



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Tool management

Course

Field of study

Management and Production Engineering

Area of study (specialization)

Production Enterprise Logistics

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

8

Laboratory classes

Tutorials

Projects/seminars

8

Other (e.g. online)

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

PhD.Eng. Zbigniew Nowakowski

email: zbigniew.nowakowski@put.poznan.pl

phone +48(61) 665 27 52

Faculty of Mechanical Engineering

St. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge of basic machining, exploitation of tools and tool holders. Capability of making use of information retrieved from different sources.

Course objective

Getting to know the current issues related to the tool management and tool holders in the manufacturing company.

Course-related learning outcomes

Knowledge

The student knows how to define the tasks of the tool management in the manufacturing company.

The student is able to describe the workflow of tools and tool documentation in the manufacturing



company.

The student is able to present modern systems of tool room and tool management.

Skills

The student is capable to calculate the rotary reserve and stock of cutting tools.

The student is capable to select an appropriate tool rental system for the given conditions in the enterprise.

Social competences

The student acquires skills of finding solution for technical problems by himself/herself through search of knowledge in literature and on the Internet.

The student acquires skills of teamwork and forming inquiry questions.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified at the end of the semester in the form of an exam. The exam consists of 4 theoretical and problem questions. The pass threshold is 50%.

The skills acquired under the project classes are verified during the presentation of the project. In the assessment of the project, attention is paid to the ability to diagnose and solve emerging problems in the operation of tools.

Programme content

Scope of lecture:

- division and marking of tools and tool holders;
- the importance and tasks of tool management;
- organizational structure of the tool management department;
- workflow of tools and tool documentation;
- organization and location of warehouses and tool room;
- range of rental activities and tool rental systems;
- planning the supply of cutting tools:
- cutting tool wear planning - methods;
- rotary reserves of cutting tools;
- tool inventory determination;
- tool regeneration;
- tool management costs;
- warehouses and preparation of tools in a flexible machining center at the production level;
- tools identification and coding methods;
- tool information workflow;
- automation of tool management and rental;
- use of barcodes and QR in tool flow management;
- tool management via the WEB network;
- computer management systems for tool management.



The project consists of two parts:

- presentation of a selected issue related to tool management,
- analysis of problems and suggestions for changes related to the issue presented in the first part of the work.

Projects are presented during the classes in the form of short speeches followed by a discussion in the forum of the group. The data obtained from the parent companies employing students are the preferred input material for the project.

Teaching methods

Lecture: multimedia presentation illustrated with examples, animations and short films, discussion.

Project classes: multimedia presentation, problem solving, discussion, teamwork.

Bibliography

Basic

Gawlik J., Harasymowicz J.: Wybrane zagadnienia z organizacji gospodarki narzędziowej. Politechnika Krakowska, Kraków 1986.

Praca zbiorowa: Zarządzanie narzędziami. Wrocławskie Centrum Transferu Technologii. Politechnika Wroclawska, Wrocław 1996.

Górski E.: Poradnik narzędziowca.

Popular science and promotional and informational articles from tool companies - Sandvik-Coromant, Walter, Güh-ring, Iscar Mechanik - Miesięcznik Naukowo Techniczny; www.mechanik.media.pl

Additional

Pfohl H. Ch.: Systemy logistyczne. Biblioteka Logistyka, Poznań 2001.

Eversheim W., Kals H.J.J., König W., van Luttervelt C. A., Milberg J., Storr A., Tönshoff H. K., Weck M., Weule H., Zdeblick W. J.: Tool management: the present and the future. An-nals of the CIRP, vol.40/2/1991

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	20	1,0
Student's own work (literature studies, preparation for laboratory classes, preparation for tests/exam) ¹	30	1,0

¹ delete or add other activities as appropriate