COURSE DESCRIPTION CARD - SYLLABUS

Course name
Methods of organic compounds analysis [N1TCh2>MAZO]

Course

Field of study
Chemical Technology

Year/Semester
4/7

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
20

Laboratory classes
10

Other
0

Tutorials
10

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Basic physical, inorganic, organic and analytical chemistry on academic level

Course objective

The student acquires the ability to use spectroscopic methods for the analysis of organic compounds, the ability to analyze spectroscopic data, and identify compounds based on UV-VIS, FT-IR, NMR and MS spectra

Course-related learning outcomes

Knowledge:
Has the necessary knowledge in the field of techniques and methods for characterizing and identifying chemical substances [K_W11]

Skills:
Is able to obtain necessary information from literature, databases and other sources related to chemical sciences, correctly interprets it, draws conclusions, formulates and justifies opinions [K_U01]
Uses computer programs that support the implementation of tasks typical of chemical technology and

engineering, plans chemical experiments, examines the course of chemical processes and correctly interprets the results obtained [K_U07]
Is able to assess the usefulness of routine methods and techniques appropriate to solve practical engineering tasks in chemical technology, can also choose and apply the appropriate method and technique [K_U14]
Selects analytical methods for qualitative and quantitative determination of chemical compounds [K_U21]
Selects analytical methods and techniques for process control and quality assessment of raw materials and products [K_U32]

Social competences:
Understands the need for further training and improving their professional, personal and social competences [K_K01]
Is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions [K_K02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - evaluation of knowledge and skills acquired on the basis of a written credit(4 problem tasks based on the content of the lecture program).
Tutorials:written verification of spectra interpretation skills
Laboratories: Tests checking preparation for a selected experiment, evaluation of report containing an interpretation of results.

Programme content

Issues related to methods of organic compounds analysis.

Course topics

The lecture covers the discussion of spectroscopic methods as basic instruments for studying the structure of organic compounds. Ultraviolet and visible light (UV-Vis) spectroscopy, infrared (IR) spectroscopy, nuclear magnetic resonance spectroscopy, mass spectrometry (MS) are discussed in detail.
Tutorials enable students to acquire skills in interpreting UV, FT-IR, HNMR, MS spectra.
Laboratories enable students to acquire skills in analyzing specific chemical compounds using spectroscopic methods (UV, FT-IR) and interpretation of results.

Teaching methods

Multimedia presentation (lectures). In special cases, the online form of the lecture is allowed.
Spectroscopic correlation tables, multimedia presentation (tutorials)
Spectroscopic correlation tables (laboratories)

Bibliography

Basic:
1. R.M. Silverstein, F.X. Webster, D.J. Kremle, Spektroskopowe metody identyfikacji związków organicznych, PWN, Warszawa, 2007
2. L.A. Kazicyna, N.B. Kupletska,Metody spektroskopowe wyznaczania struktury związków organicznych, PWN, Warszawa, 1974
3. W. Zieliński, praca zbiorowa, Metody spektroskopowe i ich zastosowanie do identyfikacji związków organicznych, WNT, Warszawa, 1995.

Additional:
1. M. Szafran, Z. Dega-Szafran,Określanie struktury związków organicznych metodami spektroskopowymi, PWN, Warszawa, 1988
2. A. Płaziak,Spektroskopia mas związków organicznych, wyd. UAM, Poznań, 1997

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	40	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	60	2,50