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Overview of SmaLog

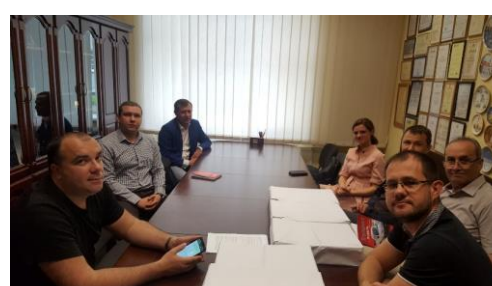
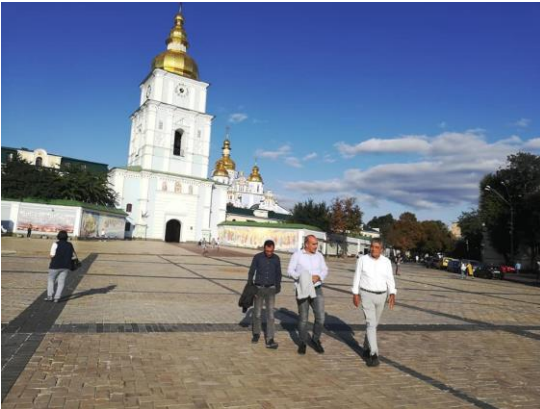
at National Transport University – NTU

Final Conference of the SmaLog Project

Olga KUNYTSKA, NTU
05/10/2021



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SmaLog Master Program



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SmaLog Master Program for enrollees

- Developed and implemented - 2017 - 2018
- The first set of masters - 2018

Presentation of the program is posted on the university website, in the section "Applicants" - "University specialties"

www.ntu.edu.ua/vstupnikam/specialnosti



НАЦІОНАЛЬНИЙ ТРАНСПОРТНИЙ УНІВЕРСИТЕТ

ФАКУЛЬТЕТ ТРАНСПОРТНИХ ТА ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ
СПЕЦІАЛЬНІСТЬ
«Транспортні технології (на автомобільному транспорті)»
Освітньо-наукова програма
«Розумний транспорт і логістика для міст»
Ступінь магістра



Випускова кафедра «Транспортні системи та безпека дорожнього руху»



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SmaLog Master Program

for students

V. ПЛАН ОСВІТНЬОГО ПРОЦЕСУ																			
№ п/п	Шифр за ОПП	НАЗВА НАВЧАЛЬНОЇ ДИСЦИПЛІНИ	Розподіл за семестрами					Класифікація кредитів ЕКТС	Кількість годин						Розподіл годин на тиждень за курсами				
			І семестр	Заліки	роботи	проекти	Розрахунково-графічні роботи		Загальний обсяг	Аудиторні				Самостійна робота	І курс		ІІ курс		
										в тому числі:					1	2	3	4	
										Всього	Лекції	Практичні	Лабораторні						
																			Кількість тижнів в семестрі
			15	15	15														
1.ОБОВ'ЯЗКОВІ ОСВІТНІ КОМПОНЕНТИ																			
1.1 Цикл загальної підготовки																			
1	ОКЗ 1	Управління проектами соціальної та екологічної безпеки в транспортних системах		1				3,0	90	30	16		14	60	2				
2	ОКЗ 2	Іноземна мова наукового спілкування	1					4,0	120	45		45		75	3				
3	ОКЗ 3	Інформаційно-комунікаційні технології на транспорті		1				3,0	90	30	16		14	60	2				
Усього за циклом загальної підготовки								10,0	300	105	32	45	28	195	7	0			
1.2 Цикл професійної підготовки																			
4	ОКЗ 4	Розумний транспорт і логістика для міст	3			КП		3,0	90	30	16	14		60			2		
5	ОКЗ 5	Моделювання та управління потоками дорожнього руху	3		4 РГР			4,0	120	30	15	15		90			2		
6	ОКЗ 6	Управління дорожнім рухом	1			КП		6,0	180	60	30	15	15	120	4				
7	ОКЗ 7	Розумний транспорт	2			КП		4,0	120	60	30	30		60		4			
8	ОКЗ 8	Моделювання вантажних перевезень	2			КП		5,0	150	60	30	30		90		4			
9	ОКЗ 9	Інтегрована транспортна система в міській логістиці	3	2		КП		5,0	150	60	30	30		90		2	2		
10	ОКЗ 10	Управління потоками міського руху в центрі міста	3					3,0	90	30	16		14	60			2		
11	ОКЗ 11	Ефективність транспортних систем міст	2					5,0	150	60	30	30		90		4			
12	ОКЗ 12	Міський пасажирський транспорт	1			КП		5,0	150	45	30	15		105	3				
Усього за циклом професійної підготовки								40,0	1200	435	227	179	29	765					
Усього за обов'язковим компонентом ОПП								50	1500	440	259	224	57	960					

