PLAN OF STUDIES

FACULTY: Electrical	l Engineering , Mechanical Engineeri	ing, Microsystem Electronics and I	Photonics	
MAIN FIELD OF STUDY	: MECHATRO	DNICS		
EDUCATION LEVEL	1st / 2nd * level, licencjat / inżynier	/ magister / magister inżynier*		
FORM OF STUDIES:	full-time / part-time *			
PROFILE:	general academic / practical *			
SPECIALIZATION:				
LANGUAGE OF STUDY:	polish			
			Faculty Council Resolution of	

In effect since

*delete as applicable

.....

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

	Education Level: 1st level f	ull-time Main Field of Study: ME	CHATRONICS Degree Profi	le: - Mechatronics in Autom	ation and Measurements	_
lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	
					Active materials	
					1 1	
					MCR036102 1 1	-
		Optional courses:		Power Electronics	System modelling	
		Procedural Programming		2 1	1 1	
		MCM033101BK 2		MCR035302 2 1	MCR036211 1 1	-
		Electrical installations and supply	Optional courses:	Optional courses:		+
Metrology principles		systems	Network communication	Sensing	Control Systems Prototyping	
1		1 1	2 1	1 1	1	
MCR031101 1		MCR033231 1 1	MCM034101BK 1 1	MCM035101BK 1 2	MCR036301 1	┥
Engineering Graphics	Optional courses:	Material Science II E	Optional courses:	Optional courses:	Optional courses: CAD 3D FFM	
1 2	1 1	2 1	3	1 2	2	
MCM031005 1 2	MCM032101BK 2 2	MCR033102 1 1	MCM034102BK 2	MCM035102BK 1 1	MCM036101BK 2	-
Management Essentials	Fundamentals of Electrotechnics E	Software Engineering and UML	Electrical metrology	Safety in electrical engineering	Optional courses: Interdisciplinary Team Project	
1	3 1	1	2 2	1 1	3	
MCM031006 1	MCR032102 2 1	MCM033005 1	MCR034105 1 1	MCR035241 1 1	MCM036102BK 2	-
Information Technology	Metrology of geometrical quantites	Mechanics II (Dynamics) E	Fundamentals of control engineering E	Electrical Drives E	Optional courses: Signal Processing	Building a
1 1	1 1	2 2	3	3 2	1 2	
MCM031007 1 1	MCM032006 1 1	MCM033006 2 1	MCR034211 2	MCR035301 2 2	MCM036103BK 1 1	
Introduction to Mechatronics	Material Science I	Strength of materials, Mechanics of	Analysis and Synthesis of Kinematic	Fundamentals of control engineering	Optional courses:	Numerical
2		engineering materials	Systems E	, ,	Applications of Microsystems	
2	2 1	2 2 MCM033007 2 2	2 2	1	2 2 MCM03610/IPK 2 2	
xiCx1051000 2	MCM052004 2 1	AICA1055007 2 2	MCM054005 2 2	MCR03211 1	Basics of mechatronical design of	MCR03/10
Chemisty	Mechanics I (Statics)	Fundamentals of manufacturing	Fundamentals of manufacturing	Elements of control engineering	systems	Thin-layer
2	3 2	1	3	2 1	2 2	
MCD031001 2	MCM032005 2 2	MCM033008 2	MCM034006 3	MCR035212 1 1	MCM036004 1 2	MCR03710
Algebra and Analytic Geometry E	Electronic Components and Circuits	Electronic Components and Circuits	Systems for Manufacturing and Assembly	Fundamentals of machine elements design	Industrial robots E	Block of h
2 2	2	2	2 1	2 3	1 2	
MAP001140 2 1	MCD032001 2	MCD033001 2	MCM034007 2 1	MCM035003 2 2	MCM036005 2 1	HMH10003
Mathematical Analysis 1.1 A E	Mathematical Analysis 2.1 A E	Ordinary Differential Equations	Principles of microprocessor technology	Drive systems, hydraulic components and	Project Management	Diploma se
5 3	4 3	2 2	2 2		1	
MAP001142 2 2	MAP001156 2 2	MAP003062 1 1	MCD034002 1 2	MCM035004 2 1	MCM036006 1	7201, 7103
Physics 1.2 E	Physics 2.8 E	Engineering Statistics	Block of Sports Activities	Fundamentals of Electronic Design	Microsystems (MEMS) E	Diploma th
4 2		2 2 2		1		1.
FZP001058 2 2	FZP003002 1 1	MCD033002 1 1	WFW000000BK 2	MCD035001 1	MCD036001 2 1	MCR03710 7200, 7300
Block of humanistic courses	Block of humanistic courses	Foreign Languages B2 or Cl	Foreign Languages B2	Applications of ontoelectronics	Fundamentals of Electronic Design	Practice
1			orongin Dampangeo Da		1 and an entraits of Electronic Design	
HMH100035BK 1	HMH100035BK 1	JZL100707BK 4	JZL100708BK 4	MCD035002 1 2	MCD036002 2	MCR03700
sem. 1	sem. 2	sem. 3	sem. 4	sem. 5	sem. 6	
30 ECTS 20 7 3 0 0 0	30 ECTS 19 6 5 0 0 0	30 ECTS 13 11 6 0 0 0 26 11 10 5 0 0 0	30 ECTS 13 3 12 2 0 0	30 ECTS 16 0 11 3 0 0	30 ECTS 11 0 13 6 0 0	30 E
total lec cl lab 1 77 24 47	Pr sem ECTS 2	.10				
168						



