COURSE DESCRIPTION CARD - SYLLABUS

Course name
Development directions of mechanical engineering [S2MiBM2>KRIM]

Course

Field of study
Mechanical Engineering

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

dr inż. Radomir Majchrowski
radomir.majchrowski@put.poznan.pl

Lecturers

Prerequisites

The student has basic knowledge of the learning outcomes intended for students of mechanical engineering at the first-cycle studies. In particular, he is aware of the role and importance of construction processes and technologies for the field of mechanical engineering. Has the ability to think logically and use information obtained from the library and the Internet. Understands the need to learn and acquire new knowledge.

Course objective

The aim of the course is to show students development trends in the field of mechanical engineering, in particular in the field of design and manufacturing. The student will be introduced to selected aspects of mechanical engineering used in industry.

Course-related learning outcomes

Knowledge:
1. The student is able to indicate and describe the main development trends in the field of mechanical engineering.

Skills:
1. The student is able to present solutions to complex problems based on data from the literature and other selected sources (including those obtained as a result of discussions with experts).
2. The student is able to justify the impact of the development of mechanical engineering on the technical and non-technical (e.g. economic, social) effects of this development.
3. The student is able to interpret information and is able to complete the process of self-education.
4. The student is able to conduct a debate (participate in a discussion) and present his/her proposals and solutions in a public forum.

Social competences:
1. The student understands the need for lifelong learning and is able to inspire the learning process of other people.
2. The student is aware of cooperation with the social and economic environment.
3. The student is able to act in an entrepreneurial manner.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture
Written test of general questions (positive note for minimum 50.1% correct answers): <50% - ndst, 50.1% - 60.0% - dst, 60.1% - 70.0% - dst+, 70.1% - 80 % - db, 80.1% - 90.0% - db+, 90.1% - 100%- bdb. Participation in the discussion will also have an impact on the final grade.

Programme content

Lecture
Development trends in mechanical engineering in the field of design. Development trends in mechanical engineering in the field of manufacturing. Development trends in mechanical engineering in the field of computer-aided engineering works. Development trends in mechanical engineering in the field of auxiliary processes in the production of products (control, transport).

Course topics

none

Teaching methods

Lecture: multimedia presentation, sample videos and visualizations of the presented issues, case study, discussion

Bibliography

Basic:
1. Jóźwicki R., Technika laserowa i jej zastosowania, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2009.
2. Ruszaj A., Niekonwencjonalne metody wytwarzania elementów maszyn i narzędzi. Wydawnictwo Instytutu Obróbki Skrawaniem, Kraków 1999.
3. Siemieński P., Budzik G., Techniki przyrostowe. Druk 3D. Drukarki 3D, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2015.

Additional:
1. Przybylski L., Strategia doboru warunków obróbki współczesnymi narzędziami. Toczenie - wiercenie - frezowanie. Wyd. II, Z-d Graficzny Politechniki Krakowskiej, Kraków 2000.
2. Chlebus E.: Innowacyjne Technologie Rapid Prototyping - Rapid Tooling w rozwoju produktu. Oficyna wydawnicza Politechniki Wrocławskiej, 2003
3. Individually selected

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50