COURSE DESCRIPTION CARD - SYLLABUS

Course name
Preparation of metalworking processes [N1ZiIP2>PPO]

Course

Field of study
Management and Production Engineering

Year/Semester
4/7

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
8

Laboratory classes
8

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

Lecturers

Prerequisites

Basic knowledge of engineering graphics (reading technical drawings), cutting machines, machining, tools, basics of designing a technological process. Structured theoretical knowledge in the field of study. Ability to use literature (obtaining knowledge from indicated sources) and the Internet

Course objective

Getting to know the basic tools that allow you to prepare machining processes, especially for CNC machines. Getting to know the standard and special machining equipment and their selection. Getting to know the tool economy. Getting to know the ways and methods of machining automation

Course-related learning outcomes

Knowledge:
Possesses structured knowledge of machining automation, tool management and the use of standard and special tooling.

Skills:
Is able to select manufacturing techniques, tools and equipment for a given machining task.

Social competences:

Is aware of the responsibility for his/her own work and the work of the team of which he/she is a member and knows the rules of acting in a professional manner and in accordance with professional ethics.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: passing - final test consisting of about 20 questions. A positive passing in case of obtaining half of the maximum number of points.
Assignment of grades to percentage ranges of results: <90-100> very good; <80-90) good plus; <70-80) good; <60-70) satisfactory plus; <50-60) satisfactory; <0-50) unsatisfactory.
Laboratories - passing of performed exercises

Programme content

- Division and types of numerically controlled machine tools, machining centers and autonomous machining stations.
- Fundamentals of designing the technological process for numerically controlled machine tools.
- Methods of preparing machining programs.
- Object and tool equipment, standard and special.
- Tool and object management.
- Production logistics in technical terms.

Course topics

Laboratory:
1. Development of simplified technological documentation for the process of machining a simple object on a 3-axis CNC milling machine.
2. Selection of tools, holder and equipping the CNC milling machine with tools - preparation for machining.
3. Development of simplified technological documentation for the process of machining a simple shaft on a CNC lathe.
4. Development of a machining program in the CAM system for a simple object on a 3-axis CNC milling machine
5. Preparation of the machine tool and machining of a test object on a CNC milling machine.

Teaching methods

Lecture illustrated with multimedia presentations.
Laboratory in the workshop using CNC machines, CAM system and an industrial robot

Bibliography

Basic:
1. Kosmol J.: Automatyzacja obrabiarek i obróbki skrawaniem, PWN Warszawa, 2000.
2. Honczarenko J.: Elastyczna automatyzacja wytwarzania. WNT 2018.
3. Jemielniak K. Nowoczesne procesy obróbki skrawaniem. PWN 2023.
4. Feld M.: Uchwyty obróbkowe. WNT 2002

Additional:
1. Jemielniak K.: Automatyczna diagnostyka stanu narzędzia i procesu skrawania.OW PW, Warszawa 2002
2. Feld M.: Podstawy projektowania procesów technologicznych typowych części maszyn. WNT 2003

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	16	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	34	1,50