



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Legal and economic aspects in engineering activities

Course

Field of study

Bioinformatics

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

15

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Faculty of Chemical Technology

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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:

Knowledge acquired during the lecture is verified during the test. The test consists of about 30 closed questions. Minimum threshold: 50% points. 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

The following topics will be discussed as part of the course:

1. Basic concepts in the field of law (the concept of law, legal norm and legal regulation, legal interpretation, sources of law, legal acts, branches of law)



2. General information on civil law.
3. Administrative law (subject of administrative law, administrative acts, administrative proceedings)
4. Basic issues in the field of economic law (sources of economic law, entities of economic law, economic contracts)
5. Economic assessment of projects
 - 5.2. Cash flow
 - 5.3. Basic methods of economic assessment (payback time, return on investment, break-even analysis)
 - 5.4. Time value of money
 - 5.5. Net present value
 - 5.6. Internal rate of return
 - 5.7. Equal payment streams
 - 5.8. Project selection under limited investment resources
 - 5.9. Sensitivity Analysis
 - 5.10. Economic analysis of the ecological effect of investment
6. Estimation of investment costs in fixed assets
7. Cost escalation (inflation)
8. Investment location
9. Validity of cost estimates
10. Estimating production costs
 - 10.1. Working capital
 - 10.2. Variable and fixed production costs
 - 10.3. Media cost
 - 10.4. Consumables costs
 - 10.5. Waste disposal costs
 - 10.6. Labor costs
11. Estimating sales revenues and profit

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	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for tests, project preparation) ¹	30	1,0

¹ delete or add other activities as appropriate