

## **PLAN OF STUDIES**

<b>FACULTY:</b>	<b>ELECTRONICS</b>
<b>MAIN FIELD OF STUDY:</b>	<b>TELECOMMUNICATIONS.</b>
<b>EDUCATION LEVEL:</b>	2nd * level, magister /
<b>FORM OF STUDIES:</b>	full-time
<b>PROFILE:</b>	general academic
<b>SPECIALIZATION:....</b>	<b>Modern Telecommunications</b>
<b>LANGUAGE OF STUDY:</b>	<b>English</b>

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

## Semester 1

### Obligatory courses/ groups of courses

number of ECTS points: **27**

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of course/grou p of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>
1	FLEA002W	Komunikacja społeczna- <b>Social Comm.</b>	0	0	0	0	1	K2TEL_W03	15	60	2		1	T	Z	O			KO
2	TKEU00005W	Optyka - <b>Optics</b>	1	0	0	0	0	K2TEL_W01	15	30	1		0,5	T	Z				KO
3	TKEA00005W	Metody optymalizacji- <b>Optimization Methods</b>	2	0	0	0	0	K2TEL_W04	30	90	3		1	T	E(w)				KO
4	TKEA17011L	Zaawansowane techniki sieciowe - <b>Advanced Network Techniques</b>	0	0	4	0	0	K2TEL_U08	60	150	5	5	2,5	T	Z		DN	5	K
5	MAEA00202W	Statystyka matematyczna ( <b>GK</b> ) - <b>Mathematics Statistics</b>	1	0	0	0	0	K2TEL_W03	15	60	3		1	T	Z	O			PD
6	MAEA00202C	Statystyka matematyczna ( <b>GK</b> ) - <b>Mathematics Statistics</b>	0	1	0	0	0	K2TEL_U04	15	30			1	T	Z	O		2	PD
7	TKEA00026W	Metody numeryczne – <b>Numerical Methods</b>	2	0	0	0	0	K2TEL_W05	30	90	5	5	1	T	Z		DN		KO
8	TKEA00026P	Metody numeryczne – <b>Numerical Methods</b>	0	0	0	2	0	K2TEL_U11	30	60			1	T	Z		DN	2	KO
9	TKEA15004W	Technika w. cz. w telekomunikacji ( <b>GK</b> ) - <b>HF Techniques in Telekommunicatino s</b>	2	0	0	0	0	K2TEL_W07	30	60	4	4	1	T	Z		DN		KO
10	TKEA15004L	Technika w. cz. w telekomunikacji ( <b>GK</b> ) - <b>HF Techniques in Telekommunicatino s</b>	0	0	1	0	0	K2TEL_U07	15	60			1	T	Z		DN	2	KO
11	TKEA00025W	Elementy sieci optycznych ( <b>GK</b> ) - <b>Optical Networks Elements</b>	2	0	0	0	0	K2TEL_W06	30	60	4	4	1	T	Z		DN		KO

<sup>1</sup>BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

<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>DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

<sup>6</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>7</sup>KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

12	TKEA00025P	Elementy sieci optycznych (GK) - <b>Optical Networks Elements</b>	0	0	0	1	0	K2TEL_U06	15	60			1	T	Z		DN	2	KO
<b>Razem</b>			<b>10</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>1</b>	-	<b>300</b>	<b>810</b>	<b>27</b>	<b>18</b>	<b>13</b>	-	-	-	<b>0</b>	<b>13</b>	-

**Optional courses / groups of courses (minimum 30 hours in st ECTS points): 3**

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of course/g group of courses	Way <sup>3</sup> of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>	
1		Język obcy II - <b>Foreing Language</b>	0	3	0	0	0	K2TEL_U01	45	60	2		1	T	Z	O			1	KO
2		Język obcy I - <b>Foreing Language</b>	0	1	0	0	0	K2TEL_U02	15	30	1		1	T	Z	O			1	KO
<b>Razem</b>			<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	-	<b>60</b>	<b>90</b>	<b>3</b>	<b>0</b>	<b>2</b>					<b>2</b>		

### Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes <sup>5</sup>	Number of ECTS points for BU classes <sup>1</sup>
lec	cl	lab	pr	sem					
10	5	5	3	1	360	900	30	18	15