The modules developed within the framework of the project are relevant for the training of city logistics specialists.

All SmaLog modules are included in the compulsory part of SmaLog training program



Освітні програми

Автомеханічний факультет

- Деталі
- Експлуатація
- Ремонт автомобілів
- Матеріалознавство
- Експлуатація автомобілів
- Експлуатація автомобілів
- Експлуатація автомобілів ОП Автомобільні двигуни (бакалавр)
- Матеріалознавство
- Технологія замісу
- Автомобільний транспорт
- Автомобільні двигуни (бакалавр)

Факультет транспортного будівництва

- Будівництво та цивільна інженерія
- Інженерство та цивільна інженерія
- Земляна та водна інженерія
- Інженерство, транспорт та будівельна діяльність (бакалавр)
- Інженерство, транспорт та будівельна діяльність (магістр)
- Системний аналіз
- Технологія замісу навіаційного обладнання

Факультет менеджменту, логістики та туризму

- Облік і оподаткування
- Туризм
- Фінанси, банківська справа та страхування
- Менеджмент організацій та адміністрування (бакалавр)
- Менеджмент організацій та адміністрування менеджерів /управління підприємства, установ, організацій та їх підрозділів (магістр)
- Менеджмент організацій та адміністрування молодших наукових співробітників (менеджмент / менеджери /управління)
- Інженерство, логістика, організацій та їх підрозділів (магістр)
- Менеджмент організацій та адміністрування діяльності (бакалавр)
- Менеджмент організацій та адміністрування діяльності (магістр)

пошук

FOR STUDENTS

Timetable

Curricula

Освітні програми

Ranking Lists

Self-government

Student Union

www.ntu.edu.ua/osvitni-programi/



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SmaLog Masters



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SmaLog Masters

quantity

During the implementation of the project:

- 20 masters defended thesis under the SmaLog program
- 15 masters - currently studying under the SmaLog program





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SmaLog Masters

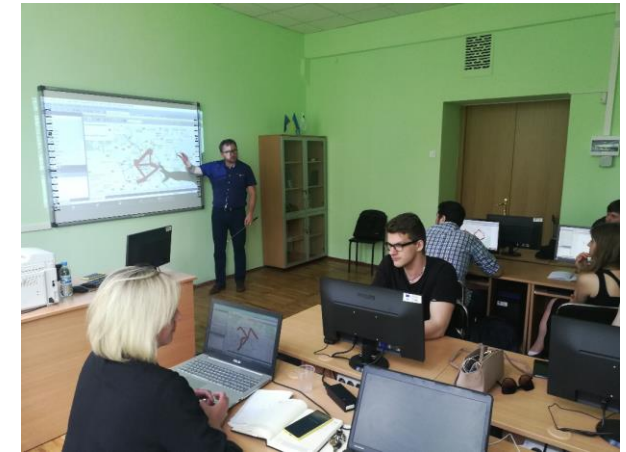
open lectures by European professors

May 2019:

Lecturers from **Silesian University of Technology, Poland**

Main topics:

- Trends in warehouse logistics
- Trade barriers in international supply chains
- Macroscopic modeling in transport



September 2019

Lecturers from **University of Rome Tor Vergata, Italy.**

Main topics:

- Intelligent agents and Markovian decision problems: some applications in intelligent transportation systems -ITS
- Analysis of Freight Rail-road Intermodal Demand Applying Information Technology





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SmaLog Masters

students mobility

Masters completed internships at European universities:

University of Rome Tor Vergata	5 masters
Sapienza University of Rome	2 masters
Hochschule Wismar	3 masters
Silesian University of Technology	3 masters

Total
13 NTU students
completed the internship
in 2019-2020





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SmaLog Masters

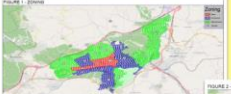

recognition of the results of masters internships

Masters presented the results of the subjects studied during the internship:

Project:
«Simulation of the effects of interventions on the road transport system of a medium-sized city»

PTV VISUM

1. Zoning (Centro, Prima Corona, Seconda Corona)
2. Connections (Zones+External Zones) = 266 nodes, 782 links
3. Representation of the network (56 connectors)

We have integrated BPR function which calculate time spent on each trip according to arch.

We have solved 3 cost functions to each zone:

- Centro - (0,6; 6,0; 1,0)
- Prima Corona - (0,8; 4,0; 1,0)
- Seconda Corona - (0,7; 3,0; 1,0)

DISCIPLINES

1. TRANSPORT NETWORKS AND VEHICLES
(Professor Cristiana Piccioni)
2. FREIGHT TRANSPORT AND LOGISTICS
(Professor Andrea Campagna)



The NTU Commission carried out a procedure for recognizing the results of the internship of masters.

The commission's composition:

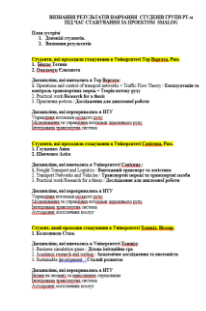
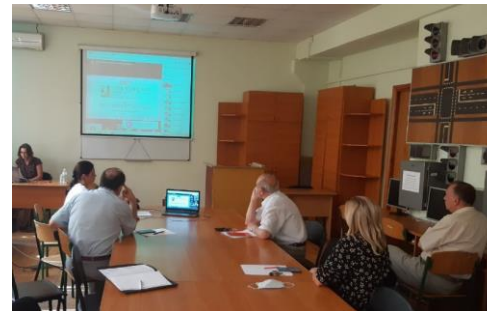
- Dean
- Head of the Department
- Teachers of the department



585832-EPP-1-2017-1-IT-EPPKA2-CBHE-JP
Master in SMarT transport and
LOGistics for cities



Університет прикладних наук міста
Вісмар: технології, бізнес та
дизайн



Discipline options B17			
Percentage	Letter Grade	Grade Point	
85-90	A	4.0	
80-85	B	3.0	
75-80	C	2.0	
70-75	D	1.0	
65-70	F	0.0	
55-60	NS	0	
50	NS	0	

Discipline options UNIVERSITY OF ROMA TRE VERGATA			
Letter Grade	Description	Letter Grade	
A	Excellent	A	
B	Very Good	B	
C	Good	C	
D	Satisfactory	D	
E	Pass	E	
F	Fail	F	

PEST DISEASES/HAPAZARD			
Discipline	ECTS	Letter Grade	Grade Point
Plant Diseases	2	A	4.0
Plant Diseases	2	B	3.0
Plant Diseases	2	C	2.0
Plant Diseases	2	D	1.0
Plant Diseases	2	E	0.0
Plant Diseases	2	F	0.0
Plant Diseases	2	NS	0.0

MEDIANE PEST DISEASES/HAPAZARD B17			
Discipline	ECTS	Letter Grade	Grade Point
Plant Diseases	2	A	4.0
Plant Diseases	2	B	3.0
Plant Diseases	2	C	2.0
Plant Diseases	2	D	1.0
Plant Diseases	2	E	0.0
Plant Diseases	2	F	0.0
Plant Diseases	2	NS	0.0



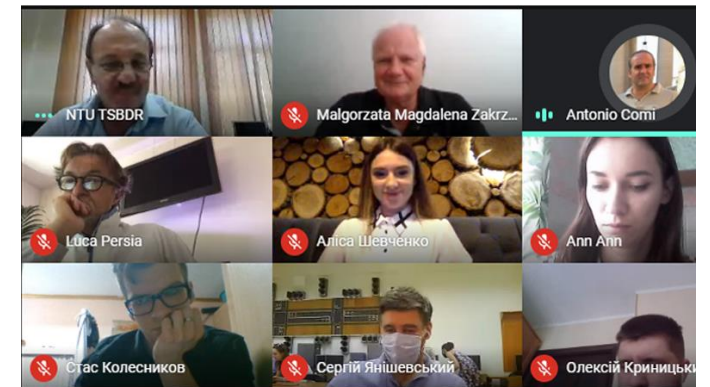
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SmaLog Masters

defense of master's degrees

Participation in student mobility
influenced the choice of topics for
master's theses:



