



Subject card

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|---|--|--|----------|-------------------------------------|--|------------|-----|
| Subject name and code | Transportation engineering, PG_00045986 | | | | | | |
| Field of study | Civil Engineering | | | | | | |
| Date of commencement of studies | February 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-cycle studies | Subject group | | | Optional subject group 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. Michał Urbaniak | | | | | |
| | Teachers | dr inż. Michał Urbaniak dr inż. Marcin Stienss dr inż. Joanna Wachnicka dr inż. Jacek Alenowicz dr hab. inż. Piotr Jaskuła | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 0.0 | 30.0 | 0.0 | 0.0 | 60 |
| | 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 | 60 | | 5.0 | | 10.0 | 75 |
| Subject objectives | The subject is aimed on basic information regarding design and construction of roads and railway lines and road and railway traffic. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [K7_U08] Is able to evaluate technical condition of a road, to design its pavement and choose proper construction technology using mechanistic methods and material investigations | Gets ability of pavement design and choice of construction technology. | [SU1] Assessment of task fulfilment |
| | [K7_U07] is able to design elements of road network, to apply the rules of traffic organisation and control, taking into account economy, safety and environmental factors, | Gets ability of road design and traffic management. | [SU1] Assessment of task fulfilment |
| | [K7_W06] has expanded knowledge about traffic theory, planning of road networks and junctions design, regarding economy, safety and environmental aspects | Gets basic knowledge of road planning and design and traffic management. | [SW1] Assessment of factual knowledge |
| | [K7_W08] has deep knowledge of railway track construction, including high speed railroads; design and renovation of railroads of complex geometry; has detailed knowledge about diagnostics of railroads, knows basics of railway traffic organisation and control | Gets basic knowledge in railway engineering | [SW1] Assessment of factual knowledge |
| | [K7_W07] has expanded knowledge of theory of road and airport pavements, pavement maintenance, advanced methods of material testing and construction technologies | Gets basic knowledge of road construction and maintenance. | [SW1] Assessment of factual knowledge |
| [K7_U09] is able to design railway tracks of complex geometry on sections and stations, both newly designed and renovated; can make a plan and perform diagnostic of railway track and to interpret its results, propose conclusions; can evaluate durability and reliability of railroad elements | Gets ability of geometry design of a railway and its construction. | [SU1] Assessment of task fulfilment | |
| Subject contents | Geometric design of road. Intersections and interchanges. Earthworks. Soil stabilization. Road bases and subbases. Bituminous materials and mixes. Pavement design. Overview of land transportation systems. Railway system and its elements. Essential elements of rail structure. Principles of track geometry (horizontal curves, transitions, super elevation, vertical geometry). Turnouts. Various types of posts. Railway stations and their classification. Overview of control command systems. Principles of organization of rail passenger transport. Principles of organization of rail freight transport. Rules of railway traffic. Timetabling. Graphic timetables. | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Laboratory | 80.0% | 20.0% |
| | Lectures Test | 60.0% | 80.0% |
| Recommended reading | Basic literature | 1. Profillidis V.A.: Railway engineering. Ashgate Publishing 2000. 2. Pacht J.: Railway timetable and traffic. Eurailpress 2008. 3. Brockenbrough R.L., Boedecker K.J.: Highway Engineering Handbook, McGraw-Hill 2003 4. Cedergren H.R.: Drainage of Highway and Airfield Pavements. John Wiley & Sons, 1974 | |
| | Supplementary literature | 1. Bogdaniuk B., Massel A.: Podstawy transportu kolejowego. Wyd. Politechniki Gdańskiej 1999. 2. Błazejowski K., Styk S.: Technologia warstw asfaltowych. WKiŁ 2004. 3. Szydło A.: Nawierzchnie drogowe z betonu cementowego. 2004. 4. Edel R.: Odwodnienie dróg. WKiŁ 2006. | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |