Recomended pass through the study plan

Name of the pass: Master Full-Time IS (CS) from 2025/26

Faculty/Institute/Others:

Department:

Pass through the study plan: Master Full-Time IS (CS) from 2024/25

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Intelligent Transport Systems

Type of study: Follow-up master full-time

Note on the pass:

Coding of roles of courses and groups of courses:

P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
16DITS	Vehicles within ITS Jan Leistner, Filip Kotas, David Lehet, Jaroslav Machan	Z,ZK	4	2P+2C	Z	Z
20GINS	Geographical, information, localization and navigation systems Pavel Hrubeš, Petr Bureš, Zuzana Purkrábková, František Kekula Pavel Hrubeš	Z,ZK	6	3P+3C	Z	Z
11MAI	ITS Mathematical Tools Jan Pikryl Jan Pikryl Jan Pikryl (Gar.)	Z,ZK	4	2P+2C	Z	Z
20TBSS	Technology and Security of Sensor Networks Zden k Lokaj, Ji í Brož, Tomáš Tichý, Miroslav Vaniš Zden k Lokaj Zden k Lokaj (Gar.)	KZ	2	2P+0C	Z	ZP
20TSJ	Telematic systems and their design Pavel Hrubeš, Martin Langr Martin Langr	Z,ZK	6	3P+2C	Z	Z
15JIA1	Foreign Language - English 1 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová	Z	0	0P+2C	Z	Z
15JIF1	Foreign Language - French 1 Irena Veselková	Z	0	0P+2C	Z	Z
15JIN1	Foreign Language - German 1 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	0	0P+2C	Z	V
15JIR1	Foreign Language - Russian 1 Marie Michlová	Z	0	0P+2C	Z	V
15JIS1	Foreign Language - Spanish 1 Nina Hricsina Puškinová Zuzana Krinková (Gar.)	Z	0	0P+2C	Z	V
X2-NP-IS-CS-20/21	Projekty Mgr. prezen ní IS (CS) od 2020/21 11XN1S, 12XN1S, (see the list of groups below)	Min. cours. 4 Max. cours.	Min/Max 27/27			ZP
1S-NP-IS-CS-V-20/21	1. sem. Mgr. prezen ní IS (CS) výb r p edm tu od 2020/21 12TDP,16ESDP, (see the list of groups below)	Min. cours.	Min/Max			Z
	וצו טר, זטבטטר, (see the list of groups below)	Max. cours.	3/3			

Number of semester: 2

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
20BITS	Safety and reliability of ITS Systems	KZ	3	2P+1C	L	Z
14CITS	C-ITS Systems Zden k Lokai	Z,ZK	6	3P+3C	L	Z

14PPRP	Computer Aided Project Management	KZ	2	0P+2C	L	Z
14PD	Data processing Martin Šrotý	Z,ZK	6	2P+4C	L	Z
14PAM	Programming and modelling Vit Fábera	Z,ZK	4	2P+2C	L	Z
15JIA2	Foreign Language - English 2	Z	0	0P+2C	L	ZP
15JIF2	Foreign Language - French 2	Z	0	0P+2C	L	Z
15JIN2	Foreign Language - German 2	Z	0	0P+2C	L	V
15JIR2	Foreign Language - Russian 2	Z	0	0P+2C	L	V
15JIS2	Foreign Language - Spanish 2 Zuzana Krinková (Gar.)	Z	0	0P+2C	L	V
		Min. cours.				
X2-NP-IS-CS-20/21	Projekty Mgr. prezen ní IS (CS) od 2020/21	4	Min/Max		L L L L	70
AZ-NP-13-03-20/21	11XN1S,12XN1S, (see the list of groups below)	Max. cours.	27/27			ZP
		4				
		Min. cours.				
2S-NP-IS-CS-V-20/21	2. sem. Mgr. prezen ní IS (CS) výb r p edm tu od 2020/21	1	Min/Max			_
	14MIM,16SHMI, (see the list of groups below)	Max. cours.	3/3			Z
		1				

