

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~~ *

SPECIALIZATION: specializations not distinguished

LANGUAGE OF STUDY: English

Faculty Council Resolution of

In effect since

*delete as applicable

Plan of studies structure (optionally) 1) in point layout

	CNPS ECTS	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	900 30	26							
25						Practical Training		25							
24			Sport	M_1 150 5 ECTS	M_4 120 4 ECTS	150 5 ECTS	M_5 150 5 ECTS	M_7 150 5 ECTS	24						
23		Humanistic subject I	30 1 ECTS							23					
22	Introduction to Computer Systems 150 5 ECTS	60 2 ECTS	Logics and Discrete Mathematics		Multimedia Embedded Systems				M_3 120 4 ECTS	M_6 150 5 ECTS	M_7 150 5 ECTS	22			
21		General Physics 60 2 ECTS					21								
20			Foreign Language	180 6 ECTS					20						
19	Introduction to Programming 210 7 ECTS	90 3 ECTS	Object-Oriented Programming	150 5 ECTS	M_2 150 5 ECTS	Preparatory project 60 2 ECTS	M_6 150 5 ECTS	M_6 150 5 ECTS	19						
18															18
17															
16		Computer Architecture and Organization	150 4 ECTS	Computer Networks and Communications					16						
15	General Physics 150 5 ECTS	150 6 ECTS	Theory of Information and Signals	150 5 ECTS	Data Warehouses 150 5 ECTS	Team Project 150 5 ECTS	Diploma Seminar 60 2 ECTS	Diploma Seminar 60 2 ECTS	15						
14															14
13															
12	Foreign Language 60 2 ECTS	Data Structures and Algorithms 180 6 ECTS	180 6 ECTS	Systems analysis and decision support methods in Computer Science	150 5 ECTS	Introduction to Parallel and Distributed Systems 150 5 ECTS	Internet Technologies 120 4 ECTS	Internet Technologies 120 4 ECTS	12						
11												11			
10				Electronics and Metrology – basic principles 60 2 ECTS	150 5 ECTS	Introduction to Management Science 60 2 ECTS					10				
9										9					
8	Elementary Linear Algebra 150 5 ECTS	Electronics and Metrology – basic principles 150 5 ECTS	Databases	Operating Systems 150 5 ECTS	Computer Control Systems 150 5 ECTS	Computer Security 120 4 ECTS	Humanistic subject II	Humanistic subject II 60 2 ECTS	8						
7														7	
6					150 5 ECTS						6				
5							Diploma Thesis 360 12 ECTS	Diploma Thesis 360 12 ECTS	5						
4	Mathematical Analysis I 180 6 ECTS	Mathematical Analysis II 210 6 ECTS	Theory of Probabilistic and Statistics	Introduction to Software Engineering 150 5 ECTS	Software System Development 150 5 ECTS	Introduction to Artificial Intelligence 120 4 ECTS				4					
3															3
2															2
1															1
	I	II	III	IV	V	VI	VII	Total							
	22 / 330	23 / 345	24 / 360	24 / 360	24 / 360	22 / 330	22/330		161/2415						

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									Practical Training				25
24				Sport					4 weeks				24
23			Humanistic subject I	02000	M_1	M_4							23
22	Introduction to Computer Systems	2h	General Physics	00100	Logics and Discrete Mathematics	4h							22
21	21000								M_5	M_7			21
20			Foreign Language	22000 E	Multimedia Embedded Systems	3h			4h	4h			20
19	Introduction to Programming												19
18			04000		Object-Oriented Programming	20200			Preparatory project	M_6			18
17	20200								00020	4h			17
16			Computer Architecture and Organization	20200	Computer Networks and Communications	4h							16
15	General Physics								Team Project				15
14	21000 E		20200 E		Theory of Information and Signals	20200 E							14
13									00040	Diploma Seminar			13
12			Data Structures and Algorithms	22000 E									12
11	Foreign Language								Introduction to Parallel and Distributed Systems	Internet Technologies			11
10	04000		21200 E		Electronics and Metrology – basic principles	00200			21100	20200			10
9									20000				9
8													8
7	Elementary Linear Algebra		Electronics and Metrology – basic principles		Databases	Operating Systems	Computer Control Systems		Computer Security	Humanistic subject II			7
6					20200				21100	2h			6
5	22000 E		21000			20200 E	10210 E						5
4													4
3	Mathematical Analysis I		Mathematical Analysis II		Theory of Probabilistic and Statistics	Introduction to Software Engineering	Software System Development		Introduction to Artificial Intelligence				3
2			22000 E		22000 E		20020		20200 E				2
1	22000 E					21100 E							1
	I		II		III	IV	V		VI	VII			Total
	22 / 330		23 / 345		24 / 360	24 / 360	24 / 360		22 / 330	22/330			161/2415

