



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Legal and economic aspects in engineering activities [S1Bioinf1>APEDI]

Course

Field of study
Bioinformatics

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

Students starting this subject should have basic knowledge in mathematics, computer science, chemistry, biology and biotechnology. They should also have the ability to use spreadsheets and be ready to work in a team.

Course objective

The aim of the course is to gain basic knowledge in the area of the assessment of economic efficiency of investments in the biotechnology and related industries, including some legal aspects of business activity.

Course-related learning outcomes

Knowledge:

1. Knows the basic concepts of economic law. [K_W21]
2. Knows the methods of economic assessment of investment projects taking into account the ecological effect. [K_W21] [K_W23]

3. Knows the methods of estimating investment costs in fixed assets, production costs, sales revenues and profit in the chemical and related industries. [K_W21]

Skills:

1. Is able to use basic terminology in the field of economic law. [K_U15][K_U10]
2. Is able to determine the economic efficiency of investment using static and dynamic methods. [K_U15] [K_U10]
3. Is able to estimate investment costs using methods based on historical costs. [K_U15]
4. Is able to estimate: working capital, variable and fixed production costs and profit for production processes in the chemical industry. [K_U15]

Social competences:

1. Student is aware of the advantages and limitations of individual and group work in solving interdisciplinary problems in industry. Is aware of the responsibility for jointly implemented tasks as part of teamwork. [K_K02][K_K05]
2. Student knows the limits of her/his own knowledge and understands the need for continuous education and raising her/his professional competences. [K_K01] [K_K05]
3. Is able to think and act in a creative and entrepreneurial way. [K_K07]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Knowledge acquired during the lecture is verified during the test. The test consists of about 30 closed questions. Grades are assigned in accordance with paragraph 21 point 2 of the Regulations of first- and second-cycle studies (Resolution No. 55/2024-2028 of 30 April 2025). The topics, on the basis of which questions are formed, will be sent to students by e-mail using the university e-mail system or made available in the university e-Learning system.

Skills and knowledge acquired during project classes are verified on the basis of the project and its presentation.

Programme content

General information on civil law, administrative law and commercial law. Basics of economic assessment of projects, including estimation of revenues, expenses and costs.

Course topics

Thematic scope of classes:

1. Law – basics: The concept of law, norms and legal provisions, interpretation, sources and legal acts, branches of law.
2. Civil law – general information.
3. Administrative law: general information, administrative acts, administrative proceedings.
4. Commercial law: sources, entities, business contracts.
5. Economic evaluation of projects:
 - a. Revenues, costs, depreciation, leasing, credit.
 - b. Cash flow, assessment methods (payback, ROI, break-even point).
 - c. Value of money over time, NPV, IRR.
 - d. Investment selection with limited resources, sensitivity analysis, ecological effect.
6. Estimating the costs of investment in fixed assets.
7. Inflation and price increases.
8. Location of the investment.
9. Correctness of the estimate.
10. Operating costs of the enterprise: working capital, variable and fixed costs, utilities, materials, waste, labor.
11. Estimating sales revenue and profits.

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples on the board.
2. Project: multimedia presentation, illustrated with tasks solved using a spreadsheet.

Bibliography

Basic

1. Mitkowski P.T., Różański J., Analiza ekonomiczna procesów przemysłowych, Wydawnictwo Politechniki Poznańska, 2012.
2. Rekowski M., Wprowadzenie do mikroekonomii, Wydawnictwo Akademi Ekonomicznej w Poznaniu, 2001.
3. Chadwick L., Rachunkowość zarządcza dla niewtajemniczonych, Agencja Wydawnicza Placet, 1997.
4. Lissowski O., Kubera P., Malujda E., Prawo cywilne, handlowe, gospodarcze : prawo II : materiały pomocnicze do studiowania przedmiotu na kierunku zarządzanie, Wydawnictwo Politechniki Poznańskie, Poznań 2010.
5. Katner W.J.; Byczko S., Jakubiec A., Janeta J., Kappes A., Katner P., Katner W.J., Kucharski B., Promińska U., Rzetelska A., Prawo gospodarcze i handlowe, Wolters Kluwer, Warszawa 2016.

Additional

1. Gabrusewicz W., Kamela-Sowińska A., Poetschke H., Rachunkowość zarządcza, Wydawnictwo Akademi Ekonomicznej w Poznaniu, 2001.
2. Sinnott R.K. Towler G.: Chemical Engineering Design, 5th Edition, Elsevier, 2009.
3. Solińska M., Soliński I., Efektywność ekonomiczna proekologicznych inwestycji rozwojowych w energetyce odnawialnej, Uczelniane Wydawnictwa naukowo-Dydaktyczne AGH, Kraków 2003.
4. Coulson J.M., Richardson J.F.: Chemical Engineering, vol. VI, Butterworth Heinemann, Oxford 1999-2002.
5. Perry R. H., Green D. W., Perry's chemical engineering handbook, seventh edition, McGraw-Hill, 1997.
6. Kufel J., Siuda W., Prawo gospodarcze dla ekonomistów, Scriptus, Poznań 2001.
7. Siuda W., Elementy prawa dla ekonomistów, Scriptum, Poznań 2007.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00