Number of semester: 3

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
Application of ITS in Urban Engineering Ji í Brož, Ji í R ži ka, Tomáš Tichý, Zuzana arská, Josef Kocourek, Dagmar Ko árková, Josef Filip Tomáš Tichý	Z,ZK	6	3P+3C	Z	Z
Evaluation and Economics of ITS František Kopecký František Kopecký	KZ	3	2P+1C	Z	Z
Mathematical Methods for Data Analysis Pavla Pecherková, Tetiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.)	Z,ZK	6	3P+3C	Z	Z
System Engineering Zuzana B linová, Veronika VI ková Zuzana B linová	Z,ZK	6	4P+2C	Z	ZP
Foreign Language - English 3 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová, Markéta Vojanová	Z	0	0P+2C	Z	Z
Foreign Language - French 3 Irena Veselková	Z	0	0P+2C	Z	Z
Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová	Z	0	0P+2C	Z	V
Foreign Language - Russian 3 Marie Michlová	Z	0	0P+2C	Z	V
Foreign Language - Spanish 3 Nina Hricsina Puškinová Zuzana Krinková (Gar.)	Z	0	0P+2C	Z	V
	Min. cours.				
Projekty Mar prozen ni IS (CS) ad 2020/21	4	Min/Max			
11XN1S,12XN1S, (see the list of groups below)	Max. cours.	27/27			ZP
	4				
	Min. cours.				
2 som Mar prozon ní IS (CS) výb r n odm tv od 2024/22	1	Min/Max			
16KSD,20PRZP, (see the list of groups below)	Max. cours.	3/3			Z
	1	5,5			
	(in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) Application of ITS in Urban Engineering Ji i Brož, Ji i R ži ka, Tomáš Tichý, Zuzana arská, Josef Kocourek, Dagmar Ko árková, Josef Filip Tomáš Tichý Evaluation and Economics of ITS František Kopecký František Kopecký Mathematical Methods for Data Analysis Pavla Pecherková, Tetiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.) System Engineering Zuzana B linová, Veronika VI ková Zuzana B linová Foreign Language - English 3 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová, Markéta Vojanová Foreign Language - German 3 Irena Veselková Foreign Language - Russian 3 Marie Michlová Foreign Language - Spanish 3 Nina Hricsina Puškinová Zuzana Krinková (Gar.) Projekty Mgr. prezen ní IS (CS) od 2020/21 11XN1S, 12XN1S, (see the list of groups below) 3. sem. Mgr. prezen ní IS (CS) výb r p edm tu od 2021/22	(in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) Application of ITS in Urban Engineering Ji i Brož, Ji i R ži ka, Tomáš Tichý, Zuzana arská, Josef Kocourek, Dagmar Ko árková, Josef Filip Tomáš Tichý Evaluation and Economics of ITS František Kopecký František Kopecký Mathematical Methods for Data Analysis Pavla Pecherková, Teitiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.) System Engineering Zuzana B linová, Veronika VI ková Zuzana B linová Foreign Language - English 3 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová, Markéta Vojanová Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová Foreign Language - Russian 3 Marie Michlová Foreign Language - Spanish 3 Nina Hricsina Puškinová Zuzana Krinková (Gar.) Min. cours. 4 Min. cours. 4 Min. cours. 4 Min. cours. 3. sem. Mgr. prezen ní IS (CS) výb r p edm tu od 2021/22 I6KSD,20PRZP, (see the list of groups below) Max. cours.	