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

Semester 1

Obligatory courses number of ECTS points 28

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	FZP1052C	General Physics		1				K1INF_W03	15	60	2	1,2	T	Z	O		PD	Ob.
2	FZP1052W	General Physics	2					K1INF_W03	30	90	3	1,8	T	E	O		PD	Ob.
3	MAP1070C	Elementary Linear Algebra		2				K1INF_W01	30	60	2	1,2	T	Z	O		PD	Ob.
4	MAP1070W	Elementary Linear Algebra	2					K1INF_W01	30	90	3	1,8	T	E	O		PD	Ob.
5	MAP1043C	Mathematical Analysis I		2				K1INF_W01	30	60	2	1,2	T	Z	O		PD	Ob.
6	MAP1043W	Mathematical Analysis I	2					K1INF_W01	30	120	4	2,4	T	E	O		PD	Ob.
7	INZ0250W1	Introduction to Programming (GK)	2		2			K1INF_W04, K1INF_U01, K1INF_U14	60	210	7	4,2	T	Z		(3)	PD	Ob.
8	INZ0251Wc	Introduction to Computer Systems (GK)	2	1				K1INF_W08	45	150	5	3,0	T	Z			PD	Ob.
Total			10	6	2				270	840	28	16,8						

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

Optional courses (minimum 60 hours in semester, 2ECTS 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 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	JZL100400BK	JĘZ.OBCE-STACJ.WSZYSTKIE		4				K1INF_U17	60	60	2	1,2	T	Z	O		KO	W
		Total		4					60	60	2	1,2						

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				
10	10	2			330	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 25

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	FZP2079L	General Physics			1			K1INF_W03, K1INF_U07, K1INF_U14	15	60	2	1,2	T	Z	O	P	PD	Ob
2	MAP2005C	Mathematical Analysis II		2				K1INF_W01	30	90	2	1,2	T	Z	O		PD	Ob
3	MAP2005W	Mathematical Analysis II	2					K1INF_W01	30	120	4	2,4	T	E	O		PD	Ob
4	INZ0252Wc	Electronics and Metrology – basic principles (GK)	2	1				K1INF_W07 K1INF_W08, K1INF_U14	45	150	5	3,0	T	Z			PD	Ob
5	INZ0253Wl	Computer Architecture and Organization (GK)	2		2			K1INF_W08, K1INF_U06, K1INF_U14	60	150	6	3,6	T	E		(3)	K	Ob
6	INZ0254Wcl	Data Structures and Algorithms (GK)	2	1	2			K1INF_W04 K1INF_U01, K1INF_U14	75	180	6	3,6	T	E		(3)	K	Ob
Total			8	4	5				255	750	25	15						

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

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 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	JZL100400BK	JĘZ.OBCE-STACJ.WSZYSTKIE		4				K1INF_U17	60	90	3	1,8	T	E	O		KO	W
Total				4					60	90	3	1,8						

Optional courses (Humanistic subject I) (minimum 30 hours in semester, 2 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 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	INZ0295s	Computer Ethics					2	K1INF_W20, K1INF_K03, K1INF_K05	30	60	2	1,2	T	Z			K	W
2	INZ0296Ws	Ethical Problems in Computer Science (GK)	1				1	K1INF_W20, K1INF_K03, K1INF_K05	30	60	2	1,2	T	Z			K	W
Total							2		30	60	2	1,2						

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	8	5		2	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 3

