

PLAN OF STUDIES

FACULTY: Computer Science and Management

MAIN FIELD OF STUDY: Informatics

EDUCATION LEVEL: 1st / ~~2nd~~* level, ~~licencjat~~ / inżynier / ~~magister~~ / ~~magister inżynier~~*

FORM OF STUDIES: full-time / ~~part-time~~*

PROFILE: general academic / ~~practical~~ *

LANGUAGE OF STUDY: Polish

..... Faculty Council Resolution of

In effect since

*delete as applicable

Plan of studies structure 1) in point layout *Students practice, the VI Semester, 5 ECTS points counted on the balance sheet of VI semester, M_x elective modules*

27	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	27
26	900	30	900	30	900	30	900	30	900	30	900	30	26
25													25
24			General Physics 60 2 ECTS						Proseminar 60 2 ECTS				24
23	Computer Systems Organization		Architecture of Computer Systems		English	English	90 3 ECTS		M_5 90 3 ECTS				23
22													22
21	120 3 ECTS		150 5 ECTS		60 2 ECTS	90 3 ECTS							21
20	Foundations of Programming		Foundations of Electronics and Metrology		Sport	Embedded and Mobile Systems			M_6 90 3 ECTS		Humanistic Subject I 60 2 ECTS		20
19													19
18	180 6 ECTS		60 2 ECTS		30 1 ECTS	120 4 ECTS					Humanistic Subject II 60 2 ECTS		18
17					Advanced Object Programming								17
16			Algorithms and Data Structures		150 5 ECTS				Team Engineering Project		Work Safety and Ergonomics 30 1 ECTS		16
15	General Physics					Computer Networks							15
14													14
13	150 5 ECTS		210 7 ECTS		210 7 ECTS	180 6 ECTS			M_2 150 5 ECTS				13
12	Logic for Computer Scientists		Operating Systems										12
11					Foundations of Electronics and Metrology	System Analysis and Decision Making Techniques in Computer Science			M_3 120 4 ECTS		Distributed Computer Systems		11
10					60 2 ECTS	210 7 ECTS					90 3 ECTS		10
9	150 4 ECTS								The Basics of Management		Computer Security and Data Protection 90 3 ECTS		9
8									60 2 ECTS				8
7	Elementary Linear Algebra		Discrete Mathematics		Programming Paradigms	Databases							7
6					210 7 ECTS	150 5 ECTS			Process Control Computer Systems				6
5	120 4 ECTS		180 6 ECTS						180 6 ECTS		Data Warehouses		5
4											90 3 ECTS		4
3	Mathematical Analysis I					Foundations of Software Engineering					Artificial Intelligence and Knowledge Engineering		3
2					Probability Theory and Mathematical Statistics						120 4 ECTS		2
1	180 8 ECTS		Mathematical Analysis II 120 4 ECTS		180 6 ECTS	150 5 ECTS			150 5 ECTS				1
	I		II		III	IV			V		VI		Total
	23 / 345		24 / 360		24 / 360	24 / 360			254 / 360		25 / 375		164/2460

2) in hourly layout

27	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	27
26	900	30	900	30	900	30	900	30	900	30	900	30	26
25													25
24			General Physics 00100										24
23	Computer Systems		Architecture of Computer										23
22	Organization		Systems										22
21	21000		20200 E										21
20	Foundations of		Foundations of Electronics and										20
19	Programming		Metrology										19
18	22100		20000										18
17													17
16			Algorithms and Data										16
15	General Physics		Structures										15
14	21000 E		21200 E										14
13													13
12	Logic for Computer		Operating Systems										12
11	Scientists		20200										11
10	22000 E												10
9													9
8	Elementary Linear		Discrete Mathematics										8
7	Algebra		32000 E										7
6	22000 E												6
5													5
4	Mathematical Analysis I		Mathematical Analysis II										4
3	22000 E		21000 E										3
2													2
1													1
	I		II										Total
	23 / 345		24 / 360										164/2460

