



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machines technology

Course

Field of study

Logistics

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

elective

Number of hours

Lecture

30

Tutorials

Laboratory classes

45

Projects/seminars

Other (e.g. online)

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr inż. Jacek Andrzejewski

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61 647 5858

Wydział Inżynierii Mechnicznej

budynek CMBiN

ul. Jana Pawła II 24, pokój 315

60 - 965 Poznań

Responsible for the course/lecturer:

dr inż. Dariusz Bartkowski

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Wydział Inżynierii Mechnicznej

budynek BM (z zegarem)

ul. Piotrowo 3, pokój 645

60 - 965 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 basic issues related to the design of technological processes for the production of machine parts and assembly.

Course-related learning outcomes

Knowledge

1. The student knows the basic issues of construction, technology and techniques related to logistics. (P6S_WG_01)
2. Student on the basic issues of mechanics, construction and operation of machines related to logistics. (P6S_WG_02)
3. The student knows the basic issues of chemical transformations, materials science, commodity science and strength of materials and their importance for industrial and logistics processes. (P6S_WG_03)

Skills

1. The student is able to search based on the literature of the subject and other sources and in an orderly manner present information about the problem within the logistics and its specific issues and supply chain management. (P6S_UW_01)
2. is able to apply the appropriate experimental and measuring techniques to solve the problem within the studied subject, including computer simulation within logistics and its specific issues, and supply chain management. (P6S_UW_03)

Social competences

1. The student is aware of initiating activities related to the formulation and transmission of information and cooperation in society in the field of logistics. (P6S_KO_02)
2. The student is aware of cooperation and work in a group on solving problems within logistics and supply chain management. (P6S_KR_02)

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Exam consisting of three parts covering the topics of Foundry, Plastic Processing and Plastic Working. The basis for passing will be the average of three composition, the condition of passing is to obtain a positive grade from each part of the exam.



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

Lectures:

Polymer processing

General lecture introducing the issues of machine technology. The essence of machine technology, New trends in machine technology. Production processes. Technological processes. Creating technical documentation. Input data for the design of the technological process. Semis. Product quality. The outer layer and factors shaping it. Technological instrumentation. Costs. Construction technology. Assembly. Designing of technological processes in typical machine parts.

Metal working

General introduction to machine technology. The essence of machine technology. Definitions of the production process and technological process in plastic forming. Output for the design of machine parts by plastic forming methods. Technologies of production of machine parts by means of plastic processing: cutting, stamping, forging, rolling. Connecting machine parts by plastic working methods.

Lab:

Polymer Processing

The laboratory schedule for the processing of plastics includes classes on: a) transport technologies in the processing of plastics; b) Techniques for grinding plastics, recycling of polymeric materials; c) Tooling changes in thermoplastic polymer processing techniques.

Metal working

The laboratory class on Plastic Working includes classes on: a) technology for manufacturing machine parts using cutting and forging; a) technology for manufacturing connections of machine parts by plastic forming methods

Teaching methods

Lecture: multimedia presentation, illustrated with examples given on the board

Laboratory: presentation of issues, practical classes on technological machines, measurements of physicochemical features

Bibliography



Basic

1. K. Wilczyński - Przetwórstwo tworzyw sztucznych, Oficyna wydawnicza Politechniki Warszawskiej, 2000
2. W. Kucharczyk, W. Żurowski, Przetwórstwo tworzyw sztucznych dla mechaników, Radom, Wydawnictwo Politechniki Radomskiej, 2005
3. Erbel S., Kuczyński K., Marciniak Z.: Obróbka plastyczna. Warszawa: PWN 1986.
4. Morawiecki M., Sadok L., Wosiek E.: Teoretyczne podstawy technologicznych procesów przeróbki plastycznej, Wyd. Śląsk, 1986
5. Z. Marciniak: KONSTRUKCJA TŁOCZNIKÓW, Ośrodek Techniczny A. Marciniak, Warszawa, 2002.

Additional

1. Erbel S., Golański T., Kuczyński K., Marciniak Z. i inni: Technologia obróbki plastycznej na zimno. Warszawa: SIMP-ODK 1983. Muster A.: KUCIE MATRYCOWE,
2. Muster A.: KUCIE MATRYCOWE Projektowanie procesów technologicznych, Oficyna Wydawnicza Politechniki Poznańskiej, Warszawa 2002.
3. Zalecenia do obróbki plastycznej metali. Instytut Obróbki Plastycznej ? Poznań.
4. M. Ustasiak, P. Kochmański: OBRÓBKA PLASTYCZNA Materiały pomocnicze do projektowania, Politechnika Szczecińska, Szczecin, 2004.

Czasopisma: PlasticsEurope, Journal of Plastics Technology (Kunststoffe), Polimery (Polymers-Warsaw), CompositesWorld

Portale: ScienceDirect, Scopus, Researchgate, Web of Science

Breakdown of average student's workload

	Hours	ECTS
Total workload	85	3,0
Classes requiring direct contact with the teacher	75	2,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	10	0,5

¹ delete or add other activities as appropriate