STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Rail traffic operation**		Code **1010101171010124821**
Field of study **Civil Engineering First-cycle Studies**	Profile of study (general academic, practical) **(brak)**	Year /Semester **4 / 7**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **30** Classes: **-** Laboratory: **-** Project/seminars: **-**		No. of credits **3**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **100 3%** **100 3%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K_W01. Has knowledge of sectors of mathematical and physical knowledge import ant for railway construction and of geotechnics and soil mechanics. K_W09, K_W10. Knows rules for design of rail and car roads. K_W17. Has basic knowledge about spatial planning of transport and influence of construction investment on environment.
2	**Skills**	K_U01. Has an ability to classify rail network elements. K_U06, K_U14. Has an ability to utilise chosen computer programmes and read construction and geodesy drawings. K_U20. Has an ability to analyse investor?s architectural and urbanistic needs and choose railway superstructure material according to planned use.
3	**Social competencies**	K_K01, K_K03. Can work individually and in a group on a given task; individually improves and enlarges own knowledge concerning modern technology, processes and techniques in railway transport. K_K02, K_K05. Takes responsibility for solidity of own work?s results and interpretation, for own and team?s safety. K_K10. Behaves with regard to rules of ethics.

Assumptions and objectives of the course:

1) Deliver basic knowledge about track layout on stations.

2) Deliver basic knowledge about turnouts.

3) Deliver basic knowledge about design of tram tracks.

4) Deliver basic knowledge about rail and city traffic management, including influence of braking distance on traffic management requirements.

5) Deliver preliminary knowledge about competition between transport modes.

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

Knowledge:

1. Knows turnouts used in railroads, - [K_W09]

2. Knows chosen rules for tram track design, - [K_W06]

3. Has knowledge about rail traffic control. - [K_W10]

Skills:

1. Has an ability to use skills connected to railroad design for tram track design, - [K_U08]
2. Can show basic rules governing competition in transport sector. - [-]
3. Can explain assumptions for rail traffic control - [-]

Social competencies:

1. Is conscious about a need to improve own professional skills. - [K_K06]

Assessment methods of study outcomes

Written colloquium at lecture?s end (at third attempt and following an oral colloquium may take place), activity during lectures.

Course description

Basic information about track layout on stations. Turnouts. Urban transport. Design of tram tracks. Rail traffic control and public transport priority. Competition in transport sector.

Basic bibliography:

1. Cieślakowski S.: Stacje kolejowe. WKiŁ, Warszawa 1992.
2. Datka S., Suchorzewski W.: Tracz M. Inżyniera Ruchu. WKiŁ, Warszawa 1999.
3. Massel A.: Projektowanie linii i stacji kolejowych. KOW, Warszawa 2010.
4. Podoski J.: Transport w miastach. WKiŁ, Warszawa 1977.
5. Sysak J.: Drogi kolejowe. WKiŁ, Warszawa 1982.
6. Wiłun Z.: Zarys Geotechniki. WKiŁ, Warszawa 2005.
7. Żurkowski A., Pawlik M.: Ruch i przewozy kolejowe, sterowanie ruchem. KOW, Warszawa 2010.

Additional bibliography:

1. Chwieduk A., Dyr. T.: Projektowanie ruchu pociągów. WPR, Radom 1997.
2. Dąbrowa-Bajon M.: Podstawy sterowania ruchem kolejowym. OWPW, Warszawa, 2002.
3. Ostaszewicz J., Rataj M.: Szybka komunikacja miejska. WKiŁ, Warszawa 1979.
4. Rozkwitalska C.: Koszty i korzyści transportu zbiorowego i indywidualnego w miastach. IGPiK, Warszawa 1997.
5. Woch J.: Podstawy inżynierii ruchu kolejowego. WKiŁ, Warszawa 1983.
6. Przegląd Komunikacyjny, Stowarzyszenie Inżynierów i Techników Komunikacji Rzeczpospolitej Polskiej, Warszawa.
7. Technika Transportu Szynowego, EMI-PRESS, Łódź.
8. Transport Miejski i Regionalny, Stowarzyszenie Inżynierów i Techników Komunikacji Rzeczpospolitej Polskiej, Warszawa.
9. Archiwum Instytutu Inżynierii Lądowej, IIL Politechniki Poznańskiej.
10. Materiały cyklicznej konferencji: Problemy komunikacyjne miast w warunkach zatłoczenia motoryzacyjnego.

Result of average student's workload

Activity	Time (working hours)
1. Student?s attendance to lectures.	23
2. Consulting.	15
3. Literature study.	27
4. Preparing for colloquium	10

Student's workload

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	38	1
Practical activities	0	0