**COURSE GUIDE**

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|---|---|
| Subject name | **Transport infrastructure management** |
| Course of study | **Quality and Production Management** |
| The form of study | **Full-time** |
| Level of qualification | **First** |
| Year | **III** |
| Semester | **VI** |
| The implementing entity | **Department of Logistics and International Management** |
| The person responsible for preparing | **dr inż. Robert Sałek** |
| Profile | **general academic** |
| Number of ECTS points | **3** |

**TYPE OF CLASSES - NUMBER OF HOURS IN SEMESTER**

| LECTURE | CLASS | LABORATORY | PROJECT | SEMINAR |
|---|---|---|---|---|
| **15** | **15** | **-** | **-** | **-** |

**COURSE AIMS**

C1. Presentation and discussion of elements of transport infrastructure and the role it plays in the transport processes of manufacturing and service enterprises.
C2. Characteristics of the functioning of transport equipment as the most important element of the enterprise's transport infrastructure.

**ENTRY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES**

1. The student demonstrates knowledge of the basic principles of technical drawing.
2. The student applies basic mathematical and physical formulas.
3. The student is familiar with the basic issues in the field of transport.
4. The student interprets machine diagrams and drawings of devices as well as technical systems.

**LEARNING OUTCOMES**

EU1. The student identifies and classifies elements of transport infrastructure in the enterprise.
EU2. The student indicates the right devices and infrastructure elements that enable the proper conduct of the transport process.
EU3. Student performs calculations for selected subassemblies of transport devices.
EU4. Student calculates the efficiency of transport devices working in cyclic and continuous motion for
a selected problem in internal transport.

**COURSE CONTENT**

| Type of teaching - LECTURES | Number of hours |
|---|---|
| W1. Discussion of basic issues in the field of transport infrastructure. | 1 |
| W2. Logistics infrastructure and transport infrastructure. | 1 |
| W3. Roads and transport hubs within the enterprise. | 1 |
| W4. Public roads as elements of the enterprise's transport infrastructure. | 1 |
| W5. Buildings and structures as elements of the company's infrastructure. | 1 |
| W6. Means of transport and packaging. | 1 |
| W7. Storage and handling equipment. | 1 |
| W8. Lorry trolleys - characteristics and classification. | 1 |
| W9. Lorry trolleys - planning reloading work. | 1 |
| W10. Cranes - characteristics and classification. | 1 |
| W11. Cranes - performance calculations. | 1 |

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| W12. Conveyors - performance calculations. | 1 |
| W13. Planning of transport operations. | 1 |
| W14. Telecommunications equipment and networks as elements of the enterprise's infrastructure. | 1 |
| W15. The importance of infrastructure for safety in close and in-house transport. | 1 |
| **Type of teaching - CLASS** | **Number of hours** |
| C1-C3. Analysis of the functioning of the production enterprises' infrastructure on the basis of its main components. | 3 |
| C4-C6. Organizational activities in the areas of functioning of the most important elements of transport infrastructure. | 3 |
| C7-C9. Problems of planning transport and reloading operations using the available infrastructure. | 3 |
| C10-C12. Calculations of the work efficiency of selected transport devices. | 3 |
| C13,C14. Planning of transport operations using available transport means. | 2 |
| C15. Final test. | 1 |

**TEACHING TOOLS**

1. Handbook.
2. Transparencies.
3. Audio-visual equipment.
4. PC.
5. E-learning platform.

**WAYS OF ASSESSMENT (F – FORMATIVE, P – SUMMATIVE)**

F1. Computational and analytical tasks.
P1. Test.

**STUDENT WORKLOAD**

| **Form of activity** | **Average number of hours for realization of the activity** |
|---|---|
| Contact hours | 30 |
| Preparing for the exercises | 10 |
| Preparation for the test | 10 |
| Getting to know the literature of the subject | 10 |
| Consultation | 15 |
| **TOTAL NUMBER OF HOURS** | **75** |
| **ECTS POINTS FOR THE COURSE** | **3** |

**BASIC AND SUPPLEMENTARY RESOURCE MATERIALS**

**Basic resources**


1. Meersman H., van de Voorde E., Winkelmans W. Transport Models and Systems Vol. 1. Amsterdam, Elsevier, 1999.
2. Goulias K.G. Transport Science and Technology. Bingley. Emerald Group Publishing Limited, 2007.
3. Brewer A.M., Button K.J., Hensher D.A. Hanbook of Logistics and Supply-Chain Management. Amsterdam, Elsevier Science, 2001.
4. Hensher D.A. Hanbook of Transport Geography and Spatial Systems. Amsterdam, Elsevier Science, 2004.
5. Fair, Marvin L., Williams, Ernest W. Economics of transportation. New York, Harper & Brothers, 1959.
6. Hensher D.A., Brewer A. M. Transport : an economics and management perspective. Oxford University Press. New York, 2004.


