Zał. nr 3 do ZW 64/2012 Attachment no. ... to Programme of Studies

# 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 /<del>practical</del> \*

SPECIALIZATION: Computer Engineering

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	
	900	30	900	30	900	30	900	30	
20	Foreign l	Language I					Research	Methodology	20
	30	1 ECTS	Modelling and ana	lysis of Web-based	Elective (	Course M3.1	90	3 ECTS	
19	Foreign I	anguage II	sys	tems					19
18			100		210	7 ECTS	Monogr	aphic Subject	18
17	60	2 ECTS	180	6 ECTS					17
16							90 Business mod	<u>3 ECTS</u>	16
10							90	3 ECTS	10
15	Advanced	l Databases	Parallel and Distr	ibuted Computing	Elective (	Course M3.2			15
14	210		100		210		Diplo	ma Seminar	14
13	210	7 ECTS	180	6 ECTS	210	7 ECTS	90	3ECTS	13
12	Advanced Top	oics in Artificial							12
11	Intell	igence							11
10	210	7 ECTS	Mobile and Mu	Itimedia Systems	Elective	Jourse M3.3			10
10	210	/ EC15	180	6 ECTS	210	7 ECTS	MSc	Thesis II	0
9						1 (21 11 )	_		9
8	Information Sy	stems Modelling			Applications a	nd Challenges of			8
7	and A	inalysis	Software Syste	m Development	Comput	er Science	540	18 FCTS	7
6	210	7 ECTS	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		150	5 ECTS	340	10 2015	6
5			180	6 ECTS					5
4	System Modell	ing and Analysis	Foundations	of Knowledge	Preparate	ory seminar	-1		4
3		6	Engir	neering		2 ECTS			3
3	180	6 ECTS		-	00		4		3
2			180	6 ECTS	MSc	Thesis I			2
1					60	2 ECTS			1
sem		1		2		3		4	total
w/sem	20	/300	20/	/300	20	/300	2	20/300	80/1200

# 2) in hourly layout

	CNPS ECTS	CNPS	ECTS	CNPS	ECTS	CNPS	ECTS	
	900 30	900	30	900	30	900	30	
20	Foreign Language I					Research Metho	odology	20
	01000	Modelling and ana	lysis of Web-based	Elective C	Course M3.1	20000		
19	Foreign Language II	syst	ems					19
18	03000	2020	)0 E	4	h E	Monographic S	Subject	18
17						10100		17
16						Business modeling a	and analysis	16
15	Advanced Databases	Parallel and Distri	ibuted Computing	Elective C	ourse M3.1	11000		15
14						Diploma Sen	ninar	14
13	10021			4	h E	00002		13
12	Advanced Topics in Artificial							12
11	Intelligence	Mobile and Mul	timedia Systems	Elective C	course M3.2			11
10	20020 E		,					10
9		103	300	4	h E	MSc Thes	is	9
8	Information Systems Modelling			Applications a	nd Challenges of			8
7	and Analysis	Software System	n Develonment	Comput	er Science	000(12)0		7
6	22000 E	Software Syster	in Development	20	002	000(12)0		6
5		200	)20					5
4		Foundations of	of Knowledge	Preparato	ory seminar			4
3	System Modelling and Analysis	Engin	eering	00	002			3
2		2200	00 E	MSc '	Thesis I			2
1	21001 E			00	020			1
sem	1	2	2		3	4		total
w/sem	20/300	20/3	300	20	/300	20/300		80/1200