Obligatory courses number of ECTS points 29

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	INZ0255C	Theory of Information and Signals		2				K1INF_W11, K1INF_U07	30	60	2	1,2	T	Z			K	Ob
2	INZ0255W	Theory of Information and Signals	2					K1INF_W11	30	120	4	2,4	T	E			K	Ob.
3	INZ0256L	Electronics and Metrology – basic principle			2			K1INF_W07, K1INF_U14	30	60	2	1,2	T	Z		P	PD	Ob.
4	INZ0257C	Theory of Probabilistic and Statistics		2				K1INF_W02	30	60	2	1,2	T	Z			PD	Ob.
5	INZ0257W	Theory of Probabilistic and Statistics	2					K1INF_W02	30	90	4	2,4	T	E			PD	Ob.
6	INZ0258C	Logics and Discrete Mathematics		2				K1INF_W02, K1INF_W17	30	90	3	1,8	T	Z			PD	Ob
7	INZ0258W	Logics and Discrete Mathematics	2					K1INF_W02, K1INF_W17	30	90	3	1,8	T	E			PD	Ob
8	INZ0259Wcl	Databases (GK)	2	1	1			K1INF_W07, K1INF_W16 K1INF_W22 K1INF_U19, K1INF_U04, K1INF_U09, K1INF_U14	60	150	5	3,0	T	E		(2)	K	Ob
9	INZ00260Wl	Object-Oriented Programming (GK)	2		2			K1INF_U02, K1INF_U14 K1INF_W05, K1INF_W06	60	150	4	2,4	T	Z		(2)	K	Ob.
Total			10	7	5				330	870	29	17,4						

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

Optional courses (minimum 30 hours in semester, 1 ECTS point)

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	WFW000000BK	SPORT		2				K1INF_K08	30	30	1	0,6	T	Z	O	P	KO	W
		Total		2					30	30	1	0,6						

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				
10	9	5			360	900	30	18

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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

Semester 4

Obligatory courses number of ECTS points 25

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	INZ0297W	Systems analysis and decision support methods in Computer Science	2					K1INF_W15	30	90	3	1,8	T	E			K	Ob
2	INZ0297C	Systems analysis and decision support methods in Computer Science		1				K1INF_U15, K1INF_U14	15	30	1	0,6	T	Z			K	Ob
3	INZ0297L	Systems analysis and decision support methods in Computer Science			1			K1INF_W15	15	30	1	0,6	T	Z		P	K	Ob
4	INZ0262W	Computer Networks and Communications	2					K1INF_W11	30	90	3	1,8	T	E			K	Ob
5	INZ0262I	Computer Networks and Communications			2			K1INF_U08, K1INF_U07, K1INF_U09, K1INF_U14	30	60	2	1,2	T	Z		P	K	Ob
6	INZ0263Wcl	Introduction to Software Engineering (GK)	2	1	1			K1INF_U03, K1INF_U14 K1INF_W07	60	150	5	3,0	T	E		(2)	K	Ob
7	INZ0264Wl	Operating Systems (GK)	2		2			K1INF_W10, K1INF_U03 K1INF_U06, K1INF_U14	60	150	5	3,0	T	Z		(2)	K	Ob
8	INZ0265Wl	Multimedia Embedded Systems (GK)	2		2			K1INF_U04, K1INF_U06, K1INF_W09, K1INF_U14	60	150	5	3,0	T	Z		(2)	K	Ob
Total			10	2	8				300	750	25	15						

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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 courses (Optional module M 1: Database Programming) (minimum 60 hours in semester, 5 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 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	INZ0266Wp	Database Design (GK)	2			2		K1INF_W07, K1INF_W16, K1INF_W22, K1INF_U03, K1INF_U04, K1INF_U09, K1INF_U16, K1INF_U19		60	150	5	3,0	T	Z		(2)	K	W
2	INZ0267Wl	Client-Server Architecture (GK)	2			2		K1INF_W07, K1INF_W16, K1INF_W22, K1INF_U03, K1INF_U04, K1INF_U09, K1INF_U16, K1INF_U19		60	150	5	3,0	T	Z		(2)	K	W
Total			2			2				60	150	5	3,0						

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	2	8	2		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 17

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	ZMZ3456W	Introduction to Management Science	2					K1INF_W18	30	60	2	1,2	T	Z			PD	Ob
2	INZ0268W1	Data Warehouses (GK)	2		2			K1INF_U03, K1INF_U04, K1INF_U16, K1INF_U14 K1INF_W07, K1INF_W15	60	150	5	3,0	T	Z		(2)	K	Ob
3	INZ0298W	Computer Control Systems	1					K1INF_W15, K1INF_W21	15	30	2	1,2	T	E			K	Ob
4	INZ0298L	Computer Control Systems			2			K1INF_W07, K1INF_U15, K1INF_U18, K1INF_U14	30	90	2	1,2	T	Z		P	K	Ob
5	INZ0298P	Computer Control Systems				1		K1INF_W07, K1INF_U15, K1INF_U18, K1INF_K02	15	30	1	0,6	T	Z		P	K	Ob
6	INZ0270Wp	Software System Development (GK)	2			2		K1INF_U02, K1INF_U03, K1INF_U04, K1INF_U13, K1INF_U14, K1INF_W05 K1INF_W07	60	150	5	3,0	T	E		(2)	K	Ob.
Total			7	0	4	3			210	510	17	10,2						