1. Set of obligatory and optional courses and groups of courses in Semestral arrangement

Semester 1

Obligatory courses number of ECTS points - 11

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form ² of course/group of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	FZP001061C	General Physics 1.1B		1				K1INF_W03	15	30	1	0,6	T	Z	O		PD	Ob.
2	FZP001061W	General Physics 1.1B	2					K1INF_W03	30	120	4	2,4	T	E	O		PD	Ob.
3	INZ001518L	Foundations of Programming			1			K1INF_W04, K1INF_U01, K1INF_U14	15	60	2	1,2	T	Z		P	PD	Ob.
4	INZ001518C	Logic for computer scientists		2				K1INF_W02	30	60	2	1,2	T	Z			K	Ob.
5	INZ001518W	Logic for computer scientists	2					K1INF_W02	30	90	2	1,2	T	E			K	Ob.
Total			4	3	1				120	360	11	6,6						

Groups of obligatory courses number of ECTS points - 19

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form ² of course/group of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ001519Wc	Foundations of Programming (GK)	2	2				K1INF_W04, K1INF_U01	60	120	4	2,4	T	Z		(2)	PD	Ob
2	INZ001726Cw	Computer Systems Organization (GK)	2	1				K1INF_W08	45	120	3	1,8	T	Z			PD	Ob
3	MAP003055Wc	Elementary Linear Algebra B (GK)	2	2				K1INF_W01	60	120	4	2,4	T	E	O		PD	Ob.
4	MAP003057Wc	Mathematical Analysis 1.1. A (GK)	2	2				K1INF_W01	60	180	8	4,8	T	E	O		PD	Ob.
Total			8	7					225	540	19	11,4						

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
12	10	1			345	900	30	18

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 2

Obligatory courses number of ECTS points - 21

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	cl	lab	pr	sem		ZZU	CNPS	total	BK classes 1			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	FZP002 079L	General Physics 3.1			1			K1INF_ W03, K1INF_ U07, K1INF_ U14	15	60	2	1,2	T	Z	O	P	PD	Ob
2	INZ001 516W	Foundations of Electronics and Metrology	2					K1INF_ W08	30	60	2	1,2	T	Z			PD	Ob
3	INZ001 517L	Algorithms and Data Structures			2			K1INF_ U01, K1INF_ U14	30	90	3	1,8	T	Z		P	K	Ob
4	INZ001 521L	Operating Systems			2			K1INF_ U09, K1INF_ U06, K1INF_ U14	30	60	2	1,2	T	Z		P	K	Ob
5	INZ001 521W	Operating Systems	2					K1INF_ W10	30	60	2	1,2	T	Z			K	Ob
6	MAZ00 1500C	Discrete Mathematics		2				K1INF_ W02, K1INF_ W17	30	90	3	1,8	T	Z			PD	Ob
7	MAZ00 1500W	Discrete Mathematics	3					K1INF_ W02, K1INF_ W17	45	90	3	1,8	T	E			PD	Ob
Total			7	2	5				210	510	17	10,2						

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Groups of obligatory courses number of ECTS points -13

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes ¹			universi- ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ001 520W1	Architecture of Computer Systems (GK)	2		2			K1INF_ W08, K1INF_ U06, K1INF_ U14	60	150	5	3,0	T	E		(3)	K	Ob
2	INZ001 520Wc	Algorithms and Data Structures (GK)	2	1				K1INF_ W04	45	120	4	2,4	T	E			K	Ob
3	MAP00 3059Wc	Mathematical Analysis 2.4 A (GK)	2	1				K1INF_ W01	45	120	4	2,4	T	E	O		PD	Ob
Total			6	2	2				150	390	13	7,8						

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
13	4	7			360	900	30	18

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 3

Obligatory courses number of ECTS points - 23

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			universi ty- wide ⁴	practical 5	kind ⁶	type ⁷
1	INZ001 702C	Foundations of Teleinformatics		2				K1INF_ W11, K1INF_ U07	30	90	3	1,8	T	Z			K	Ob
2	INZ001 702W	Foundations of Teleinformatics	2					K1INF_ W11	30	120	4	2,4	T	E			K	Ob.
3	INZ002 553L	Advanced Object Programming			1			K1INF_ U02, K1INF_ U14	15	90	3	1,8	T	Z		P	K	Ob.
4	INZ002 553W	Advanced Object Programming	2					K1INF_ W05, K1INF_ W06	30	60	2	1,2	T	Z			K	Ob.
5	INZ002 528L	Programming Paradigms			2			K1INF_ U02, K1INF_ U14	30	90	3	1,8	T	Z		P	K	Ob.
6	INZ002 554L	Foundations of Electronics and Metrology			2			K1INF_ W07, K1INF_ U14	30	60	2	1,2	T	Z		P	PD	Ob.
7	MAZ00 2519C	Probability Theory and Mathematical Statistics		2				K1INF_ W02	30	90	3	1,8	T	Z			PD	Ob.
8	MAZ00 2519W	Probability Theory and Mathematical Statistics.	2					K1INF_ W02	30	90	3	1,8	T	E			PD	Ob.
Total			6	4	5				225	690	23	13,8						

