



Subject card

|   |  |  |          |                                     |                                       |  |     |
|---|--|--|----------|-------------------------------------|---------------------------------------|--|-----|
| Subject name and code                       | Manufacturing Polymer Elements, PG_00055493  |  |          |                                     |                                       |  |     |
| Field of study                              | Mechanical Engineering   |  |          |                                     |                                       |  |     |
| Date of commencement of studies             | October 2024   | Academic year of realisation of subject  |          |                                     |                                       | 2026/2027  |     |
| Education level                             | first-cycle studies  | Subject group  |          |                                     |                                       | Optional subject group<br>Subject group related to scientific research in the field of study |     |
| Mode of study                               | Full-time studies  | Mode of delivery   |          |                                     |                                       | at the university  |     |
| Year of study                               | 3  | Language of instruction  |          |                                     |                                       | Polish   |     |
| Semester of study                           | 5  | ECTS credits   |          |                                     |                                       | 4.0  |     |
| Learning profile                            | general academic profile   | Assessment form  |          |                                     |                                       | assessment   |     |
| Conducting unit                             | Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology   |  |          |                                     |                                       |  |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor   | dr inż. Sławomir Szymański   |          |                                     |                                       |  |     |
|   | Teachers   |  |          |                                     |                                       |  |     |
| Lesson types and methods of instruction     | Lesson type  | Lecture  | Tutorial | Laboratory                          | Project                               | Seminar  | SUM |
|   | Number of study hours  | 15.0   | 0.0      | 15.0                                | 15.0                                  | 0.0  | 45  |
|   | E-learning hours included: 0.0   |  |          |                                     |                                       |  |     |
| Learning activity and number of study hours | Learning activity  | Participation in didactic classes included in study plan   |          | Participation in consultation hours |                                       | Self-study   | SUM |
|   | Number of study hours  | 45   |          | 7.0                                 |                                       | 48.0   | 100 |
| Subject objectives                          | Acquiring knowledge of the methods of manufacturing products from polymeric materials<br>The ability to design nests and production lines for the production of polymer products   |  |          |                                     |                                       |  |     |
| Learning outcomes                           | Course outcome   | Subject outcome  |          |                                     | Method of verification                |  |     |
|   | [K6_U04] is able to perform a critical analysis of the existing technical solutions, present the specification of the technology of manufacturing basic construction elements of machines and engineering assemblies   | The student is able to design a production line and an automated production cell for the production of polymer products  |          |                                     | [SU1] Assessment of task fulfilment   |  |     |
|   | [K6_U10] is able to formulate the principles of selecting a material for a construction, ensuring the correct operation of a device  | the student is able to analyze the technological performance of a polymer product and select the optimal material and choose the appropriate technological process             |          |                                     | [SU1] Assessment of task fulfilment   |  |     |
|   | [K6_W03] possesses and is able to practically apply the knowledge on the construction, properties and testing methods of construction materials  | The student knows the methods of manufacturing products from polymeric materials<br>The student knows the machines, tools and raw materials used in the processing of polymers |          |                                     | [SW1] Assessment of factual knowledge |  |     |
| Subject contents                            | 1. classification of polymeric materials<br>2. Methods of manufacturing products from polymers (injection, extrusion, pressing, calendering, thermoforming, casting)<br>3. Construction of tools for processing polymers (molds and heads)<br>4 Automation and robotization of technological processes |  |          |                                     |                                       |  |     |

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| Prerequisites and co-requisites                                | knowledge of materials science   |   |                               |
| Assessment methods and criteria                                | Subject passing criteria   | Passing threshold   | Percentage of the final grade |
|  | test   | 60.0%   | 50.0%                         |
|  | raport   | 60.0%   | 20.0%                         |
|  | project  | 60.0%   | 30.0%                         |
| Recommended reading  | Basic literature   | <p>1. Robert Sikora: , Przetwórstwo tworzyw polimerowych, Wydawnictwo Politechniki Lubelskiej, Lublin 20062.</p> <p>2. W. Korszak: Technologia tworzyw sztucznych, WNT Warszawa, 1981</p> |                               |
|  | Supplementary literature   | 1. Sachtling. Tworzywa Sztuczne -poradnik, WNT Warszawa, 1995   |                               |
|  | eResources addresses   | Adresy na platformie eNauczanie:  |                               |
| Example issues/<br>example questions/<br>tasks being completed | <p>1. Characterize the injection process</p> <p>2. Present the project of a line for the production of PE pipes</p> <p>3. Design a thin-walled molding</p> |   |                               |
| Work placement   | Not applicable   |   |                               |

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