(in case of groups of courses the list of codes of their members)CompletionCreditsTutors, authors and guarantors (gar.)Application of ITS in Urban Engineering Ji I Brož, Ji I R ži ka, Tomáš Tichý, Zuzana arská, Josef Kocourek, Dagmar Ko árková, Josef Filip Tomáš TichýZ,ZK6Evaluation and Economics of ITS František Kopecký František KopeckýKZ3Mathematical Methods for Data Analysis Pavla Pecherková, Tetiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.)Z,ZK6System Engineering Zuzana B linová, Veronika VI ková Zuzana B linováZ,ZK6Foreign Language - English 3 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpus, Eva Rezlerová, Markéta VojanováZ0Foreign Language - French 3 Irena VeselkováZ0Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana ŠtikarováZ0Foreign Language - Russian 3 Marie MichlováZ0Foreign Language - Spanish 3 Nina Hricsina Puškinová Zuzana Krinková (Gar.)Z0Projekty Mgr. prezen ní IS (CS) od 2020/21 	(in case of groups of courses the list of codes of their members)CompletionCreditsScopeTutors, authors and guarantors (gar.)Application of ITS in Urban Engineering Ji I Broż, Ji I R żi ka, Tomáš Tichy, Zuzana arskâ, Josef Kocourek, Dagmar Ko árková, Josef Filip Tomáš Tichy Evaluation and Economics of ITS František Kopecký František KopeckýKZ32P+1CMathematical Methods for Data Analysis Pavla Pecherková, Tetlana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková Ivan Nagy (Gar.)Z,ZK63P+3CSystem Engineering Zuzana B linová, Veronika VI ková Zuzana B linováZ,ZK64P+2CForeign Language - English 3 Markéta Musilová, Dana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová, Markéta VojanováZ00P+2CForeign Language - French 3 Irena VeselkováZ00P+2CForeign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana ŠtikarováZ00P+2CForeign Language - Russian 3 Marie MichlováZ00P+2CForeign Language - Spanish 3 Nina Hricsina Puškinová Zuzana Krinková (Gar.)Z00P+2CProjekty Mgr. prezen ní IS (CS) od 2020/21 11XN1S,12XN1S, (see the list of groups below)Min. cours. 4 Min. Cours. 4 Min. Cours.1 Min/Max Max. cours. 3/33. sem. Mgr. prezen ní IS (CS) výb r p edm tu od 2021/22 16KSD,20PRZP, (see the list of groups below)Min. cours. 3/3	(in case of groups of courses the list of codes of their members) Completion Credits Scope Tutors, authors and guarantors (gar.) Application of ITS in Urban Engineering Ji I Broż, Ji I R żi ka, Tomáš Tichly, Zuzana arská, Josef Kocourek, Dagmar Ko árková, Josef Flip Tomáš Tichly Z.ZK 6 3P+3C Z Ko árková, Josef Flip Tomáš Tichly KZ 3 2P+1C Z Evaluation and Economics of ITS František Kopecky KZ 3 2P+1C Z Mathematical Methods for Data Analysis Pavla Pecherková, Tetiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková, Tetiana Reznychenko, Evženie Uglickich, Ivan Nagy Pavla Pecherková, Van Nagy (Gar.) Z,ZK 6 3P+3C Z System Engineering Zuzana B linová Z,ZK 6 4P+2C Z System Engineering Zuzana B linová, Veronika VI ková Zuzana B linová Z,ZK 6 4P+2C Z Foreign Language - English 3 Markéta Musliová, Jana Boušová, Jitka He manová, Marie Michlová, Lenka Monková, Peter Morpuss, Eva Rezlerová, Markéta Vojanová Z 0 0P+2C Z Foreign Language - German 3 Eva Rezlerová, Martina Navrátilová, Jana Štikarová Z 0 0P+2C Z Foreign Language - Russian 3 Marie Michlová Z 0 0P+2C Z

Number of semester: 4

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
15JIA4	Foreign Language - English 4	Z	0	0P+2C	L	Z
15JIF4	Foreign Language - French 4	Z	0	0P+2C	L	Z

15JIN4	Foreign Language - German 4	Z	0	0P+2C	L	ZP
15JIR4	Foreign Language - Russian 4	Z	0	0P+2C	L	V
15JIS4	Foreign Language - Spanish 4 Zuzana Krinková (Gar.)	Z	0	0P+2C	L	V
XD-NP-IS-CS-21/22	DP Mgr. prezen ní IS (CS) od 2021/22 11XNDS,12XNDS, (see the list of groups below)	Min. cours. 1 Max. cours.	Min/Max 16/16			Z
XP-NP-IS-CS-21/22	Praxe Mgr. prezen ní IS (CS) od 2021/22 11XPXS, 12XPXS, (see the list of groups below)	Min. cours. 1 Max. cours.	Min/Max 4/4			Z
X2-NP-IS-CS-20/21	Projekty Mgr. prezen ní IS (CS) od 2020/21 11XN1S, 12XN1S, (see the list of groups below)	Min. cours. 4 Max. cours. 4	Min/Max 27/27			ZP

List of groups of courses of this pass with the complete content of members of individual groups

Kód		Name of the group ogroup (for specificat	f courses and on see here or	codes of mem below the list	bers of this of courses)	Com	pletion	Credit	s Scope	Semester	Role
1S-NP-IS-	-CS-V-20/21	1. sem. Mgr. prezen	ní IS (CS) výb	rpedm tuc	od 2020/21		cours. 1 cours. 1	Min/Ma 3/3	ах		z
12TDP	Traffic Flov	v Theory	16ESDP	Electronic systems	in modern veh .		20MZZ	' 	Modern techn	ques of safety	cont
		,		, , , , , , , , , , , , , , , , , , ,		Min.	cours.			İ	
2S-NP-IS-	-CS-V-20/21	2. sem. Mgr. prezen	ní IS (CS) výb	rpedm tuc	d 2020/21	Мах.	1 cours. 1	Min/Ma 3/3	ax		z
14MIM	Microsimul	ation Models	16SHMI	Simulation and HM	11		20ITSR		ITS - R		
3S-NP-IS-	-CS-V-21/22	3. sem. Mgr. prezen	ní IS (CS) výb	rpedm tuc	d 2021/22		cours. 1 cours.	Min/Ma 3/3	ax		z
16KSD	Quality and	d reliability in area	20PRZP	Computer aided ra	ilwav traffic c		20TVHD	1	Telematics in	 Public Transpor	rt
	Quality and	Tondonity in area	2011121	Computer alaca to	iiiway tiamo o	Min.	cours.		Tolomatico in	abile transpor	
X2-NP-IS	S-CS-20/21	Projekty Mg	r. prezen ní IS	(CS) od 2020/	21	Max.	4 cours.	Min/Ma 27/27			ZP
							4				
1XN1S	Master pro	ject 1 for study progr	12XN1S	Master project 1 fo	r study progr		14XN1S		Master projec	1 for study pro	ogr
5XN1S		ject 1 for study progr	16XN1S	Master project 1 fo	71 0		17XN1S			1 for study pro	
8XN1S		ject 1 for study progr	20XN1S	Master project 1 fo	,, ,		21XN1S			1 for study pro	
2XN1S	<u> </u>	ject 1 for study progr	23XN1S	Master project 1 fo	,, ,		11XN2S			2 for study pro	
2XN2S		ject 2 for study progr	14XN2S	Master project 2 fo	71 0		15XN2S			2 for study pro	
6XN2S		ject 2 for study progr	17XN2S	Master project 2 fo	,, ,		18XN2S			2 for study pro	
20XN2S		ject 2 for study progr	21XN2S	Master project 2 fo	,, ,		22XN2S			2 for study pro	
23XN2S		ject 2 for study progr	11XN3S	Master project 3 fo	71 0		12XN3S			3 for study pro	
I4XN3S		ject 3 for study progr	15XN3S	Master project 3 fo	,, ,		16XN3S			3 for study pro	
17XN3S		ject 3 for study progr	18XN3S	Master project 3 fo	,, ,		20XN3S			3 for study pro	
21XN3S		ject 3 for study progr	22XN3S	Master project 3 fo	,, ,		23XN3S			3 for study pro	
11XN4S		ject 4 for study progr	12XN4S	Master project 4 fo	,, ,		14XN4S			4 for study pro	
I5XN4S		ject 4 for study progr	16XN4S	Master project 4 fo	,, <u> </u>		17XN4S			4 for study pro	
18XN4S		ject 4 for study progr	20XN4S	Master project 4 fo	,, ,		21XN4S		Master projec	4 for study pro	ogr
22XN4S	Master pro	ject 4 for study progr	23XN4S	Master project 4 fo	r study progr						
V5 N5 16	S-CS-21/22	DP Mgr. r				Min.	cours.	Min/Ma	ax		z

						1				
11XNDS	Master The	sis for study programm	12XNDS	Master Thesis for study programm		14XNDS		Master The	sis for study p	rogramm
15XNDS	Master The	sis for study programm	16XNDS	Master Thesis for study programm		17XNDS		Master The	sis for study p	rogramm
18XNDS	Master The	sis for study programm	20XNDS	Master Thesis for study programm		21XNDS		Master The	sis for study p	rogramm
22XNDS	Master The	sis for study programm	23XNDS	Master Thesis for study programm			,			
					Min	cours.				
XP-NP-IS	S-CS-21/22	Praxe Mgi	r. prezen ní l	IS (CS) od 2021/22			Min/M 4/4	ax		z
		Praxe Mgi	r. prezen ní l	S (CS) od 2021/22 Training course for study progra	Max	1	4/4		urse for study	Z progra
XP-NP-IS	Training co	_			Max	1 . cours. 1	4/4	Training co	urse for study	
11XPXS	Training co	urse for study progra	12XPXS	Training course for study progra	Max	1 . cours. 1 14XPXS	4/4	Training co		progra

List of courses of this pass:

Code	Name of the course	Completion	Credits
11MAI	ITS Mathematical Tools	Z,ZK	4
Series, Fourier Ser	ries. Discrete Fourier Transform. Segmentation of signals, windows, localization. Short-term Fourier Transform. From Fourier Analys	is to PDE. Fundar	nentals of
Nun	nerical Mathematics. Numerical solutions to ODEs and PDEs. Continuous traffic flow models described by PDE. Car-following mode	els as ODEs.	
11MMAD	Mathematical Methods for Data Analysis	Z,ZK	6
Stocastic r	modelling, estimation, prediction, filtration, control, methods of data analysis: k-means, DBSCAN, naive Bayes, decision trees, supp	ort vector machine	э.
11XN1S	Master project 1 for study programme IS	Z	5
11XN2S	Master project 2 for study programme IS	Z	6
11XN3S	Master project 3 for study programme IS	Z	6
11XN4S	Master project 4 for study programme IS	Z	10
11XNDS	Master Thesis for study programme IS	Z	16
11XPXS	Training course for study programme IS	Z	4
12TDP	Traffic Flow Theory	Z,ZK	3
I	ted human problems. Basic traffic parameters and their measurement. Estimation of quality of services. Theoretical fundamentals and	•	nathematical
models. Macroscopio	c, statistical and microscopic models. Theory of shock waves, queuing theory and special theory of traffic phenomena. Relation between	ween traffic model	s and traffic
	flow management.		
12XN1S	Master project 1 for study programme IS	Z	5
12XN2S	Master project 2 for study programme IS	Z	6
12XN3S	Master project 3 for study programme IS	Z	6
12XN4S	Master project 4 for study programme IS	Z	10
12XNDS	Master Thesis for study programme IS	Z	16
12XPXS	Training course for study programme IS	Z	4
14CITS	C-ITS Systems	Z,ZK	6
	of C-ITS systems architecture, description of use-cases - urban and rural applications, principles of C-ITS funcionality with focus on		1
IVI) and C-ITS secur	ity architecture. Status quo and modern trends of wireless telecommunication solutions ITS-G5 and LTE-V and description of its pro	operties and speci	fics. Course
	will also cover signal processing.		
14MIM	Microsimulation Models	KZ	3
-	of traffic modeling and simulation will be broaded by the application of traffic control algorithms to traffic microsimulation models use		
example, the proposa	al of algorithms for actuated signal control, pedestrian preference, dynamic network routing, road line traffic control, crossing security e	equipment, and PT	preference.
	Algorithms will be designed, applied, and tested by students themselves.		
14PAM	Programming and modelling	Z,ZK	4
	ramming, dynamic memory allocation, inheritage, generic programming, STL, abstract data types, programming techniques, recursi		-
grammars, paralism	in nature and in real systems, paralel computer systems, paralel programming, discrete simulation, models of processes, model type of analytical sources for modelling, BPMN language, SW Bizagi, model creation and life cycle.	bes As-is a 10-be,	acquisition
14PD		Z.ZK	6
–	Data processing bout tools for data processing and analysis, using practical examples to try out the most common options used in data processing, i	,	
	s of analyses. In advanced methods, students will also perform specific analysis using Bayesian networks. Students will then indepe	-	-
processing are recalled	on data from existing open systems.	macini, pononi a	ata analyolo
14PPRP	Computer Aided Project Management	KZ	2
	t? The basic terms a concepts of project management. Life cycle of the project and its phased approach. Analysis and specification		_
	, objectives and measurability. Risk events and risk planning. Project change management during implementation. Preparation of the	_	-
	restrictions, assignments, calendars etc.) Project planning and optimization - time, resources.		
14XN1S	Master project 1 for study programme IS	Z	5
14XN2S	Master project 2 for study programme IS	Z	6
14XN3S	Master project 3 for study programme IS	Z	6
14XN4S	Master project 4 for study programme IS	Z	10
		_	