Groups of obligatory courses number of ECTS points - 4

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol		Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	cl	lab	pr	sem			ZZU	CNPS	total	BK classes ¹			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
	INZ0025 28Wc	Programming Paradigms (GK)	2	1				K1INF_ W05, K1INF_ W06		45	120	4	2,4		E			K	Ob
		Total	2	1						45	120	4	2,4						

Optional courses (minimum 90 hours in semester, 3 ECTS points)

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL100 400BK	Foreign Language						K1INF_ U17	60	60	2	1,2	T	Z	O		KO	W
2	WFW00 0000BK	Sport						K1INF_ K08	30	30	1	0,6	T	Z	O	P	KO	W
		Total							90	90	3	1,8						

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
8	5	5			360	900	30	18

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 4

Obligatory courses number of ECTS points - 27

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			lec	c l	lab	p r	s e m		ZZU	CNPS	total	BK classes 1			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ002 556C	System Analysis and Decision Making Techniques in Computer Science		1				K1INF_ W15	15	60	2	1,2	T	Z			K	Ob
2	INZ002 556L	System Analysis and Decision Making Techniques in Computer Science			1			K1INF_ U15, K1INF_ U14	15	60	2	1,2	T	Z		P	K	Ob
3	INZ002 556W	System Analysis and Decision Making Techniques in Computer Science	2					K1INF_ W15	30	90	3	1,8	T	E			K	Ob
4	INZ001 704L	Computer Networks			2			K1INF_ U08, K1INF_ U07, K1INF_ U09, K1INF_ U14	30	90	3	1,8	T	Z		P	K	Ob
5	INZ001 704W	Computer Networks	2					K1INF_ W11	30	90	3	1,8	T	E			K	Ob
6	INZ002 555L	Embedded and Mobile systems			2			K1INF_ U04, K1INF_ U06, K1INF_ U14	30	60	2	1,2	T	Z		P	K	Ob
7	INZ002 555W	Embedded and Mobile systems	2					K1INF_ W09	30	60	2	1,2	T	Z			K	Ob
8	INZ002 557C	Databases		1				K1INF_ W07, K1INF_ W16	15	30	1	0,6	T	Z		P	K	Ob
9	INZ002	Databases	2					K1INF_	30	60	2	1,2	T	E			K	Ob

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

	557W							W07, K1INF_ W16, K1INF_ W22										
10	INZ002 557L	Databases			1			K1INF_ U19, K1INF_ U04, K1INF_ U09, K1INF_ U14	15	60	2	1,2	T	Z		P	K	Ob
11	INZ002 558L	Fundamentals of Software Engineering			1			K1INF_ U03, K1INF_ U14	15	60	2	1,2	T	Z		P	K	Ob
12	INZ002 558C	Fundamentals of Software Engineering		1				K1INF_ U03	15	30	1	0,6	T	Z		P	K	Ob
13	INZ002 558W	Fundamentals of Software Engineering	2					K1INF_ W07	30	60	2	1,2	T	Z			K	Ob
Total			10	3	7				300	810	27	16,2						

Optional courses (minimum 60 hours in semester, 3 ECTS points)

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes ¹			universi ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL1004 00BK	Foreign Language						K1INF_ U17	60	90	3	1,8	T	E	O		KO	W
Total									60	90	3	1,8						

Altogether in semester

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
10	3	7			360	900	30	18

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 5

Obligatory courses number of ECTS points ...13....