	Education Level: 1st level fu	ll-time Main Field of Study: MEC	CHATRONICS Degree Profil	e: Mechatronics in Mach	ine Building and Vehicles	
1ec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	
				Ecology in industrial manufacturing		
				1		
				MCM035201 1		
		Optional courses:		Technological designe processes	Manufacturing automation	
		Procedural Programming			2 1	
		MCM033101BK 2		MCM035202 1 1	MCM036203 2 1	_
		Electrical installations and supply	Optional courses:	Optional courses:		
Metrology principles		systems	Network communication	Sensing	Design of mechanical assemblies	
1		1 1	2 1		1 1	_
MCR031101 1	Ontional courses:	MCR033231 1 1	MCM034101BK 1 1	MCM035101BK 1 2	MCM030204 I I	
Engineering Graphics	Informatics	Material Science II E	Object Oriented Programming	Logical Systems	CAD 3D-FEM	
1 2	1 1	2 1	3	1 2	2	
MCM031005 1 2	MCM032101BK 2 2	MCR033102 1 1	MCM034102BK 2	MCM035102BK 1 1	MCM036101BK 2	
Management Essentials	Fundamentals of Electrotechnics E	Software Engineering and UML	Electrical metrology	Safety in electrical engineering	Optional courses: Interdisciplinary Team Project	Monitoring o
1	3 1	1	2 2	1 1	3	
MCM031006 1	MCR032102 2 1	MCM033005 1	MCR034105 1 1	MCR035241 1 1	MCM036102BK 2	MCM037205
Information Technology	Metrology of geometrical quantites	Mechanics II (Dynamics) E	Fundamentals of control engineering E	Electrical Drives E	Optional courses:	Numerical m
1 1		2 2	3	3 2	1 2	
MCM031007 1 1	MCM032006 1 1	MCM033006 2 1	MCR034211 2	MCR035301 2 2	MCM036103BK 1 1	MCM037206
Introduction to Machatronian	Matanial Salanga I	Strength of materials, Mechanics of	Analysis and Synthesis of Kinematic	Fundamentals of control engineering	Optional courses:	Programing
Introduction to Mechatronics	Material Science I	engineering materials	Systems E	r undamentais of control engineering	Applications of Microsystems	controled
2	2 1	2 2	2 2			1(0)/027207
MCM031008 2	MCM052004 2 1	MCM055007 2 2	MCM034005 2 2	MCR035211 1	MCM030104BK 2 2 Basics of mechatronical design of	MCM037207
Chemisty	Mechanics I (Statics)	Fundamentals of manufacturing	Fundamentals of manufacturing	Elements of control engineering	systems	SCADA i HM
2	3 2	1	3	2 1	2 2	
MCD031001 2	MCM032005 2 2	MCM033008 2	MCM034006 3	MCR035212 1 1	MCM036004 1 2	MCM037208
Algebra and Analytic Geometry E	Electronic Components and Circuits	Electronic Components and Circuits	Systems for Manufacturing and Assembly	Fundamentals of machine elements design	Industrial robots E	Block of hun
2 2	2	2	2 1	2 3	1 2	
MAT001402 2 1	MCD032001 2	MCD033001 2	MCM034007 2 1	MCM035003 2 2	MCM036005 2 1	HMH100035E
Mathematical Analysis 1.1 A E	Mathematical Analysis 2.1 A E	Ordinary Differential Equations	Principles of microprocessor technology	Drive systems, hydraulic components and	Project Management	Diploma sem
5 3	4 3	2 2	2 2	2 1	1	
MAT001412 2 2	MAP001156 2 2	MAP003062 1 1	MCD034002 1 2	MCM035004 2 1	MCM036006 1	MCM037001
Physics 1.2 F	Physics 2.8 F	Engineering Statistics	Black of Sports Activities	Fundamentals of Flectronic Design	Vienewstems (MEMS) F	Diploma the
1 1 2	2 2		Diver of Sports Activities	1 undamentars of Electronic Design	Anterosystems (ALMO)	Dipiona tites
4 2 F7P001058 2 2	E7P003002 1 1	2 2 MCD033002 1 1	UTW000000BK 2	1 MCD035001 1	2 2 MCD036001 2 1	MCM037002
	121003002 1 1					MCM057002
Block of humanistic courses	Block of humanistic courses	Foreign Languages B2 or C1	Foreign Languages B2	Applications of optoelectronics	Fundamentals of Electronic Design	Practice
1	1	2	3	1 1	1	
HMH100035BK 1	HMH100035BK 1	JZL100707BK 4	JZL100708BK 4	MCD035002 1 2	MCD036002 2	MCM0370030
30 ECTS 20 7 3 0 0 0	30 ECTS 19 6 5 0 0 0	30 ECTS 13 11 6 0 0 0	30 ECTS 13 3 12 2 0 0	30 ECTS 16 0 10 4 0 0	30 ECTS 12 0 11 7 0 0	30 EC
23 15 5 3 0 0 0	25 15 5 0 0 0	26 11 10 5 0 0 0	27 9 4 10 2 0 2	28 14 0 11 3 0 0	27 12 0 8 7 0 0	12
total lec cl lab	pr sem ECTS 1	210				
168						



