DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE: Marek Langner
DEPARTMENT: Biomedical Engineering

COURSE CARD

Course name in Polish: NANOMEDYCYNA
Course name in English: NANOMEDICINE
Course language: English
University-wide general course type*:
1) basic science course (mathematics, physics, chemistry, computer science or other) : …
2) humanities course: …….
3) management course: ……..
4) English language: ……
5) didactics of higher education course: ……

Specialized courses for PhD students receiving education in discipline*: ……..……..……
1) specialized course in discipline: ……..
2) interdisciplinary course in the field of several disciplines: ……
3) seminar in discipline or interdisciplinary: ……

Subject code: IBQ100200W* 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
Number of ECTS points	**3**			

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. CHEMISTRY
2. PHYSICOCHEMISTRY
3. PHYSIOLOGY
4. PHYSICS

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COURSE OBJECTIVES

C1 Presentation of social and legal context of medical sciences.
C2 Presentation of current statues of bio-nano-medicine

PROGRAM CONTENTS

Form of classes – lecture (Lec)		Number of hours
Lec1	Introduction	2
Lec2	Legal regulations regarding medical products and drugs	2
Lec3	Physiological carrier of active substances (cholesterol)	2
Lec4	Iron homeostasis.	2
Lec5	Quantitative measures of the biodistribution of an active substance.	2
Lec6	Principles of design of nanocarriers for active substances	2
Lec7	The effect of physiology and pathophysiology on performance of nano-devices.	2
Lec8	The effect of body parameters on the design of nano-devices	2
Lec9	Coding information in biological systems	2
Lec10	Active targeting	2
Lec11	Example of nano-drug, doxil.	2
Lec12	Methods of nano-devices production.	2
Lec13	Properties of lipid aggregates	2
Lec14	Production of lipid nano-aggregates	2
Lec15	Summary and perspectives	2
	Total hours:	**30**

TEACHING TOOLS USED
N1.Multimedia presentations N2.Discussion

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8U_W	discussion
Skills	P8U_U	essay
Social competence	P8S_KK	essay

PRIMARY AND SECONDARY LITERATURE
PRIMARY LITERATURE: [1] Publications
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)
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