

Course title: Biopharmaceutics		
Programme: Biotechnology		Code:
Type of course:	Course level: II level	Semester: II
Form of classes: Lectures, tutorials	Number of hours per week/meeting: 2L, 1T	Credit points: 4
Education profile: Generally academic		Course language: English
Enrolment: yes/ no		

SYLLABUS

I. COURSE CHART

COURSE OBJECTIVES

- C.1.** Providing basic knowledge about classification, occurrence of pharmaceuticals and their kinetics
- C.2.** Providing of basic knowledge of biopharmaceuticals kinetics, especially their elimination by the liver and selected methods of application
- C.3.** Learning techniques of using biopharmaceuticals in human treatment, case study - basics of drug selection, principle of action and therapeutic effects

PRELIMINARY COURSE REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

- 1. Knowledge from chemistry
- 2. Knowledge from biology of living organisms
- 3. Basic knowledge from mathematics

LEARNING OUTCOMES

- EK 1 -** Know the basic knowledge about classification, occurrence of pharmaceuticals and their kinetics
- EK 2 -** Know basic knowledge of biopharmaceuticals kinetics, especially their elimination by the liver and selected methods of application
- EK 3 -** Can use biopharmaceuticals techniques in human treatment, create the case study - basics of drug selection, principle of action and therapeutic effects

COURSE CONTENT

Form of classes - lectures	Hours
Biopharmaceutics – introduction and theory principals	4
Introduction to biopharmaceutics and pharmacokinetics	4

Biopharmaceutics classification system and importance	4
Drug elimination and clearance	4
Pharmacokinetics of oral adsorption	4
Drug elimination and hepatic clearance	4
Targeted drug delivery systems and biotechnological products	4
Test of theory from lectures	2
Form of classes - tutorials	Hours
Biopharmaceutics - a basic tool for modern pharmacotherapy - introduction	2
Case study based on bibliographic data: - The first stage - the choice of disease for treatment, adjustment of drugs - The second stage - the principle of action of applied drugs, the effects of treatment	7
Test and presentation from the first stage	2
Test and presentation from the second stage	2
Final test and results	2

COURSE STUDY METHODS

1. blackboard, interactive whiteboard
2. multimedia presentation
3. Literature from on-line bibliographic databases

METHODS OF ASSESMENT (F - formative; S - summative)

F1. – activity in classes
S1. – test from the lectures
S2. – test and presentation from the tutorials
S3. - evaluation of the tutorials reports performance including analysis and verification of the obtained results

STUDENT WORKLOAD

Form of activity	Workload (hours)
Participation in lectures	28 h
Participation in classes	13 h
Laboratory	- h
Participation in project classes	- h
Participation in seminar	- h
Preparation course on e-learning	- h
Test	8 h
Entrance test for laboratory classes	- h
Project's defence	- h
Exam	- h
Consultation hours	10 h
DIRECT TEACHING, hours/ ECTS	59 h / 2,5 ECTS
Preparation for tutorials	30 h
Preparation for laboratories	- h
Preparation for projects	- h
Preparation for seminars	- h

Preparation for e-learning classes	- h
Participation in e-learning classes	- h
Working on project	- h
Preparation for tests	15 h
Preparation for exam	- h
SELF-STUDY, hours/ ECTS	45 h / 1,5 ECTS
TOTAL (hours)	Σ 104 h
TOTAL ECTS	4 ECTS

PRIMARY AND SUPPLEMENTARY TEXTBOOKS

Biopharmaceutics & Pharmacokinetics, 2008. Biopharmaceutics & Pharmacokinetics. Pragati Books Pvt. Ltd.
Essentials Of Biopharmaceutics And Pharmacokinetics, 2010. Essentials Of Biopharmaceutics And Pharmacokinetics. Elsevier Health Sciences.
Biopharmaceutics Modeling and Simulations, 2012. Biopharmaceutics Modeling and Simulations. John Wiley & Sons.

SUBJECT COORDINATOR (NAME, SURNAME, E-MAIL ADDRESS)

1. dr inż. Krzysztof Fijałkowski, krzysztof.fijalkowski@pcz.pl
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NAME OF LECTURER (s) (NAME, SURNAME, E-MAIL ADDRESS)

1. dr inż. Krzysztof Fijałkowski, kfijalkowski@is.pcz.czest.pl
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Learning outcome	In relation to the learning outcomes specified for the field of study	Course objectives	Course content	Course study methods	Methods of assesment
EK 1	K_W04, K_W05, K_K08	C.1-2	lectures/tutorials	1-2	S1
EK 2	K_W04, K_W05, K_K08	C.1-2	lectures/tutorials	1-2	S1
EK 3	K_U02, K_U06, K_K08	C.3	tutorials	3	F1, S2-3

II. OTHER USEFUL INFORMATION

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1. All the information on the class schedule is posted on the student information board and

online at: www.is.pcz.pl

2. The information about the consultation hours is provided to students on the first class meeting and posted online at ...
3. The information on course completion and grade is provided to students on the first class meeting.