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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 courses (Optional module M 2: Multimedia) (minimum 60 hours in semester, 5 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 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	INZ0271W1	Introduction to Computer Graphics (GK)	2		2			K1INF_U04, K1INF_U09, K1INF_U11, K1INF_U12, K1INF_U14, K1INF_W23	60	150	5	3,0	T	Z		(2)	K	W
2	INZ0272W1	Multimedia Information Systems (GK)	2		2			K1INF_U04, K1INF_U09, K1INF_U11, K1INF_U12, K1INF_U14, K1INF_W23	60	150	5	3,0	T	Z		(2)	K	W
Total			2		2				60	150	5	3,0						

Optional courses (Optional module M 3: Web application programming) (minimum 45 hours in semester, 4 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 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	INZ0273W1	Java and Internet programming (GK)	1		2			K1INF_U04, K1INF_U09, K1INF_U11, K1INF_U12, K1INF_U14, K1INF_W05, K1INF_W06, K1INF_W07	45	120	4	2,4	T	Z		(2)	K	W
2	INZ0274W1	Programming of Web-based systems (GK)	1		2			K1INF_U04, K1INF_U09, K1INF_U11, K1INF_U12, K1INF_U14, K1INF_W05, K1INF_W06, K1INF_W07	45	120	4	2,4	T	Z		(2)	K	W
Total			1		2				45	150	4	2,4						

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

Optional courses (Optional module M 4: Software Project Management) (minimum 45 hours in semester, 4 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 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	INZ0275Wl	Software Project Management (GK)	2		1			K1INF_U10, K1INF_K02, K1INF_U14, K1INF_W18		45	120	4	2,4	T	Z		(2)	K	W
2	INZ0276Wls	Software Project Management Techniques (GK)	1		1		1	K1INF_U10, K1INF_K02, K1INF_U14, K1INF_W18		45	120	4	2,4	T	Z		(2)	K	W
Total			1		1		1			45	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				
11	0	9	3	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	INZ0277Wl	Introduction to Parallel and Distributed Systems (GK)	2	1	1			K1INF_U04, K1INF_U14, K1INF_W12	60	150	5	3,0	T	E		(2)	K	Ob
2	INZ0278Wcl	Computer Security (GK)	2	1	1			K1INF_U03, K1INF_U09, K1INF_U14, K1INF_W13	60	120	4	2,4	T	E		(2)	K	Ob
3	INZ0279Wl	Introduction to Artificial Intelligence (GK)	2		2			K1INF_U07, K1INF_U16, K1INF_U14, K1INF_W15	60	120	4	2,4	T	E		(2)	K	Ob
Total			6	2	4				180	390	13	7,8						

Optional courses (minimum 90 hours in semester, 12 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 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	INZ0280P	Preparatory Project				2		K1INF_K01, K1INF_K02, K1INF_K03, K1INF_K04, K1INF_K05, K1INF_U11, K1INF_U12, K1INF_U13	30	60	2	1,2	T	Z		P	K	W
2	INZ0281P	Team Project				4		K1INF_U02, K1INF_U05, K1INF_U06, K1INF_U10, K1INF_U12, K1INF_U13, K1INF_K01, K1INF_K03, K1INF_K04, K1INF_K05	60	150	5	3,0	T	Z		P	K	W
3		Practical Training								150	5							
Total						6			90	360	12	4,2						

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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 courses (Optional module M 5: Network and computer systems) (minimum 60 hours in semester, 5 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 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	INZ0282W1	Security in Computer Network (GK)	2		2			K1INF_U03, K1INF_U09, K1INF_U14 K1INF_W13	60	150	5	3,0	T	Z		(2)	K	W
2	INZ0283W1	System Administration (GK)	2		2			K1INF_W10, K1INF_W11, K1INF_U08,, K1INF_U09, K1INF_U14	60	150	5	3,0	T	Z		(2)	K	W
Total			2		2				60	150	5	3,0						