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			universi ty- wide ⁴	practical 5	kind ⁶	type ⁷
1	INZ003 559W	The Basics of Management	2					K1INF_ W18	30	60	2	1,2	T	Z				Ob
2	INZ003 560W	Process Control Computer Systems	1					K1INF_ W15,K11 NF_W21	15	60	2	1,2	T	E			K	Ob
3	INZ003 560L	Process Control Computer Systems			2			K1INF_ W07, K1INF_ U15, K1INF_ U18, K1INF_ U14	30	60	2	1,2	T	Z		P	K	Ob
4	INZ003 560P	Process Control Computer Systems				1		K1INF_ W07, K1INF_ U15, K1INF_ U18, K1INF_ K02	15	60	2	1,2	T	Z		P	K	Ob
5	INZ003 561L	Software Design			2			K1INF_ U02, K1INF_ U03, K1INF_ U04, K1INF_ U13, K1INF_ U14	30	60	3	1,8	T	Z		P	K	Ob.
6	INZ003	Software Design	2					K1INF_ W05,	30	90	2	1,2	T	E			K	Ob

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

	561W						K1INF_W07										
		Total	6		4	1			150	390	13	7,8					

Optional Module *M_1: Programming of Internet Applications* (minimum 60 hours in semester, 5 ECTS points, 1 course to choose)

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005 200L	Web Programming			2			K1INF_U04, K1INF_U09, K1INF_U11,K1I NF_U12, K1INF_U14	30	90	3	1,8	T	Z		P	K	W
2	INZ005 200W	Web Programming	2					K1INF_W05, K1INF_W06, K1INF_W07	30	60	2	1,2	T	Z			K	W
3	INZ005 201L	Programming in the .NET Environment			2			K1INF_U04, K1INF_U09, K1INF_U11,K1I NF_U12, K1INF_U14	30	90	3	1,8	T	Z		P	K	W
4	INZ005 201W	Programming in the .NET Environment	2					K1INF_W05, K1INF_W06, K1INF_W07	30	60	2	1,2	T	Z			K	W
		Total							60	150	5	3						

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Optional Module M_2: Multimedia (minimum 60 hours in semester, 5 ECTS points, 1 course to choose)

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol		Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			lec	cl	lab	pr	sem			ZZU	CNPS	total	BK classes ¹			universi- ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005 202L	Programming of Multimedia Applications			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14		30	90	3	1,8	T	Z		P	K	W
2	INZ005 202W	Programming of Multimedia Applications	2					K1INF_ W23		30	60	2	1,2	T	E			K	W
3	INZ003 541L	Digital Media Processing Techniques			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14		30	90	3	1,8	T	Z		P	K	W
4	INZ003 541W	Digital Media Processing Techniques	2					K1INF_ W23		30	60	2	1,2	T	E			K	W
5	INZ005 232L	Computer Graphics			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14		30	90	3	1,8	T	Z		P	K	W
6	INZ005	Computer Graphics	2					K1INF_		30	60	2	1,2	T	E			K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

	232W						W23										
		Total	2		2			60	150	5	3						

Optional Module *M_3: Design of Databases* (minimum 45 hours in semester, 4 ECTS points, 1 course to choose)

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005 203W	Database Systems Engineering	1					K1INF_ W07, K1INF_ W16, K1INF_ W22	15	30	1	0,6	T	Z			K	W
2	INZ005 203P	Database Systems Engineering				2		K1INF_ U03, K1INF_ U04, K1INF_ U09, K1INF_ U16 K1INF_ U19	30	90	3	1,8	T	Z		P	K	W
3	INZ005 204W	Oracle Database - programming	1					K1INF_ W07, K1INF_ W16, K1INF_ W22	15	30	1	0,6	T	Z			K	W
4	INZ005 204P	Oracle Database - programming				2		K1INF_ U03, K1INF_ U04, K1INF_ U09, K1INF_ U19	30	90	3	1,8	T	Z		P	K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

								U16 K1INF_ U19										
5	INZ005 205W	Database Languages	1					K1INF_ W07, K1INF_ W16, K1INF_ W22	15	30	1	0,6	T	Z			K	W
6	INZ005 205P	Database Languages				2		K1INF_ U03, K1INF_ U04, K1INF_ U09, K1INF_ U16 K1INF_ U19	30	90	3	1,8	T	Z		P	K	W
7	INZ005 206W	Database System Design	1					K1INF_ W07, K1INF_ W16, K1INF_ W22	15	30	1	0,6	T	Z			K	W
8	INZ005 206P	Database System Design				2		K1INF_ U03, K1INF_ U04, K1INF_ U09, K1INF_ U16 K1INF_ U19	30	90	3	1,8	T	Z		P	K	W
Total									45	120	4	2,4						

