PLAN OF STUDIES

Zał. nr 4 do ZW 16/2020

Attachment no. 4 to Program of Studies

FACULTY: OF ELECTRONCS

MAIN FIELD OF STUDY: CONTROL ENGINEERING AND ROBOTICS

EDUCATION LEVEL: 2nd level, MS degree studies

FORM OF STUDIES: intramural

PROFILE: general academic

SPECIALIZATION: Embedded Robotics (AER)

LANGUAGE OF STUDY: english

Resolution of the Wroclaw University of Science and Technology Senate No. ..... of ..... .

In effect since October 1st, 2019.

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

Semester 1

Obligatory courses / groups of courses ECTS points: 27

No.	Course /group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of houres		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	DN[5] classes	BU[1] classes			University-wide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1	FLEA00002S	Social Comm.					1	K2AIR_K01	15	60	2		1	T	Z	O			KO
2	FZP004901W	Fizyka	1					K2AIR_W01	15	30	1		0,5	T	Z	O			PD
3	AREA00106W	Artificial Intelligence and Machine Learning **(GK)**	2					S2AER_W03	30	60	5	5	2	T	Z		DN		S
4	AREA00106P	Artificial Intelligence and Machine Learning **(GK)**				2		S2AER_U03	30	60	0		3	T	Z			P(3)	S
5	AREA00116W	Embedded Systems **(GK)**	2					S2AER_W02	30	60	5	5	1	T	Z		DN		S
6	AREA00116L	Embedded Systems **(GK)**			2			S2AER_U02	30	60	0		1	T	Z			P (1,5)	S
7	AREA00006W	Applied Logic **(GK)**	1					K2AIR_W01	15	30	3		3	T	Z				S
8	AREA00006C	Applied Logic **(GK)**		1				K2AIR_U01	15	60	0		0	T	Z			P(1)	S
9	AREA17002W	Mathematical Methods of Automation and Robotics **(GK)**	2					K2AIR_W05	30	60	5	5	2	T	E(w)		DN		K
10	AREA17002C	Mathematical Methods of Automation and Robotics **(GK)**		2				K2AIR_U05	30	90			3	T	Z			P(3)	K
11	AREA00007W	Control Theory **(GK)**	2					K2AIR_W03	30	60	6	6	2	T	E(w)		DN		K
12	AREA00007C	Control Theory **(GK)**		2				K2AIR_U03	30	60	0		2	T	Z			P(2)	K
13	AREA00007L	Control Theory **(GK)**			1			K2AIR_U03	15	60	0		1	T	Z			P(2)	K
		Total	**10**	**5**	**3**	**2**	**1**		**315**	**750**	**27**	21	**21,5**					**P(12,5)**	

[1]BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes
[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]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
[6]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[7]KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Optional courses / groups of courses ECTS points: 3

No.	Course /group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of houres		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	DN[5] classes	BU[1] classes			University-wide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Foreign language (or Polish) A1		3				K2AIR_U01	45	60	2		1	T	Z	O		P(1)	PD
2		Foreign language B2+		1				K2AIR_U01	15	30	1		1	T	Z	O		P(1)	PD
		Total	**0**	**4**	**0**	**0**	**0**		**60**	**90**	**3**	0	**2**					**P(2)**	

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[5]**	**Number of ECTS points for BU classes[1]**
lec	cl	lab	pr	sem					
10	**9**	**3**	**2**	**1**	**375**	**840**	**30**	21	**23,5**

[1]BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes
[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]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
[6]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[7]KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Semester 2

