

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Railways quick and urban</b>		Code <b>1010102131010126038</b>
Field of study <b>Civil Engineering Second-cycle Studies</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>2 / 3</b>
Elective path/specialty <b>Railways</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: - Classes: <b>15</b> Laboratory: - Project/seminars: -		No. of credits <b>2</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>2 100%</b> <b>2 100%</b>
<b>Responsible for subject / lecturer:</b>  DSc Eng. Jeremi Rychlewski email: jeremi.rychlewski@put.poznan.pl tel. 61 647 5816 Department of Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	K_W01. Has an advanced knowledge of sectors of mathematical and physical knowledge important for railway construction. K_W02, K_W14. Knows rules governing design and dimensioning of rail roads. K_W09, K_W16. Knows rules governing passenger service optimisation aimed at providing competitiveness of rail transport.
2	<b>Skills</b>	K_U02. Has an ability to classify rail roads and streets according to their function, administrative rank and technical parameters. K_U08. Can design a rail road in plane and profile; can design a rail station's track layout. K_U15. Can calculate foundations for rail vehicles' electric traction. K_U16. Can use CAD tools to design geometrical layout of rail roads.
3	<b>Social competencies</b>	K_K01. Can work individually and in a group on a given task. K_K06. Is conscious about a need to improve own professional skills. K_K11. Behaves with regard to rules of ethics.
<b>Assumptions and objectives of the course:</b> 1) Deliver knowledge about rules of design and safe exploitation of high speed railway lines. 2) Deliver knowledge about shaping an effective and competitive to car traffic urban rail network		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Has knowledge about sustainable transport, - [K_W13] 2. Knows norms and codes for designing high speed railway lines and tram lines, - [K_W14] 3. Knows rules of shaping high speed rail networks and urban rail networks. - [K_W16]		
<b>Skills:</b> 1. Can design a transport system according to rules of sustainability, - [K_U08] 2. Can choose tools to design an urban rail road, - [K_U13] 3. Has an ability to investigate a technical problem concerning a high speed rail line or an urban rail line. - [K_U17]		
<b>Social competencies:</b>		

1. Is conscious about a need to fulfil rules of sustainable transport, - [K\_K04]
2. Understands a need to present knowledge about rail transport's benefits to modern society, - [K\_K08]
3. Takes care about own health and physical fitness by using modes of transport alternative to the car - [K\_K13]

<b>Assessment methods of study outcomes</b>		
Activity during classes and an oral or a written colloquium at semester's end.		
<b>Course description</b>		
Design of high speed railway lines. Geometrical layout of high speed railway lines. Design of tram tracks. Role and competition of certain rail transport modes in a city. Potential of unconventional rail roads (magnetic rail, cogged rail).		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Datka S., Suchorzewski W.: Tracz M. Inżyniera Ruchu. WKiŁ, Warszawa 1999.</li> <li>2. Massel A.: Projektowanie linii i stacji kolejowych. KOW, Warszawa 2010.</li> <li>3. Podoski J.: Transport w miastach. WKiŁ, Warszawa 1977.</li> <li>4. Rojek A.: Tabor i trakcja kolejowa. KOW, Warszawa 2010.</li> <li>5. Rozkwitalska C.: Koszty i korzyści transportu zbiorowego i indywidualnego w miastach. IGPIK, Warszawa 1997.</li> <li>6. Woch J.: Podstawy inżynierii ruchu kolejowego. WKiŁ, Warszawa 1983.</li> <li>7. Żurkowski A., Pawlik M.: Ruch i przewozy kolejowe, sterowanie ruchem. KOW, Warszawa 2010.</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Cieślakowski S.: Stacje kolejowe. WKiŁ, Warszawa 1992.</li> <li>2. Ostaszewicz J., Rataj M.: Szybka komunikacja miejska. WKiŁ, Warszawa 1979.</li> <li>3. Sysak J.: Podstawy dróg kolejowych. WKiŁ, Warszawa, 1982.</li> <li>4. Szczuraszek T.: Bezpieczeństwo ruchu miejskiego. WKiŁ, Warszawa 2005.</li> <li>5. Tracz M., Allsop R. E.: Skrzyżowania z sygnalizacją świetlną. WKiŁ, Warszawa 1990.</li> <li>6. Woch J.: Narzędzia analizy efektywności i optymalizacji sieci kolejowej. WPŚI., Gliwice 2001.</li> <li>7. Przegląd Komunikacyjny, Stowarzyszenie Inżynierów i Techników Komunikacji Rzeczpospolitej Polskiej, Warszawa.</li> <li>8. Technika Transportu Szynowego, EMI-PRESS, Łódź.</li> <li>9. Transport Miejski i Regionalny, Stowarzyszenie Inżynierów i Techników Komunikacji Rzeczpospolitej Polskiej, Warszawa.</li> <li>10. Materiały cyklicznej konferencji: Problemy komunikacyjne miast w warunkach zatłoczenia motoryzacyjnego.</li> <li>11. Archiwum Instytutu Inżynierii Lądowej. IIL Politechniki Poznańskiej.</li> </ol>		
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. Student's attendance to lectures and classes.	15	
2. Preparation to classes	10	
3. Consulting	5	
4. Preparation to colloquium.	10	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	40	2
Contact hours	20	1
Practical activities	20	1