14XNDS	Master Thesis for study programme IS	Z	16
14XPXS	Training course for study programme IS	Z	4
15JIA1	Foreign Language - English 1	Z	0
	exts and technical terminology. Lexical-grammatical structures of higher command. Formal language. Improvement of communication		
language in presei	ntations within students' specialization field both in verbal and written forms. Language laboratory environment used alternatively a (Programmes - English Connections, English Library, the Internet).	s a tool for activ	e learning
15JIA2	Foreign Language - English 2	7	0
	ا exts and technical terminology. Lexical-grammatical structures of higher command. Formal language. Improvement of communicatio	_	1
·	ons within students' specialization field both in verbal and written form. Language laboratory environment used alternatively as a tool fo		_
	- English Connections, English Library, the Internet).		
15JIA3	Foreign Language - English 3	Z	0
Presentation skills -	expert technical discourse and style. Analysis of expert texts and their production. Preparation for overseas work engagement. Opti	onal courses for	certificates
45 110.4	FCE, CAE.	Z	
15JIA4	Foreign Language - English 4 expert technical discourse and style. Analysis of expert texts and their production. Preparation for overseas work engagement. Opt	_	certificates
r roothallon online	FCE, CAE.	ioriai oodiooo io	Cortinoato
15JIF1	Foreign Language - French 1	Z	0
Basic structures of for	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language	e, writing skills, i	n advanced
	groups texts with professional topics.		
15JIF2	Foreign Language - French 2	Z	0
Basic structures of for	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language	e, writing skills, i	n advanced
15 1150	groups texts with professional topics.	Z	
15JIF3 Basic structures of fo	Foreign Language - French 3 preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language.	_	n advanced
Dadio di doldi 65 Ul II	groups texts with professional topics.	o, withing skills, I	aavantet
15JIF4	Foreign Language - French 4	Z	0
	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	_	1
	groups texts with professional topics.		
15JIN1	Foreign Language - German 1	Z	0
Basic structures of for	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language	e, writing skills, i	n advance
45 1100	groups texts with professional topics.	7	1 0
15JIN2	Foreign Language - German 2 preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	Z writing skills i	0
basic structures or it	groups texts with professional topics.	e, writing skills, i	ii auvancei
15JIN3	Foreign Language - German 3	Z	0
	preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	e, writing skills, i	n advanced
	groups texts with professional topics.	-	
15JIN4	Foreign Language - German 4	Z	0
Basic structures of for	preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language	e, writing skills, i	n advance
45 1104	groups texts with professional topics.	7	
15JIR1	Foreign Language - Russian 1 preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language.	Z writing skills i	0
Dasic structures of it	groups texts with professional topics.	e, withing skills, i	ii auvance
15JIR2	Foreign Language - Russian 2	Z	0
	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	e, writing skills, i	_
	groups texts with professional topics.		
15JIR3	Foreign Language - Russian 3	Z	0
Basic structures of for	preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language	e, writing skills, i	n advance
45 UD4	groups texts with professional topics.	Z	
15JIR4	Foreign Language - Russian 4 preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	_	n advance
basic structures of it	groups texts with professional topics.	e, writing skills, i	ii advance
15JIS1	Foreign Language - Spanish 1	Z	0
	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag	_	
	groups texts with professional topics.		
15JIS2	Foreign Language - Spanish 2	Z	0
	s of Spanish language, communication in everyday life, study, work, leisere time activities, introducing myself, phonetics of Spanish	language, writin	
15JIS3	Foreign Language - Spanish 3	Z	0
Basic structures of fo	oreign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign languag groups texts with professional topics.	e, writing skills, i	n advance
15JIS4	Foreign Language - Spanish 4	Z	0
	preign language - Spanish 4 preign language, communication in everyday life, study, work, leiser time activities, introducing myself, phonetics of foreign language		1
	groups texts with professional topics.	, 5	
15XN1S	Master project 1 for study programme IS	Z	5
15XN2S	Master project 2 for study programme IS	Z	6
15XN3S	Master project 3 for study programme IS	Z	6
15XN4S	Master project 4 for study programme IS	Z	10
15XNDS	Master Thesis for study programme IS	Z	16
15XPXS	Training course for study programme IS	 Z	+

16DITS	Vehicles within ITS	Z,ZK	4
	ehicle with focus on its use and function in frame of ITS. User requirement analyses. Economic aspects. Process of constructions in a		
dependences and	d structure of the designed object. Creation of functional models. Energy management and storages for ground vehicles, energy trans	formations leading	g to kinetic
105000	one. Propulsion systems / traditional and alternative ones. Life-cycle analysis.	7.71/	
16ESDP	Electronic systems in modern vehicles	Z,ZK	3
	le systems, electromobility, V2I and V2V, autonomous driving. Combustion engine control and electronic control units. Electric propulend control. Management of hybrid propulsion for attaining its optimal efficiency. Vehicle communication bus (CAN, LIN, FlexRay etc.).		
characteristics a	comfort electronic vehicle systems. Practical exercises with real and simulated systems.	Galety, communic	ation and
16KSD	Quality and reliability in area of transportation means and systems	Z,ZK	3
	ed for design, manufacturing and operation. Methods QFD, DFM, DFA, DFS. Longtime testing. FMEA method. Operation reliability. M		l
process design and	d quality improvement (Six Sigma etc.). Certification and accreditation, quality management, tools and methods for quality stabilization	n and improvemer	nt. Students
	will work on real problems in the QFD laboratory.		
16SHMI	Simulation and HMI	Z,ZK	3
	ystems in transportation and vehicle systems. User interface, HMI (human-machine interaction), virtual reality and computer graphics		
application of comp	buting equipment. Creating computing models. Mechanic and dynamic systems and their mathematical models. Simulation of vehicle	dynamics, on-land	carriage in
4070140	particular. Virtual reality systems.	7	
16XN1S	Master project 1 for study programme IS	Z Z	5
16XN2S	Master project 2 for study programme IS		6
16XN3S	Master project 3 for study programme IS	Z	6
16XN4S	Master project 4 for study programme IS	Z	10
16XNDS	Master Thesis for study programme IS	Z	16
16XPXS	Training course for study programme IS	Z	4
17XN1S	Master project 1 for study programme IS	Z	5
17XN2S	Master project 2 for study programme IS	Z	6
17XN3S	Master project 3 for study programme IS	Z	6
17XN4S	Master project 4 for study programme IS	Z	10
17XNDS	Master Thesis for study programme IS	Z	16
17XPXS	Training course for study programme IS	Z	4
18XN1S	Master project 1 for study programme IS	Z	5
18XN2S	Master project 2 for study programme IS	Z	6
18XN3S	Master project 3 for study programme IS	Z	6
18XN4S	Master project 4 for study programme IS	Z	10
18XNDS	Master Thesis for study programme IS	Z	16
18XPXS	Training course for study programme IS	Z	4
20AIMI	Application of ITS in Urban Engineering	Z,ZK	6
The course focuses	mainly on the issue of the installation of engineering networks in the area, coordination of engineering activities in the area, organization		ice, concept
of public space so	lutions, design of systems for traffic and transport telematics management, coordination of transport modes - automobil, pedestrian,	MHD, cyclo, mode	s etc. New
	approaches to the development of Smart and green approaches Promoting into Public.		
20BITS	Safety and reliability of ITS Systems	KZ	3
	s of safety and reliability in the job and application. Basic schema and types of diagnostic systems including reliability diagnostics of		
investigation of ac	ceptability and reliability prediction, traffic crity and sensitivity analysis. Neural Networks and other optimization algorithms and ETA, traffic including operator testing on simulator and in real-world situatiation	FIMEA failure analy	/sis. Hivii in
20GINS	Geographical, information, localization and navigation systems	Z,ZK	6
	alized in problems of work with applications of geographic information systems with special attention to the specialization in the field of tra		
	nts to geographic data management practices and tools, real world modeling, geographic data storage models, data entry and digitiz		
	of other GIS related technologies such as problem mapping, webmap, etc.	,	
20HEI	Evaluation and Economics of ITS	KZ	3
Introduction of subj	ect is devoted to the basics of system approach to development of ITS architecture and fundamentals in the field of economic attribute	s connected with c	levelopment
