



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Plastics processing and its importance in the modern world [S1IChIP1>PTSiJZwWŚ]

### Course

Field of study

Chemical and Process Engineering

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

0

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

1,00

### Coordinators

dr hab. inż. Arkadiusz Kloziński  
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### Lecturers

### Prerequisites

The student has knowledge of the basic issues of general chemistry, organic chemistry. The student knows and applies good working techniques in the chemical laboratory, is able to operate research equipment. Is able to obtain information from literature, databases and other properly selected sources.

### Course objective

Transfer of knowledge in the field of plastics processing and its importance in the modern world. Developing skills to acquire technological knowledge in the field of plastics processing.

### Course-related learning outcomes

Knowledge:

1. student has general knowledge in the field of chemical technology as a related field directly related to chemical and process engineering. [k\_w04]
2. the student has the knowledge to understand the phenomena and physical processes related to plastics processing. [k\_w02]
3. the student has ordered general knowledge in the field of chemical engineering, machine science and apparatus of the chemical industry, within the processing of plastics. [k\_w13]

#### Skills:

1. student is able to analyze and evaluate the functioning of the basic apparatus of the plastic processing industry. [k\_u15]
2. the student is able to analyze and evaluate the functioning of basic processes and unit operations of plastic processing. [k\_u16]
3. student is able to identify basic processes and unit operations in plastics processing and formulate their specifications. [k\_u17]

#### Social competences:

1. the student understands the need for further training and improving their professional and personal competence in the field of plastics processing. [k\_k01]
2. the student is aware of the importance and understanding of non-technical aspects and effects of engineering activities (especially in the field of plastics processing), including its impact on the environment and the associated responsibility for decisions. [k\_k02]

### 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: Stationary: test (20-30 questions). Online: final test using the test module on the eKursy platform (20-30 questions).

### Programme content

Course contents include the following topics:

- 1) The importance of polymers and polymer processing in the modern world - what is processing.
- 2) Polymer and polymer material - definitions and characteristics.
- 3) Extrusion process and its importance in the production of multilayer products, with particular emphasis on products used in the packaging industry.
- 4) Injection molding as a processing method characterized by the largest variety of manufactured products.
- 5) Modern laminates and their importance in the high-tech industry.
- 6) Technological processes used in secondary plastics processing.
- 7) Test methods for polymer materials in terms of product quality

### Course topics

Issues related to plastics processing and its importance in the modern world.

### Teaching methods

Lecture: multimedia presentation.

### Bibliography

#### Basic

1. J. Ferguson, Z. Kembłowski: „Reologia stosowana płynów”, Łódź 1995.
2. K. Wilczyński: „Reologia w Przetwórstwie Tworzyw Sztucznych”, WNT W-wa 2001.
3. R. Sikora: „Przetwórstwo tworzyw wielkocząsteczkowych”, PWN W-wa 1987.
4. R. Sikora: „Podstawy przetwórstwa tworzyw polimerowych”, WPL Lublin 1992.
5. K. Wilczyński: „Przetwórstwo tworzyw sztucznych”, WPW W-wa 2000.
6. A. Smorawiński: „Technologia wtrysku”, WNT W-wa 1984.

#### Additional

1. H. Saechtling: „Tworzywa sztuczne. Poradnik”, WNT Warszawa 2000.
2. W. Szlezyngier, „Podstawy reologii polimerów”, PRz. Rzeszów 1994.
3. R. Sikora i in., „Przetwórstwo tworzyw polimerowych. Podstawy logiczne, formalne i terminologiczne”, WPL Lublin 2006.

### Breakdown of average student's workload

|  | Hours | ECTS |
|--|-------|------|
| Total workload   | 25    | 1,00 |
| Classes requiring direct contact with the teacher  | 15    | 0,70 |
| Student's own work (literature studies, preparation for laboratory classes/<br>tutorials, preparation for tests/exam, project preparation) | 10    | 0,30 |