



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technological machines

### Course

Field of study

Logistics

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Tutorials

Laboratory classes

15

Projects/seminars

Other (e.g. online)

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

Ph.D., Eng., Jacek Andrzejewski

Mail to: [jacek.andrzejewski@put.poznan.pl](mailto:jacek.andrzejewski@put.poznan.pl)

Phone: 61 647 58 58

Faculty of Mechanical Engineering

ul. Piotrowo 3, 61-138 Poznań

Responsible for the course/lecturer:

Ph.D., Eng., Dariusz Bartkowski

Mail to: [dariusz.bartkowski@put.poznan.pl](mailto:dariusz.bartkowski@put.poznan.pl)

Phone: 61 665 26 65

Faculty of Mechanical Engineering

ul. Piotrowo 3, 61-138 Poznań

### Prerequisites

Basic knowledge of materials science, machine construction, manufacturing techniques. The student has



the ability to think logically, use information obtained from literature and the Internet. Student understands the need to learn and acquire new knowledge.

### Course objective

Understanding the construction and operating principles of popular and operating machines and technological devices.

### Course-related learning outcomes

#### Knowledge

1. Student knows the basic issues of construction, technology and techniques related to logistics [P6S\_WG\_01]
2. Student knows the basic issues of mechanics, construction and operation of machines related to logistics [P6S\_WG\_02]

#### Skills

1. Student is able to use appropriate experimental and measurement techniques to solve the problem, including computer simulation in the construction and operation of machines [P6S\_UW\_03]
2. Student is able to select appropriate tools and methods to solve a problem within the framework of construction and technology, as well as use them effectively [P6S\_UO\_02]
3. Student is able to identify changes in requirements, standards, regulations, technical progress and labor market reality in the context of technological machines, and on their basis determine the need to supplement knowledge [P6S\_UU\_01]

#### Social competences

1. Student is able to cooperate in a group; is willing to cooperate and work in a group to solve problems in the field of technique and technology [P6S\_KR\_02]
2. Student is aware of the role of machine technology in the machine's life cycle [P6S\_KO\_02]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Knowledge acquired during the lecture is verified by two 45-minute colloquia carried out during the 7th and 15th lectures. Each test consists of 5 questions (test and open), variously scored. Passing threshold: 50% of points. Final issues on the basis of which questions are prepared will be forwarded to students during the lecture preceding the colloquium.

Laboratory: Credit based on an oral or written answer regarding the content of each laboratory exercise, report on each laboratory exercise as directed by the laboratory exercises. All exercises must be passed in order to pass the laboratories (positive assessment of responses and reports).

### Programme content

Lecture: General introduction to machine technology. The phases of the existence of a technical object. The essence of technological machines. New trends in the construction of technological machines.



Accuracy of forming machining on technological machines, Construction and principle of operation of popular technological machines. Technological instrumentation. Costs. Technologicality of the structure. Elements of computer-aided design of technological machines.

Laboratory: Construction and operation of injection molding machines. Construction and operation of extruders. Construction and operation of eccentric presses. Construction and operation of press brakes. Construction and operation of devices for testing sheet metal compression.

### Teaching methods

Lecture: informative lecture.

Laboratory: laboratory method.

### Bibliography

#### Basic

1. Golański T., Prasy mechaniczne: Konstrukcja, eksploatacja i modernizacja, WNT, Warszawa 1970.
2. Tomczak J., Bartnicki J., Maszyny i urządzenia do obróbki plastycznej, Politechnika Lubelska, Lublin 2012.
3. Boczarow J.A., Prasy śrubowe, WNT, Warszawa 1980.
4. Praca zbiorowa, Prasy mechaniczne stosowane w tłocznictwie, WNT, Warszawa 1959.
5. Kosmol J., Automatyzacja obrabiarek skrawających, WNT, Warszawa 1996 i późniejsze.
6. Wilczyński K., Przetwórstwo tworzyw sztucznych, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2000.
7. Kucharczyk W., Żurowski W., Przetwórstwo tworzyw sztucznych dla mechaników, Wydawnictwo Politechniki Radomskiej, Radom 2005.

#### Additional

1. Romanowski W.P., Poradnik obróbki plastycznej na zimno, WNT, Warszawa 1976.
2. Czasopisma: PlasticsEurope, Journal of Plastics Technology (Kunststoffe), Polimery (Polymers-Warsaw), CompositesWorld.



### Breakdown of average student's workload

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

<sup>1</sup> delete or add other activities as appropriate