



Subject card

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|---|---|--|--|-------------------------------------|--|------------|-----|
| Subject name and code | Operational Research, PG_00067669 | | | | | | |
| Field of study | Management, Management | | | | | | |
| Date of commencement of studies | February 2026 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | second-cycle studies | | Subject group | | Obligatory subject group in the field of study 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 | 1 | | Language of instruction | | Polish | | |
| Semester of study | 1 | | ECTS credits | | 4.0 | | |
| Learning profile | general academic profile | | Assessment form | | exam | | |
| Conducting unit | Department Of Management Engineering And Quality -> Faculty Of Management And Economics -> Wydziały Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 20.0 | 10.0 | 0.0 | 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 | Solves complex problems in the organization by formulating quantitative models that allow making rational decisions | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_W06] knows and understands the principles of evaluating the reliability of utilized data, applying in-depth specialized knowledge in the field of economic analysis. | | knows and understands data reliability principles and applies optimization tools to solve problems involving integrated areas of organizational operations | | [SW1] Assessment of factual knowledge | | |
| | [K7_U04] is able to prepare and convincingly present the results of specialized analyses, providing in-depth interpretation during debates and meetings with various audiences. | | is able to interpret the results of conducted activities in a thorough manner | | [SU3] Assessment of ability to use knowledge gained from the subject | | |
| Subject contents | Basic issues of operations research - essential features and structure of decision-making situations General form of the linear optimization model, interpretation and analysis of the solution Construction of linear optimization models for various optimization problems Graphic method, simplex algorithm Dual linear optimization model Integer optimization model Elements of non-linear programming Multi-criteria models Elements of graph theory Planned network - CPA, CPM, PERT, CCPM methods Ford-Fulkerson algorithm Sequence problem Elements of dynamic programming | | | | | | |
| Prerequisites and co-requisites | | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Exam | | 60.0% | | 50.0% | | |
| | Colloquia | | 60.0% | | 50.0% | | |

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| Recommended reading | Basic literature | Zawadzka L.(1996). Metody ilościowe w organizacji i zarządzaniu, cz. I. Gdańsk, Wyd. PG. Zawadzka L. (1997). Metody ilościowe w organizacji i zarządzaniu cz. II. Gdańsk, Wyd. PG. Kukuła K (red.). (2016). Badania operacyjne w przykładach i zadaniach. Warszawa, PWN. |
| | Supplementary literature | Anholcer M. (2023). Badania operacyjne. Poznań, Wyd. UE w Poznaniu. Ignasiak E. (red.). (2001). Badania operacyjne. Warszawa, PWE. Krawczyk S.(1996). Badania operacyjne dla menedżerów. Wrocław, Wyd. AE we Wrocławiu. Sikora W.(2008). Badania operacyjne. Warszawa, PWE. |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | Solving linear programming models using the simplex method Critical path analysis using the PERT method | |
| Work placement | Not applicable | |

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