GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Production Planning and Control, PG_00055506
Field of study	Mechanical Engineering

Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Optional subject group 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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Stefan Dzionk
	Teachers	dr inż. Mieczysław Siemiątkowski
		dr inż. Dominika Zakrzewska
		dr inż. Sławomir Szymański
		dr inż. Bogdan Ścibiorski
		dr inż. Tomasz Seramak

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	E-learning hours included: 0.0						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=10366						

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	6.0	49.0	100

Subject objectives	The aim of the course is to provide with advanced techniques of production planning and control. Possibilities of sequencing and scheduling of orders in in computer integrated environment.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U09] is able to plan the manufacturing, assembly and quality control processes of typical constructions and mechanical devices, estimating their costs	The student is able to prepare a set of data indispensable in the production planning and control process. The student uses computer systems to obtain relevant data on the production planning and control process.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K6_U04] is able to perform a critical analysis of the existing technical solutions, present the specification of the technology of manufacturing basic construction elements of machines and engineering assemblies	The student prepares a paper on production planning and control issues for a simple enterprise model.	[SU5] Assessment of ability to present the results of task
	[K6_W11] possesses knowledge on design, technology and manufacturing of machine parts, metrology, and quality control; knows and understands methods of measuring and calculating basic values describing the operation of mechanical systems, knows basic calculating methods applied to analyse the results of experiments	The student knows basic issues concerning production planning and control. The student uses the terminology used in production planning and control.	[SW1] Assessment of factual knowledge

Subject contents	LECTURE Computer integrated production planning and control systems. Technical and economic aspects of production control, production flow control essence, the basic principles of control, control norms, scheduling and load production stations, balancing tasks on production capacity, inter-cellular methods of production flow control, intracellular methods of production flow control, documentation associated with the production flow control, record and control of production flow. Other production control techniques. Trends in production planning and control. LABORATORY Products: product attributes, routing options, resources, set-up and operation times, operation attributes. Resources data: resources, secondary constraints, resources groups. PROJECT: Entering the orders. batching methods. calendar states and shift patterns. Sequencing the orders. Standard dispatching rules. Standard algorithmic rules. Schedule analysis. Reports. Gantt Chart. Order Trace Chart. Constraints plots.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Practical excersise	60.0%	25.0%
Laboratory	60.0%	25.0%
Writtrn Exam	60.0%	25.0%
Project	60.0%	25.0%

Recommended reading

Basic literature	1. Anil Mital, Anoop Desai, Anand Subramanian, Aashi Mital: Product development, Butterworth-Heinemann is an inprint Elsevier, 30 Corporate Drive, Suite 400, Burlington MA 01803 USA, 2008.
Supplementary literature	1. Meyer Kutz, Mechanical Engineers' Handbook -Manufacturing and Management, John Wiley &Sons, INC, Hoboken New Jersey, 2006.
eResources addresses	Adresy na platformie eNauczanie: Planowanie i sterowanie produkcją (PG_00055506), MiBM, sem. 6, stacjonarne I-st, letni 2023/2024 - Moodle ID: 38310 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=38310

Example issues/ example questions/ tasks being completed

1. Control theory - basic terminology.
2. The company as a cybernetic system.
3. The essence of the production flow control.
4. Hierarchical control systems ..
5. The complexity of the production flow control.
6. The efficiency of the production flow control.
7. Control rules (AI-AIII, BI-BIII).
8. Control standards
9. Scheduling and workload
10. Methodology workload balancing of production capacity,
11. Methods for controlling the flow of intracellular production,
12. Methods for controlling the flow inside the cell for the production,
13. Task switching and principles central distribution works
14. Documentation related to the production flow control
15. Checking the progress of production:
16. Characterize task PPC systems.
17. Explain what the PPC systems available any role.
18. Introduce the basic concepts of production planning and control, the chosen concept discussed in detail.
19. Characterize the essential tasks of PPC systems.
20. Present the data types used in PPC systems and their characteristics.
21. Modern concepts of management and organization of production control, replace - selected to characterize.
22. Identify the main and auxiliary tasks PPC systems, taking into account levels of management.
23. Characterize the resources in the implementation process.
24. Discuss the results of the planning process.
25. Methods to characterize the short-term production planning.
26. Decisions production control systems.
27. Characterize the operational tasks of production control functions.
28. Discuss generations PPC systems.
29. To characterize the functional integration method PPC systems.
30. A split of list management functions of parts and materials, changes in the structure of the product, the types of parts lists.
31. Discuss ways of balancing material consumption and labour.

Work placement

Not applicable