

Producibility and product quality - course description

General information	
Course name	Producibility and product quality
Course ID	06.9-WM-ZiIP-IJ-ANG-D-14_20
Faculty	Faculty of Mechanical Engineering
Field of study	Management and Production Engineering
Education profile	academic
Level of studies	Second-cycle studies leading to MSc degree
Beginning semester	winter term 2023/2024

Course information	
Semester	2
ECTS credits to win	4
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none">dr inż. Małgorzata Śliwa

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Project	30	2	-	-	Credit with grade
Lecture	15	1	-	-	Exam

Aim of the course

The aim of the course is to familiarise students with issues related to the technological preparation of production, which should be preceded by an analysis of construction documentation, in terms of construction technology, that is, the assessment of construction or its individual elements from the point of view of their standardisation, rational selection and the saving of materials, the rational shaping of semi-finished products and the technology of shaping with minimal manufacturing costs, taking into account production volume and conditions of use.

Prerequisites

Production techniques, Engineering graphics, Material science, Production processes I.

Scope

Lecture:

The concept of technology, criteria and principles for selecting the optimal technological process. Requirements to be met in product design, in order to achieve producibility of the structure. Current development trends in manufacturing techniques with particular emphasis on factors affecting reduction of production costs (reduction of energy consumption and consumption of materials, automation) while simultaneously improving the quality of products. Types of production volumes. Productivity and quality of products manufactured using selected technologies, including additives. Producibility of products that are heat treated and surface treated. Producibility of machine construction in terms of assembly.

Project:

- Designing assumptions for a machine part or sub-assembly, taking into account the conditions of us.
- Analysis of methods for shaping parts and adopting producibility criteria for serial production.
- Unassisted development of the design and manufacturing process for the shaping technology adopted.

Teaching methods

Lecture: conventional.

Project: seminar consultations, teamwork and working with a source document.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student understands the importance of the non-technical aspects and effects of engineering, including their impact on the environment; the student is aware of the responsibilities resulting from decisions taken in this regard.	<ul style="list-style-type: none">K_K02	<ul style="list-style-type: none">a preparation of a projectan exam - oral, descriptive, test and other	<ul style="list-style-type: none">Lecture

Outcome description	Outcome symbols	Methods of verification	The class form
The student has knowledge of quality management and business management.	<ul style="list-style-type: none"> • K_W20 	<ul style="list-style-type: none"> • a project • an exam - oral, descriptive, test and other 	<ul style="list-style-type: none"> • Lecture • Project
The student is able to propose solutions aimed at improving and/or modifying existing technical processes and is also able to estimate the usefulness of new methods and techniques, related to quality management and the improvement of processes, by selecting and using the correct methods and instruments.	<ul style="list-style-type: none"> • K_U29 	<ul style="list-style-type: none"> • a project 	<ul style="list-style-type: none"> • Lecture • Project
The student has theoretical knowledge of some sectors of Management and Production Engineering, according to the speciality chosen, such as quality control, engineering materials, structural form and the investigation of the mechanical, technological and exploitative properties of engineering material and of the final products, produced by different technologies.	<ul style="list-style-type: none"> • K_W07 	<ul style="list-style-type: none"> • a project • an exam - oral, descriptive, test and other 	<ul style="list-style-type: none"> • Lecture
The student is able to assess the usefulness and applicability of the latest techniques and technologies in the area of Management and Production Engineering, in terms of quality and modern marketing.	<ul style="list-style-type: none"> • K_U20 	<ul style="list-style-type: none"> • a project • an exam - oral, descriptive, test and other • an ongoing monitoring during classes 	<ul style="list-style-type: none"> • Lecture • Project

Assignment conditions

Lecture - the condition for passing the lecture is to obtain a positive grade for the exam (ex. in the form of a test), containing questions covering the basic issues. Min. 50% correct answers, grade: sufficient..

Project - the condition for passing the project is obtaining a positive assessment of the project, submitted electronically and substantive justification of the solutions adopted. The final acceptance of the project requires a presentation before the training group. The assessment is based on the *skills assessment* component, related to the implementation of the project tasks.

Final rating: 50% lecture, 50% project

Recommended reading

1. Ocoś K., Kawalec A.: Kształtowanie metali lekkich, PWN, Warszawa, 2012.
2. Erbel St., Kuczyński, Marciniak Z.: Techniki wytwarzania-Obróbka Plastyczna, WNT,Warszawa, 1986.
3. Feld M.: Podstawy projektowania procesów technologicznych typowych części maszyn, WNT, Warszawa, 2000.
4. Klimpel A.: Spawanie, zgrzewanie, cięcie metali, Technologie, WNT, Warszawa, 1999.
5. Orłow P.: Zasady konstruowania w budowie maszyn, WNT, Warszawa, 1981.
6. Perzyk M., i inni: Odlewnictwo, WNT, Warszawa, 2004.
7. Skarbiński M., Skarbiński J.: Technologiczność konstrukcji maszyn, WNT, Warszawa 1987.
8. Wilczyński K.: Przetwórstwo tworzyw sztucznych, OWPW, Warszawa, 2000.

Further reading

1. Kidlarski E.: Jakość wyrobów, PWN, Warszawa 1988.
2. Miracki W.: Koszty przygotowania produkcji, PWE, Warszawa 1985.

Notes

Modified by dr inż. Tomasz Belica (last modification: 12-04-2023 23:05)

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