



## Subject card

|   |   |  |   |   |         |   |     |
|---|---|--|---|---|---------|---|-----|
| Subject name and code                       | Planning of transport systems, PG_00062450  |  |   |   |         |   |     |
| Field of study                              | Transport   |  |   |   |         |   |     |
| Date of commencement of studies             | February 2025   |  |   | Academic year of realisation of subject |         | 2025/2026   |     |
| Education level                             | second-cycle studies  |  |   | Subject group                           |         | Specialty 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                               | 1   |  |   | Language of instruction                 |         | Polish  |     |
| Semester of study                           | 2   |  |   | ECTS credits                            |         | 3.0   |     |
| Learning profile                            | general academic profile  |  |   | Assessment form                         |         | assessment  |     |
| Conducting unit                             | Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering  |  |   |   |         |   |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  |  |   | dr inż. Krystian Birr                   |         |   |     |
|   | 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   |   | 5.0                                     |         | 25.0  | 75  |
| Subject objectives                          | to explain what is transport planning, transport planning regulations, processes, methods nad computer programs   |  |   |   |         |   |     |
| Learning outcomes                           | Course outcome  |  | Subject outcome   |   |         | Method of verification  |     |
|   | [K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values  |  | student can do diagnose of transport system   |   |         | [SK5] Assessment of ability to solve problems that arise in practice                          |     |
|   | [K7_W01] identifies in an in-depth way phenomena related to the field of study as well as theories describing them and possible methods of analyzing processes occurring in the life cycle of technical systems |  | The student knows the assumptions and structures of planning documents. Is able to develop assumptions regarding transport policy or transport plan for a city or region. |   |         | [SW1] Assessment of factual knowledge   |     |
|   | [K7_U02] presents logical and solid arguments regarding the obtained results, through analysis, synthesis of information in various technical contexts, critically approaching their interpretation             |  | student can design plans and projects of transport networks and interchanges  |   |         | [SU1] Assessment of task fulfilment   |     |

| Subject contents   | <p>LECTURES The objectives and the role of transport planning. Expected outcomes of transport planning. Basic relationships between transport and land use (interaction, means of transport, functional classifications). Sustainable development in transport. Planning levels (national, regional, corridor, local, etc.). Transport policy, its objectives and priorities. Contemporary directions and principles of transportation planning (including intermodal transport integration, integration with land use planning, integration with other spheres of planning.) Assessment of transport needs in short and long term planning. Planning assessment of mobility, security, capacity, environmental impact. A comprehensive study of transport behavior. Analyses of transport data (displacement, mobility, distribution of traffic, transportation demands, availability). Travel forecasts (models generation, spatial distribution, traffic distribution, network capacity). Planning of the transport system to achieve short-and long-term objectives. The stages of the development plan for transport infrastructure. Technical concepts of the development of transport networks. Planning the integrated transport points. Concepts and methodologies of evaluation of options (capacity, safety and impact on the environment, economic efficiency and financial viability). Strategies to mitigate transportation problems (mobility management, security management, software improvements, the application of ITS). Planning the development of automobile roads, rail and inland waterways. Planning the development of infrastructure of maritime and air transport. Urban transport planning. Public participation and partnership in the planning of transport networks. EXERCISES Selected calculations for planned transport network evaluation LABORATORY Traffic modeling with VISSUM</p> |  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
|--|---|--|--|--------------------------|-------------------|-------------------------------|---------|--------|-------|--------------|-------|-------|-----------|--------|-------|
| Prerequisites and co-requisites                                | no requirements   |  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| Assessment methods and criteria                                | <table border="1"> <thead> <tr> <th data-bbox="451 573 794 607">Subject passing criteria</th> <th data-bbox="794 573 1137 607">Passing threshold</th> <th data-bbox="1137 573 1487 607">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 607 794 640">project</td> <td data-bbox="794 607 1137 640">100.0%</td> <td data-bbox="1137 607 1487 640">25.0%</td> </tr> <tr> <td data-bbox="451 640 794 674">Written exam</td> <td data-bbox="794 640 1137 674">50.0%</td> <td data-bbox="1137 640 1487 674">50.0%</td> </tr> <tr> <td data-bbox="451 674 794 712">exercises</td> <td data-bbox="794 674 1137 712">100.0%</td> <td data-bbox="1137 674 1487 712">25.0%</td> </tr> </tbody> </table>   |  |  | Subject passing criteria | Passing threshold | Percentage of the final grade | project | 100.0% | 25.0% | Written exam | 50.0% | 50.0% | exercises | 100.0% | 25.0% |
| Subject passing criteria                                       | Passing threshold   | Percentage of the final grade  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| project  | 100.0%  | 25.0%  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| Written exam   | 50.0%   | 50.0%  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| exercises  | 100.0%  | 25.0%  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| Recommended reading  | Basic literature  | <ol style="list-style-type: none"> <li>1. K. Wojewódzka Król, R. Rolbiecki: Infrastruktura transportu. Wydawnictwo UG, Gdańsk 2008.</li> <li>2. J. Neider: Transport międzynarodowy. PWE, Warszawa 2008.</li> <li>3. Współczesne technologie transportowe. L. Mindur (red.). Radom 2004.</li> <li>4. K. Chwesiuk, B. Wiśnicki, I. Kotowska: Perspektywy rozwoju przewozów intermodalnych w Polsce. Wydawnictwo Akademii Morskiej w Szczecinie, Szczecin 2008.</li> <li>5. Jacyna M.: Modelowanie i ocena systemów transportowych, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2009.</li> <li>6. Jacyna M. (red.): Kształtowanie systemów w wybranych obszarach transportu i logistyki, Wydawnictwo Politechniki Warszawskiej, Warszawa 2014.</li> </ol> |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
|  | Supplementary literature  | <ol style="list-style-type: none"> <li>1. Zintegrowane łańcuchy transportu. I. Semenov (red.). Difin, Warszawa</li> <li>2. M. Madeyski, E. Lissowska, W. Morawski: Transport rozwój i integracja. WKiŁ, Warszawa 1987.</li> <li>3. J. Wesołowski, A. Zalewski: Integracja transportu szynowego w śródmieściu Łodzi. Warszawa 2009</li> </ol>   |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
|  | eResources addresses  | Adresy na platformie eNauczanie:   |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| Example issues/<br>example questions/<br>tasks being completed |   |  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |
| Work placement   | Not applicable  |  |  |                          |                   |                               |         |        |       |              |       |       |           |        |       |

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