COURSE DESCRIPTION CARD - SYLLABUS

Course name
Machine Technology and Design of Production Processes 1 [S1IZarz1>TMiPPT1]

Course

Field of study
Engineering Management

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
30

Laboratory classes
30

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

dr Katarzyna Kalisz-Szwedzka
katarzyna.kalisz-szwedzka@put.poznan.pl

Lecturers

Prerequisites

Basic knowledge about the life cycle of machines

Course objective

-The aim of the course is to familiarize students with theoretical and practical issues in the field of manufacturing techniques applied in the machine industry, with particular emphasis on market economy conditions.

Course-related learning outcomes

Knowledge:
The student describes the life cycle of machines, including basic elements of the technological process and their documentation [P6S_WG_14].
The student lists and characterizes basic methods, techniques, tools, and materials used in machine technology, including in metallurgy, casting, plastic deformation, plastics, welding, and gluing [P6S_WG_16].
The student identifies typical industrial technologies, including technologies for the construction and operation of machines, with emphasis on machining processes like turning, milling, drilling, threading,

and grinding [P6S_WG_17].

Skills:
The student analyzes technological processes in machine production and the organization of production systems, assessing their efficiency and feasibility [P6S_UW_13].
The student identifies and solves simple design tasks in the field of machine construction and operation, utilizing acquired knowledge of industrial technologies [P6S_UW_14].
The student applies methods for solving technological problems, designing structures and technology for simple machine parts and components [P6S_UW_15].
The student designs the organization of first-level complexity production units, guided by principles of efficiency and process optimization [P6S_UW_16].

Social competences:
The student describes and applies a systemic approach in creating products, considering technical, economic, marketing, legal, organizational, and financial issues [P6S_KO_02].
The student is aware of the impact of engineering activities on the environment and assesses their responsibility for decisions made in the context of non-technical aspects [P6S_KR_01].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:
a) in terms of laboratories: on the basis of an assessment of the current progress of the tasks.
b) in lectures: on the basis of answers to questions about material modified in previous lectures.
Summary:
a) lecture - written test on the basis of previously prepared questionnaire
b) written laboratory pass.

Programme content

lectures:
- Introduction to the subject of lectures.
- The outline of metallurgy,
- Molding,
- Plastic working,
- Plastic processing,
- Welding,
- Thermal treatment,
- Routing and hand-
- Machining (turning, planing, chiseling, tugging, drilling, tapping, milling, boring, - Abrasive).
Laboratories: Getting acquainted with production techniques in the conditions of production plants

Course topics

lectures:
- Introduction to the subject of lectures.
- The outline of metallurgy,
- Molding,
- Plastic working,
- Plastic processing,
- Welding,
- Thermal treatment,
- Routing and hand-
- Machining (turning, planing, chiseling, tugging, drilling, tapping, milling, boring, - Abrasive).
Laboratories: Getting acquainted with production techniques in the conditions of production plants

Teaching methods

lectures; monographic with the use of a computer with the division of the content of the program into separate thematic issues in connection with the subject of the laboratory
Laboratories: visits to production plants in the scope of selected technological processes

Bibliography

Basic:
1. red. Erbel J. Encyklopedia technik wytwarzania stosowanych w przemyśle maszynowym tom I i II Oficyna Wydawnicza PW W-wa 2001
2. Szreniawski J. Techniki wytwarzania. Odlewnictwo. PWN Warszawa 1989
3. Szweycer M Metalurgia skrypt PP Poznań 1993
4. Sikora R. Przetwórstwo tworzyw wielkocząsteczkowych Wyd. Żak W-wa 1993
5. Gruszka J. Studium rozwoju technologii produkcji tulei cylindrowych. Monografia- Modelowanie warstwy wierzchniej s.53-66,Wydawca IBEN Gorzów Wlkp.,2014

Additional:
1. Feld M. Technologia budowy maszyn WNT W-wa 2004
2. Gruszka J.Światowe tendencje w technologii produkcji tulei cylindrowych. Silniki Spalinowe nr 3,2011

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	60	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	40	1,50