GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	PRODUCTION MANAGEMENT, PG_00071711		
Field of study	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	English
Semester of study	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
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. Ewa Marjańska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	30.0	0.0	0.0	0.0	45

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	45	3.0	52.0	100

Subject objectives

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_U06] acquires specialized knowledge in the field of management, demonstrating the ability to effectively plan individual work and pursue lifelong learning.	ss 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
[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	[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice

Subject contents	Course content – lecture Introduction • Basic concepts related to production management • Organization of information and material flow in production processes with elements of logistics management in production • Production management concepts and current trends in production management Product design and technology • Input from the R&D department: product design and bill of materials • Input data from the technology department: technological operations, product labor consumption, list of machines • Map of the manufacturing process. Cycle time of an employee, machine, product Designing generation capacity taking into account seasonal demand • Customer tact calculation • Calculation of the number of employees, taking into account holidays and absenteeism Production efficiency management • Analysis of effectiveness and efficiency losses (OEE, Pareto losses) • Fundamentals of maintenance management. Total Productive Maintenance Production flexibility management. Techniques for increasing production flexibility • Flexibility calculation (EPE) for job and process • Rules for determining the minimum production lot (MOQ and EOQ) Flow design • Workforce Analysis and workload Balancing (Yamazumi) • Principles of designing a production cell Employee competency management • Competency matrices, methods of assessing the complexity of competencies, planning an employee's development path • Classification of work at the workstation • Classification of work and levels of competence • Verification of the employee's knowledge and skills • Standardization of work • Types of work standards and principles of building standards • On-the-job training. Methods of instruction and principles of conducting instruction Indicators (KPI) in production management • Where do they come from and why are they important. How to obtain data for calculating indicators • Visual performance management • Designing the agenda of visual meetings • Rules for monitoring losses at workstations Environmental aspects in production Course content – exercises Introduction • Basic concepts related to production management • Organization of information and material flow in production processes with elements of logistics management in production • Production management concepts and current trends in production management Product design and technology • Input from the R&D department: product design and bill of materials • Input data from the technology department: technological operations, product labor consumption, list of machines • Map of the manufacturing process. Cycle time of an employee, machine, product

Designing generation capacity taking into account seasonal demand

- Customer tact calculation
- Calculation of the number of employees, taking into account holidays and absenteeism

Production efficiency management

- Analysis of effectiveness and efficiency losses (OEE, Pareto losses)
- Fundamentals of maintenance management. Total Productive Maintenance

Production flexibility management. Techniques for increasing production flexibility

- Flexibility calculation (EPE) for job and process
- Rules for determining the minimum production lot (MOQ and EOQ)

Flow design

- Workforce Analysis and workload Balancing (Yamazumi)
- Principles of designing a production cell

Employee competency management

- Competency matrices, methods of assessing the complexity of competencies, planning an employee's development path
- Classification of work at the workstation
- Classification of work and levels of competence
- Verification of the employee's knowledge and skills
- Standardization of work
- Types of work standards and principles of building standards
- On-the-job training. Methods of instruction and principles of conducting instruction

Indicators (KPI) in production management

- Where do they come from and why are they important. How to obtain data for calculating indicators
- Visual performance management
- Designing the agenda of visual meetings
- Rules for monitoring losses at workstations

Environmental aspects in production

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	60.0%	50.0%
Exam	60.0%	20.0%
Quizzes and tasks	70.0%	30.0%

Recommended reading

Basic literature	1. The Goal: A Process of Ongoing Improvement, Goldratt Eliyahu M. The Toyota Way, Second Edition: 14 Management Principles from the World's Greatest Manufacturer, Liker Jeffrey K.

	Supplementary literature	1. Ahuja, Inderpreet P. Singh, and Jaimal Singh Khamba. Total productive maintenance: literature review and directions.International journal of quality & reliability management (2008) 2. Adam S. Markowski, Agata Kotynia, Bow-tie model in layer of protection analysis, Process Safety and Environmental Protection, Volume 89, Issue 4, 2011 3. Market orientation practices enhancing corporate environmental performance via knowledge creation: Does environmental management system implementation matter?, Wenbo Jiang Francesco Rosati 4. Huaqi Chai Taiwen Feng Environmental management system according to ISO 14001:2015 as a driver to sustainable development, Laura Bravi Gilberto Santos 5. Alessandro Pagano Federica Murmura Does environmental management system foster corporate green innovation? The moderating effect of environmental regulation, Dayuan 6. Li, Fei Tang & Jialin Jiang An integrated approach to environmental management, E A Zhirnova, I 7. V Trifanov, O A Sukhanova and V I Trifanov ISO 14000: Assessing Its Perceived Impact on Corporate Performance, Frank Montabon, Steven A. Melnyk, Robert Sroufe, Roger J. Calantone
	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	

Document generated electronically. Does not require a seal or signature.