	Education Leve	el: <mark>1st level</mark> full-time Main Fie	ld of Study: MECHATRONICS	Degree Profile: - Mechatro	aic Systems	
lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	lec cl lab pr sem	
		Optional courses:				
		Procedural Programming		Electronic Components	Photonics	
		3		2 1	1 2	
		MCM033101BK 2		MCD035201 2 1	MCD036201 1 2	
Metrology principles		Electrical installations and supply	Optional courses:	Optional courses: Sensing	Micro- and Nanoelectronics	
1		1 1	2 1	1 1	2	
MCR031101 1		MCR033231 1 1	MCM034101BK 1 1	MCM035101BK 1 2	MCD036202 2	
Facility Carabian	Optional courses:	Maturial Colones H. F.	Optional courses:	Optional courses:	Optional courses:	
Engineering Graphics	<u>Informatics</u>	Material Science II E	Object Oriented Programming	Logical Systems	CAD 3D-FEM	
1 2	1 1	2 1	3	1 2	2	
MCM031005 1 2	MCM032101BK 2 2	MCR033102 1 1	MCM034102BK 2	MCM035102BK 1 1	MCM036101BK 2	
Management Essentials	Fundamentals of Electrotechnics E	Software Engineering and UML	Electrical metrology	Safety in electrical engineering	Optional courses: Interdisciplinary Team Project	Laboratory of nanoelectron
1	3 1	1	2 2	1 1	3	
MCM031006 1	MCR032102 2 1	MCM033005 1	MCR034105 1 1	MCR035241 1 1	MCM036102BK 2	MCD037201
Information Technology	Metrology of geometrical quantites	Mechanics II (Dynamics) F	Fundamentals of control engineering F	Flectrical Drives E	Optional courses:	Numerical m
, , ,	, , ,				Signal Processing	
1 1		2 2))(CD02(01)	5 2		1(CD027202
MCM05100/ 1 1	MCM052000 1 1	Strength of materials Mechanics of	Analysis and Synthesis of Kinematic	MCR035301 2 2	Ontional courses:	MCD057202
Introduction to Mechatronics	Material Science I	engineering materials	Systems E	Fundamentals of control engineering	Applications of Microsystems	Systems
2	2 1	2 2	2 2	1	2 2	
MCM031008 2	MCM032004 2 1	MCM033007 2 2	MCM034005 2 2	MCR035211 1	MCM036104BK 2 2	MCD037203
Chemisty	Mechanics I (Statics)	Fundamentals of manufacturing	Fundamentals of manufacturing	Elements of control engineering	Basics of mechatronical design of	Peripheral D
2	3 2	1	3	2 1	2 2	-
MCD031001 2	MCM032005 2 2	MCM033008 2	MCM034006 3	MCR035212 1 1	MCM036004 1 2	MCD037204
			Systems for Manufacturing and	Fundamentals of machine elements	T. 1. () 1. () T	
Algebra and Analytic Geometry E	Electronic Components and Circuits	Electronic Components and Circuits	Assembly	design	Industrial robots E	Block of hum
2 2	2	2	2 1	2 3	1 2	
MAP001140 2 1	MCD032001 2	MCD033001 2	MCM034007 2 1	MCM035003 2 2	MCM036005 2 1	HMH100035B
Mathematical Analysis 1.1 A E	Mathematical Analysis 2.1 A E	Ordinary Differential Equations	Principles of microprocessor technology E	Drive systems, hydraulic components and pneumatic components E	Project Management	Diploma sem
5 3	4 3	2 2	2 2	2 1	1	
MAP001142 2 2	MAP001156 2 2	MAP003062 1 1	MCD034002 1 2	MCM035004 2 1	MCM036006 1	MCD037001
Physics 1.2 F	Physics 2.8 F	Engineering Statistics	Block of Sports Activities	Fundamentals of Electronic Design	Microsystems (MFMS) F	Dinloma thes
1 1,0100 112 2				,		2 sprona theo
4 2	Z Z	2 2 MCD032002 1 1	U TUENIOOOOODT	1	2 2 MCD036001 2 1	MCD037002
F2F001056 2 2	FZF003002 1 1	MCD033002 1 1	WI WOUDDOBA 2	MCD055001 1	MCD050001 2 1	MCD057002
Block of humanistic courses	Block of humanistic courses	Foreign Languages B2 or C1	Foreign Languages B2	Applications of optoelectronics	Fundamentals of Electronic Design	Practice
1	1	2	3	1 1	1	
HMH100035BK 1	HMH100035BK 1	JZL100707BK 4	JZL100708BK 4	MCD035002 1 2	MCD036002 2	MCD030002Q
sem. 1 30 ECTS 20 7 3 0 0 0	sem. 2 30 ECTS 19 6 5 0 0 0	sem. 3 30 ECTS 13 11 6 0 0 0	sem. 4 30 ECTS 13 3 12 2 0 0	sem. 5	30 ECTS 12 0 12 6 0 0	30 FC1
23 15 5 3 0 0 0	25 15 5 5 0 0 0	26 11 10 5 0 0 0	27 9 4 10 2 0 2	28 14 0 12 2 0 0	27 12 0 9 6 0 0	12
total lec cl lab p	er sem ECTS	210				
79 24 48 1 168	10 3 4					



<u>Optional courses:</u> <u>Informatics</u>	<u>Optional courses:</u> <u>Procedural Programming</u>	<u>Optional courses:</u> <u>Network communication</u>	<u>Optional courses:</u> Object Oriented Programming	<u>Optional co</u> <u>Sensir</u>
Introduction to programming	Programming in Matlab	Components of computer networks	MATLAB Object Oriented Programming	Sensors – properties a
1 1 MCR032251 2 2	3 MCR033251 2	2 1 MCR034104 1 1	3 MCR034251 2	1 MCR035103 1
Introduction to programming	C Programming	Industrial networks	C++ Programming	Sensors in manufactur
MCM032102 2 2	MCM033102 2	MCM034103 1 1	MCM034104 2	MCM035105 1
Fundamentals of Computer Science	The Practice of Programming in C	Introduction to Computer Networks	Object Oriented Programming	Sensors in the machine construction
1 1	3	2 1	3	1
MCD032101 2 2	MCD033101 2	MCD034103 1 1	MCD034102 2	MCM035106 1
				Sensors and actuators

<u>Opt</u> Lo	<u>Optional courses:</u> <u>Logical Systems</u>									
Programming of systems based of	f distrib n PLC	uted cont	trol	FEM modellin						
	1	2								
MCR035303	1	1		MCR036303						
Programmable	Logic (Controlle	rs	CAD/FEM						
	1	2								
MCM035104	1	1		MCM036106						
Logic Circuits	Modeliı	ıg		Numerical pro structures						
	1	2								
MCD035102	1	1		MCD036101						

<u>Optional courses:</u> <u>CAD 3D-FEM</u>										
FEM modelling in mechatronics										
			2							
MCR036303			2							
CAD/FEM										
			2							
MCM036106			2							
Numerical proto structures	typin	ig of n	nicr	oele	ctro	nic				
			2							
MCD036101			2							

Optional course	Optional courses: Interdisciplinary Team <u>Project</u>									
Interdisciplina	ry Team Project	Digital signa								
MCR036103,	3									
6231, 6302	2	MCR036106								
Interdisciplina	ry Team Project	Signal Proce								
	3									
MCM036107	2	MCM036108								
Interdisciplina	ry Team Project	Methods of S								
	3									
MCD036102	2	MCD036103								

<u>Opti</u> Sign	onal (al Pr	courses ocessin			MCD0351
ignal pr	oces	sing			
	1	2			
106	1	1			App
rocessi	ng	Microsys			
	1	2			
5108	1	1			MCR0363
of Sign	al Pr	ocessin	s		Microsys
	1	2			
103	1	1			MCR0363

Mechatronics in Medicine

MCM036109	1	
Mechatronic sys	tems	5
technologies		
	1	
MCM036110	1	
Microsystems in	med	
	1	
MCD036104	1	
Automotive micr	osys	1
	1	
MCD036105	1	