Examples of master's work topics

- Road transport simulation with O/D matrix estimation, case study city Trani, Italy
- Improving Efficiency of the Logistics System of Road Freight Transport (MV Werften)
- Improvement in the organization and safety of road traffic on a separate section of the road through modeling in the PTV Vissim software
- Road network modeling through PTV Visum environment of city Trani, Italy
- Improving the efficiency of the system of urban freight traffic

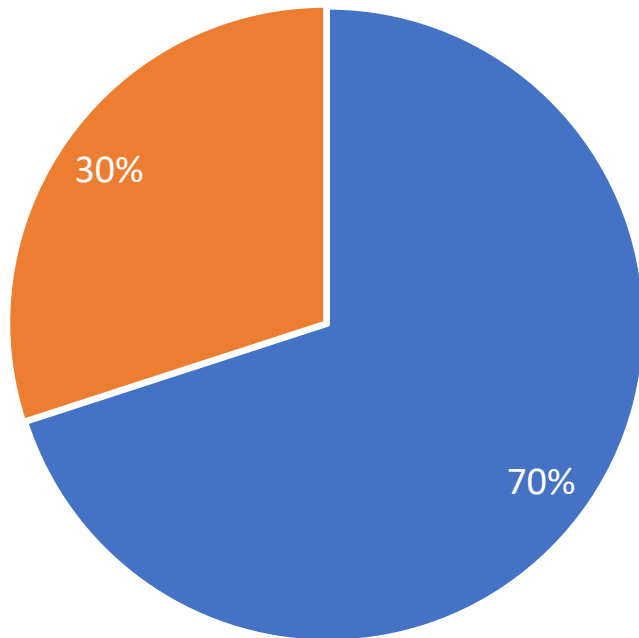


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SmaLog Masters

employment of graduates



- Logistics
- Others

According to a survey of graduates:

70% work in the field of logistics

30% - in other areas:

- Marketing
- Sales
- FMCG



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SmaLog Teachers



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Improving the qualifications of NTU teachers