# 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	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	We	ekly 1	y nu hour	mbe 's	er of	Field-of-study educational effect symbol	Nun h	ber of	Nun	nber of ECTS points	Form <sup>2</sup> of course/group	Way <sup>3</sup> of crediting	Course/g	roup of co	ourses	
	code		lec	<b>cl</b> [	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university- wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0108Wcs	System Modelling and Analysis (GK)	2	1	0	0	1	K2INF_W01	60	180	6	3,6	Т	Е		(2)	PD	Ob.
								K2INF_W05										
								K2INF_U05										
2	INZ0109Wps	Advanced databases (GK)	1	0	0	2	1	K2INF_W05	60	210	7	4,2	Т	Z		(3)	K	Ob.
								K2INF_U05										
3	INZ0110Wp	Advanced Topics in Artificial Intelligence (GK)	2	0	0	2	0	K2INF_W06	60	210	7	4,2	Т	Е		(3)	S	Ob.
								K2INF_U08										
4	INZ0113Wc	Information System Modelling and Analysis (GK)	2	2	0	0	0	K2INF_W04	60	210	7	4,2	Т	Е			К	Ob.
		Total	7	3	0	4	2		240	810	27	16,2						

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

<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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) <sup>4</sup>University-wide course /group of courses – enter O

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

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

Optional courses (minimum ov nours in semester, size is points	<b>Optional</b> c	ourses (minimun	courses	1 <b>6</b> 0	hours in	semester	<b>JECTS</b>	points)
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No.	Course/group of courses	Name of course/group of courses (denote group of courses with	We	ekly	numb	er of	hours	Field-of-study educational	Nui h	nber of ours	Numb	per of ECTS points	Form <sup>2</sup> of course/group	Way <sup>3</sup> of crediting	Course/gr	oup of cou	rses	
	code	symbol <b>GK</b> )	lec	cl	lab	pr	sem	effect symbol	ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university-wide <sup>4</sup>	practical5	kind <sup>6</sup>	type <sup>7</sup>
1		Foreign language I	0	3	0	0	0	K2INF_U04	45	60	2	1,2	Т	Z	0		КО	W
2		Foreign language II	0	1	0	0	0	K2INF_U04	15	30	1	0.6	Т	Z	0		КО	W.
		Total		4					60	90	3	1,8						

#### Altogether in semester

	Тс	otal number o	of hours		Total	Total	Total	Number of
					number	number	number	ECTS points
				of	of CNPS	of ECTS	for BK	
				ZZU	hours	points	classes1	
				hours				
lec	cl	lab	pr	sem				
7	7	0	4	2	300	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

<sup>3</sup>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) <sup>4</sup>University-wide course /group of courses – enter O <sup>5</sup>Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses <sup>6</sup> KO – general education, PD – basic sciences, K – field-of-studies, S – specialization <sup>7</sup> Optional – enter W, obligatory – enter Ob

# Semester 2

#### **Obligatory courses number of ECTS points 30**

No	Course/group of courses	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	We	ekly of l	nur nours	nbe S	er	Field-of-study educational effect symbol	Number of	f hours	Nu EC	mber of ΓS points	Form <sup>2</sup> of course/group	Way <sup>3</sup> of crediting	Course/	group of	cours	es
	code		lec	cl la	b pr	ser	em		ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university- wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0135W1	Modelling and Analysis of Web-based Systems (GK)	2	0 2	2 0	0	0	K2INF_W06, K2INF_U08	60	180	6	3,6	Т	Е		(3)	S	Ob.
2	INZ0136Wcl	Parallel and Distributed Computing (GK)	2	1 1	. 0	0	0	K2INF_W06, K2INF_U08	60	180	6	3,6	Т	Е		(2)	S	Ob.
3	INZ0137W1	Mobile and Multimedia Systems (GK)	1	0 3	8 0	0	0	K2INF_W06, K2INF_U08	60	180	6	3,6	Т	Z		(4)	S	Ob.
4	INZ0138Wp	Software System Development (GK)	2	0 0	) 2	0	0	K2INF_W04	60	180	6	3,6	Т	Z		(3)	K	Ob.
5	INZ0139Wc	Foundation of Knowledge Engineering (GK)	2	2 (	0	0	0	K2INF _W02, K2INF _U05 K2INF _U05	60	180	6	3,6	Т	Е			K	Ob.
		Total	9	3 6	5 2	0	0		300	900	30	18						

#### Altogether in semester

	To	otal number o	of hours		Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes <sup>1</sup>
lec	cl	lab	pr	sem				
9	3	6	2	0	300	900	30	18