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

Semester 1

		Total	14	5	3	0	0		330	870	29	20,4				
14.	FZP001058C	Physics 1.2		2				K1MTR_U01, K1MTR_U02, K1MTR_U12, K1MTR_U24, K1MTR_K01, K1MTR_K02, K1MTR_K07, K1MTR_K12	30	60	2	2,0	Т	Z	0	
13.	FZP001058W	Physics 1.2	2					K1MTR_W01, K1MTR_W02, K1MTR_W12, K1MTR_K01, K1MTR_K02, K1MTR_K07, K1MTR_K12	30	120	4	4,0	Т	E	0	
12.	MAP001142C	Mathematical Analysis 1.1 A		2				K1MTR_U01	30	90	3	2,0	Т	Z	0	
11.	MAP001142W	Mathematical Analysis 1.1 A	2					K1MTR_W01	30	150	5	3,0	Т	Е	0	
10.	MAP001140C	Algebra and Analytic Geometry		1				K1MTR_U01, K1MTR_K01	15	60	2	1,0	Т	Ζ	0	
9.	MAP001140W	Algebra and Analytic Geometry	2					K1MTR_W01	30	60	2	1,5	Т	Е	0	
8.	MCD031001W	Chemisty	2					K1MTR_W07	30	60	2	1,2	Т	Ζ		
7.	MCM031008W	Introduction to Mechatronics	2					K1MTR_W10, K1MTR_W15, K1MTR_W16, K1MTR_W19, K1MTR_W22, K1MTR_W23, K1MTR_W26	30	60	2	1,2	Т	Z		
6.	MCM031007L	Information Technology			1			K1MTR_U19	15	30	1	0,7	Т	Z		
5.	MCM031007W	Information Technology	1					K1MTR_W01, K1MTR_W02	15	30	1	0,6	Т	Z		
4.	MCM031006W	Management Essentials	1					K1MTR_W04, K1MTR_W28	15	30	1	0,6	Т	Z		
3.	MCM031005L	Engineering Graphics			2			K1MTR_U05, K1MTR_U09, K1MTR_U29	30	60	2	1,4	Т	Z		
2.	MCM031005W	Engineering Graphics	1					K1MTR_W06	15	30	1	0,6	Т	Ζ		
1.	MCR031101W	Metrology principles	1					K1MTR_W03	15	30	1	0,6	Т	Z		
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pra
		Name of course/group of courses	Wee	ekly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Numl ECTS	per of points	Form ² of	Way ³ of	Cou	rse
																_

Obligatory courses number of ECTS points 29

No. Course/gr of courses	Course/group	Name of course/group of courses	Weekly number of hours				ours	Field-of-study	Number of hours		Number of ECTS points		Number of ECTS points		Form ² of	Way ³ of	Course/group of courses		
	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g credit roup of g courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷	
		Total	0	0	0	0	0		0	0	0	0							

e/grou	p of cou	irses
ractical ⁵	kind ⁶	type ⁷
	K	Ob.
	K	Ob.
Р	K	Ob.
	KO	Ob.
	KO	Ob.
Р	KO	Ob.
	К	Ob.
	PD	Ob.
	PD	Ob.
Р	PD	Ob.
	PD	Ob.
Р	PD	Ob.
	PD	Ob.
Р	PD	Ob.

Optional courses (minimum 1 hours in semester, 1 ECTS points)

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Numl ho	ber of urs	Numl ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
1 H	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical55	kind ⁶	type ⁷
1.	HMH100035BK	Block of humanistic courses	1					K1MTR_W25, K1MTR_K02, K1MTR_K07	15	30	1	0,6	Т	Ζ	0		КО	W
		Total	1	0	0	0	0		15	30	1	0,6						

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Numl ho	per of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
No. 0	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical5	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

To	Total number of hours		urs	Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes1	
lec	cl	lab	pr	sem	245	000	20	21
15	5	3	0	0	545	500	30	21

Obligatory courses number of ECTS points 27

	Course/group	Name of course/group of courses	Wee	ekly n	umbe	er of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pra
1.	MCR032102W	Fundamentals of Electrotechnics	2					K1MTR_W13	30	90	3	1,8	Т	Е		
2.	MCR032102C	Fundamentals of Electrotechnics		1				K1MTR_U13	15	30	1	0,7	Т	Z		
3.	MCM032006W	Metrology of geometrical quantites	1					K1MTR_W03	15	30	1	0,6	Т	Z		
4.	MCM032006L	Metrology of geometrical quantites			1			K1MTR_U29, K1MTR_K03, K1MTR_K04, K1MTR_K09	15	30	1	0,7	Т	Z		
5.	MCM032004W	Material Science I	2					K1MTR_W02, K1MTR_W07	30	60	2	1,2	Т	Z		
6.	MCM032004L	Material Science I			1			K1MTR_U07	15	30	1	0,7	Т	Z		
7.	MCM032005W	Mechanics I (Statics)	2					K1MTR_W01, K1MTR_W02, K1MTR_W08	30	90	3	1,8	Т	Z		
8.	MCM032005C	Mechanics I (Statics)		2				K1MTR_U08	30	60	2	1,4	Т	Z		
9.	MCD032001W	Electronic Components and Circuits	2					K1MTR_W14, K1MTR_W29	30	60	2	1,2	Т	Z		
10.	MAP001156W	Mathematical Analysis 2.1 A	2					K1MTR_W01	30	120	4	3,0	Т	Е	0	
11.	MAP001156C	Mathematical Analysis 2.1 A		2				K1MTR_U01	30	90	3	2,0	Т	Z	0	
12.	FZP003002W	Physics 2.8	1					K1MTR_W01, K1MTR_W02, K1MTR_W07, K1MTR_W13, K1MTR_W14, K1MTR_W25	15	60	2	2,0	Т	Е	0	
13.	FZP003002L	Physics 2.8			1			K1MTR_U01, K1MTR_U24, K1MTR_U25, K1MTR_K02, K1MTR_K11	15	60	2	2,0	Т	Z	0	
		Total	12	5	3	0	0		300	810	27	19,1				_

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
^{NO.} of	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
																		l l
																		1
																		Í
		Total	0	0	0	0	0		0	0	0	0						

e/grou	p of cou	irses
actical ⁵	kind ⁶	type ⁷
	K	Ob.
Р	K	Ob.
	K	Ob.
Р	K	Ob.
	PD	Ob.
Р	PD	Ob.
	K	Ob.
Р	K	Ob.
	K	Ob.
	PD	Ob.
Р	PD	Ob.
	PD	Ob.
Р	PD	Ob.

