



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Plastics processing in the automotive industry [S1MiTPM1>PTSwPM]

Course

| | |
|--|-------------------|
| Field of study | Year/Semester |
| Materials and technologies for automotive industry | 3/5 |
| Area of study (specialization) | Profile of study |
| – | general academic |
| Level of study | Course offered in |
| first-cycle | Polish |
| Form of study | Requirements |
| full-time | compulsory |

Number of hours

| | | |
|-----------|--------------------|-------|
| Lecture | Laboratory classes | Other |
| 15 | 15 | 0 |
| Tutorials | Projects/seminars | |
| 0 | 0 | |

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

A student starting this subject should have basic knowledge of physics and chemistry.

Course objective

Learning the basics of the physical and physicochemical processes occurring during the processing of polymer materials and analyzing the factors affecting the technological properties of product construction in the automotive industry.

Course-related learning outcomes

Knowledge:

1. The student has detailed knowledge of the division and classification of polymer materials.
2. The student knows the basics of producing plastic products.
3. The student is able to select the appropriate technology to produce the product.

Skills:

1. The student has the ability to distinguish modern production technologies.
2. Has knowledge of systems for simulating technological processes.

Social competences:

1. The student is aware of the importance of processing processes in the economy and social life.
2. The student demonstrates an active attitude in creating production processes.
3. The student is able to assess the quality of plastic product manufacturing processes.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

Written assessment carried out at the end of the semester (pass if at least 50.1% of correct answers are obtained). Up to 50.0% - ndst, from 50.1% to 60.0% - dst, from 60.1% to 70.0% - dst+, from 70.1 to 80.0 - db, from 80.1% up to 90.0% - db+, from 90.1% - very good.

Lab:

Credit based on an oral or written answer regarding the content of each laboratory exercise performed, a report on each laboratory exercise according to the instructions of the laboratory instructor. To pass the laboratories, all exercises must be completed (positive grade for answers and reports).

Programme content

Discussion of technological processes used in plastics processing, with particular emphasis on the automotive industry

Course topics

Lecture: Discussion of the specificity of individual processes and their possible applications in industrial practice. Special injection technologies /gas- and water-assisted injection technology, sandwich and mono-sandwich technologies, micro-injection/. The use of static and dynamic mixers in injection and extrusion technologies. Manufacturing components in the automotive industry. Processing of bio-degradable plastics. Directions of development of modern plastics processing technologies.

Laboratories:

1. Injection molding technique.
2. Extrusion technique.
3. Laminating.
4. Thermoforming.
5. Joining techniques of plastic parts.
6. Thin protective polymer layers technique application

Teaching methods

lecture: multimedia presentation, illustrations, sample multimedia films of technological processes

Bibliography

Basic:

R.Sikora - Przetwórstwo tworzyw wielkocząsteczkowych. Wyd. ZAK , Warszawa 1997

Additional:

Haponiuk J.T.: Tworzywa sztuczne w praktyce. Wyd. Verlag Dashofer, W-wa 2008r.

Czasopisma: Plastics Review, Rubber Review, Plast News, Tworzywa Sztuczne

Breakdown of average student's workload

| | Hours | ECTS |
|---|-------|------|
| Total workload | 75 | 3,00 |
| Classes requiring direct contact with the teacher | 32 | 1,50 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 43 | 1,50 |