



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Plastic processing [S1ETI2>PTS]

### Course

Field of study

Education in Technology and Informatics

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

15

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

### Lecturers

### Prerequisites

Basic knowledge of physics, chemistry, materials science. The ability to think logically, to use information obtained from the library and the Internet. Understanding the need to learn and acquire new knowledge.

### Course objective

Understanding the methods of testing polymer materials, determining the influence of the structure on the properties of the material

### Course-related learning outcomes

Knowledge:

- 1 the student should characterize the basic properties of theorem. pcs.
- 2 the student should characterize the basic techniques of producing theorem. pcs
- 3 the student should receive products obtained with the given technology

Skills:

- 1 the student is able to choose the appropriate technology
- 2 the student is able to propose a replacement technique for producing
- 3 the student is able to carry out the basic processing of

Social competences:

1 the student is able to work in a group,

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows: Lecture: Pass on the basis of a test consisting of 5 general questions (pass if the correct answer is given to at least 3 questions: <3 - ndst, 3 - dst, 3.5 - dst +, 4 - db, 4.5 - db +, 5 - very good) carried out at the end of the semester. Laboratory: Assessment based on an oral or written answer concerning the content of each performed laboratory exercise, a report on each laboratory exercise according to the instructions of the laboratory teacher. In order to pass the laboratories, all exercises must be passed (positive grade from the answers and the report).

## Programme content

Key processes in plastics processing, such as injection molding, extrusion, laminating, vacuum and rotational forming, as well as coating application. Physical and chemical phenomena occurring during these processes. Analysis of the impact of technological parameters on the quality and properties of plastic products. Common product defects and methods of prevention. Comparison of the specifics of individual technologies and their practical applications in industry.

## Course topics

Lecture: 1. Technological processes used in the processing of plastics / injection, embossing, pressing, laminating, vacuum forming, rotational molding, production of polymer composites, joining plastics, applying coatings /. 2. Phenomena occurring during the implementation of various plastics processing processes 3. The influence of technological parameters of processing processes on the properties of the products produced plastic products. 4. Typical defects of plastic products made with different technologies and methods their prevention 5. Discussion of the specifics of individual processes and their possible applications in practice industrial. Lab: 1. Injection technology. 2. Extrusion technology. 3. Laminating technology. 4. Thermoforming technology. 5. Joining products from polymer materials. 6. Applying polymer coatings to metal products

## Teaching methods

1. Lecture: presentation illustrated with animations and examples, solving of simple problems 2. Laboratory: realization of experiments, evaluation of results, discussion

## Bibliography

Basic:

1. Bociąga E: Specjalne metody wtryskiwania tworzyw polimerowych, WNT, Warszawa 2010
2. Praca zbiorowa. Poradnik „Tworzywa sztuczne”, WNT, Warszawa 2006
3. Haponiuk J.T.; Tworzywa sztuczne w praktyce; Wyd. VerlagDashofer, Warszawa 2008
4. Frącz W., Krywult B.- Projektowanie i wytwarzanie elementów z tworzyw sztucznych, Oficyna wydawnicza Politechniki Rzeszowskiej, 2005

Additional:

1. Czasopisma: Plastics Review, RubberReview, Plast News, Tworzywa Sztuczne.
2. Charrier J-M.: Polymer Materials and Processing, Hanser Publishers, New York, 1990

## Breakdown of average student's workload

	Hours	ECTS
Total workload	55	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	25	1,00