cooperation with local universities

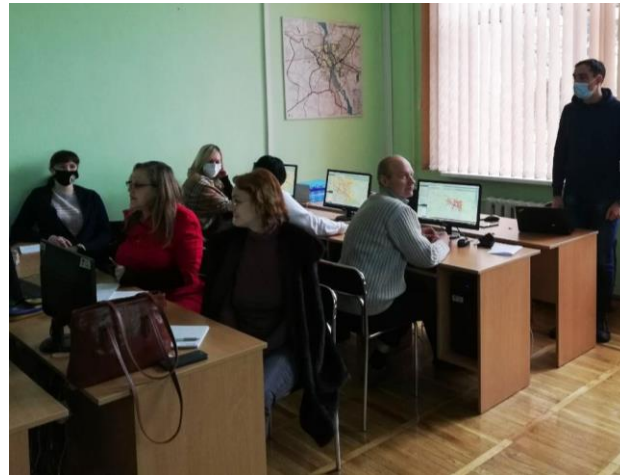
Open lectures



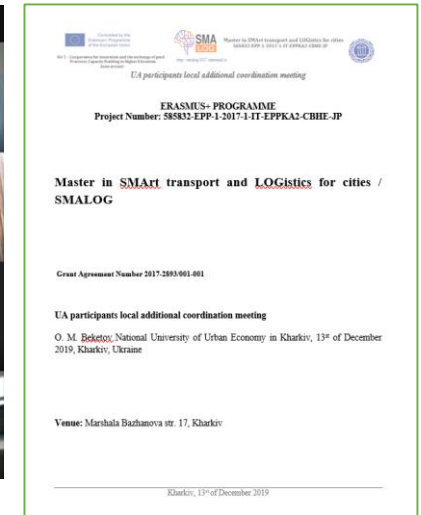
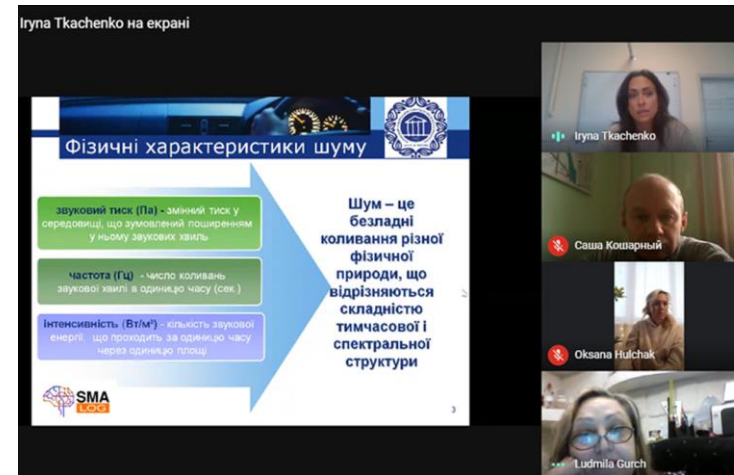
1st of June 2021 Open lecture
"Concepts of sustainable logistics
in the business context"

9:00 a.m. CEST time
10:00 a.m. Ukraine time
11:00 a.m. Georgia time

Seminars



Internal meetings to optimize project results





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Improving the qualifications of NTU teachers

staff mobility

NTU Staff completed internships at European universities:

University of Rome Tor Vergata	4 teachers	2019 / 2021
Sapienza University of Rome	2 teachers	2019
Hochschule Wismar	2 teachers	2019
Silesian University of Technology	2 teachers	2019

Total
10 NTU teachers
completed
the internship





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Improving the qualifications of NTU teachers

staff mobility – sharing the experience



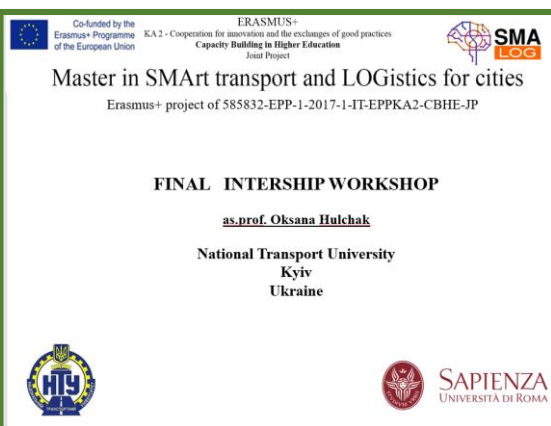
Hochschule Wismar

№105 (регіональний рейтинг, з 214)
№2313 (світовий рейтинг)

1908 рік заснування
Інженерна академія



The teachers participating
in the internships are
presenting the experience
gained





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Improving the qualifications of NTU teachers distance learning course (DLC)

DLC SmaLog - the aim is to study the basic aspects of Smart transport and city logistics, as well as the teachers' skills upgrading.

DLC SmaLog was developed by the participants of the Smart Transport and Logistics for Cities project

Smart Transport and Logistics for Cities

HTY ► SmaLog

People

Activities

Search Forums

Administration

Course categories

Topic outline

- 1 Topic 1 - Passenger
- 2 Topic 2 - Freight
- 3 Topic 3 - Traffic
- 4 Topic 4 - SMART
- 5 Test on SmaLog distance learning course
- 6 Useful resources

Smart Transport and Logistics for Cities

HTY ► SmaLog ► Resources ► Freight Lessons

Name	Size	Modified
2_Freight_Lesson_1.pptx	5.7MB	7 грудня 2019, 11:11
2_Freight_Lesson_2.pdf	1.4MB	7 грудня 2019, 11:20
2_Freight_Lesson_3.pptx	2.5MB	7 грудня 2019, 11:26