Optional courses (minimum 5 hours in semester, 3 ECTS points)

No.	Course/group	Name of course/group of courses	Wee	ekly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cour	rse
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pr
1.	HMH100035BK	Block of humanistic courses	1					K1MTR_W05, K1MTR_K09	15	30	1	0,6	Т	Z	0	
	MCM022101DK	Optional courses:	2						30	30	1	0,6	Т	Z		1
	MCM032101BK	Informatics			2				30	30	1	0,7	Т	Z		1
2.	MCR032251W	Introduction to programming	2					K1MTR_W19								i
3.	MCR032251L	Introduction to programming			2			K1MTR_U19								
4.	MCM032102W	Introduction to programming	2					K1MTR_W19								
5.	MCM032102L	Introduction to programming			2			K1MTR_U19, K1MTR_K03								i
6.	MCD032101W	Fundamentals of Computer Science	2					K1MTR_W19								i
7.	MCD032101L	Fundamentals of Computer Science	2 K1N	K1MTR_U19												
		Total	3	0	2	0	0		75	90	3	1,9				

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No. 0	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0		-	-			

То	Total number of hoursccllabprso5550			urs	Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes1
lec	cl	lab	pr	sem	275	000	20	21
15	5	5	0	0	575	900	30	21

rse/grou	p of cou	irses
practical ⁵	kind ⁶	type ⁷
	KO	W
	PD	W
Р	PD	W

	8															_
	Course/group	Name of course/group of courses	Wee	ekly n	umbe	er of h	ours	Field-of-study	Num ho	ber of ours	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pr
1.	MCR033231W	Electrical installations and supply systems	1					K1MTR_W10	15	30	1	0,6	Т	Z		
2.	MCR033231C	Electrical installations and supply systems		1				K1MTR_U01, K1MTR_U02, K1MTR_U03, K1MTR_U04, K1MTR_U05, K1MTR_K01	15	30	1	0,7	Т	Z		
3.	MCR033102W	Material Science II	1					K1MTR_W07	15	60	2	1,2	Т	Е		
4.	MCR033102L	Material Science II			1			K1MTR_U03	15	30	1	0,7	Т	Z		
5.	MCM033005W	Software Engineering and UML	1					K1MTR_W19, K1MTR_W32	15	30	1	0,6	Т	Z		
6.	MCM033006W	Mechanics II (Dynamics)	2					K1MTR_W09	30	60	2	1,2	Т	E		
7.	MCM033006C	Mechanics II (Dynamics)		1				K1MTR_U01, K1MTR_U02	15	60	2	1,4	Т	Z		
8.	MCM033007W	Strength of materials, Mechanics of engineering materials	2					K1MTR_W07	30	60	2	1,2	Т	Z		
9.	MCM033007C	Strength of materials, Mechanics of engineering materials		2				K1MTR_U01, K1MTR_U02, K1MTR_U09	30	60	2	1,4	Т	Z		
10.	MCM033008W	Fundamentals of manufacturing	2					K1MTR_W04	30	30	1	0,6	Т	Z		
11.	MCD033001L	Electronic Components and Circuits			2			K1MTR_U32, K1MTR_K03	30	60	2	1,4	Т	Z		
12.	MAP003061W	Applied Statistics	1					K1MTR_W01	15	60	2	1,0	Т	Z		
13.	MAP003061C	Applied Statistics		1				K1MTR_U01, K1MTR_K01	15	60	2	1,0	Т	Z		
14.	MCD033002W	Statistics for Engineers	1					K1MTR_W26	15	60	2	1,2	Т	Z		
15.	MCD033002C	Statistics for Engineers		1 K1M		K1MTR_U30	15	60	2	1,4	Т	Z				
		Total	11	6	3	0	0		300	750	25	15,6	1			

Obligatory courses number of ECTS points 25

No.	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cour
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴
		Total	0	0	0	0	0		0	0	0	0			

e/grou	p of cou	irses
actical ⁵	kind ⁶	type ⁷
	K	Ob.
Р	K	Ob.
	PD	Ob.
Р	PD	Ob.
	PD	Ob.
	K	Ob.
Р	K	Ob.
	K	Ob.
Р	K	Ob.
	K	Ob.
Р	K	Ob.
	PD	Ob.
Р	PD	Ob.
	PD	Ob.
Р	PD	Ob.

p of cou	irses
kind ⁶	type ⁷
	p of cou

Optional courses (minimum 6 hours in semester, 5 ECTS points)

	Course/group	Name of course/group of courses	We	ekly	numbe	er of l	nours	Field-of-study	Num ho	ber of ours	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical5	kind ⁶	type ⁷
1.	JZL100707BK	Foreign Languages B2 or C1		4				K1MTR_U06, K1MTR_K01	60	60	2	1,5	Т	Z	0	Р	KO	W
	MCM033101BK	Optional courses: Procedural Programming			2				30	90	3	2,1	Т	Z		Р	PD	W
2.	MCR033251L	Programming in Matlab			2			K1MTR_U19										
3.	MCM033102L	C Programming			2			K1MTR_U19, K1MTR_K01										
4.	MCD033101L	The Practice of Programming in C			2			K1MTR_U19, K1MTR_K03, K1MTR_K04										
		Tot	al 0	4	2	0	0		90	150	5	3,6						

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical55	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

То	Total number of hours Total number of hours C cl lab pr sem Total number of 390				Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes1
lec	cl	lab	pr	sem	200	000	20	10.2
11	10	5	0	0	590	900	30	19,2

