University of Gdańsk

Subject card

Subject name and code	Engineering lecture - Modern technologies, PG_00080704		
Field of study	Chemical Business		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish Polish
Semester of study	7	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Bioorganic Chemistry -> Department of Molecular Biochemistry -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Dawid Dębowski	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

Additional information:

Lecture with multimedia presentation.

Meetings in the classroom.

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	5.0	15.0	50

Subject objectives

To familiarize the student with: Peptide synthesis on a laboratory and industrial scale. Technology for isolatiion of natural compounds. The absorption and fluorescence in selected technological processes. Production of proteins and selected olefins. Large-volume production and the use of selected aromatic compounds. Industrial application of stereoselective synthesis. Carbohydrates as an organic raw material (Biomass). The use of enzymes in the cosmetics, food and pharmaceutical industries. Designing peptide drugs as an alternative to conventional chemotherapeutics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHINŻ_U09] Using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations.	The student is able to assess the usefulness and proper functioning of existing engineering and technical solutions as well as research and measurement methods in the industry.	[SU4] test/exam - oral or written
[BCHINŻ_K01] Identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training and personal development.	The student understands the need for continuous education. Is aware of the need to work honestly and diligently. Demonstrates cautious criticism when receiving information, especially those taken from the mass media.	[SK4] test/exam - oral or written
[BCHINŻ_U08] Uses the chemical nomenclature and engineering terminology properly.	The student uses appropriate terminology necessary for the oral and written presentation of the subject's program content. Is fluent in searching for information in the subject (Polish and English-language)	[SU4] test/exam - oral or written
[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.	The student has knowledge about: - applications of enzymes in food technology, cosmetics and pharmaceutical industries; - industrial application of stereoselective synthesis - designing peptide drugs as an alternative to conventional chemotherapeutics; - multi-tonnage production of selected olefins and aromatic compounds - technology of isolation of selected natural compounds	[SW4] test/exam - oral or written
[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	The student knows the advantages and limitations of scientific, technological apparatuses.	[SW4] test/exam - oral or written
[BCHINŻ_W05] Describes the life cycle of devices, facilities and technical systems as well as modern environment-friendly technical solutions.	The student defines and presents modern technologies discussed during classes. Describes, illustrates and explains the functioning of these technologies. Discusses their impact on the natural environment.	[SW4] test/exam - oral or written

Subject contents

1. Peptide synthesis on a laboratory and industrial scale 2. Technologies for isolating natural compounds 3. The absorption and fluorescence in selected technological processes 4. Protein production 5. Large-scale production of selected olefins 6. Large-scale production and industrial use of selected aromatic compounds 7. Industrial applications of stereoselective synthesis 8. Carbohydrates as an organic raw material (Biomass as a source of organic compounds) 9. The use of enzymes in food technology 10. The use of enzymes in the cosmetics and pharmaceutical industry 11. Designing peptide drugs as an alternative to conventional chemotherapeutics 12. Examples of peptides used as drugs

Prerequisites and co-requisites

Basic knowledge of organic chemistry and biochemistry.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	51.0%	100.0%

Recommended reading

Basic literature	Scientific publications / books on the discussed issues - list updated and provided during lectures
Supplementary literature	Review publications recommended (made available) by the lecturer.
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement	Not applicable

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