Smart Transport and Logistics for Cities

HTY ► SmaLog ► Resources ► 1st_Annual_Training_Seminar_Batumi

Name	Size	Modified
01_Batumi_2018-Course_introduction_v2.3.pptx	12.9MB	19 січня 2020, 09:46
01_supply_SMALOG_BATUMI2018_V6.pptx	6.4MB	19 січня 2020, 09:47
02_assignment_SMALOG_BATUMI2018_V2.pptx	1022.8KB	19 січня 2020, 09:48
06_RUM_Demand_models_v.1.4.pptx	2.1MB	19 січня 2020, 09:48
AHN_Elements_of_transportation_system_optimization_Batumi.pdf	42.2MB	19 січня 2020, 09:48
AHN_Shortest_path_search_Batumi.pdf	4.4MB	19 січня 2020, 09:49
Batumi-shortest_path-v2.pptx	5.8MB	19 січня 2020, 09:49
NUZZOLO TRANSP.MODELL.STRAT.PLAN.V3.1.pptx	442.3KB	19 січня 2020, 09:49
NUZZOLO.UGFM1.Quantities.deliveries.OD.V1.pptx	4.1MB	19 січня 2020, 09:49
NUZZOLO.UGFM2.Freight.vehicle.OD.V1.pptx	3.6MB	19 січня 2020, 09:49

<http://moodle.ntu.edu.ua/>



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Improving the qualifications of NTU teachers distance learning course (DLC)

NTU teachers on the course:

- 27 participants signed up
- 17 participants successfully passed the test and received certificates





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Improving the qualifications of NTU teachers achievements

The results of professional teachers development:

- materials for new SmaLog modules have been developed
- existing modules have been optimized according to new received knowledge
- teachers participated in joint research and preparation of joint papers
- expanded the scope of scientific activity
- improved teaching skills / language skills / communication skills





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SmaLog Laboratory



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SmaLog Laboratory at the NTU

equipment

All equipment, according to the list approved in the project – purchased and installed

Peripherals

- Computers
- Monitors
- Laptops, etc

Multimedia equipment

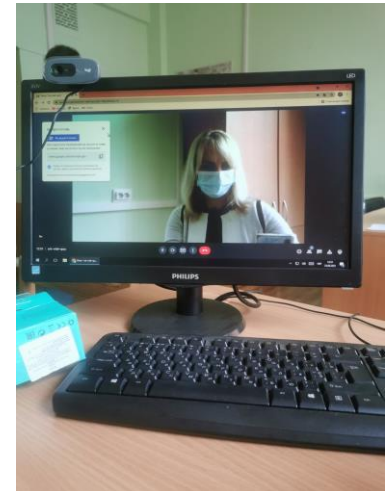
- Multimedia projector
- Projection screen
- Interactive whiteboard, etc

Technical training equipment

- Radars for traffic data collection
- Sound Meter
- Gas Analyzer

Software

- PTV Visum / Vissim /Vistro
- Statgraphics 18 Academic Licenses
- AnyLogic University Researcher