	Course/group	Name of course/group of courses	Wee	ekly n	umbe	er of h	nours	Field-of-study	Num ho	ber of ours	Num ECTS	ber of points	Form ² of	Way ³ of	Cou
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴
1.	MCR034105W	Electrical metrology	1					K1MTR_W03	15	60	2	1,2	Т	Z	
2.	MCR034105L	Electrical metrology			1			K1MTR_U03	15	60	2	1,4	Т	Z	
3.	MCR034211W	Fundamentals of control engineering	2					K1MTR_W17	30	90	3	1,8	Т	E	
4.	MCM034005W	Analysis and Synthesis of Kinematic Systems	2					K1MTR_W09	30	60	2	1,2	Т	Е	
5.	MCM034005P	Analysis and Synthesis of Kinematic Systems				2		K1MTR_U09	30	60	2	1,4	Т	Z	
6.	MCM034006L	Fundamentals of manufacturing			3			K1MTR_U03, K1MTR_U11, K1MTR_U29, K1MTR_K01, K1MTR_K05, K1MTR_K08	45	90	3	2,1	Т	Z	
7.	MCM034007W	Systems for Manufacturing and Assembly	2					K1MTR_W08, K1MTR_W11, K1MTR_W18	30	60	2	1,2	Т	Е	
8.	MCM034007L	Systems for Manufacturing and Assembly			1			K1MTR_U11, K1MTR_U18, K1MTR_K03, K1MTR_K04, K1MTR_K06	15	30	1	0,7	Т	Z	
9.	MCD034002W	Principles of microprocessor technology	1					K1MTR_W16	15	60	2	1,2	Т	Ζ	
10.	MCD034002L	Principles of microprocessor technology			2			K1MTR_U16	30	60	2	1,4	Т	Ζ	
		Total	8	0	7	2	0		255	630	21	13,6			

Obligatory courses number of ECTS points 20

No.	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

Cou	rse/grou	p of cou	irses
niversi -wide ⁴	practical ⁵	kind ⁶	type ⁷
		K	Ob.
	Р	K	Ob.
		K	Ob.
		K	Ob.
	Р	K	Ob.
	Р	K	Ob.
		K	Ob.
	Р	K	Ob.
		K	Ob.
	Р	K	Ob.

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rs
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pı
1.	JZL100708BK	Foreign Languages B2 or C1		4				K1MTR_U06, K1MTR_K01	60	90	3	2,5	Т	Ζ	0	
2.	WFW000000BK	Block of Sports Activities		2				K1MTR_K03, K1MTR_K11, K1MTR_K14	30	0	0	0	Т	Z	0	
	MCM03/101BK	Optional courses:	1						15	60	2	1,2	Т	Z		
	WICINI034101DK	Network communication			1				15	30	1	0,7	Т	Z		
3.	MCR034104W	Components of computer networks	1					K1MTR_W19, K1MTR_W20								
4.	MCR034104L	Components of computer networks			1			K1MTR_U19, K1MTR_U20								
5.	MCM034103W	Industrial networks	1					K1MTR_W20								
6.	MCM034103L	Industrial networks			1			K1MTR_U20								
7.	MCD034103W	Introduction to Computer Networks	1					K1MTR_W20								
8.	MCD034103L	Introduction to Computer Networks			1			K1MTR_U20								
	MCM034102BK	Optional courses: Object Oriented Programming			2				30	90	3	2,1	Т	Z		
9.	MCR034251L	MATLAB Object Oriented Programming			2			K1MTR_U19, K1MTR_U35, K1MTR_K01								
10.	MCM034104L	C++ Programming			2			K1MTR_U19, K1MTR_U35, K1MTR_K01								
11.	MCD034102L	Object Oriented Programming			2			K1MTR_U19, K1MTR_U35, K1MTR_K01								
		Total	1	4	3	0	0		150	270	9	6,5				

Optional courses (minimum 8 hours in semester, 10 ECTS points)

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

No.	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Numl ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
	· ·	Total	0	0	0	0	0		0	0	0	0						

То	Total number of hours Total number of ZZU hours ec cl lab pr sem 405					Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes1
lec	cl	lab	pr	sem	405	900	30	20.1
9	4	10	2	0	405	900		20,1

1	rse/grou	p of cou	irses
	practical5	kind ⁶	type ⁷
	Р	KO	W
	Р	КО	W
		PD	W
	Р	PD	W
	Р	PD	W

|--|

0.01	ingutory cours	to number of 2010 points ==														
	Course/group	Name of course/group of courses	Wee	ekly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pra
1.	MCR035241W	Safety in electrical engineering	1					K1MTR_W27	15	30	1	0,6	Т	Z		
2.	MCR035241L	Safety in electrical engineering			1			K1MTR_U31, K1MTR_K13	15	30	1	0,7	Т	Z		
3.	MCR035301W	Electrical Drives	2					K1MTR_W10	30	90	3	1,8	Т	Е		
4.	MCR035301L	Electrical Drives			2			K1MTR_U02, K1MTR_U10	30	60	2	1,4	Т	Z		
5.	MCR035211L	Fundamentals of control engineering			1			K1MTR_U17, K1MTR_K03	15	30	1	0,7	Т	Z		
6.	MCR035212W	Elements of control engineering	1					K1MTR_W17	15	60	2	1,2	Т	Z		
7.	MCR035212L	Elements of control engineering			1			K1MTR_U17, K1MTR_K01	15	30	1	0,7	Т	Z		
8.	MCM035003W	Fundamentals of machine elements design	2					K1MTR_W07, K1MTR_W09, K1MTR_W10	30	60	2	1,2	Т	Z		
9.	MCM035003P	Fundamentals of machine elements design				2		K1MTR_U05, K1MTR_U09, K1MTR_U23, K1MTR_K02, K1MTR_K04	30	90	3	2,1	Т	Z		
10.	MCM035004W	Drive systems, hydraulic components and pneumatic components	2					K1MTR_W10, K1MTR_W24	30	60	2	1,2	Т	Е		
11.	MCM035004L	Drive systems, hydraulic components and pneumatic components			1			K1MTR_U10, K1MTR_U23, K1MTR_K04	15	30	1	0,7	Т	Ζ		
12.	MCD035001W	Fundamentals of Electronic Design	1					K1MTR_W31	15	30	1	0,6	Т	Z		
13.	MCD035002W	Applications of optoelectronics	1					K1MTR_W30	15	30	1	0,6	Т	Z		L
14.	MCD035002L	Applications of optoelectronics			2			K1MTR_U33	30	30	1	0,7	Т	Z		
		Total	10	0	8	2	0		300	660	22	14,2				
								-					-			

	1 0	<i>i i</i>																
	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical5	kind ⁶	type ⁷
-	-	Total	0	0	0	0	0		0	0	0	0		-	-			

se/group of courses											
practical ⁵	kind ⁶	type ⁷									
	K	Ob.									
Р	K	Ob.									
	K	Ob.									
Р	K	Ob.									
Р	K	Ob.									
	K	Ob.									
Р	K	Ob.									
	K	Ob.									
Р	K	Ob.									
	K	Ob.									
Р	K	Ob.									
	K	Ob.									
	K	Ob.									
Р	K	Ob.									

