 136, 2178– 2191

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