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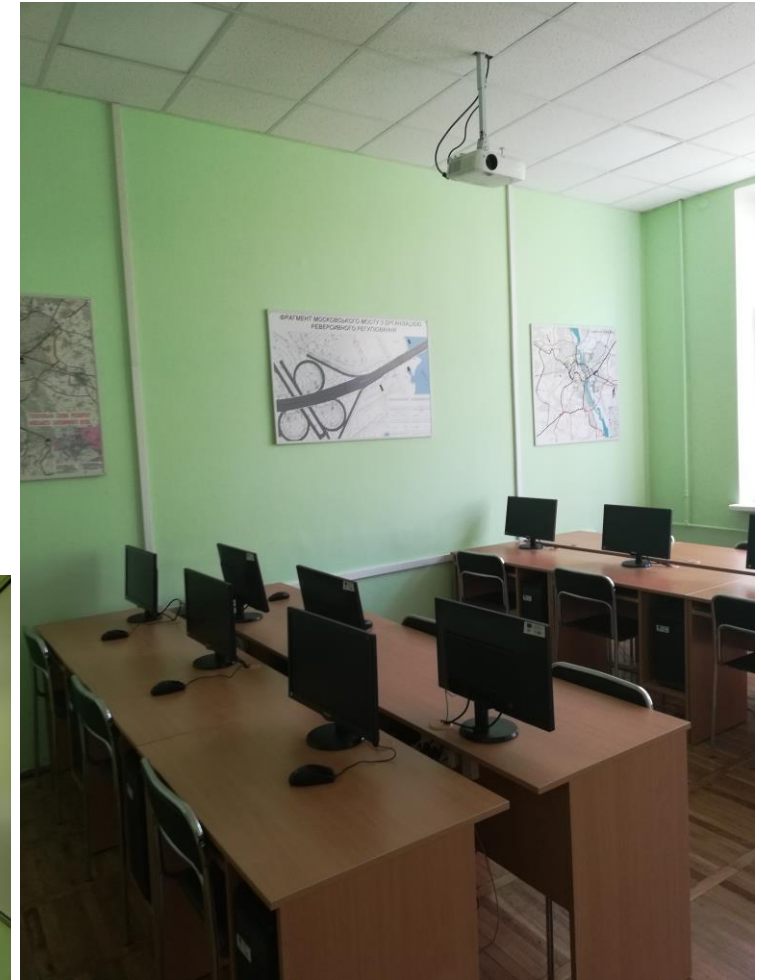
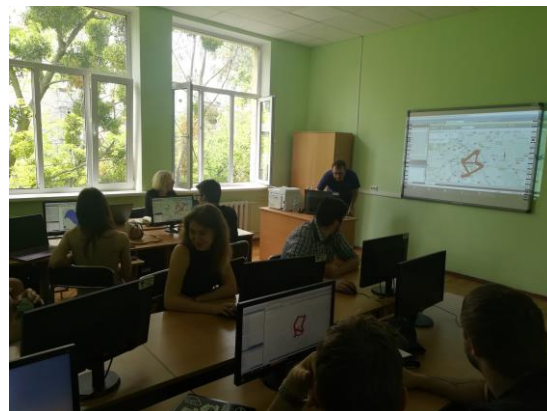


SmaLog Laboratory at the NTU

co-financing

NTU co-financed the creation of the laboratory:

- classroom renovation
- purchase of furniture
- costs for related materials (handouts, banners, etc.)





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SmaLog Stakeholders



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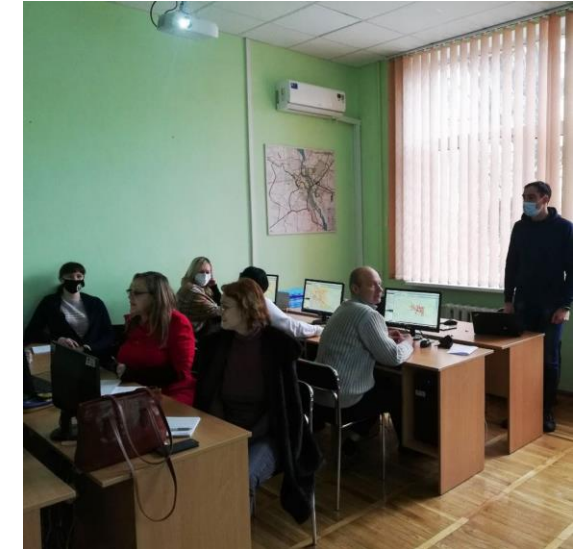
Meeting with local stakeholders // NTU

From 2018 to 2021, 9 meetings were held:

- "Institute of the General Plan of Kyiv" (2018,2019,2020)
Transport modeling (PTV Vissim) and the use of its results in the development of the General plan of Kiev
- Department of the patrol police in Kyiv (2019)
Practical activities to ensure road safety in Kiev
- A + S Consult GmBH (2019)
Transport micromodeling algorithms using PTV Vissim software
- A + S Consult GmBH (2020)
Transport macromodeling algorithms using PTV Visum software
- "Institute" Kievdormostproekt"(2019,2020,2021)
Implementation of modern technologies for the design of transport infrastructure elements in the cities of Ukraine



"Institute" Kievdormostproekt"



A + S Consult GmBH



Institute of the General Plan of Kyiv





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SmaLog Dissemination



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SmaLog Dissemination at the NTU

