

Engineering Cost Estimation - course description

General information	
Course name	Engineering Cost Estimation
Course ID	06.9-WM-MaPE-P-EngCostEst-23
Faculty	Faculty of Mechanical Engineering
Field of study	Management and Production Engineering
Education profile	academic
Level of studies	First-cycle studies leading to Engineer's degree
Beginning semester	winter term 2023/2024

Course information	
Semester	3
ECTS credits to win	6
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none">dr inż. Renata Kasperska

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Exam
Class	30	2	-	-	Credit with grade

Aim of the course

The main objective of the course is for students to acquire knowledge of production and product costing methods used in manufacturing enterprises.

Prerequisites

Basic issues concerning production and service management.

Scope

Lectures:

1. Basic concepts of cost accounting. The place and tasks of cost accounting. The concept of cost. Methods of cost classification and division.
2. Cost accounting by type. Tasks of generic cost accounting. Types of costs in generic cost accounting - basic definitions and concepts. Application of generic cost accounting in an enterprise.
3. Cost accounting by place of formation - basics. Tasks of cost accounting by place of formation.
4. Methods of intra-company settlement of production and services.
5. Cost accounting by place of formation - advanced techniques. ZAR enterprise cost accounting sheet. ZAR tasks.
6. Cost accounting according to the place of formation with the use of ZAR. Analysis of an example.
7. Position cost accounting. Cost analysis in position cost accounting. Analysis of an example.
8. Calculation according to cost carriers. Calculation tasks according to cost carriers. Calculation methods according to cost carriers.
9. Activity-based costing. ABC method - introduction.
10. Activity-based costing - an application and practice.
11. Comparative cost accounting - economic analysis of a project.
12. Cost accounting in integrated enterprise management systems - introduction and registration of costs.
13. Cost accounting in integrated business management systems - cost analysis and evaluation.
14. Cost analysis in terms of a budget.
15. Account of costs and effects of managing production factors

Exercises:

1. Calculation of selected costs by type,
2. Fixed costs, variable costs - tasks.
3. Mixed costs, borderline costs - tasks.
4. Calculation of the selected workplace in the production plant - tasks.
5. Construction of the company settlement sheet ZAR.
6. Determining mark-ups based on the company's settlement sheet - tasks.
7. Determination of cost indicators based on the company's settlement sheet - tasks.
8. Cost calculation methods - tasks.
9. The method of costing with an equivalent - tasks.
10. The overhead costing method - tasks part. 1.
11. The overhead costing method - tasks part 2.
12. Man-hour calculation, machine-hours in production - tasks.
13. Costing using the ABC method - tasks.

14. Comparative costing - tasks.

15. Creating cost reports.

Teaching methods

Lecture: conventional methods and multimedia presentations.

Exercises: solving tasks with understanding.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student uses the terminology related to Management and Production Engineering	• K_U10	• activity during the classes	• Lecture • Class
The student has a structured, well-founded knowledge of the basics of management related to Management and Production Engineering.	• K_W18	• activity during the classes	• Lecture • Class
The student is aware of the importance of non-technical aspects and effects of engineering activities, including its impact on the environment, and the associated responsibility for decisions.	• K_K02	• activity during the classes	• Lecture • Class
The student is able to think and act in an entrepreneurial way.	• K_K06	• activity during the classes	• Lecture • Class
The student has basic knowledge of economics, including microeconomics and macroeconomics useful for formulating and solving simple tasks in the field of Production Management.	• K_W13	• an exam - oral, descriptive, test and other	• Lecture • Class
The student has elementary knowledge of running a business.	• K_W41	• an exam - oral, descriptive, test and other	• Lecture • Class
Studnet is able to estimate initial costs and estimated costs of engineering projects in the field of mechanical engineering; is able to make a preliminary economic analysis of undertaken engineering activities.	• K_U20	• an exam - oral, descriptive, test and other	• Lecture • Class

Assignment conditions

Lecture: The grade for the exam is given on the basis of a written test covering the verification of knowledge of basic issues.

Percentage thresholds from the sum of points for grades: insufficient 0%-50%, sufficient 51%-60%, sufficient plus 61%-70%, good 71%-80%, good plus 81%-90%, very good 91%-100%.

Exercises: The grade is determined on the basis of all partial grades from completed exercises.

Final grade: The grade is the arithmetic average of the individual forms of its implementation.

Recommended reading

1. Arora M.N., *A Textbook of Cost and Management Accounting*, 11th Edition, Vikas Publishing House, Delhi, 2021.
2. Bhabatosh B., *Cost Accounting: Theory and practice*, 14th edition. PHI Learning Pvt. Ltd., 2021.
3. Bragg S.M., *Cost Accounting Fundamentals: Essential Concepts and Examples*. 7th Edition, Pub. AccountingTools LLC, Centennial, CO USA, 2022.
4. Schuster P. , Heinemann M., Cleary P., *Management Accounting*. Springer, 2021.

Further reading

1. Aswathappa, K., Shridhara Bhat K., *Production & Operations Management*, Himalaya Publishing House, 2018.
2. Bhattacharyya A. K., *Principles and Practice of Cost Accounting*. PHI Learning Pvt. Ltd., 2004.
3. Tayyari F., *Cost Analysis for Engineers and Scientists*. 1st Edition. CRC Press, 2021.

Notes

Other conditions of participation and crediting are set out in the Study Regulations.

Modified by dr inż. Renata Kasperska (last modification: 11-05-2023 00:07)

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