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 no distinguished

LANGUAGE OF STUDY: English

Faculty Council Resolution of May 31, 2016

In effect since October 01, 2016

*delete as applicable

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

	CNPS / ECTS
	900 30

Semester I (22 / 330)

Course	CNPS	ECTS
Introduction to Computer Systems	150	5 ECTS
Introduction to Programming	210	7 ECTS
General Physics	150	5 ECTS
Foreign Language	60	2 ECTS
Elementary Linear Algebra	150	5 ECTS
Mathematical Analysis I	180	6 ECTS

Semester II (23 / 345)

Course	CNPS	ECTS
Humanistic subject I	60	2 ECTS
General Physics	60	2 ECTS
Foreign Language	90	3 ECTS
Computer Architecture and Organization	150	6 ECTS
Data Structures and Algorithms	180	6 ECTS
Electronics and Metrology – basic principles	150	5 ECTS
Mathematical Analysis II	210	6 ECTS

Semester III (24 / 360)

Course	CNPS	ECTS
Sport	30	1 ECTS
Logics and Discrete Mathematics	180	6 ECTS
Object-Oriented Programming	150	4 ECTS
Theory of Information and Signals	180	6 ECTS
Electronics and Metrology – basic principles	60	2 ECTS
Databases	150	5 ECTS
Theory of Probabilistic and Statistics	150	6 ECTS

Semester IV (24 / 360)

Course	CNPS	ECTS
M_1	150	5 ECTS
Multimedia Embedded Systems	150	5 ECTS
Computer Networks and Communications	150	5 ECTS
Systems analysis and decision support methods in Computer Science	150	5 ECTS
Operating Systems	150	5 ECTS
Introduction to Software Engineering	150	5 ECTS

Semester V (24 / 360)

Course	CNPS	ECTS
M_4	120	4 ECTS
M_3	120	4 ECTS
M_2	150	5 ECTS
Data Warehouses	150	5 ECTS
Introduction to Management Science	60	2 ECTS
Computer Control Systems	150	5 ECTS
Software System Development	150	5 ECTS

Semester VI (22 / 330)

Course	CNPS	ECTS
Practical Training	150	5 ECTS
M_5	150	5 ECTS
Preparatory seminar	60	2 ECTS
Team Project	150	5 ECTS
Introduction to Parallel and Distributed Systems	150	5 ECTS
Computer Security	120	4 ECTS
Introduction to Artificial Intelligence	120	4 ECTS

Semester VII (22/330)

Course	CNPS	ECTS
M_7	120	4 ECTS
M_6	120	4 ECTS
Diploma Seminar	60	2 ECTS
Internet Technologies	150	5 ECTS
Humanistic subject II	30	1 ECTS
Diploma Thesis	420	14 ECTS

Total: 161 / 2415

2) in hourly layout

#	I	II	III	IV	V	VI	VII	#
27	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	M_4	4 weeks		24
23	Introduction to Computer Systems	Humanistic subject I	**02000**	**4h**	**3h**			23
22		**2h**	Logics and Discrete Mathematics			M_5	M_7	22
21	**21000**	General Physics **00100**		M_3				21
20			**22000 E**	Multimedia Embedded Systems	**3h**	**4h**	**4h**	20
19	Introduction to Programming	Foreign Language						19
18		**04000**	Object-Oriented Programming	**20200**	M_2	Preparatory seminar	M_6	18
17	**20200**					**00002**		17
16		Computer Architecture and Organization	**20200**	Computer Networks and Communications	**4h**		**4h**	16
15	General Physics		Theory of Information and Signals			Team Project	Diploma Seminar	15
14		**20200 E**		**20200 E**	Data Warehouses	**00040**		14
13	**21000 E**						**00002**	13
12		Data Structures and Algorithms	**22000 E**	Systems analysis and decision support methods in Computer Science	**20200**	Introduction to Parallel and Distributed Systems	Internet Technologies	12
11	Foreign Language							11
10	**04000**		Electronics and Metrology – basic principles **00200**	**21100 E**	Introduction to Management Science	**21100**	**20200**	10
9		**21200 E**			**20000**			9
8			Databases	Operating Systems	Computer Control Systems	Computer Security	Humanistic subject II **1h**	8
7	Elementary Linear Algebra	Electronics and Metrology – basic principles						7
6			**20200**		**10210 E**	**21100**		6
5	**22000 E**	**21000**		**20200 E**				5
4					Software System Development	Introduction to Artificial Intelligence	Diploma Thesis **7h**	4
3	Mathematical Analysis I	Mathematical Analysis II	Theory of Probabilistic and Statistics	Introduction to Software Engineering				3
2		**22000 E**			**20020**	**20200 E**		2
1	**22000 E**		**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	MAT 1400C	Elementary Linear Algebra		2				K1INF_W01	30	60	2	1,2	T	Z	O		PD	Ob.
4	MAT 1400W	Elementary Linear Algebra	2					K1INF_W01	30	90	3	1,8	T	E	O		PD	Ob.
5	MAT 1411C	Mathematical Analysis I		2				K1INF_W01	30	60	2	1,2	T	Z	O		PD	Ob.
6	MAT 1411W	Mathematical Analysis I	2					K1INF_W01	30	120	4	2.4	T	E	O		PD	Ob
7	INZ0250Wl	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						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	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	MAT1499C	Mathematical Analysis II		2				K1INF_W01	30	90	2	1,2	T	Z	O		PD	Ob
3	MAT1499W	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 K!INF_U01, K1INF_U14	75	180	6	3,6	T	E		(3)	K	Ob
		Total	8	4	5				255	750	25	15						