<sup>1</sup>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

<sup>5</sup>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

# Semester 3

## **Obligatory courses number of ECTS points 7**

No	Course/group	Name of course/group of courses (denote group of courses with symbol <b>CK</b> )	We	eek of	ly ni hou	ım rs	ber	Field-of-study educational effect symbol	Nun h	ber of	Nu EC	mber of TS points	Form <sup>2</sup> of course/grour	Way <sup>3</sup> of crediting	Course/	group of	cours	es
	code		lec	cl	lab j	or s	em		ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university- wide <sup>4</sup>	practical5	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0140Ws	Application and Challenges of Computer Science (GK)	2	0	0	0	2	K2INF_W06, K2INF_U08	60	150	5	3,0	Т	Z			S	Ob.
2	INZ0141s	Preparatory Seminar	0	0	0	0	2	K2INF_U01, K2INF_U02	30	60	2	1,2	Т	Z			S	Ob.
		Total	2	0	0	0	4		90	210	7	4,2						

#### **Optional courses (minimum 30 hours in semester, 2 ECTS point)**

No	Course/group of	Name of course/group of courses	Weel	kly n	umbe	r of l	nours	Field-of-study	Numbe	r of hours	Numb	per of ECTS points	Form <sup>2</sup> of	Way <sup>3</sup> of	Course/gr	oup of cou	rses	
	courses code	(denote group of courses with symbol <b>GK</b> )	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes <sup>1</sup>	course/group of courses	crediting	university-wide <sup>4</sup>	practical5	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0142P	MSc Thesis I	0	0	0	2	0	K2INF_U03, K2INF_U08	30	60	2	1,2	Т	Z		Р	S	W.
		Total	0	0	0	2	0		30	60	2	1,2						

## Optional courses (Optional module M\_3.1) (minimum 60 hours in semester, 7 ECTS points)

No	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	V	Vee	kly n ho	umb ırs	er of	Field-of-study educational effect symbol	Number	of hours	Number po	of ECTS ints	Form <sup>2</sup> of course/grou p of courses	Way <sup>3</sup> of crediting	Course/	group of c	ourses	3
		- /	lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>			university- wide <sup>4</sup>	practical5	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0143Wcs	Parallel Computer Architecture (GK)	2	1			1	K2INF_W06, K2INF_U08	60	210	7	4,2	Т	Е			S	W.
2	INZ0122W1	Advanced Computer Network (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08	60	210	7	4,2	Т	Е		(3)	S	W

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

 $^{2}$ Traditional – enter T, remote – enter Z

<sup>3</sup>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) <sup>4</sup>University-wide course /group of courses – enter O

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

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

		Total 2 1	1	0		0			60	210	C	7	4,2						
Op	tional cour	ses (Optional module M_3.2) (m	inin	nu	ım	60	) ho	ours in semester, 7 EC	TS p	ooin	ts)								
No.	Course/group of courses	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Wee	ekly 1	y nu houi	mbe rs	er of	Field-of-study educational effe symbol	ect	Num ho	ber of ours	Num	ber of ECTS points	Form <sup>2</sup> of course/group	Way <sup>3</sup> of crediting	Course/g	group of c	ourse	3
	code		lec	cl	lab	pr	sem			ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university- wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	INZ0145W1	Advanced Computer Graphic (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W.
2	INZ0146W1	Digital Image Processing (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W
3	INZ0147W1	Multimedia Information Systems (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W
4	INZ0148Wl	User Interface Development (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W
		Total	2	0	2	0	0			60	210	7	4,2						

#### Optional courses (Optional module M\_3.3) (minimum 60 hours in semester, 7 ECTS points)

N	o 0	Course/group of courses	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )		Weekly number of hours			ber o	of Field-of-study educational effe	ect	Number of hours		Num	ber of ECTS points	Form <sup>2</sup> of course/group	Way <sup>3</sup> of crediting	Course/g	group of c	course	3
		code		le	c cl	la	b pi	sen	m		ZZU	CNPS	total	BK classes <sup>1</sup>	of courses		university- wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
	1	INZ0149Wlp	Data Warehouses (GK)	1	0	2	1	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W.
	2	INZ0150Wl	Expert Systems (GK)	2	0	2	0	0	K2INF_W06, K2INF_U08		60	210	7	4,2	Т	Е		(3)	S	W
_			Total	2	0	2	0	0			60	210	7	4,2						

