



## Subject card

|   |   |  |                                     |            |  |         |     |
|---|---|--|-------------------------------------|------------|--|---------|-----|
| Subject name and code                       | Production improvement methods and techniques, PG_00055245  |  |                                     |            |  |         |     |
| Field of study                              | Management and Production Engineering   |  |                                     |            |  |         |     |
| Date of commencement of studies             | October 2026  | Academic year of realisation of subject                  |                                     |            | 2028/2029  |         |     |
| 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   |                                     |            | 1.0  |         |     |
| Learning profile                            | general academic profile  | Assessment form  |                                     |            | assessment   |         |     |
| Conducting unit                             | Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology  |  |                                     |            |  |         |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  | dr inż. Aleksandra Wiśniewska                            |                                     |            |  |         |     |
|   | Teachers  |  |                                     |            |  |         |     |
| Lesson types                                | Lesson type   | Lecture  | Tutorial                            | Laboratory | Project  | Seminar | SUM |
|   | Number of study hours   | 15.0   | 0.0                                 | 0.0        | 0.0  | 0.0     | 15  |
|   | 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   | 15   | 2.0                                 | 8.0        | 25   |         |     |
| Subject objectives                          | Improving production processes brings measurable effects, not only economic (financial). Its effect may be the reduction and optimization of costs, improvement of work quality, increase in efficiency and productivity, improvement of communication and improvement of efficiency and effectiveness of operations. |  |                                     |            |  |         |     |

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| Learning outcomes   | Course outcome  | Subject outcome  | Method of verification   |
|   | [K6_W11] knows and understands the basic concepts and principles of the protection of industrial property and copyright law, can use the resources of patent information  | The student knows and understands the basic concepts and principles of the protection of industrial property and copyright, is able to use the resources of patent information and institutional support in the field of intellectual property protection.   | [SW3] Assessment of knowledge contained in written work and projects<br>[SW1] Assessment of factual knowledge  |
|   | [K6_U03] is able to communicate using various techniques in the professional environment and other environments, has language skills enabling free communication in the field of technical sciences related thematically to management and production engineering   | The student is able to develop reports, procedures and instructions using the principles of standardization and visualization and in compliance with the principles, methods and tools of information and communication techniques. The student is able to formulate statements and messages in a manner adapted to the level of thematic apperception of the recipient. At the same time, the student freely uses technical and industry vocabulary in the areas of the analyzed problems, expressing himself freely in Polish and English. | [SU5] Assessment of ability to present the results of task<br>[SU4] Assessment of ability to use methods and tools<br>[SU3] Assessment of ability to use knowledge gained from the subject |
| [K6_K02] is able to interact and work in a group, assuming different roles, can inspire and organize the learning process of others, properly identifies priorities for realization of a task specified by themselves or others | The student is able to use the acquired knowledge in the field of team building to create an effective team of employees. The student uses dedicated methods of motivating to manage the work of the team, motivating employees and resolving conflicts. The student assumes the role of a leader and uses appropriate tools to improve communication in the team, increase the effectiveness of the team's work and build the image of the team within the organization and environment.                                 | [SK2] Assessment of progress of work<br>[SK1] Assessment of group work skills<br>[SK5] Assessment of ability to solve problems that arise in practice<br>[SK4] Assessment of communication skills, including language correctness<br>[SK3] Assessment of ability to organize work  |  |
| Subject contents  | Course content – lecture <ul style="list-style-type: none"> <li>• Introduction to the course</li> <li>• Evaluation of improvement approach - comparison of approach of H. Forda vs Toyota</li> <li>• Lean philosophy</li> <li>• VSM5S i standaryzacja pracy</li> <li>• Kanban system</li> <li>• Setup time reduction using SMED</li> <li>• TPM</li> <li>• OEE</li> <li>• Autonomus Management</li> <li>• Planned Maintenance</li> <li>• Six Sigma concept and i DMAIC</li> <li>• Steps D, M, A, I, C and tools</li> </ul> |  |  |
| Prerequisites and co-requisites   | knowledge of basic problem solving tools  |  |  |
| Assessment methods and criteria   | Subject passing criteria  | Passing threshold  | Percentage of the final grade  |
|   | egzam 1hour   | 60.0%  | 100.0%   |
| Recommended reading   | Basic literature  | 1. Goldratt Eliyahu M. - Cel. Doskonałość w produkcji<br><br>2. Womack James P., Jones D. T. - Odchudzenie firm<br><br>3. Liker Jeffrey K. - Droga Toyoty  |  |
|   | Supplementary literature  | 4. Imai Masaaki - Gemba Kaizen<br><br>5. Hines Peter, Taylor David -Organizacja Lean   |  |
|   | eResources addresses  |  |  |
| Example issues/<br>example questions/<br>tasks being completed  |   |  |  |

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| Practical activities within the subject | Not applicable |
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