Optional Module *M_4: Project Management* (minimum 45 hours in semester, 3 ECTS points, 1 course to choose)

No.	Course/ group of	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours	Field-of- study	Number of hours	Number of ECTS points	Form ² of	Way ³ of	Course/group of courses
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¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

.	courses code		lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/group of courses	crediting	university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005207W	Introduction to Software Project Management	1					K1INF_W18	15	30	1	0,6	T	Z			K	W
2	INZ005207L	Introduction to Software Project Management			2			K1INF_U10, K1INF_K02, K1INF_U14	30	60	2	1,2	T	Z		P	K	W
3	INZ005208W	Process-based IT project management	1					K1INF_W18	15	30	1	0,6	T	Z			K	W
4	INZ005208L	Process-based IT project management			2			K1INF_U10, K1INF_K02, K1INF_U14	30	60	2	1,2	T	Z		P	K	W
5	INZ005209W	IT Project Management Support	1					K1INF_W18	15	30	1	0,6	T	Z			K	W
6	INZ005209L	IT Project Management Support			2			K1INF_U10, K1INF_K02, K1INF_U14	30	60	2	1,2	T	Z		P	K	W
Total			1		2				45	90	3	1,8						

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
5		4	1		360	900	30	18

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 6

Obligatory courses number of ECTS points 13

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study educational effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			university- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ003 562L	Distributed Computer Systems			1			K1INF_ U04, K1INF_ U14	15	60	2	1,2	T	Z		P	K	Ob
2	INZ003 562W	Distributed Computer Systems	2					K1INF_ W12	30	30	1	0,6	T	Z			K	Ob
3	INZ003 563L	Computer Security and Data Protection			1			K1INF_ U03, K1INF_ U09, K1INF_ U14	15	60	2	1,2	T	Z		P	K	Ob
4	INZ003 563W	Computer Security and Data Protection	2					K1INF_ W13	30	30	1	0,6	T	Z			K	Ob
5	INZ003 564L	Data Warehouses			2			K1INF_ U03, K1INF_ U04, K1INF_ U16, K1INF_ U14	30	60	2	1,2	T	Z		P	K	Ob
6	INZ003 564W	Data Warehouses	1					K1INF_ W07, K1INF_ W15, K1INF_ W15	15	30	1	0,6	T	Z			K	Ob
7	INZ003 565L	Artificial Intelligence and Knowledge Engineering			2			K1INF_ U07, K1INF_ U16, K1INF_ U14	30	60	2	1,2	T	Z		P	K	Ob

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

8	INZ003 565W	Artificial Intelligence and Knowledge Engineering	2					U14 K1INF_ W15	30	60	2	1,2	T	E			K	Ob
		Total	7		6				195	390	13	7,8						

Optional courses (minimum 150 hours in semester, 6 ECTS points)

Kursy wybieralne (minimum ...150... godzin w Semestrze, ...6.... punktów ECTS)

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005 210S	Proseminar					2	K1INF_ K01, K1INF_ K02, K1INF_ K03, K1INF_ K04, K1INF_ K05, K1INF_ U11, K1INF_ U12, K1INF_ U13	30	60	2	1	T	Z			K	W
2	INZ005 211P	Team Engineering Project				4		K1INF_ U02, K1INF_ U05, K1INF_ U06, K1INF_ U10, K1INF_ U12, K1INF_ U13,	60	270	4	2,4	T	Z			K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

							K1INF_ K01, K1INF_ K03, K1INF_ K04, K1INF_ K05										
		Total				4	2		90	330	6	3,4					

Optional Module *M_5: Computer Systems and Networks* (minimum 45 hours in semester, 3 ECTS points, 1 course to choose)

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of credit ing	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			uni versi ty- wide ⁴	practical 5	kind ⁶	type ⁷
1	INZ005 233W	Administration of Microsoft Systems	1					K1INF_ W10, K1INF_ W11,	15	30	1	0,6	T	E			K	W
2	INZ005 233L	Administration of Microsoft Systems			2			K1INF_ U08,, K1INF_ U09, K1INF_ U14	30	60	2	1,2	T	Z		P	K	W
3	INZ005 234W	Administration of Linux Servers	1					K1INF_ W10, K1INF_ W11,	15	30	1	0,6	T	E			K	W
4	INZ005 234L	Administration of Linux Servers			2			K1INF_ U08,, K1INF_ U09, K1INF_ U14	30	60	2	1,2	T	Z		P	K	W
5	INZ005 236W	Routing and switching in computer networks	1					K1INF_ W10, K1INF_ W11,	15	30	1	0,6	T	E			K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