**Supplementary resources**

1. Knowles, Richard D., Shaw, Jon. Red, Docherty, Iain. Red, Transport geographies: mobilities, flows and spaces, Malden ; Oxford : Blackwell Publishing, 2008.
2. Brzozowska A. Economical and Organizational Aspects of Transportation Processes. Czestochowa University of Technology, 2010.
3. Hensher D.A., Button K.J. Handbook of Transport Modelling. Amsterdam, Elsevier, 2008.
4. Moshe Ben-Akiva, Hilde Meersman, Eddy van de Voorde, Recent Developments in Transport Modelling: Lessons for the Freight Sector. Bingley, Emerald Group Publishing, 2008.
5. Sałek R.,Wiśniewska-Sałek A., Nowakowska-Grunt J., Brzozowska A. Small Business Management in Relationships of Micro and Macro Environment. [in:] International Institute of Social and Economic Sciences (IISES), 22nd International Academic Conference, Lizbona, Portugalia, Praga 2016, s.320-330.
6. Sałek R., Szczepanik T. Micro-Logistic Aspects of Managing the Health and Safety System of Manufacturing Enterprises. [in:] Skowron-Grabowska B. (eds.) Logistics and Marketing Determinants of Enterprises Management. Vysoka Skola Banska - Technicka Univerzita Ostrava, Ostrava 2015, s.160-167.
7. Sałek R. Efficiency of internal transportation layouts in logistics process. [in:] Szołtysek J. (eds.) Logistics and Supply Chain Management in Polish, Russian and Ukrainian Research. Publish. Univ. Econ. in Katowice, Katowice 2011, s. 81-97.

**TEACHERS (NAME, SURNAME, E-MAIL ADDRESS)**

dr inż. Robert Sałek, robert.salek@wz.pcz.pl

**MATRIX OF LEARNING OUTCOMES REALISATION**

| Learning outcome | Reference of given outcome to outcomes defined for whole program (PRK) | Course aims | Course content | Teaching tools | Ways of assessment |
|---|---|---|---|---|---|
| **EU1** | K_W01, K_W09, K_U01, K_U05, K_K04 | C1 | W1-W5, W14, W15, C1-C6 | 1, 2, 3,4 | F1, P1 |
| **EU2** | K_W02, K_W09, K_U02, K_U08 K_K04 | C1 | W1-W5, W14, W15, C1-C6 | 1, 2, 3,4 | F1, P1 |
| **EU3** | K_W01, K_W06, K_U02, K_U06, K_K01 | C2 | W6-W13, C7-C14 | 1, 2, 3,4 | F1, P1 |
| **EU4** | K_W05, K_U02, K_U09, K_K02 | C2 | W6-W13, C7-C14 | 1, 2, 3,4 | F1, P1 |

**FORM OF ASSESSMENT - DETAILS**

| | grade 2 | grade 3 | grade 4 | grade 5 |
|---|---|---|---|---|
| **EU1** | The student cannot replace the elements of transport and logistics infrastructure in the enterprise. | The student is able to replace all elements of transport and logistics infrastructure in the enterprise. | The student is able to discuss all elements of transport and logistics infrastructure in the company. | The student is able to discuss in detail and present all elements of transport and logistics infrastructure in the company. |
| **EU2** | The student cannot indicate the devices and elements of transport infrastructure in the transport problem. | The student is able to indicate only devices or elements of transport infrastructure in a selected transport problem. | Student is able to identify devices and elements of transport infrastructure in a selected transport problem. | The student can indicate the devices and elements of transport infrastructure for the proper course of transport processes in a selected transport problem. |
| **EU3** | The student cannot make basic calculations for transport devices. | The student knows how to make basic calculations for transport devices. | The student can make calculations of selected components | The student can make all calculations of known components and components |

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| | | | or elements of transport equipment. | of transport devices and understands their purpose. |
| **EU4** | The student cannot solve a simple transport issue regarding transport efficiency. | The student can solve a simple issue regarding transport efficiency of devices working in cyclic or continuous motion. | The student is able to solve the problem of transport efficiency of devices working in cyclic or continuous motion. | Student is able to solve a complex issue regarding transport efficiency of devices working in cyclic and continuous motion. |

**ADDITIONAL USEFUL INFORMATION ABOUT THE COURSE**

1. Information where presentation of classes, instruction, subjects of seminars can be found, etc. - presented to students during first classes, if required by the formula classes are sent electronically to the e-mail addresses of individual dean groups.
2. Information about the place of classes - Information can be found on the website of the Faculty of Management.
3. Information about the timing of classes (day of the week / time) - Information can be found on the website of the Faculty of Management.
4. Information about the consultation (time + place) - Information can be found on the website of the Faculty of Management.