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	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)

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

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]	courses		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

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	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	INZ0262l	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						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	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	INZ0268Wl	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						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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	INZ0271Wl	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	INZ0272Wl	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	INZ0273Wl	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	INZ0274Wl	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

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

| | | | Total | 1 | | 2 | | | | | 45 | 150 | 4 | 2,4 | | | | | |

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

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	university-wide[4]	practical[5]	kind[6]	type[7]
1	**INZ0054S**	Preparatory 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		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						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

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**)	lec	cl	lab	pr	sem	Field-of-study educational effect symbol	ZZU	CNPS	total	BK classes[1]	Form[2] of course/group of courses	Way[3] of crediting	university-wide[4]	practical[5]	kind[6]	type[7]
1	INZ0055Wl	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	INZ0056Wc	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
	INZ0068Wl	Designing responsive mobile applications(GK)	2	2				K1INF_W04, K1INF_U06, K1INF_U07,	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

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

Semester 7

Obligatory courses number of ECTS points 5

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	INZ0057Wl	Internet Technologies (GK)	2		2			K1INF_W14 K1INF_U05 K1INF_U06, K1INF_U07, K1INF_U14	60	150	5	3	T	Z		(2)	K	Ob
		Total	2		2				60	150	5	3						

Optional courses (minimum135 hours in semester, 16 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	INZ0058S	Diploma Seminar					2	K1INF_U11, K1INF_U12, K1INF_U13 K1INF_K01, K1INF_K02, K1INF_K03, K1INF_K04, K1INF_K05, K1INF_K07	30	60	2	1,2	T	Z			K	W
2	INZ0059P	Diploma Thesis				7		K1INF_U11, K1INF_U12, K1INF_U13 K1INF_K01, K1INF_K02, K1INF_K03, K1INF_K04, K1INF_K05,	105	420	14	8,4	T	Z		P	K	W
		Total				7	2		135	480	16	9,6						

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

Optional courses (Humanistic subject II) (minimum 15hours in semester, 1 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	INZ0060S	Social and Law Aspects of Computer Science					1	K1INF_W19, K1INF_W20, K1INF_K03, K1INF_K05	15	30	1	0,6	T	Z			K	W
2	INZ0061S	Copyright and Related Computer Law	1					K1INF_W19, K1INF_W20, K1INF_K03, K1INF_K05	15	30	1	0,6	T	Z			K	W
		Total	1				1		15	30	1	0,6						

Optional courses (Optional module M_6: Technologies and programming tools) (minimum 60 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	INZ0062Wcl	Programming Languages and Paradigms (GK)	2	1	1			K1INF_W05, K1INF_W06 K1INF_U02, K1INF_U14	60	120	4	2,4		Z		(2)	K	W
2	INZ0063Wl	User Interface Development (GK)	2		2			K1INF_W04 K1INF_U06, K1INF_U07, K1INF_U13	60	120	4	2,4	T	Z		(2)	K	W
3	INZ0064Wcl	Program Translation Techniques (GK)	2	1	1			K1INF_W06 K1INF_U01,	60	120	4	2,4	T	Z		(2)	K	W
4	INZ00065Wc	Numerical Methods (GK)	2	2				K1INF_W04 K1INF_U01,	60	120	4	2,4	T	Z		(2)	K	W
		Total	2	1	1				60	120	4	2,4						

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[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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

Optional courses (Optional module M_7: Development trends in computer science) (minimum 60 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	INZ0066Wl	Security in Computer Network (GK)	2		2			K1INF_W13 K1INF_U03, K1INF_U09, K1INF_U14	60	120	4	2,40	T	Z		(2)	K	W
2	INZ0067Wl	System Administration (GK)	2		2			K1INF_W10, K1INF_W11, K1INF_U08,, K1INF_U09, K1INF_U14	60	120	4	2,4	T	Z			K	W
		Total	2	1	1				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				
7	2	4	6	3	330	900	30	18

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
FZP1052W	1. General Physics	1

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

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 Probalilistics and Statisctics		
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

Semester	Allowable deficit of ECTS points after semester
1	10

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

[2]Traditional – enter T, remote – enter Z

[3]Exam – 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)

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

[5]Practical 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

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

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical 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