## Semester 2

**Obligatory courses/ groups of courses**

liczba punktów ECTS: **6**

<sup>1</sup>BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

<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>DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

<sup>6</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>7</sup>KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>
1	TKEA17021W	Filtracja ortogonalna sygnałów stochastycznych stoch. sign.- <b>Orthogonal filtering of stochastic signals (GK)</b>	1	0	0	0	0	S2TMT_W02	15	30	1	1	0,5	T	Z		DN		S
2	TKEA17031W	Systemy wbudowane ( <b>GK</b> ) - <b>Embedded Systems</b>	1	0	0	0	0	K2TEL_W10	15	30	3	3	0,5	T	Z		DN		K
3	TKEA17031L	Systemy wbudowane ( <b>GK</b> ) - <b>Embedded Systems</b>	0	0	2	0	0	K2TEL_U10	30	60			1	T	Z		DN	2	K
4	TKEA17022W	Kompresja informacji ( <b>GK</b> ) - <b>Compression of Information</b>	1	0	0	0	0	K2TEL_W09	15	30	2	2	0,5	T	E(w)		DN		K
5	TKEA17022L	Kompresja informacji ( <b>GK</b> ) - <b>Compression of Information</b>	0	0	1	0	0	K2TEL_U09	15	30			0,5	T	Z		DN	1	K
<b>Razem</b>			<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>-</b>	<b>90</b>	<b>180</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>

**Optional courses / groups of courses (minimum 30 hours in sECTS points: 24**

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>
1	TKEA0010L	Aplikacje mobilne - <b>Mobile Applications</b>	0	0	2	0	0	S2TMT_U10	30	60	2	2	1	T	Z		DN	2	K
2	TKEA014S	Seminarium specjalnościowe - <b>Specialization Seminar</b>	0	0	0	0	2	S2TIM_W10, S2TIM_K01	30	90	3	3	1	T	Z		DN	2	K
3	TKEA00028W	Sieci optyczne - <b>Optical Networks 1</b>	2	0	0	0	0	S2TMT_W05	30	90	3	3	1	T	Z		DN		S
4	TKEA019W	Sieci multimedialne ( <b>GK</b> ) - <b>Multimedia Systems</b>	1	0	0	0	0	S2TMT_W02	15	30	4	4	1	T	E(w)		DN		S

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<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>DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

<sup>6</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

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5	TKEA019L	Sieci multimedialne (GK) - Multimedia Systems	0	0	2	0	0	S2TMT_U02	30	60			2	T	Z		DN	2	S
6	TKEA007W	Elementy sieci fonicznych (GK) - Photonic Communicataion Components	2	0	0	0	0	S2TMT_W01	30	90	5	5	2	T	Z		DN		S
7	TKEA007L	Elementy sieci fonicznych (GK) - Photonic Communicataion Components	0	0	2	0	0	S2TMT_U01	30	60			1	T	Z		DN	2	S
8	TKEA009W	Sieci mobilne (GK)- Mobile Networks	1	0	0	0	0	S2TMT_W03	15	90	5	5	1	T	Z		DN		S
9	TKEA009L	Sieci mobilne (GK) - Mobile Networks	0	0	1	0	0	S2TMT_U03	15	30			1	T	Z		DN	1	S
10	TKEA009P	Sieci mobilne (GK) - Mobile Networks	0	0	0	1	0	S2TMT_U03	15	30			1	T	Z		DN	1	S
11	TKEA020W	Sieci satelitarne (GK) -Satellite Communication Networks	1	0	0	0	0	S2TMT_W08	15	30	2	2	1	T	Z		DN		S
12	TKEA020S	Sieci satelitarne (GK) -Satellite Communication Networks	0	0	0	0	1	S2TMT_U08	15	30			1	T	Z		DN	1	S
<b>Razem</b>			<b>7</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>3</b>	<b>-</b>	<b>270</b>	<b>690</b>	<b>24</b>	<b>24</b>	<b>14</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11</b>	<b>-</b>

### Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes <sup>5</sup>	Number of ECTS points for BU classes <sup>1</sup>
lec	cl	lab	pr	sem					
10	0	10	1	3	360	870	30	29	17

## Semester 3

Obligatory courses/ groups of courses

liczba punktów ECTS: **2**

	Weekly number of hours	Number of hours	Number of ECTS points	Course/group of courses

<sup>1</sup>BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

<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>DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

<sup>6</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>7</sup>KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours					Form <sup>2</sup> of course/g group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>
1	TKEA17030W	Przedsiębiorczość w ICT ( <b>GK</b> ) - <b>ICT Business</b>	2	0	0	0	0	K2TEL_W02	30	60	2		1	T	Z				K
<b>Razem</b>			<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	-	<b>30</b>	<b>60</b>	<b>2</b>	<b>0</b>	<b>1</b>	-	-	-	-	<b>0</b>	-

**Optional courses / groups of courses (minimum 30 hours in s ECTS points: 28**

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours					Form <sup>2</sup> of course/g group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	DN5 classes	BU1 classes			universit y-wide <sup>4</sup>	Concernin g scientific activities <sup>5</sup>	practical <sup>5</sup>	type <sup>6</sup>
1	TKEA00002S	Seminarium dyplomowe - <b>MSc Seminar</b>	0	0	0	0	2	S2TIM_U10	30	90	3	3	2	T	Z		DN	3	S
2	TKEA15001	Praca dyplomowa - <b>Final MSc Projekt</b>	0	0	0	0	0	S2TIM_U11, S2TIM_K02		360	12	12	6	T	Z		DN	12	S
3	TKEA00033W	Techniki ultraszerokopasmowe i terahercowe – <b>UWB and THz Techniques</b>	1	0	0	0	0	S2TMT_W07	15	60	3	3	1	T	Z		DN		S
4	TKEA00033S	Techniki ultraszerokopasmowe i terahercowe - <b>UWB and THz Techniques</b>	0	0	0	0	1	S2TMT_U07	15	30			1	T	Z		DN	1	S
5	TKEA00032W	Odbiorniki cyfrowe ( <b>GK</b> )- <b>Digital receivers</b>	1	0	0	0	0	S2TMT_W06	15	60	3	3	1	T	Z		DN		S
6	TKEA00032P	Odbiorniki cyfrowe ( <b>GK</b> ) - <b>Digital receivers</b>	0	0	0	1	0	S2TMT_U06	30	30			1	T	Z		DN	1	S
7	TKEA00029L	Sieci optyczne 2 ( <b>GK</b> ) - <b>Optical Networks 2</b>	0	0	2	0	0	S2TMT_U05	30	60	2	2	1	T	Z		DN	2	S
8	TKEA023W	Bezpieczeństwo systemów teleinformatycznych ( <b>GK</b> ) - <b>Security in Teleinformatics systems</b>	1	0	0	0	0	S2TMT_W04	15	60	5	5	1	T	Z		DN		S

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

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9	TKEA023L	Bezpieczeństwo systemów teleinformatycznych (GK) - Security in Teleinformatics systems	0	0	3	0	0	S2TMT_U04	45	90			1,5	T	Z		DN	3	S
<b>Razem</b>			<b>3</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>-</b>	<b>195</b>	<b>840</b>	<b>28</b>	<b>28</b>	<b>15,5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22</b>	<b>-</b>

### Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes <sup>5</sup>	Number of ECTS points for BU classes <sup>1</sup>
lec	cl	lab	pr	sem					
5	0	5	1	3	225	900	30	28	16,5

## 2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
TKEA005W	Metody optymalizacji- <b>Optimization Methods</b>	1
TKEA022W	Kompresja informacji (GK) - <b>Compression of Information</b>	2
TKEA019W	Sieci multimedialne (GK) - <b>Multimedia Systems</b>	2

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

Semester	Allowable deficit of ECTS points after semester

<sup>1</sup>BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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<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>DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

<sup>6</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

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1	8
2	8
3	0

Opinia właściwego organu Samorządu Studenckiego

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Data Imię, nazwisko i podpis przedstawiciela studentów

.....

Data Podpis Dziekana

<sup>1</sup>BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

<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

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<sup>6</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

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