



Subject card

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| Subject name and code | RELIABILITY AND SAFETY OF TRANSPORTATION SYSTEMS, PG_00045918 | | | | | | |
| Field of study | Transport | | | | | | |
| Date of commencement of studies | February 2023 | | Academic year of realisation of subject | | 2022/2023 | | |
| 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 | | assessment | | |
| Conducting unit | Department of Railway Engineering -> Faculty of Civil and Environmental Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr Anita Milewska | | | | |
| | Teachers | | dr inż. Łukasz Mejłun dr Anita Milewska | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 15.0 | 0.0 | 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 | | 10.0 | | 45.0 | 100 |
| Subject objectives | The student has the necessary knowledge needed to assess the reliability of renewable systems and their safety, including transport systems. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_U08] able to diagnose the operation of a transport system, it's facilities, processes and services, identify necessary improvements to the transport system, apply basic traffic modelling to forecast passenger and freight transport | | Student is able to determine the characteristics of renewable systems, assess readiness, reparability and security of transport system. | | [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools | | |
| | [K7_W07] has broad knowledge of the reliability and safety of transport systems and transport-related environmental protection | | The student knows the reliability characteristics of renewable systems, has knowledge about the security of transport systems. | | [SW1] Assessment of factual knowledge | | |
| Subject contents | A reminder of the basic concepts of reliability of non-renewable systems. Parameters and functional characteristics of the reliability of renewable systems. Development of a reliability test program - requirements and guidelines. Problems of systems security, including transport systems. | | | | | | |
| Prerequisites and co-requisites | Knowledge of probabilistics, mathematical statistics, Laplace transformation, transport systems, basics of reliability of non-renewable elements, basics of safety. | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Passing the tutorials (passing the colloquium on reliability and passing the self-performed security task) | | 60.0% | | 35.0% | | |
| | Passing lectures (in writing) | | 55.0% | | 65.0% | | |

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| Recommended reading | Basic literature | <p>W. Zamojski: Teoria i technika niezawodności. Wrocław 1976.</p> <p>D. Bobrowski: Modele i metody matematyczne teorii niezawodności w przykładach i zadaniach. WNT Warszawa 1985.</p> <p>T. Szopa: Niezawodność i bezpieczeństwo. Ofic. Wydawnicza Politechniki warszawskiej, warszawa 2009.</p> |
| | Supplementary literature | F. Grabski, J. Jaźwiński: Funkcje o losowych argumentach w zagadnieniach niezawodności, bezpieczeństwa i logistyki. WKŁ Warszawa 2009. |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | <p>Determine the reliability of a system consisting of five elements, in which each subsequent element is put into operation after the failure of the previous element.</p> <p>Determine the intensity of damage to the third damage.</p> <p>Structural reliability.</p> <p>Develop a reliability test program.</p> <p>Specify the values necessary for probabilistic description of systems with protection devices.</p> | |
| Work placement | Not applicable | |