



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Economic analysis and accounting for engineers [S1Bioinf1>AEKON]

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

Student starting this subject should have basic knowledge in mathematics, computer science, chemistry, biology and biotechnology. Student 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 financial and management accounting aspects.

Course-related learning outcomes

Knowledge:

1. Knows the basic concepts of financial and management accounting. [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 process industries. [K_W21]

Skills:

1. Is able to use basic terminology in the field of financial and management accounting. [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] [KU10]

4. Is able to estimate: working capital, variable and fixed production costs and profit for production processes in the chemical industry. [K_U10]

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. 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

General information on accounting in business activity. Basics of economic assessment of projects, taking into account the estimation of revenues, expenses and costs, as well as the value of money in time.

Course topics

The following topics will be covered in the course:

1. The essence, sources, functions and principles of accounting in business.

2. Basic concepts in economics.

3. Recording of basic economic operations and forms of economic activity.

4. Accounting accounts and presentation of the economic enterprise's property and financial situation for tax and balance purposes and in the financial statements.

5. Economic aspects of the circular economy.

6. Economic evaluation of projects

6.1 Estimating business costs;

6.2 Estimating expenses versus depreciation, leasing and credit in the context of costs and expenses;

6.3 Estimating sales revenue and profit;

6.4 Correctness of the estimate;

6.5 Cash flow;

6.6 Basic methods of economic evaluation: payback period, return on investment, break-even analysis, etc.;

6.7 Time value of money and dynamic methods of economic evaluation:

6.7.1 Net present value (NPV);

6.7.2 Internal rate of return (IRR);

6.8 Selection of a project with limited investment resources;

6.9 Identification of risks and risk analysis in economic analysis;

6.10. Sensitivity analysis.

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., Róžański J., Analiza ekonomiczna procesów przemysłowych, Wydawnictwo Politechniki Poznańska, 2012.
2. Rekowski M., Wprowadzenie do mikroekonomii, Wydawnictwo Akademii Ekonomicznej w Poznaniu, 2001.
3. Pfaff J.; Maruszewska E.W., Tkocz-Wolny K., Rachunkowość małych przedsiębiorstw, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2019.
4. Chadwick L., Rachunkowość zarządcza dla niewtajemniczonych, Agencja Wydawnicza Placet, 1997.

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.

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