

## PLAN OF STUDIES

**FACULTY:** Information and Communication Technology

**MAIN FIELD OF STUDY:** Computer Engineering

**EDUCATION LEVEL:** second-level studies

**FORM OF STUDIES:** full-time studies

**PROFILE:** general academic

**SPECIALIZATION:** Advanced Computer Science (ACS)

**LANGUAGE OF STUDY:** english

In effect since 2024/2025

**Plan of studies structure (optionally)**

1) in ECTS point layout

*(space for scheme of plan)*

2) in hourly layout

*(space for scheme of plan)*

<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, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject /group of classes – 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 subject / group of classes – enter P. For the group of classes – 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

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

## Semester 1

### Obligatory subjects / groups of classes

### Number of ECTS points 29

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University -wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	W11ITE-SM4001	Physics	1					K2ITE_W01	15	25	1		0,68	T/Z	Z	O			PD
2	W08W04-SM4002	Social Communication					1	K2ITE_U02 K2ITE_K01	15	50	2		0,68	T/Z	Z	O		P(1)	KO
3	W04ITE-SM4010	Computer Project Management ( <b>GK</b> )	2		1		1	K2ITE_W06 K2ITE_U03 K2ITE_K02 K2ITE_K03	60	125	5		2,88	T/Z*	E (w)			P(2,5)	K
4	W04ITE-SM4017G	Optimization Methods: Theory and Applications ( <b>GK</b> )	2				2	K2ITE_W05 K2ITE_W07 K2ITE_U08	60	125	5	5	2,72	T/Z*	Z(w)			P(2,5)	K
5	W04ITE-SM4018G	IT Applications in Business and Commerce ( <b>GK</b> )	2				2	K2ITE_W05 K2ITE_K03 K2ITE_U03	60	125	5	5	2,88	T/Z*	Z(w)		DN	P(2,5)	K
6	W04ITE-SM4019G	Information Systems Modeling ( <b>GK</b> )	2		1			K2ITE_W06 K2ITE_U04	45	75	3	3	2,04	T/Z*	Z (w)		DN	P(1,5)	K
7	W04ITE-SM4013	Discrete Mathematics ( <b>GK</b> )	2				2	K2ITE_W01 K2ITE_U04	60	125	5		3,04	T/Z*	E (w)			P(2,5)	K
8	W04ITE-SM4020G	Research Skills and Methodologies ( <b>GK</b> )	1				2	K2ITE_W03 K2ITE_K04	45	75	3	3	2,04	T/Z	Z		DN	P(2)	K
Total			12	0	2	6	4	–	360	725	29	16	16,96	–	–	–	–	P(14,5)	–

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<sup>2</sup>Traditional – enter T, remote – enter Z, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject / group of classes – 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 subject / group of classes – enter P. For the group of classes – in brackets enter the number of ECTS points assigned to practical courses

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### Optional subjects (minimum 15 hours in semester, 1 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University-wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	SJO-SM0001	Foreing Language I		1				K2ITE_U01	15	30	1		0,63	T	Z	O		P (1)	KO
Total			<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	–	<b>15</b>	<b>30</b>	<b>1</b>	<b>0</b>	<b>0,63</b>	–	–	–	-	<b>P (1)</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					
<b>12</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>375</b>	<b>755</b>	<b>30</b>	<b>16</b>	<b>17,59</b>

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<sup>2</sup>Traditional – enter T, remote – enter Z, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject /group of classes – 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 subject / group of classes – enter P. For the group of classes – 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

## Semester 2

### Obligatory subjects / groups of classes

### Number of ECTS points 3

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University -wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	W04ITE-SM4021G	Secure systems and networks ( <b>GK</b> )	2		1			K2ITE_W04 K2ITE_U04	45	75	3	3	2,04	T/Z*	Z (w)		DN	P(1)	K
Total			<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	–	<b>45</b>	<b>75</b>	<b>3</b>	<b>3</b>	<b>2,04</b>	–	–	–	-	<b>P (1)</b>	–

### Optional subjects / groups of classes (minimum 45 hours in semester, 2 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University -wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	SJO-SM0002	Foreign Language II		3				K2ITE_U01	45	60	2		1,63	T	Z	O		P (2)	KO
Total			<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	–	<b>45</b>	<b>60</b>	<b>2</b>	<b>0</b>	<b>1,63</b>	–	–	–	-	<b>P (2)</b>	–

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<sup>2</sup>Traditional – enter T, remote – enter Z, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject / group of classes – 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 subject / group of classes – enter P. For the group of classes – in brackets enter the number of ECTS points assigned to practical courses

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**Optional subjects / groups of classes - Advanced Computer Science (minimum 285 hours in semester, 25 ECTS points)**

