Cracow University of Technology

Course syllabus

binding for the doctoral students of the CUT Doctoral School commencing their studies in the academic year 2022/2023

Information on the course

Name of the course in Polish	Mezomodele systemów transportowych
Name of the course in English	Transport system mesomodels
Number of the ECTS points	1
Language of instruction	Polish
Category of the course	Choosable
Field of education	Engineering and Technology
Discipline of education	Civil Engineering and Transport
Person responsible for the course Contact	Marek Bauer PhD Eng. mbauer@pk.edu.pl

Type of course, number of hours in the study programme curriculum

Semester	Credit type (G / NG)*	Lecture	Practical classes	Laboratory	Computer Lab	Project Class	Seminar
2, 3, 4, 5	G	7	0	0	8	0	0

*G – graded credit, NG – non-graded credit

Course objectives

Code	Objective description
Objective 1	Expanding knowledge about mesomodels of transport systems
Objective 2	Expanding the ability to build mesomodels of transport systems
Objective 3	Acquiring the ability to select the appropriate modelling methods with the use of mesomodels

Learning Outcomes

Code	Description of the learning outcome adjusted to the specific characteristics of the discipline	Learning outcome symbol in the CUT SD	Methods of verification
OUTCOMES RELATED TO KNOWLEDGE			
EUW1	A PhD student has advanced knowledge of the methods of creating mesomodels of transport systems	E_W01, E_W02, E_W03	Involvement in class activities, a paper
EUW2	A PhD student has knowledge of the methods of assessing the quality of mesomodels	E_W01, E_W02	Involvement in class activities, a paper
OUTCOMES RELATED TO SKILLS			

EUU1	A PhD student is able to build a mesomodel of public transport lines	E_U01	A credit for a laboratory exercise
EUU2	A PhD student has knowledge of the methods of assessing the quality of mesomodels	E_U02	A credit for a laboratory exercise
OUTCOMES RELATED TO SOCIAL COMPETENCES			
EUK1	A PhD student is ready to critically analyse the results of simulation studies	E_K01	A discussion
EUK2	A PhD student is ready to recognize the importance of knowledge on how to conduct transport analyses with the use of mesomodels	E_K03	A discussion

Course outline

No.	Contents	Learning outcomes for the course	No. of hours
LECTURE			
W1	Possibilities of using mesomodels in planning transport systems	EUW1, EUW2, EUK1	1
W2	Principles of building mesomodels of public transport systems, including modelling the variability of travel time of public transport vehicles in changing traffic conditions	EUW1, EUW2, EUW3, EUK1, EUK2	4
W3	Quality assessment of mesomodels of transport systems	EUW1, EUW2, EUK2	2

COMPUTER LAB			
L1	Building a deterministic model of a bus line	EUU1, EUK1, EUK2	2
L2	Construction of a stochastic model of the bus line, taking into account the variability of traffic conditions	EUW1, EUW2, EUW3, EUK1, EUK2	3
L3	Quality assessment of mesomodels of transport systems	EUW2, EUU2, EUK1	3

The ECTS points statement

WORKING HOURS SETTLEMENT	
Type of activity	Average number of hours (45 min.) dedicated to the completion of an activity type
SCHEDULED CONTACT HOURS WITH AN ACADEMIC TEACHER	
Hours allotted in the syllabus	15
Consultations	1
~~Examination~~ / course credit assignment	2
HOURS WITHOUT THE PARTICIPATION OF AN ACADEMIC TEACHER	
Independent study of the course contents	8
Preparation of a paper, report, project, presentation, discussion	4
ECTS POINTS STATEMENT	
Total number of hours	30
The ECTS points number	1

Preliminary requirements

No.	Requirements
1	Knowledge of the principles of planning transport networks.
2	Knowledge of the general principles of building transport models.

Course credit assignment conditions / method of the final grade calculation

No.	Description
COURSE CREDIT ASSIGNMENT CONDITIONS	
1	75% attendance in class. preparation and presentation of a paper
2	Preparation and defending a laboratory exercise
METHOD OF THE FINAL GRADE CALCULATION	
Weighted grade from the presentation of the paper and the completion of the computer laboratory with the simultaneous fulfilment of the condition of 75% attendance.	

Additional information

Not specified

The course reading list

1	Bliemer M., Mulley C. and Moutou C. Handbook on Transport and Urban Planning in the Developed World. Edited by, Institute of Transport and Logistics Studies, University of Sydney, Australia (2016)
2	Vuchic V.R. Urban Transit Systems and Technology. Wiley (2007)
3	Current publications in reputable magazines
4	Conference materials