_																		
	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field of study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
	MCM025101DV	Optional courses:	1						15	30	1	0,6	Т	Z			K	W
	MCM035101BK	Sensing			2				30	30	1	0,7	Т	Z		Р	K	W
1.	MCR035103W	Sensors - properties and applications	1					K1MTR_W15										
2.	MCR035103L	Sensors – properties and applications			2			K1MTR_U15										
3.	MCM035105W	Sensory w systemacha wytwórczych	1					K1MTR_W03, K1MTR_W15, K1MTR_W16										
4.	MCM035105L	Sensory w systemacha wytwórczych			2			K1MTR_U03, K1MTR_U10, K1MTR_U15										
3.	MCM035106W	Sensors in the machine and vehicle construction	1					K1MTR_W03, K1MTR_W15, K1MTR_W16										
4.	MCM035106L	Sensors in the machine and vehicle construction			2			K1MTR_U03, K1MTR_U10, K1MTR_U15										
5.	MCD035101W	Sensors and actuators	1					K1MTR_W15										
6.	MCD035101L	Sensors and actuators			2			K1MTR_U15										
	MCM035102PK	Optional courses:	1						15	30	1	0,6	Т	Z			K	W
	WICWI055102DK	Logical Systems			1				15	60	2	1,4	Т	Z		Р	K	W
7.	MCR035303W	Programming of distributed control systems based on PLC	1					K1MTR_W10, K1MTR_W17, K1MTR_W33										
8.	MCR035303L	Programming of distributed control systems based on PLC			1			K1MTR_U15, K1MTR_U20, K1MTR_U36										
9.	MCM035104W	Programmable Logic Controllers	1					K1MTR_W10, K1MTR_W33										
10.	MCM035104L	Programmable Logic Controllers			1			K1MTR_U16, K1MTR_U36										
11.	MCD035102W	Logic Circuits Modeling	1					K1MTR_W16, K1MTR_W19										<u> </u>
12.	MCD035102L	Logic Circuits Modeling			1			K1MTR_U19, K1MTR_U22										<u> </u>
	MCR035201BK	Degree Profile																
Degr	ee Profile: Mechat	tronics in Automation and Measurements																
13.	MCR035302W	Power Electronics	2					K1MTR_MAP_W01	30	60	2	1,2	Т	Z			K	W
14.	MCR035302L	Power Electronics			1			K1MTR_MAP_U01	15	30	1	0,7	Т	Z		Р	K	W
Degr	ee Profile: • Mech	atronics in Machine Building and Vehicles																
15.	MCM035203W	Ecology in industrial manufacturing	1					K1MTR_M_W05	15	30	1	0,6	Т	Z			Κ	W
16.	MCM035204W	Technological designe processes	1					K1MTR_W06, K1MTR_W11	15	30	1	0,6	Т	Z			K	W
17.	MCM035204P	Technological designe processes				1		K1MTR_M_U03, K1MTR_M_U06	15	30	1	0,7	Т	Z		Р	K	W
Degr	ee Profile: - Mecha	atronic Systems															·	
18.	MCD035201W	Electronic Components	2					K1MTR_MM_W01	30	60	2	1,2	Т	Z			K	W
19.	MCD035201L	Electronic Components			1			K1MTR_MM_U01	15	30	1	0,7	Т	Z		Р	K	W
		Degree Profile: MiAaM	4	0	4	0	0		120	240	8	5,2						
		Degree Profile:MiBaV	4	0	3	1	0		120	240	8	5,2]					
		Degree Profile: MS	4	0	4	0	0		120	240	8	5,2	1					

Optional courses (minimum 8 hours in semester, 8 ECTS points)

Groups of optional courses	s (e.g. name of specialization) (minimum hours in se	mester, ECTS points)
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	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

Altogether in semester

	То	otal nu	mber	of hou	ırs	Total number of ZZU	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for
	lec	cl	lab	pr	sem	nours			DK classes I
Degree Profile: MiAaM	14	0	12	2	0	420	900	30	19,4
Degree Profile:MiBaV	14	0	11	3	0	420	900	30	19,4
Degree Profile: MS	14	0	12	2	0	420	900	30	19,4

Semester 6

Obligatory courses number of ECTS points 13

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cour	15
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	1
1.	MCM036004W	Basics of mechatronical design of systems	1					K1MTR_W24	15	60	2	1,2	Т	Z		
2.	MCM036004P	Basics of mechatronical design of systems				2		K1MTR_U23, K1MTR_K02	30	60	2	1,4	Т	Z		
3.	MCM036005W	Industrial robots	2					K1MTR_W09, 1MTR_W10, 1MTR_W15, K1MTR_W23	30	30	1	0,6	Т	Е		
4.	MCM036005L	Industrial robots			1			K1MTR_U09, K1MTR_U24, K1MTR_U29	15	60	2	1,4	Т	Z		
5.	MCM036006W	Project Management	1					K1MTR_W28	15	30	1	0,6	Т	Z		
6.	MCD036001W	Microsystems (MEMS)	2					K1MTR_W15	30	60	2	1,2	Т	E		
7.	MCD036001L	Microsystems (MEMS)			1			K1MTR_U15, K1MTR_K03	15	60	2	1,4	Т	Z		
8.	MCD036002P	Fundamentals of Electronic Design				2		K1MTR_U34, K1MTR_U32, K1MTR_K03, K1MTR_K04	30	30	1	0,7	Т	Z		
		Total	6	0	2	4	0		180	390	13	8,5				

	Course/group	Name of course/group of courses	Wee	ekly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴
-		Total	0	0	0	0	0		0	0	0	0			

e/grou	e/group of courses											
actical ⁵	kind ⁶	type ⁷										
	K	Ob.										
Р	K	Ob.										
	K	Ob.										
Р	K	Ob.										
	KO	Ob.										
	K	Ob.										
Р	K	Ob.										
Р	K	Ob.										

