



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Identification of Organic Compounds

Course

Field of study

Pharmaceutical Engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

30

Tutorials

0

Laboratory classes

0

Projects/seminars

0

Other (e.g. online)

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Ewa Kaczorek, prof. uczelni

Responsible for the course/lecturer:

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Prerequisites

1. Basic knowledge of inorganic, organic, physical and analytical chemistry.
2. Experience in basic laboratory techniques in synthesis, isolation and purification chemical compounds.
3. Understanding the need for further training and increasing professional and personal competences.



Course objective

Acquiring the ability to use spectroscopic methods (UV, IR, Raman, NMR) and mass spectrometry to identify organic compounds and determine their structure.

Course-related learning outcomes

Knowledge

K_W7

1. Student has knowledge of techniques and methods for the characterization and identification of chemicals, typical environmental pollution.
2. Student is able to describe the methods, techniques, tools and materials used in solving simple problems related to the identification of the substance with which it may encounter realizing pharmaceutical engineering tasks.

Skills

K_U8

1. Student uses spectroscopic methods for basic qualitative and quantitative determinations of organic compounds.
2. Student is able to determine the suitability and choose tools (methods) to solve the problem within the scope of pharmaceutical engineering.

Social competences

K_K1

1. Student understands the need to improve professional qualifications.
2. Student is responsible for the tasks carried out in the team.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Writing test

Programme content

The programme focuses on the use of electromagnetic radiation interaction with molecules of organic compounds and the possibilities of using these phenomena to identify them. The theoretical base, which is necessary to understand the principles of UV / VIS, IR, Raman, NMR and MS are discussed. Moreover, opportunities and limitations of the above research techniques are presented. The methods of preparing samples, which are practiced during laboratory classes, are discussed. The scope of information presented allows individual spectra interpretation. The experimental technique is sufficiently presented to self-service of commonly used equipment and to contact with operator of highly specialized equipment.



Teaching methods

Lecture with multimedia presentation, discussion with students.

Bibliography

Basic

1. Spektroskopowe metody identyfikacji związków organicznych, R.M. Silverstein, F.X. Webster, D.J. Kremler, PWN, Warszawa, 2007
2. Metody spektroskopowe wyznaczania struktury związków organicznych, L.A. Kazicyna, N.B. Kupletska, PWN, Warszawa, 1974
3. Określanie struktury związków organicznych metodami spektroskopowymi, M. Szafran, Z. Dega-Szafran, PWN, Warszawa, 1988
4. Metody spektroskopowe i ich zastosowanie do identyfikacji związków organicznych, W. Zieliński, praca zbiorowa, WNT, Warszawa, 1995.
5. Spektroskopia mas związków organicznych, A. Płaziak, wyd. UAM, Poznań, 1997.

Additional

1. N.P.G. Roeges, A guide tot He complete interpretation of infrared spectra of organic structures, Wile, Chichester, 1994.
2. J.S. Splitter, F. Turecek, Application of mass spectrometry to organic stereochemistry, VCH, New York, 1994.

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	35	1,2
Student's own work (literature studies, preparation for tests) ¹	25	0,8

¹ delete or add other activities as appropriate