

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SUPERVISOR DECLARING/CONDUCTING COURSE: Anna Witek-Krowiak
DEPARTMENT: Chemical Department
SCIENTIFIC DISCIPLINE: chemical engineering

COURSE CARD

Course name in Polish: Najnowsze kierunki badań w inżynierii chemicznej

Course name in English: The latest research directions in chemical engineering

Course language: ~~polish~~/ English

The course is intended for all PhD students: YES / ~~NO~~

- 1) ~~BASIC COURSE~~
- 2) ~~SPECIALIST COURSE~~
- 3) ~~SEMINAR~~
- 4) ~~HUMANISTIC COURSE~~
- 5) ~~LANGUAGE~~
- 6) ~~RESEARCH SKILLS~~

Subject code: CIQ100252W

* 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. None

COURSE OBJECTIVES

C1 Familiarization with recent developments in the discipline of chemical engineering.

PROGRAM CONTENTS

Form of classes		Number of hours
Lec_1	Technologies of coatings and films manufacturing using ionic liquids and DES - green solvents (J. Winiarski)	2
Lec_2	Bioelectrochemical systems technology (G. Pasternak)	2
Lec_3	Transition metal borides as alternative, non-precious, catalytic materials (K. Jaroszewska)	2
Lec_4	Supercritical fluid applications - green technologies for materials, chemicals, and energy production (I. Zizovic)	2

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Lec_5	Polymer-carbon functional materials for electrochemical applications (A. Moyseowicz)	2
Lec_6	Industry-environment relation (M. Mironiuk)	2
Lec_7	Metal-organic frameworks (MOFs) - advanced functional materials (A. Łamacz)	2
Lec_8	Polysaccharides - macromolecules with great potential in medicine and food industry (I. Pawlaczyk-Graja)	2
Lec_9	Algae as a raw material in chemical engineering - possible applications (I. Michalak)	2
Lec_10	Microbial valorization of agricultural and food wastes into fertilizer preparations (A. Saeid)	2
Lec_11	Chemical looping combustion - an overview (E. Ksepko)	2
Lec_12	Fundamental properties and applications of nano-porous materials in nano-engineering (B. Kuchta)	2
Lec_13	Polymeric foam scaffolds for bone tissue engineering (K. Szustakiewicz)	2
Lec_14	Current trends in industrial bioengineering (K. Labus)	2
Lec_15	Exam (A. Witek-Krowiak)	2
	Total hours	30

TEACHING TOOLS USED

N1. Presentation
N2. Discussion

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8S_WG	exam
Knowledge	P8S_WK	exam

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Recent literature relevant to the scientific area in which the lecture is given.

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

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