GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	PRODUCTION MANAGEMENT, PG_00070636		
Field of study	Engineering Management		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	7.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Management Engineering and Quality -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Joanna Czerska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	30.0	0.0	75

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	75	3.0	97.0	175

Subject objectives

The aim of the course is to prepare students to design solutions in the field of production management by applying the principles of creative and entrepreneurial action as well as knowledge of production management. It also aims to develop attitudes of responsible decision-making and teamwork in the context of the functioning of modern manufacturing organizations.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K01] is ready to fulfill professional roles responsibly, taking legal, ethical, and cultural aspects into account in decision-making processes.	Is prepared to responsibly perform professional roles in the process of designing and improving production systems, particularly through teamwork on projects and by taking into account legal, ethical, and organizational aspects in the decisions made.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work
[K6_U06] acquires specialized knowledge in the field of engineering management, demonstrating the ability to effectively plan individual work and pursue lifelong learning.	Is able to acquire and apply specialized knowledge in the field of production management, using methods of analysis and design to create processes that meet customer requirements while ensuring optimal costs and flexibility.	[SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task
[K6_W04] possesses advanced knowledge of the principles of creative and entrepreneurial activity, enabling the identification and implementation of innovative ideas while ensuring compliance with copyright protection requirements.	Knows and understands the principles of creative and entrepreneurial action that enable the identification and implementation of solutions in the context of designing manufacturing processes and production management systems.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

1. Introduction to Production
2. Basic Concepts in Production Management
3. Production Management Concepts and Current Trends in Production Management
4. R&D: Product Design and Bill of Materials (BOM)
5. Technology: Technological Operations, Product Labor Intensity, Machine List
6. Manufacturing Process Map
7. Production Capacity Design Considering Seasonal Demand
8. Customer Takt Time Calculation
9. Workforce Planning Considering Vacations and Absenteeism
10. Production Performance Management
11. Analysis of Efficiency and Efficiency Losses (OEE Overall Equipment Effectiveness, Loss Pareto Analysis)
12. Fundamentals of Maintenance Management. Total Productive Maintenance (TPM)
13. Managing Production Flexibility. Techniques for Increasing Production Flexibility
14. Principles of Determining the Minimum Production Batch (MOQ Minimum Order Quantity, EOQ Economic Order Quantity)
15. Flow Design
16. Principles of Production Cell Design
17. Employee Competency Management (Competency Matrices, Methods for Assessing Competency Complexity, Employee Development Path Planning, Job Classification, Verification of Employee Knowledge and Skills)
18. Work Standardization
19. Job Instruction. Instruction Methods and Principles of Conducting Training
20. Key Performance Indicators (KPI) in Production Management
21. Visual Performance Management
22. Principles of Monitoring Losses at Workstations

Course content – laboratory

1. Manufacturing Process Requirements Nominal Production Capacity
2. Manufacturing Process Requirements Customer Takt Time
3. Manufacturing Process Efficiency OEE-T and OEE-G
4. Manufacturing Process Requirements Required Human Resources
5. Manufacturing Process Requirements Required Number of Machines and Workstations

Course content – project

1. Project Objective and Design Assumptions
2. Internal Team Rules
3. Product Characteristics
4. Designed Bill of Materials (BOM)
5. Process Map
6. Routing and Time Measurement
7. Yamazumi Chart Workload Balancing
8. Production Floor Layout Plan
9. Manufacturing Process Map
10. Required Competencies
11. Work Standards at the Workstation
12. Daily Team Performance Management
13. Project Presentation to the Management Board
14. Reflection on Our Project Work
15. Reflection on the Use of Generative AI (GenAI) in the Project Work

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Design of a manufacturing process and methods for controlling its outcomes.	60.0%	40.0%
Problem-based quizzes assessing the ability to identify and evaluate solutions in production management.	60.0%	20.0%
Calculation and decision-making tasks related to the design of production processes (additional).	0.0%	20.0%
Assessment of teamwork in the project, including responsibility for tasks and an ethical attitude toward the team (peer assessment and contribution to the project).	60.0%	20.0%

Recommended reading

Basic literature	1. Goldratt E., Cox J.: Cel 1. Doskonałość w produkcji., Mint Books, 2008 2. Liker J.K.: Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjnej świata, MT Biznes, 2016 3. Czerska J., Pozwól płynąć swojemu produktowi, Placet, 2011
Supplementary literature	1. Parmenrer D. Kluczowe wskaźniki efektywności (KPI). Tworzenie, wdrażania i stosowanie. Wyd 3, One press, 2016
eResources addresses	

Example issues/ example questions/ tasks being completed

Designing the product according to the customer's requirements, designing the manufacturing process, managing the results of the production process; designing a production control system, taking into account inventory in the production process

Practical activites within the subject	Not applicable

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