POZNAN UNIVERSITY OF TECHNOLOGY

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Cost accounting in logistics [N1Log2>RKwL]

Course

Field of study	Year/Semester
Logistics	2/4
Area of study (specialization)	Profile of study
–	general academic
Level of study	Course offered in
first-cycle	Polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
8	0	0
Tutorials	Projects/seminars	
16	0	

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

A student starting this subject should have basic knowledge of finance and accounting as well as logistic management. He should also have the ability to obtain information from the indicated sources and be ready to cooperate as part of the team.

Course objective

To acquaint students with the essence, tools and methods of cost accounting in management and logistics. Developing students' skills to assess efficiency, profitability and solve problems related to costs in logistics.

Course-related learning outcomes

Knowledge:
1. The student knows the basic issues of costs and cost management related to the implementation of logistics processes [P6S_WG_08]
2. The student knows the basic relations between the technical sphere, including the use of technical resources for the implementation of logistics processes, and the economic sphere, i.e. the costs of logistics resulting from the consumption of these resources [P6S_WK_01]

Skills:
1. The student is able to assess and critically analyze the selected logistics process from an economic point of view, calculating the costs associated with the implementation of this process [P6S_UW_06]
2. The student is able to identify changes in requirements, standards, regulations, technical progress and the reality of the labour market, both affecting the amount of logistics costs and determined by the costs of logistics processes, and on their basis determine the need to supplement knowledge in the field of cost accounting [P6S_UU_01]

Social competences:
1. The student is aware of initiating activities related to the formulation and transmission of information on logistics costs and cooperation in society in the area of logistics [P6S_KO_02]
2. The student is aware of cooperation and group work on solving problems related to the determination of logistics costs and the management of these costs in enterprises and supply chains [P6S_KR_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: the knowledge acquired during the lecture is verified by two tests - the first forming after 7 lectures and the second summarizing after the 15th lecture. Each test consists of several questions with different scores. Passing threshold: 50% of points.
Tutorials: the final grade is issued on the basis of activity in the classroom, implementation of tasks in teams, a short presentation of selected topics and a final test. Passing threshold: 50% of points.

Programme content

Lecture: Classification, criteria and types of costs for logistic management. Real cost analysis versus logistics budget costs. Traditional cost accounting systems. Calculation of service costs in logistics activities. Investment or project profitability analysis (NPV). Profitability analysis (profit and loss account). Determining the optimal amount of inventory (financial impact of having inventory).
Tutorials: The use of selected traditional and modern cost accounting models in logistics. Logistics costs accounting and reporting. Cost calculation. Profitability assessment of activities in logistics. Logistics cost accounting as a management tool. Cost factor in the design of logistic systems. Determining the real costs of running a logistics business.

Course topics

Lecture:

Classification, Criteria for Division, and Types of Costs for Logistics Management:

 Introduction to Cost Classification in Logistics: Fixed, Variable, Direct, Indirect Costs.
 Criteria for Cost Division: Functional, Behavioral, Structural, Temporal.
 Typical Types of Costs in Logistics: Transportation, Warehousing, Inventory Maintenance, Order Processing Costs.

Analysis of Actual Costs Compared to Budgeted Logistics Costs:

 Definition and Importance of Actual and Budgeted Costs.
 Comparative Methods: Variance Analysis, Cost Efficiency Indicators.
 Examples and Case Studies of Actual and Budgeted Cost Analysis in Logistics Companies.

Traditional Cost Accounting Systems:

 Overview of Traditional Cost Accounting Systems: Full Costing, Variable Costing, and Activity-Based Costing (ABC).
 Advantages and Disadvantages of Each System in the Context of Logistics Management.

Calculation of Service Costs in Logistics Operations:

Elements of Service Costs: Transportation, Warehousing, Order Processing, Packaging Costs.
Calculation Techniques: Full Costing Method, Variable Costing Method.

Profitability Analysis of Investments or Projects (NPV):

Theoretical Foundations of the Net Present Value (NPV) Method.
Application of NPV in the Analysis of Logistics Projects.
Examples of NPV Calculations for Logistics Investments.

Profitability Analysis (Income Statement):

Structure of the Income Statement.
Profitability Indicators Analysis: Profit Margin, ROI (Return on Investment).
Use of the Income Statement in Logistics Decision-Making.

Determining Optimal Inventory Levels (Financial Impact of Inventory Holding):

Inventory Management Theories and Models: EOQ (Economic Order Quantity), Just-in-Time (JIT).
Cost Analysis of Inventory Holding: Holding Costs, Ordering Costs, Shortage Costs.
Practical Applications of Inventory Optimization Models.

Exercises:

Application of Selected Traditional and Modern Cost Accounting Models in Logistics:
Practical Exercises Using ABC Models, Full Costing, and Variable Costing in a Logistics Context.
Case Studies Where Students Identify and Allocate Costs to Appropriate Cost Centers.
Recording and Reporting Logistics Costs:
Introduction to Cost Recording Systems in Logistics.
Exercises on Creating Cost Reports: Transportation, Warehousing, Order Processing Costs.
Cost Calculation:
Exercises on Calculating Logistics Service Costs.
Practical Application of Cost Calculation Methods in Various Logistics Scenarios.
Evaluation of Profitability in Logistics Activities:
Profitability Analysis of Selected Logistics Activities Using the Income Statement.
Case Studies on the Profitability Assessment of Logistics Projects.
Logistics Cost Accounting as a Management Tool:
Exercises on Using Cost Accounting in Managerial Decision-Making.
Case Studies Where Cost Accounting Supports Decision-Making Processes.
Cost Factors in Designing Logistics Systems:
Identification and Analysis of Cost Factors in the Design of Warehouses, Transportation Systems, and Material Flow Processes.
Practical Exercises in Designing Logistics Systems with Cost Optimization Considerations.
Determining the True Costs of Conducting Logistics Operations:
Methods for Analyzing and Allocating Actual Costs.
Exercises in Identifying and Reducing Hidden Costs in Logistics Operations.

Teaching methods

Lecture: multimedia presentation illustrated with examples given on the board.
Tutorials: multimedia presentation, examples and tasks to be solved on the blackboard and carrying out the tasks given by the teacher - practical exercises.

Bibliography

Basic:
1. Stachowiak A., Rachunek kosztów działań w logistyce, Wydawnictwo Politechniki Poznańskiej, Poznań 2013.
2. Milewski R., Budżetowanie i rachunek kosztów w logistyce, Wydawnictwo WSOWL, Wrocław 2015.
3. Mantura W., Bondarowska K., Rachunkowość zarządcza: wprowadzenie, Wydawnictwo Politechniki Poznańskiej, Poznań 2010.

Additional:
1. Skrodzka V., Marek R., Rachunek kosztów logistyki, Akademia Morska w Gdyni, Print 2010.
2. Lew G., Rachunek kosztów logistyki w przedsiębiorstwach handlowych, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2014.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	24	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	76	2,50