of ITS. Subsequer	ntly, the basic principles of system and application creation in the technical field are discussed, defining the penetration of the technic	al solution into the	economy.
<u> </u>	The subject is terminated by a detailed breakdown of case studies.		_
20ITSR	ITS - R	Z,ZK	3
	s devoted to description of the architecture and interface of the system with the ITS-R concept, the communication interface of the syrity features are defined. The principles of ERTMS / ETCS application level 3, UGTMS, CBTC are discussed in detail. Current and futur		_
Turiciioriai ariu secu	are described.	e communication t	eciliologies
20MZZ	Modern techniques of safety control of moving railway vehicles	Z,ZK	3
	concepts, ETCS architecture and interface descriptions, ERTMS system level, infrastructure and mobile part of the system, linking to		
	cation modes of the system, infrastructure orientation, interface (DMI), integration of the ETCS mobile part into the driving vehicle, G		-
	testing and legislation.		
20PRZP	Computer aided railway traffic control	Z,ZK	3
	voted to clarifying the reasons and basic principles of automation of the management of railway transport. It explains the structure of		-
including the main	principles applied in the management of railway traffic. The main part is devoted to detailed description of the individual components	of the system, wh	ich must be
2007/181	included in the systems for automation of railway traffic control using computer technologies.	フフレ	6
20SYIN	System Engineering definition in engineering tasks, specification of selected system types against related tools of system analysis and design, refinement	Z,ZK	6 of system
	definition in engineering tasks, specification of selected system types against related tools of system analysis and design, refinement definition of system strategic thinking processes, strategic		-
3 , 2	of sustainable development.		,
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20TBSS	Technology and Security of Sensor Networks	KZ	2
Basic concepts of	safety and reliability in transport and its application. Basic scheme and types of diagnostic systems, including reliability diagnostics of	f technological equ	uipment and
ITS. Investigation	n of the area of acceptability and prediction of reliability, sensitivity in transport and sensitivity analysis. Neural networks and other opt	imization algorithm	ns and fault
	analysis ETA, FMEA. HMI in transport, including operator testing on a simulator and in real situations.		
20TSJ	Telematic systems and their design	Z,ZK	6
	led analysis of individual existing telematics systems in modes of transport, such as toll systems, vehicle weighing, fleet managemen		
20TVHD	Telematics in Public Transport	Z,ZK	3
Ticketing and infor	mation systems; foreinght experiences; vehicle technology; dispatching systems; Information Systems; data structures; clearing; Public	Transport prefere	nces; vehicle
00)/11/0	position monitoring; legislative framework; standardization, certification and interoperability.	_	
20XN1S	Master project 1 for study programme IS	Z	5
20XN2S	Master project 2 for study programme IS	Z	6
20XN3S	Master project 3 for study programme IS	Z	6
20XN4S	Master project 4 for study programme IS	Z	10
20XNDS	Master Thesis for study programme IS	Z	16
20XPXS	Training course for study programme IS	Z	4
21XN1S	Master project 1 for study programme IS	Z	5
21XN2S	Master project 2 for study programme IS	Z	6
21XN3S	Master project 3 for study programme IS	Z	6
21XN4S	Master project 4 for study programme IS	Z	10
21XNDS	Master Thesis for study programme IS	Z	16
21XPXS	Training course for study programme IS	Z	4
22XN1S	Master project 1 for study programme IS	Z	5
22XN2S	Master project 2 for study programme IS	Z	6
22XN3S	Master project 3 for study programme IS	Z	6
22XN4S	Master project 4 for study programme IS	Z	10
22XNDS	Master Thesis for study programme IS	Z	16
22XPXS	Training course for study programme IS	Z	4
23XN1S	Master project 1 for study programme IS	Z	5
23XN2S	Master project 2 for study programme IS	Z	6
23XN3S	Master project 3 for study programme IS	Z	6
23XN4S	Master project 4 for study programme IS	Z	10
23XNDS	Master Thesis for study programme IS	Z	16
23XPXS	Training course for study programme IS	Z	4

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