Detailed course description
(SUBJECT CARD)

Course title: **Drug delivery systems**
Course code:
Classification of a course group:
Course type: specialty-related
elective
Field of study: **Chemistry**
Level of study: second-cycle
Profile of study: general academic
Mode of study: full-time programme
Specialty (specialisation): **Pharmaceutical and cosmetic chemistry**
Year of study: first
Semester: second
Teaching modes and teaching hours: lecture – 15 hours
Language/s of instruction: **English**
Number of ECTS credits *(according to the study programme)***: 2**

1. Course objectives:

   Acquiring knowledge about the basics of technology utilized to deliver the drug to the desired body site for drug release and absorption.

2. Relation of the field-related learning outcomes to modes of teaching and methods of verification as well as to assessment of student's learning outcomes:

symbol	**assumed learning outcomes** a student who completed the course:	**teaching modes**	**verification methods and learning outcomes assessment**
Knowledge: a student knows and understand			
K2A_W03	The student has an extended knowledge in the field of chemistry of macromolecular compounds, including the impact of biological and / or practical application	lecture	Interactive discussion, test
K2A_W11	The student has a general knowledge about current development trends and the newest discoveries in the field of chemistry and related sciences	lecture	Interactive discussion, test
Skills: a student can			
K2A_U13	uses specialized English terminology in the field of chemical sciences	lecture	Interactive discussion, test

3. The content of study programme ensuring learning outcomes *(according to the study programme)*:

   Advantages and limitations of conventional dosage form
   Site–specific release and receptor– release dosage forms
   Sustained release dosage forms
   Mechanism of drug release
   Smart drug delivery nanoplatforms.

4. Description of methods of determination of ECTS credits:

Type of activity	Number of hours / ECTS credits
Number of course hours regardless of a teaching mode	15/0,5
Student's workload 1* preparation (translation and pronunciation) for a course	10/0,5
Student's workload 2* preparation for a test	15/0,5
The other**consultations	5/0,5
Total hours:	**45**
Number of ECTS credits allocated to a course	**2**

Explanation:
* – student's workload - fill in the types of activities, e.g. *preparation for a course, interpretation of results, making a course report, preparation for an exam, studying sources, making a project, presentation* and *report, doing written assignment, etc.*
** – the other e.g. *extra course hours*

5. Summary indexes:
   - number of course hours and ECTS credits at the course with a direct participation of academic teachers or other persons running the course and supervising students; 15/0,5
   - number of course hours and ECTS credits at the course related to the scientific activity conducted at the Silesian University of Technology in a discipline or in disciplines to which a field of study is assigned - in the case of studies with a general academic profile; 45/2

- number of course hours and ECTS credits at the course developing practical skills- in the case of practical studies; 0
- number of course hours conducted by academic teachers employed by the Silesian University of Technology as their primary workplace; 15

6. Persons conducting particular modes of courses (name, surname, academic degree or degree in arts, title of professor, business e-mail address):

   dr hab. inż. Ilona Wandzik, prof. PŚ., ilona.wandzik@polsl.pl

7. Detailed description of teaching modes:

   Lecture:

   Advantages and limitations of conventional dosage form

   Site–specific release and receptor– release dosage forms

   Sustained release dosage forms

   Mechanism of drug release

   Smart drug delivery nanoplatforms

8. Description of the method for determining the final grade (rules and criteria for evaluation, as well as the final grade calculation method in the case of a course comprising more than one teaching mode, taking into account all teaching modes and all exam dates and credit tests including retake exams and tests):

   A condition for the obtaining a positive grade is passing the final test (10 points) for a minimum of 50%.

   < 5 points - 2
   5 - 5,5 points 3
   6 - 6,5 points 3,5
   7 - 7,5 points 4
   8 - 8,5 points 4,5
   9 - 10 points 5

9. Method and procedure for making up for

   - student's absence from the course,

     Individual preparation by the student

   - differences in study programmes for students changing their field of study, changing university or resuming studies at the Silesian University of Technology,

     Depending on the type of differences in study programmes, it is determined by the teacher during consultations in accordance with the forms of conducting classes and the credit conditions set out in point 7 of this card.

10. Prerequisites and additional requirements, taking into account the course sequence:

    fundamentals of organic chemistry, chemistry and mechanism of action of bioactive compounds, chemistry of macromolecules.

11. Recommended sources and teaching aids:

    Primary sources:

    Anya M Hillery, Kinam Park, Drug Delivery: Fundamentals and Applications, 2nd Edition, Taylor&Francis, 2017

    Ashim Mitra, Chi H. Lee, Kun Cheng, Advanced Drug Delivery, Wiley, 2013

    Richard B. Silverman and Mark W. Holladay , The Organic Chemistry of Drug Design and Drug Action, 3rd edition, Academic Press, 2015

    Supplementary sources:

    Research publications in the field of advanced drug delivery systems.

12. Description of teachers' competences (e.g. publications, professional experience, certificates, trainings etc. related to the programme contents implemented as a part of the course):

    Publications in journals from the JCR database in the field of chemical sciences and biomedical engineering.

    Several years of professional and didactic experience, including seminars and laboratory classes, especially in the field of bioorganic chemistry, molecular spectroscopy and molecular modelling

13. Other information:

    None