## STUDY MODULE DESCRIPTION FORM

| Name of the module/subject <br> **Exploitation of Railway** | | Code <br> **1010621261010620365** |
|---|---|---|
| Field of study <br> **Transport** | Profile of study <br> (general academic, practical) <br> **(brak)** | Year /Semester <br><br> **3 / 6** |
| Elective path/specialty <br> **Railway Transport** | Subject offered in: <br> **Polish** | Course (compulsory, elective) <br> **obligatory** |

| Cycle of study: <br><br> **First-cycle studies** | Form of study (full-time,part-time) <br><br> **full-time** |
|---|---|

| No. of hours | No. of credits |
|---|---|
| Lecture: **3**    Classes: **1**    Laboratory: **-**    Project/seminars: **-** | **4** |

| Status of the course in the study program (Basic, major, other) <br> **(brak)** | (university-wide, from another field) <br> **(brak)** |
|---|---|

| Education areas and fields of science and art <br><br> **technical sciences** | ECTS distribution (number and %**)** <br><br> **4   100%** |
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### Responsible for subject / lecturer:

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### Prerequisites  in terms of knowledge, skills and social competencies:

| 1 | **Knowledge** | The student has a basic knowledge of the place and the role of transport in the economy and social life, in the system of sciences and the relationship with other areas of knowledge. |
|---|---|---|
| | | The student knows the main tasks in the operation of the systems and economic development of enterprises and the state. |
| 2 | **Skills** | Student is able to use the acquired knowledge to the analysis of specific phenomena and processes traffic objects. |
| | | The student is able to solve specific problems arising in technical systems. |
| 3 | **Social competencies** | The student is able to work in a group, taking in her various roles. |
| | | Student is able to prioritize important in solving the tasks posed in front of him. |
| | | Student demonstrates self-reliance in solving problems, acquire and improve their knowledge and skills. |

### Assumptions and objectives of the course:

Learning the methods and practical skills of problem solving in the exploitation of rail vehicles.

### Study outcomes and reference to the educational results for a field of study

#### Knowledge:

1. Has a basic knowledge of IT systems, the types of information systems and their description, the amount of information, coding and data compression, computer networks, allocation of information resources and its flow, means and standards for the transmission of information, the uses of information technology in transport, selected information systems.  - [K1A_W15]

#### Skills:

1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions.  - [K1A_U01]

2. Is able to communicate using a variety of techniques in a professional environment and other environments using the formal record of the design, technical drawings, concepts and definitions in the scope of the study area.  - [K1A_U02]

#### Social competencies:

1. Understands the need and knows the possibilities of lifelong learning, knows the need for acquiring new knowledge for professional development. - [K1A_K01]

2. Is able to think and act in an entrepreneurial manner, make decisions, work for the development of the employer and the society. - [K1A_K03]

3. Is aware of the transfer of knowledge to society, takes steps to ensure that the information is understandable, presents different solutions and points of view. - [K1A_K04]

| Assessment methods of study outcomes |
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Partial evaluation:

- assessment of the student activity during lectures

- individual assessment of the laboratory tasks.

Final evaluation:

- average rating taking into account assessment of the student activity during lectures and a written final test

- average rating taking into account student?s activity in the laboratory classes and partial grades.

| Course description |
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Subject matter, scope and purpose of research, the theory of exploitation. Relationship between exploitation systems and external systems. System Use: models of vehicles, usable database and its structural model, the identification system use, indicators of system use. Operating system: operating models of vehicles operating position, the base Operating unit and its structural model, operating system identification, evaluation of operating system, the influence of the intensity of service reliability and readiness of vehicles. The supplying and directing the exploitation of vehicles. Railroads, their impact on the exploitation railway. Failure Analysis of selected elements of rail vehicles.

### Basic bibliography:

1. Marciniak J., Podstawy eksploatacji technicznej kolejowych pojazdów szynowych, Wyd. Wyższej Szkoły Inżynierskiej, Radom, 1991.

2. Marciniak J., Eksploatacja kolejowych pojazdów szynowych nowych generacji, Wyd. Politechniki Radomskiej, Radom, 1999.

3. Gruszczyński J., Eksploatacja pojazdów trakcyjnych. WKiŁ, Warszawa 1994.

### Additional bibliography:

1. Niziński S.: Elementy eksploatacji obiektów technicznych. Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, Olsztyn, 2000.

| Result of average student's workload | |
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| Activity | Time (working hours) |
|---|---|
| 1. Participation in the lecture | 1 |
| 2. Preparation for lectures | 45 |
| 3. Fixation of the lecture | 2 |
| 4. Consultation lecture | 1 |
| 5. Exam Preparation | 3 |
| 6. Exam Preparation | 1 |
| 7. Prepare for Training | 1 |
| 8. Participation in exercises | 15 |
| 9. Consultation Exercise | 1 |
| 10. Preparing to pass | 3 |
| 11. Participation in completing | 1 |

| Student's workload | | |
|---|---|---|
| Source of workload | hours | ECTS |
| Total workload | 88 | 4 |
| Contact hours | 68 | 3 |
| Practical activities | 0 | 0 |