#### Altogether in semester

	Τc	otal number o	Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes <sup>1</sup>		
lec	cl	lab	pr	sem				
8	1	5	2	4	300	900	30	18

<sup>1</sup>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

<sup>5</sup>Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses <sup>6</sup> KO – general education, PD – basic sciences, K – field-of-studies, S – specialization <sup>7</sup> Optional – enter W, obligatory – enter Ob

## Semester 4

### **Obligatory courses number of ECTS points 6**

No.	Course/group	Name of course/group of courses (denote group of courses		Weekly number of			er of		Field-of-study educational N		Number of		mber of	Form <sup>2</sup> of	Way <sup>3</sup> of	f Course/group of courses			
	of courses code	with symbol <b>GK</b> )	lec	cl	lab	pr	sem	n	enect symbol	ZZU	CNPS	total	BK	of courses	creating	university-	practical5	kind <sup>6</sup>	type
													classes <sup>*</sup>			wide			
1	INZ0151W	Research Methodology	2	0	0	0	0		K2INF_W05	30	90	3	1,8	Т	Z			Κ	Ob.
2	INZ0152Wc	Business modeling and analysis (GK)	1	1	0	0	0		K2INF_W03, K2INF_U06	30	90	3	1,8	Т	Z			K	Ob.
		Total	3	1	0	0	0			60	180	6	3,6						

## **Optional courses (minimum 240 hours in semester, 24 ECTS points)**

No.	Course/group	Name of course/group of courses	١	Weekly number of H		er of	Field-of-study educational effect symbol	Number of hours		Number of ECTS		Form <sup>2</sup> of Way <sup>3</sup> of course/grou crediting		Course/group of courses			;	
	code	(denote group of courses with symbol GK)										F						
		- ,	lec	cl	lab	pr	sem		ZZU	CNPS	total	BK			university-	practical5	kind <sup>6</sup>	type <sup>7</sup>
												classes			wide			
1	INZ0153Wl	Monographic Subject (GK)	1	0	1	0	0	K2INF_U08, K2INF_W06	30	90	3	1,8	Т	Z		(1)	S	W
2	INZ0154S	Diploma Seminar	0	0	0	0	2	K2INF_U01, K2INF_U02	30	90	3	1,8	Т	Z			S	W
3	INZ0155P	MSc Thesis II	0	0	0	12	0	K2INF_U03, K2INF_U08	180	540	18	10,8	Т	Z		Р	S	W
Total		1	0	1	12	2		240	720	24	14,4							

#### Altogether in semester

	1	Fotal numbe	r of hours	Total	Total	Total	Number of	
					number	number	number	ECTS points
					of	of CNPS	of ECTS	for BK
					ZZU	hours	points	classes1
					hours			
lec	cl	lab	pr	sem				
4	1	1	12	2	300	900	30	18

#### 2. Set of examinations in semestral arrangement

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

<sup>2</sup>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

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

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

Course code		Names of courses ending with examination	Semester
INZ0110	1.	Advanced Topics in Artificial Intelligence	1
INZ0113	2.	Information System Modeling and Analysis	
INZ0108	3.	System Modelling and Analysis	
INZ0135	1.	Modelling and Analysis of Web-based Systems	2
INZ0136	2.	Parallel and Distributed Computing	
INZ0139	3.	Foundation of Knowledge Engineering	
INZxxx	1.	Elective Course M3.1	3
INZxxx	2.	Elective Course M3.2	
INZxxx	3.	Elective Course M3.3	

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

Semester	Allowable deficit of ECTS points after semester
1	7
2	13
3	0

Opinion of student government legislative body

Date Name and surname, signature of student representative

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.....

Date Dean's signature

<sup>1</sup>BK - number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

<sup>2</sup>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

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

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