GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	PRODUCTION ENGINEERING, PG_00070680		
Field of study			
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	4	ECTS credits	5.0
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. Jolanta Łopatowska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	0.0	0.0	0.0	60

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	60	3.0	62.0	125

Subject objectives

Preparing students to design and improve solutions in the area of production planning and control by applying analytical methods and tools that support operational decision-making, based on knowledge of the functioning of production systems and factors affecting their efficiency, as well as fostering attitudes of responsibility and independence in decision-making in the context of real production processes.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U02] communicates effectively with others by preparing presentations that use terminology specific to the field of engineering management, and by evaluating diverse opinions during discussions and debates.	is able to present an analysis of a production process using appropriate production engineering terminology and justify proposed improvements during team discussions.	[SU1] Assessment of task fulfilment
[K6_K01] is ready to fulfill professional roles responsibly, taking legal, ethical, and cultural aspects into account in decision-making processes.	is ready to make decisions related to organizing and improving production processes, considering their impact on safety, costs, and compliance with regulations.	[SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills
[K6_W03] knows reliable sources of information and utilizes advanced knowledge to explain contemporary management issues.	knows and understands the factors influencing the efficiency of production systems in the context of analyzing information related to production planning and control processes.	[SW1] Assessment of factual knowledge

Subject contents	Course content – lecture 1. Production system and production process 2. Activities in production planning and control 3. Forecasting in demand planning 4. Capacity planning 5. Sales and operations planning S&OP 6. Master production schedule MPS. Sequence of tasks 7. Push and pull strategies. 8. Planning and control in MRPII/ERP, APS, MES systems 9. Balancing production (OPF) in JiT systems, heijunka. Kanban system, supermarket 10. Production control according to the Theory of Constraints, DBR method. Course content – exercises 1. Elements of a production system. 2. Process scheduling. 3. Demand forecasting. 4. Effective capacity and capacity planning. 5. Sales and operations planning (S&OP). 6. MRP procedure. 7. One piece flow (OPF). 8. Kanban circulation and supermarket. 9. Heijunka. 10. DBR method. 11. Elements of throughput accounting (TA).
Prerequisites and co-requisites	
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
Test with problem-solving tasks, open theoretical questions, and true/false questions	60.0%	50.0%
Problem-solving tasks	60.0%	25.0%
Project tasks (reports)	60.0%	25.0%

Recommended reading	Basic literature	1. Brzeziński, M. (2002). Organizacja i sterowanie produkcją, Warszawa: Placet. 2. Waters, D. (2021). Zarządzanie operacyjne. Towary i usługi, Warszawa: Wydawnictwo Naukowe PWN. 3. Bozarth C., Handfield R..(2021). Wprowadzenie do zarządzania operacjami I łańcuchem dostaw. Helion
	Supplementary literature	1. Balle, F., Balle, M. (2023). Kopalnia złota, Wrocław 2. Goldratt, M. Cox, J. (2023). Cel. Doskonałość w produkcji, Mint Books 3. Pająk, E (2021). Zarządzanie produkcją, Warszawa: Wydawnictwo Naukowe PWN.. 4. The Productivity Press Development Team.(2010). Kanban na hali produkcyjnej, Prod.Publishing
	eResources addresses	
Example issues/ example questions/ tasks being completed	• Sales ona operations planning S&OP • Characteristics of the drum-buffer-rope method	
Practical activites within the subject	Not applicable	

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