KARTA PRZEDMIOTU

Nazwa przedmiotu: Designing of technological processes
Nazwa w języku polskim:
Nazwa w języku angielskim: Designing of technological processes

Dane dotyczące przedmiotu:

Jednostka oferująca przedmiot:	Wydział Organizacji i Zarządzania
Przedmiot dla jednostki:	Politechnika Śląska
Poziom i forma studiów:	I st., studia stacjonarne
Cykl dydaktyczny:	2023
Koordynator przedmiotu cyklu:	Juliusz Wójcik

Domyślny typ protokołu dla przedmiotu:

ZAL

Język wykładowy:

angielski

Strona WWW:

https://platforma.polsl.pl/roz/

Punkty ECTS

4

Skrócony opis:

Transfer of knowledge, acquisition of skills and social importance related to theoretical and practical aspects of technological design of typical machine parts depending on the production volume and the existing machinery.

Opis:

Lecture

1. General information on the design of technological processes. Production process. Construction documentation. Tasks of the designer and technologist. Production program. Means of production.
2. Technological documentation. Technology card, machining manual, heat treatment manual, quality control manual, etc. Markings of tools, measuring instruments, machine tools, workstations, etc.
3. Types of prefabricated elements and their selection. Semi-finished products made of metallurgical materials, bonded semi-finished products, made of plastics, castings, forgings, blanks, semi-finished products obtained by cold forming, by sintering metal powders. Selection of prefabricated elements.
4. Preparation of semi-finished products for processing. Parting, punching, drilling, centering, straightening, stress relief.
5. Technological preparation of production. Technological design, rational selection of materials, shaping operations and treatments, selection of machine tools and tools, thermo-chemical treatment, quality control, standardization of working time. Types of machining allowances, allowance standards, calculation of the number of machining operations.
6. Division of machine parts for rational processing. Classification and typification of parts.
7. Designing the technological process of shaft class parts. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.
8. Designing the technological process of sleeve and disc parts. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.
9. Designing the technological process of a lever class part. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.
10. Designing the technological process of body class parts. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.
11. Designing the technological process of flat parts. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.

12. Designing the technological process of a gear class part. Machining requirements. Framework technological process. Types of roughing, shaping and finishing. Heat and thermo-chemical treatment. Machine tools and tools. Technology of construction.
13. Own costs of the product. Cost sharing. Calculation of cost components. Total cost of the product depending on the type of production. Design 1. Design of the technological process of the machine part.

Literatura:

1. Feld M: Podstawy projektowania procesów technologicznych typowych części maszyn. WNT Warszawa 2009.
2. Feld M.: Projektowanie i automatyzacja procesów technologicznych części maszyn. WNT Warszawa 1994.
3. Rutkowski A.: Części maszyn, WSiP 1998,
4. Okoniewski S.: Technologia maszyn. WSiP 1998.
5. Feld M.: Uchwyty obróbkowe. WNT Waszawa 2002.
6. Brodowicz W., Grzegórski Z.: Technologia budowy maszyn. WSiP, Warszawa 1991.
7. Stryczek J., Koła zębate maszyn hydraulicznych, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2007.
8. Kapiński S., Skawiński P., Sobieszczański, Sobolewski J.Z., Projektowanie technologii maszyn, OWPW2002.
9. Puff T., Technologia budowy maszyn, PWN 1985.
10. Dobrzański L.A., Metaloznawstwo i obróbka cieplna, WSiP 1986.
11. Poradnik obróbki skrawaniem. Sandvik COROMANT 2010.
12. Zych A., Projektowanie procesów technologicznych, Instytut Technologii Eksploatacji - Państwowy Instytut Badawczy, Radom 2005.
13. Wójcik J., Charakterystyki energetyczne i emisyjne kotła z paleniskiem retortowym, Wybrane problemy współczesnej inżynierii produkcji, Monografia, Wydawnictwo Politechniki Śląskiej, ISBN 978-83-7880-681-3, Gliwice 2019, str 211-234.
14. Wójcik J., Dobór paliwa stałego do urządzeń grzewczych, Wybrane problemy współczesnej inżynierii produkcji, Monografia, Wydawnictwo Politechniki Śląskiej, ISBN 978-83-7880-681-3, Gliwice 2019, str 235-250.

Efekty uczenia się:

1. Knows and understands selected issues in the field of basic manufacturing techniques and technological design. K1A_W11.
2. Is able to design - in accordance with a given specification - and create a simple technical system and implement a technological process, using appropriately selected methods, techniques, tools and materials used in the design of technological processes. K1A_U07.
3. Is able to use the acquired knowledge - formulate and solve complex and unusual problems and innovatively perform tasks in variable and not fully predictable conditions by:
- proper selection of sources and information derived from them, assessment, critical analysis and synthesis of this information,
- selection and use of appropriate methods and tools, including advanced information and communication techniques (ICT) in the design of technological processes. K1A_U14.
4. Is ready to perform professional roles responsibly, including compliance with the principles of professional ethics and demanding the same from others, as well as care for the achievements and traditions of the profession in relation to technological processes. K1A_K05.

Metody i kryteria oceniania:

Lecture – test. The final grade is the arithmetic mean of the test grade and the project grade.

Praktyki zawodowe:

SYLLABUS

Name: Designing of technological processes
Name in Polish:
Name in English: Designing of technological processes

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Master's degree/Bechelor's degree, Full-time
Term:	2023
Coordinator of course edition:	Juliusz Wójcik

Default type of course examination report:
ZAL
Language:
English
Course homepage:
https://platforma.polsl.pl/roz/
ECTS
4
Short description:
Transfer of knowledge, acquisition of skills and social importance related to theoretical and practical aspects of technological design of typical machine parts depending on the production volume and the existing machinery.
Description:
Bibliography:
Learning outcomes:
Assessment methods and assessment criteria:
Lecture – test. The final grade is the arithmetic mean of the test grade and the project grade.
Practical placement: