



COURSE DESCRIPTION CARD - SYLLABUS

Course name

3D Printing_2

Course

Field of study

Product Lifecycle Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

English

Requirements

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

30

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr inż. Radosław Wichniarek

Responsible for the course/lecturer:

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Wydział Inżynierii Mechanicznej

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Prerequisites

Students must have knowledge of CAD systems and additive manufacturing techniques.

Course objective

Acquiring the practical ability to use modern additive manufacturing techniques for rapid prototyping of physical prototypes.

Course-related learning outcomes

Knowledge

Has an ordered, theory-based general knowledge about modern designing and manufacturing techniques.



Has knowledge of additive manufacturing and its advantages and disadvantages compared to other manufacturing techniques.

Skills

Is able to make appropriate changes in the technological process of additive manufacturing in order to change the value of specific technical coefficient of the product.

Is able to make a detailed assessment of the structure's technology and indicate the possibilities of its improvement. Is able to communicate in this regard with technologists and designers.

Is able to prepare a team to carry out an innovative project, select a team of implementers, using project management methods, can define tasks related to the implementation process of the project and be a leader of the project team.

Social competences

Is able to properly set priorities for achieving the goal set by himself or other team members.

Correctly identifies and resolves dilemmas related to the performance of ongoing tasks. Is aware of the need to prepare and organize the work of the members of the team.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Project part: based on an assessment of the progress of work on the project and the presentation of the final version of the project.

Programme content

Project part:

1. Division into project groups and specification of the project theme - selection of product to design and manufacture, definition of working conditions boundary and assessments criteria for technical and economic coefficients.
2. Working on the project in the computer laboratory and the laboratory of additive manufacturing.
3. Presentation and assessment of project progress.
4. Presentation of the final project results, analysis and discussion.

Teaching methods

Project part: independent project method - solving technical problems with use of computers and additive manufacturing machines in laboratories; public presentation and discussion on the completed project.

Bibliography



Basic

1. Killi Steiner, 2013, "Designing for Additive Manufacturing: Perspectives from Product Design", Arkitektur- og designhørgskolen, Oslo, Norway
2. Bhate Dhruv, 2018, "Design for Additive Manufacturing: Concepts and Considerations for the Aerospace Industry", SAE International, Warrendale, USA

Additional

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 classes/tutorials, preparation for tests/exam, project preparation) ¹	20	1,0

¹ delete or add other activities as appropriate