GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer aided maintenance of the stock of machines, PG_00053660		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	English
Semester of study	6	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksandra Suchta	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	0.0	0.0	0.0	30

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	30	0.0	0.0	30

Subject objectives

To familiarise students with the basic issues of machine stock maintenance in modern manufacturing companies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W12] possesses basic knowledge necessary to understand the ex-technical conditions of engineering activity, possesses basic knowledge on management, including quality management and running commercial enterprise, within the range of protection of intellectual property and patent law; knows general principles of creating and developing forms of individual entrepreneurship and basic HSE rules applicable to machine industry	The student describes the safety requirements at workplaces in a production plant, the principles of ensuring compliance with legal requirements and the use of computer support in the area of compliance.	[SW1] Assessment of factual knowledge
K6_W11	The student has knowledge of the maintenance and repair of CNC machine tools and other machines and devices used in production.	[SW1] Assessment of factual knowledge
K6_U08	The student describes the categories of software used to support maintenance in production plants, their purpose and basic functionality.	[SU2] Assessment of ability to analyse information
K6_U09	The student describes the principles of selecting an effective maintenance strategy for a machine park in a production plant.	[SU2] Assessment of ability to analyse information

<table>
<tr><td>Subject contents</td><td>Course content – lecture

LECTURE: Introductory maintenance knowledge and definitions. Tasks of the fleet maintenance system in modern production plants. OEE and other indicators used to evaluate the effectiveness of a plant maintenance system. Organisational solutions organisational solutions and the principles of their selection, taking into account the specificity of a production plant. Typical strategies maintenance and principles of their selection. Categories of software for computer aidedmaintenance and their areas of application.

AUDIT EXERCISES:1. Application of design of experiment (DOE) in machining: black box theory, the meaning of inputs and outputs, statistical calculations, Latin and Greco-Latin square method2. Application of CMMS software in the management of maintenance activities - data collection, scheduling of inspection and maintenance work.4. Computer-aided measurement and data acquisition (DAQ) - applicability of Labview and DasyLab software in maintenance of production equipment.5. Monitoring of machines and production processes using HMI/SCADA systems - recording oftime and machine downtime.6. Development of maintenance plans for CNC machine tools, part 1 and part 2.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Final test</td><td>56.0%</td><td>90.0%</td></tr>
<tr><td>Exercises</td><td>100.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Legutko S.: Podstawy eksploatacji maszyn i urządzeń. WSiP. 2007.2. Honczarenko J.: Roboty przemysłowe, budowa i zastosowanie. WNT. 2009.2.3. Honczarenko J.: Obrabiarki sterowane numerycznie. WNT. 2010.</td></tr>
<tr><td>Supplementary literature</td><td>1 Other books on plant maintenance manufacturing plants</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>General daily maintenance plan for CNC milling machines</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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