



Subject card

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| Subject name and code | Road traffic control, PG_00062455 | | | | | | |
| 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 | | | | |
| 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 -> Wydział Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Jacek Oskarbski | | | | |
| | 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 obtain knowledge of traffic control systems in transportation, means and methods of urban traffic control and traffic control on highways and expressways. To acquire skills in planning and designing area traffic control systems. To acquire the ability to design and evaluate the effectiveness of solutions (traffic efficiency and safety) within control systems. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [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 | | Ability to recognize and name traffic control systems for transportation. The ability to plan a traffic control system in cities and on urban roads and their integration. | | [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [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 | | Ability to design area system traffic signals and other selected ITS traffic control services, supported by analysis and simulations. | | [SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment | | |
| | [K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values | | Ability to evaluate the solution in terms of safety, traffic efficiency, and minimization of negative environmental impact, taking into account economic aspects. | | [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work [SK1] Assessment of group work skills [SK2] Assessment of progress of work | | |

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| Subject contents | Elements of traffic signals and methods of traffic control using signals. Area traffic control systems using traffic signals (centralized, decentralized systems). Substitute measures of brd. Urban Traffic Control Systems. Traffic control systems on highways and expressways (traffic metering at entrances, speed management, warnings, messages, variable message signs). Cooperation of urban and suburban systems. Optimization of control parameters. Traffic control under incident conditions and during mass events. Priorities in traffic control. Controlling accessibility. Traffic management centers. | | |
| Prerequisites and co-requisites | Knowledge of the principles of planning and design of traffic signals and traffic organization. Knowledge of the basics of designing linear coordination of signaling and accommodative and fixed-time signaling. | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Credit for exercises | 90.0% | 30.0% |
| | Credit for the laboratory | 90.0% | 30.0% |
| | Credit for lectures | 60.0% | 40.0% |
| Recommended reading | Basic literature | Jamroz K. i inni.: Systemy sterowania ruchem ulicznym. WKŁ, 1984 r.Krystek R. i inni: Komputerowe systemy sterowania ruchem ulicznymi drogowym. Przykłady zastosowań. WKŁ 19843. Leško M., Guzik J.:Sterowanie ruchem drogowym. WPS, 2000.Gaca S., SuchorzewskiW., Tracz M.: Inżynieria Ruchu Drogowego WKŁ 2008.Tracz M.,Allsop R.E.: Skrzyżowania z sygnalizacją świetlną. WKŁ 1990.Wrześniowski Z. i inni: Koordynacja sygnalizacji świetlnej. WKŁ 1977Krystek R. i inni: Symulacja ruchu potoku pojazdów WKŁ1980Krystek R i inni: Węzły drogowe i autostradowe. WKŁ 2008.MichaelKyte, Maria Tribelhorn: Operation, Analysis, and Design of SignalizedIntersections: A Module for the Introductory Course in Transportation Engineering. 2014Coleman A. O'Flaherty: Transport Planning andTraffic Engineering. 1997.Peter Guest, Mike Slinn, Paul Matthews:Traffic Engineering Design: Principles Practice.ElsevierButterworth-Heinemann, 2005. | |
| | Supplementary literature | Transport Miejski iRegionalny,TrafficEngineering&Control, Przegląd ITS, Autostrady | |
| | eResources addresses | | |
| Example issues/ example questions/ tasks being completed | State the difference between a centralized and decentralized traffic control system. Characterize one selected area-based traffic control system. How can we manage traffic on interstitial sections of highways and expressways using traffic control systems. What are the goals and methods of using traffic control systems in cities and on urban roads. How we can prioritize public transportation vehicles using a traffic control system. What traffic signal parameters can we optimize using traffic control systems. Characterize these parameters. How can we evaluate the level of traffic safety using surrogate measures. | | |
| Work placement | Not applicable | | |

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