Optional courses / groups of courses ECTS points: 30

No.	Course /group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of houres		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	DN[5] classes	BU[1] classes			University-wide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1	AREA00108S	Specialization Seminar					2	K2AIR_U06	30	60	2	2	1	T	Z		DN	P (2)	S
2	AREA17107P	Intermediate Project				2		S2AER_U01	30	60	3	3	1,5	T	Z		DN	P(2)	S
3	AREA00122W	Mobile Robotics 1 **(GK)**	1					S2AER_W04	15	30	2	2	1	T	Z		DN		S
4	AREA00122L	Mobile Robotics 1 **(GK)**			1			S2AER_U04	15	30	0		1	T	Z			P (1)	S
5	AREA00121W	Control Theory for Embedded Systems **(GK)**	1					S2AER_W01	15	30	3	3	1	T	E(w)		DN		S
6	AREA00121L	Control Theory for Embedded Systems **(GK)**			1			S2AER_U01	15	30	0		1	T	Z			P(1,5)	S
7	AREA00117W	Sensors and Actuators **(GK)**	1					S2AER_W02	15	30	3	3	1	T	Z		DN		S
8	AREA00117L	Sensors and Actuators **(GK)**			1			S2AER_U02	15	30	0		2	T	Z			P(2)	S
9	AREA17105W	Event-based control **(GK)**	2					S2AER_W05	30	60	5	5	1	T	E(w)		DN		S
10	AREA17105P	Event-based control **(GK)**				2		S2AER_U05	30	60	0		2	T	Z			P(2)	S
11	AREA00103W	Robotic Programming Environments **(GK)**	1					S2AER_W05	15	30	4		0,5	T	Z				S
12	AREA00103L	Robotic Programming Environments **(GK)**			2			S2AER_U05	30	60	0		2	T	Z			P(2)	S
13	AREA00118W	Theory and Methods of Optimization **(GK)**	1					K2AIR_W03	15	45	3	3	1	T	Z		DN		S
14	AREA00118C	Theory and Methods of Optimization **(GK)**		1				K2AIR_U03	15	45	0		1	T	Z			P (1)	S
15	AREA15004W	Modeling and Identification **(GK)**	2					K2AIR_W04	30	75	5	5	1	T	Z		DN		K
16	AREA15004L	Modeling and Identification **(GK)**			2			K2AIR_U04	30	75	0		2	T	Z			P (2)	K
		Total	**9**	**1**	**7**	**4**	**2**		**345**	**750**	**30**	26	**20**					**P(15,5)**	

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[5]**	**Number of ECTS points for BU classes[1]**
lec	cl	lab	pr	sem					
9	**1**	**7**	**4**	**2**	**345**	**750**	**30**	26	**20**

Semester 3

Optional courses / groups of courses ECTS points: 30

No.	Course /group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of houres		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	DN[5] classes	BU[1] classes			University-wide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1	ZMZO00387W	Entrepreneurship	1					K2AIR_W02	15	30	3		1	T	Z	O			PD
2	ZMZO00387S	Entrepreneurship					1	K2AIR_K02	15	60	0		1	T	Z	O		P(1)	PD
3	AREA00109S	Diploma seminar					2	K2AIR_U06	30	60	3	3	1,5	T	Z		DN	P (3)	S
4	AREA15110*	Master Thesis						K2AIR U07 K2AIR K03	150	360	15	15	6	T	Z		DN	P (12)	S
5	AREA00120W	Social Robots **(GK)**	1					S2AER_W03	15	30	3	3	0,5	T	Z		DN		S
6	AREA00120L	Social Robots **(GK)**			1			S2AER_U03	15	30	0		1,5	T	Z			P(2)	S
7	AREA00113W	Task and Motion Planning **(GK)**	2					S2AER_W04	30	60	3	3	1	T	Z		DN		S
8	AREA00113S	Task and Motion Planning **(GK)**					1	S2AER_U04	15	30	0		0,5	T	Z			P (1)	S
9	AREA00124W	Advanced Robot Control **(GK)**	1					S2AER_W01	15	30	2	2	1	T	Z		DN		S
10	AREA00124L	Advanced Robot Control **(GK)**			1			S2AER_U01	15	30	0		1	T	Z			P (1)	S
11	AREA00123L	Mobile Robotics 2 **(GK)**			1			S2AER_U04	15	30	1	1	1	T	Z		DN	P (1)	S
		Total	**5**	**0**	**3**	**0**	**4**		**330**	**750**	**30**	27	**16**					**P(21)**	

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[7]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**[5]	**Number of ECTS points for BU classes**[1]
lec	cl	lab	pr	sem					
5	**0**	**3**	**0**	**4**	**330**	**750**	**30**	27	**16**

2 Set of examinations in semestral arrangement

Course / group of courses code	Names of courses / groups of courses ending with examination	Semester
AREA00121	1. Control Theory for Embedded Systems	2
AREA17105	2. Event-based control	2
AREA17002	1. Mathematical Methods of Automation and Robotics	1
AREA00007	2. Control Theory	1

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 is calculated taking into account ALL courses / groups of courses, including non-technical. The deficit after semester 2 applies ONLY to courses / groups of courses not credited in semester 1 (all courses / groups of courses from semester 2 must be credited).

Opinion of student government legislative body:

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Date Name and surname, signature of student representative

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Date Dean's signature