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	2	6	6		330	900	30	15,0

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 4

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	INZ0284W1	Internet Technologies (GK)	2		2			K1INF_U06, IINF_U07, K1INF_U14, K1INF_U05, K1INF_W14	60	120	4	2,4	T	Z		(2)	K	Ob
Total			2		2				60	120	4	2,4						

Optional courses (minimum 120 hours in semester, 14 ECTS point)

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	INZ0285s	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	INZ0286p	Diploma Thesis				6		K1INF_K01, K1INF_K02, K1INF_K03, K1INF_K04, K1INF_K05, K1INF_U11, K1INF_U12, K1INF_U13	90	360	12	7,2	T	Z		P	K	W
Total						6	2		120	420	14	8,4						

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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

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⁷Optional – enter W, obligatory – enter Ob

Optional courses (Humanistic subject II) (minimum 30 hours in semester, 2 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 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	INZ0287W	Social and Law Aspects of Computer Science	2					K1INF_W20, K1INF_W19, K1INF_K03, K1INF_K05	30	60	2	1,2	T	Z			K	W
2	INZ0288Ws	Copywrite and Related Computer Law (GK)	1				1	K1INF_W20, K1INF_W19, K1INF_K03, K1INF_K05	30	60	2	1,2	T	Z			K	W
Total			1				1		30	60	2	1,2						

Optional courses (Optional module M_6: Technologies and programming tools) (minimum 60 hours in semester, 5 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 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	INZ0289Wcl	Programming Languages and Paradigms (GK)	2	1	1			K1INF_W05, K1INF_W06 K1INF_U02, K1INF_U14	60	150	5	3,0		Z		(2)	K	W
2	INZ0290Wl	User Interface Development (GK)	2		2			K1INF_U06, K1INF_U07, K1INF_U13, K1INF_W04	60	150	5	3,0	T	Z		(2)	K	W
3	INZ0291Wcl	Program Translation Techniques (GK)	2	1	1			K1INF_U01, K1INF_W06	60	150	5	3,0	T	Z		(2)	K	W
4	INZ0292Wc	Numerical Methods (GK)	2	2				K1INF_U01, K1INF_W04	60	150	5	3,0	T	Z		(2)	K	W
Total			2	1	1				60	150	5	3,0						

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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

Optional courses (Optional module M 7: Development trends in computer science) (minimum 60 hours in semester, 5 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 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	INZ0293W1	E-Business Concept and Technologies (GK)	2		2			K1INF_U11, K1INF_W14, K1INF_W12, K1INF_K01 K1INF_K06	60	150	5	3,0	T	Z		(2)	K	W
2	INZ0294Wc	Theory of Computation (GK)	2	2				K1INF_K01, K1INF_W02	60	150	5	3,0	T	Z			K	W
Total			2	1	1				60	150	5	3,0						

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				
7	2	4	6	3	330	900	30	18

2. Set of examinations in semestral arrangement

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

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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

Course code	Names of courses ending with examination	Semester
FZP1052W	1. General Physics	1
MAP1070W	2. Elementary Linear Algebra	
MAP1943W	3. Mathematical Analysis I	
INZ0253Wl	1. Computer Architecture and Organization	2
INZ0254Wcl	2. Data Structures and Algorithms	
MAP2005W	3. Mathematical Analysis II	
JZL100400BK	4. Foreign language	
INZ0258W	1. Logics and Discrete Mathematics	3
INZ0255W	2. Theory of Information and Signals	
INZ0257W	3. Theory of Probabilistics and Statistics	
INZ0259Wcl	4. Databases	
INZ0297W	1. Systems analysis and decision support methods in Computer Science	4
INZ0262W	2. Computer Networks and Communications	
INZ0263Wcl	3. Introduction to Software Engineering	
INZ0297W	1. Computer Control Systems	5
INZ0270Wp	2. Software System Development	
INZ0277Wl	1. Introduction to Parallel and Distributed Systems	6
INZ0272Wl	2. Computer Security	
INZ0279Wl	3. Introduction to Artificial Intelligence	

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

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

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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

Semester	Allowable deficit of ECTS points after semester
1	10
2	10
3	10
4	10
5	5
6	0

Opinion of student government legislative body

.....

Date Name and surname, signature of student representative

.....

Date Dean's signature

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

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

⁷ Optional – enter W, obligatory – enter Ob