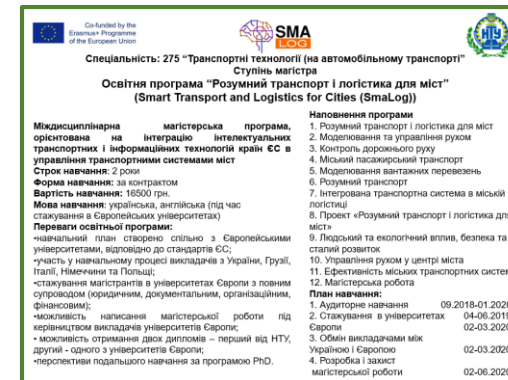
Brochures



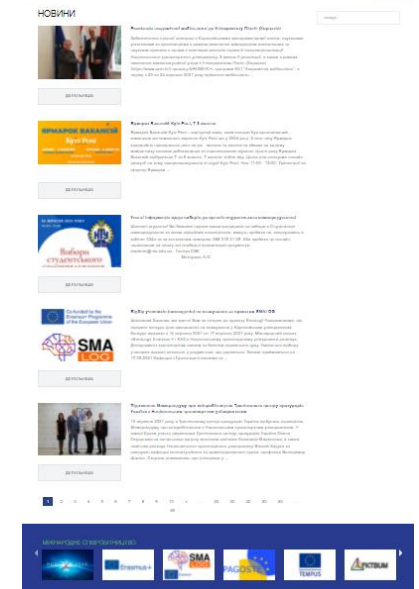
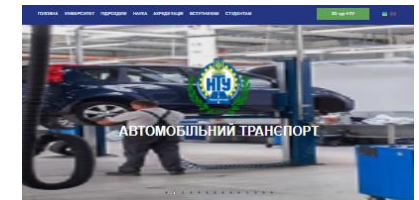
Open Days



Advertising for enrollees



Website



Educational-Scientific Program		
«Smart Transport and Logistics for Cities (SmaLog)»		
Aim of the educational-scientific program		
Raising the training of highly skilled specialists in specialty 275 "Transport technologies, specialization 275.03 "Transport technologies for motor vehicles", specialized in security, planning, efficient transport solutions for cities are able to design and implement intelligent transport in urban transport systems, assist in the development of transport systems and logistics to cities, the transport impact on the safety and quality of urban logistics and ensuring the efficiency of transport systems in cities		
Distribution of content of the educational-scientific program by groups of components and training cycles		
Training cycle	Obligatory part (ECTS %)	Optional part (ECTS %)
General training	10 / 8.33	-
Professional training	79 / 65.83	31 / 25.84
Total for the whole period of study	89 / 74.16	31 / 25.84
List of the educational-scientific program components		
Obligatory part		Selective part
General training		Professional training
<ul style="list-style-type: none"> Computer technology in transport (ECTS, 30 work hours) Foreign language of scientific communication (ECTS, 30 work hours) Labor protection in the industry and oil production (ECTS, 40 work hours) 		<ul style="list-style-type: none"> Business Case Management (ECTS, 40 work hours) Project analysis (ECTS, 30 work hours) Logistics of the organization of traffic (ECTS, 30 work hours) Transport planning of large and large cities (ECTS, 40 work hours) Collaboration of logistic services in transport (ECTS, 30 work hours) Human and Environmental Impacts, Safety and Sustainability (ECTS, 40 work hours)
Professional training		Scientific and practical part
<ul style="list-style-type: none"> Smart Transport and Logistics for Cities (ECTS, 40 work hours) Traffic Flow Simulation and Management (ECTS, 40 work hours) Traffic Control (ECTS, 40 work hours) Smart Transport (ECTS, 40 work hours) Freight Transportation Simulation (ECTS, 40 work hours) Integrated Transport System in City Logistics (ECTS, 40 work hours) Efficiency of City Transport Systems (ECTS, 40 work hours) City Passenger Transport (ECTS, 40 work hours) 		<ul style="list-style-type: none"> Methods of scientific research (ECTS, 30 work hours) Relationship (ECTS) Scientific research practice (ECTS) Science projects (ECTS) Master Thesis (ECTS)



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SmaLog NTU Team