6	INZ005 236L	Routing and switching in computer networks			2		K1INF_ U08,, K1INF_ U09, K1INF_ U14	30	60	2	1,2	T	Z		P	K	W
7	INZ005 237W	Unix Network Environment	1				K1INF_ U08,, K1INF_ U09, K1INF_ U14	15	30	1	0,6	T	E			K	W
8	INZ005 237L	Unix Network Environment			2		K1INF_ W10, K1INF_ W11,	30	60	2	1,2	T	Z		P	K	W
Total			1		2			45	90	3	1,8						

Optional Module *M_6: Programming Technologies and Tools* (minimum 45 hours in semester, 3 ECTS points, 1 course to choose)

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes ¹			universi- ty- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ005 212W	Advanced Programming Techniques in C++	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
2	INZ005 212L	Advanced Programming Techniques in C++			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
3	INZ005 213W	Advanced Web Technologies	1					K1INF_ W05,	15	30	1	0,6		E			K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

								K1INF_ W06										
4	INZ005 213L	Advanced Web Technologies			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_ U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
5	INZ005 214W	Advanced Programming Techniques	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
6	INZ005 214L	Advanced Programming Techniques			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_ U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
7	INZ005 215W	Programming of Mobile Devices	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
8	INZ005 215L	Programming of Mobile Devices			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_ U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
9	INZ005 216W	Programming of mobile devices in C#	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
10	INZ005 216L	Programming of mobile devices in C#			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_ U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

								U09, K1INF_ U11,K1I NF_U12, K1INF_ U14										
11	INZ005 217W	The languages for information modeling and exchange	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
12	INZ005 217L	The languages for information modeling and exchange			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
13	INZ005 218W	Programming in Linux	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
14	INZ005 218L	Programming in Linux			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF_ U14	30	60	2	1,2		Z		P	K	W
15	INZ005 219W	Advanced Computer Graphics Systems	1					K1INF_ W05, K1INF_ W06	15	30	1	0,6		E			K	W
16	INZ005 219L	Advanced Computer Graphics Systems			2			K1INF_ U04, K1INF_ U09, K1INF_ U11,K1I NF_U12, K1INF	30	60	2	1,2		Z		P	K	W

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

Semester 7

Obligatory courses number of ECTS points ...7....

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes 1			universi ty- wide ⁴	practical 5	kind ⁶	type ⁷
1	INZ001 748L	Web Systems			1			K1INF_ U06, K1INF_ U07, K1INF_ U14	15	30	1	0,6	T	Z		P	K	Ob
2	INZ001 748S	Web Systems					2	K1INF_ U05, K1INF_ U13	30	60	2	1,2	T	Z			K	Ob
3	INZ001 748W	Web Systems	2					K1INF_ W14	30	30	1	0,6	T	Z			K	Ob
4	ISZ0043 07W	Work Safety and Ergonomics	1					K1INF_ U14	15	30	1	0,6	T	Z			K	Ob
5	INZ004 632W	Social and Law Aspects of Computer Science	2					K1INF_ W19, K1INF_ K03, K1INF_ K05	30	60	2	1,2	T	Z			K	Ob
Total									120	210	7	4,2						

Optional courses (minimum 60 hours in semester, 15 ECTS points)

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of of	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes			universi ty-	practical 5	kind ⁶	type ⁷

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

												¹	courses		wide ⁴			
1	INZ005 220S	Diploma Seminar					2	K1INF_ K01, K1INF_ K02, K1INF_ K03, K1INF_ K04, K1INF_ K05, K1INF_ U11, K1INF_ U12, K1INF_ U13	30	60	2	1,2	T	Z			K	W
2	INZ005 221D	Diploma Thesis					2	K1INF_ K01, K1INF_ K02, K1INF_ K03, K1INF_ K04, K1INF_ K05, K1INF_ U11, K1INF_ U12, K1INF_ U13	30	390	13	7	T	Z		P	K	W
Total							2	2	60	450	15	9,2						