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University-wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	W04ITE-SM4246P	Research Project				3		K2ITE_U08 K2ITE_K02	45	75	3	3	2,28	T	Z		DN	P (3)	S
2	W04ITE-SM4226	ACS Seminar 1					2	K2ITE_W07 K2ITE_U05	30	50	2	2	1,36	T/Z	Z		DN	P (2)	S
3	W04ITE-SM4247G	Modeling and Optimization of Computer Networks ( <b>GK</b> )	1			2	1	K2ITE_W07 K2ITE_U08 K2ITE_U10 K2ITE_K04	60	150	6	6	3,04	T/Z*	E (w)		DN	P (4)	S
4	W04ITE-SM4248G	Information and Storage Management ( <b>GK</b> )	1		1			K2ITE_W07 K2ITE_U09	30	50	2	2	1,36	T/Z*	Z (w)		DN	P (1)	S
5	W04ITE-SM4249G	Neural Networks (GK)	2			2		K2ITE_W07 K2ITE_W08 K2ITE_U08	60	150	6	6	2,88	T/Z*	Z (w)		DN	P (3)	S
6	W04ITE-SM4250G	Machine Learning ( <b>GK</b> )	2		1	1		K2ITE_W08 K2ITE_U08 K2ITE_K01 K2ITE_K02	60	150	6	6	2,96	T/Z*	E (w)		DN	P (3)	S
Total			<b>6</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>3</b>	–	<b>285</b>	<b>625</b>	<b>25</b>	<b>25</b>	<b>13,88</b>	–	–	–	–	<b>P (16)</b>	–

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<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject / group of classes – 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 subject / group of classes – enter P. For the group of classes – 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

## 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					
8	3	3	8	3	375	750	30	28	17,55

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<sup>2</sup>Traditional – enter T, remote – enter Z, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject /group of classes – 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 subject / group of classes – enter P. For the group of classes – in brackets enter the number of ECTS points assigned to practical courses

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## Semester 3

### Obligatory subjects / groups of classes

### Number of ECTS points 3

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University-wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>
1	W08W04-SM4006	Entrepreneurship ( <b>GK</b> )	1				1	K2ITE_W02 K2ITE_K02	30	75	3		1,36	T/Z	Z (w)	O		P (1,5)	KO
Total			<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	–	<b>30</b>	<b>75</b>	<b>3</b>	<b>0</b>	<b>1,36</b>	–	–	–	–	<b>P (1,5)</b>	–

### Optional subjects / groups of classes - Advanced Computer Science (minimum 345 hours in semester, 27 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form <sup>2</sup> of subject / groups of classes	Way <sup>3</sup> of crediting	Subject / groups of classes				
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN <sup>5</sup> classes	BU <sup>1</sup> classes			University-wide <sup>4</sup>	Concerning scientific activities <sup>5</sup>	Practical <sup>6</sup>	Type <sup>7</sup>	
1	W04ITE-SM4245	ACS Seminar 2					2	K2ITE_U06	30	75	3	3	1,36	T/Z	Z		DN	P (3)	S	
2	W04ITE-SM4218	Final Project						K2ITE_U07 K2ITE_K03 K2ITE_K02	12	275	11	11	1,84	T	Z		DN	P (11)	S	
3	W04ITE-SM4251G	Introduction to Computer Vision in Quality Control ( <b>GK</b> )	2				2	K2ITE_W07 K2ITE_W09 K2ITE_U08	60	125	5	5	2,88	T/Z*	Z (w)		DN	P (2,5)	S	
4	W04ITE-SM4252G	Natural Language Processing ( <b>GK</b> )	1				2	K2ITE_W07 K2ITE_W08 K2ITE_U10	45	100	4	4	2,2	T/Z*	Z (w)		DN	P (2,5)	S	
5	W04ITE-SM4253G	Research Project 2 ( <b>GK</b> )					1	2	K2ITE_U08 K2ITE_K04 K2ITE_U05 K2ITE_K03	45	100	4	4	2,12	T/Z*	Z (p)		DN	P (4)	S
Total			<b>3</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>4</b>	–	<b>345</b>	<b>675</b>	<b>27</b>	<b>27</b>	<b>10,4</b>	–	–	–	–	<b>P (23)</b>	–	

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<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject / group of classes – 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

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### 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					
4	0	0	5	5	375	750	30	27	11,76

<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, remote for lecture and seminar – Z\*

<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject /group of classes – 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

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## 2. Set of examinations in semestral arrangement

Subject / groups of classes code	Names of subjects / groups of classes ending with examination	Semester
W04ITE-SM4010 W04ITE-SM4013	Computer Project Management Discrete mathematics	1
W04ITE-SM4247G W04ITE-SM4250G	Modeling and Optimization of Computer Networks Machine Learning	2

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

Semester	Allowable deficit of ECTS points after semester
1	8
2	8

The deficit after semester 2 applies ONLY to courses/groups of courses not passed in semester 1 (all courses/groups of courses from semester 2 must be passed).

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<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

<sup>4</sup>University-wide subject /group of classes – 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

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## Opinion of student government legislative body

.....  
Date Name and surname, signature of student representative

.....  
Date Dean's signature

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<sup>3</sup>Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

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