Optional Module *M_13: Humanistic Course* (minimum 60 hours in semester, 4 ECTS points, 2 courses to choose)

No. .	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of- study education al effect symbol	Number of hours		Number of ECTS points		Form ² of course/ group of courses	Way ³ of creditin g	Course/group of courses			
			le c	c l	l a b	p r	s e m		ZZU	CNPS	total	BK classes ¹			universi ty- wide ⁴	practical ⁵	kind ⁶	type ⁷

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

1		Humanistic Subject I_1	2					K1INF_ W20, K1INF_ K03, K1INF_ K05	30	60	2	1,2	T	Z	O		K	W
2		Humanistic Subject I_2	2					K1INF_ W20, K1INF_ K03, K1INF_ K05	30	60	2	1,2	T	Z	O		K	W
3		Humanistic Subject II_1	2					K1INF_ W20, K1INF_ K03, K1INF_ K05	30	60	2	1,2	T	Z	O		K	W
4		Humanistic Subject II_2	2					K1INF_ W20, K1INF_ K03, K1INF_ K05	30	60	2	1,2	T	Z	O		K	W
Total			4						60	120	4	2,4						

Optional Module *M_10: Emerging Technologies and Paradigms in Informatics* (minimum 60 hours in semester, 4 ECTS points, 1 course to choose)

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form ² of course/group of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	INZ00522	Neural Networks	2					K1INF_W04	30	60	2	1,2	T	Z			K	W

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³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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⁷Optional – enter W, obligatory – enter Ob

	2W																	
2	INZ0 0522 2L	Neural Networks			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
3	INZ0 0522 3W	Problem solving using metaheuristics	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
4	INZ0 0522 3L	Problem solving using metaheuristics			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
5	INZ0 0522 4W	Algorithms and techniques of parallel programming	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
6	INZ0 0522 4L	Algorithms and techniques of parallel programming			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
7	INZ0 0522 5W	Data Mining	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
8	INZ0 0522 5L	Data Mining			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
9	INZ0 0522 6W	Human Computer Interaction	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
10	INZ0 0522 6L	Human Computer Interaction			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W

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								U13										
11	INZ0 0522 7W	Computer Netowrks II	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
12	INZ0 0522 7L	Computer Networks II			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
13	INZ0 0522 8W	SAP Data Warehouses	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
14	INZ0 0522 8L	SAP Data Warehouses			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
15	INZ0 0522 9W	Network and Internet Systems Security Engineering	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
16	INZ0 0522 9L	Network and Internet Systems Security Engineering			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
17	INZ0 0523 0W	Distributed Databases	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
18	INZ0 0523 0L	Distributed Databases			2			K1INF_ U06, K1INF_ U07, K1INF_ U13	30	60	2	1,2	T	Z		P	K	W
19	INZ0 0523 1W	Management Information Systems	2					K1INF_ W04	30	60	2	1,2	T	Z			K	W
20	INZ0 0523	Management Information Systems			2			K1INF_ U06,	30	60	2	1,2	T	Z		P	K	W

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	1L							K1INF_ U07, K1INF_ U13									
		Total	2		2				60	120	4	2,4					

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
5		1		4	300	900	30	18,2

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2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
FZP001061W	General Physics 1.1B	1
INZ001518W	Logic for Computer Scientists	
MAP003055Wc	Elementary Linear Algebra A	
MAP003057Wc	Mathematical Analysis 1.1 A	
NZ001520Wl	Architecture of Computer Systems	2
INZ001517Wc	Algorithms and Data Structures	
MAP003059Wc	Mathematical Analysis 2.4 A	
MAZ001500W	Discrete Mathematics	
INZ001702W	Foundations of Teleinformatics	3
NZ002528L	Programming Paradigms	
MAZ002519W	Probability Theory and Mathematical Statistics	
INZ002556W	System Analysis and Decision Making Techniques in Computer Science	4
INZ001704W	Computer Networks	
INZ002557W	Databases	
INZ003560W	Process Control Computer Systems	
INZ003541BK	Subject from elective module	5
INZ003561W	Software Design	
INZ003565W	Artificial Intelligence and Knowledge Engineering	
		6

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	12
2	16
3	10
4	10

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5	6
6	5

Opinion of student government legislative body

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Date Name and surname, signature of student representative

.....

Date Dean's signature

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³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

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