e/group of courses								
ractical ⁵	kind ⁶	type ⁷						

Obi	ional courses	(initiation in a little in a semicately)	1/1		o po	musj								
	Game	Name of course/group of courses	Wee	kly n	umbe	r of h	ours		Num	ber of	Num FCTS	ber of	Form ² of	Wav ³ of
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g
	MCM036101BK	Optional courses: CAD 3D-FEM			2				30	60	2	1,4	Т	Z
1.	MCR036303L	FEM modelling in mechatronics			2			K1MTR_U01, K1MTR_U02, K1MTR_U13, K1MTR_K03						
2.	MCM036106L	CAD/FEM			2			K1MTR_U22						
3.	MCD036101L	Numerical prototyping of microelectronic structures			2			K1MTR_U22, K1MTR_K04, K1MTR_K05						
	MCM036102BK	Optional courses: Interdisciplinary Team Project				2			30	90	3	2,1	Т	Z
4.	MCR036103P, 6231, 6302	Interdisciplinary Team Project				2		K1MTR_U04, K1MTR_U30, K1MTR_K03, K1MTR_K06						
5.	MCM036107P	Interdisciplinary Team Project				2		K1MTR_U04, K1MTR_U30, K1MTR_K03, K1MTR_K06						
6.	MCD036102P	Interdisciplinary Team Project				2		K1MTR_U04, K1MTR_U30, K1MTR_K03, K1MTR_K06						
	MCM036103DK	Optional courses:	1						15	30	1	0,6	Т	Z
	WICWI050105DK	Signal Processing			1				15	60	2	1,4	Т	Z
7.	MCR036106W	Digital signal processing	1					K1MTR_W21						
8.	MCR036106L	Digital signal processing			1			K1MTR_U21, K1MTR_U22						
9.	MCM036108W	Signal Processing	1					K1MTR_W16						
10.	MCM036108L	Signal Processing			1			K1MTR_U19, K1MTR_U21						
11.	MCD036103W	Methods of Signal Processing	1					K1MTR_W21						
12.	MCD036103L	Methods of Signal Processing			1			K1MTR_U01, K1MTR_K06						
	MCM03610/RK	Optional courses:	2						30	60	2	1,2	Т	Z
	MCM050104DK	Applications of Microsystems			2				30	60	2	1,4	Т	Z
13.	MCR036304W	Microsystems in measurements	1					K1MTR_W16						
14.	MCR036304L	Microsystems in measurements			1			K1MTR_U15, K1MTR_U16						
15.	MCR036305W	Microsystems in control	1					K1MTR_W21						
16.	MCR036305L	Microsystems in control			1			K1MTR_U15, K1MTR_U16						
								K1MTR_M_W03, K1MTR_W08,						

1

1

1

1

1

1

1

1

K1MTR_W23, K1MTR_W09,

K1MTR_U02, K1MTR_U03,

K1MTR_U21, K1MTR_K01,

K1MTR_W09, K1MTR_W15,

K1MTR_U03, K1MTR_U11,

K1MTR_U15, K1MTR_K03

K1MTR_U15, K1MTR_K03

K1MTR_W26

K1MTR_K07

K1MTR_W23

K1MTR_U15

K1MTR_W15

K1MTR_W15

Optional courses (minimum 15 hours in semester, 17 ECTS points)

17. MCM036109W

18. MCM036109L

19. MCM036110W

20. MCM036110L

21. MCD036104W

22. MCD036104L

23. MCD036105W

24. MCD036105L

Mechatronics in Medicine

Mechatronics in Medicine

Microsystems in medicine

Microsystems in medicine

Automotive microsystems

Automotive microsystems

technologies

technologies

Mechatronic systems in manufacturing

Mechatronic systems in manufacturing

Cou	rse/grou	p of cou	irses
iversi wide ⁴	practical ⁵	kind ⁶	type ⁷
	Р	PD	W
	Р	K	W
		K	W
	Р	K	W
		K	W
	Р	K	W

universi

ty-wide4

	MCR035201BK	Degree Profile															
Degr	ee Profile: Mecha	tronics in Automation and Measurements															
25.	MCR036102W	Active materials	1					K1MTR_MAP_W02, K1MTR_W02	15	30	1	0,6	Т	Z		К	W
26.	MCR036102L	Active materials			1			K1MTR_MAP_U02, K1MTR_U02, K1MTR_U03, K1MTR_U22, K1MTR_U24	15	30	1	0,7	Т	Z	Р	K	W
27.	MCR036211W	System modelling	1					K1MTR_MAP_W05, K1MTR_MAP_W04	15	30	1	0,6	Т	Z		К	W
28.	MCR036211L	System modelling			1			K1MTR_MAP_U04, K1MTR_MAP_U05	15	30	1	0,7	Т	Ζ	Р	К	W
29.	MCR036301L	Control Systems Prototyping			1			K1MTR_U19	15	30	1	0,7	Т	Z	Р	K	W
Degr	ee Profile: • Mech	atronics in Machine Building and Vehicles		-	-	-											
30.	MCM036203W	Manufacturing automation	2					K1MTR_M_W01, K1MTR_M_W02	30	60	2	1,2	Т	Z		К	W
31.	MCM036203L	Manufacturing automation			1			K1MTR_M_U02	15	30	1	0,7	Т	Z	Р	K	W
32.	MCM036204W	Design of mechanical assemblies	1					K1MTR_W07, K1MTR_W09, K1MTR_W10	15	30	1	0,6	Т	Z		К	W
33.	MCM036204P	Design of mechanical assemblies				1		K1MTR_M_U01, K1MTR_U09, K1MTR_U22, K1MTR_U23, K1MTR_U24, K1MTR_K02, K1MTR_K04	15	30	1	0,7	Т	Z	Р	К	W
Degr	ee Profile: - Mech	atronic Systems															
34.	MCD036201W	Photonics	1					K1MTR_MM_W02	15	30	1	0,6	Т	Ζ		K	W
35.	MCD036201L	Photonics			2			K1MTR_MM_U02	30	60	2	1,4	Т	Z	Р	K	W
36.	MCD036202W	Micro- and Nanoelectronics	2					K1MTR_MM_W01, K1MTR_MM_W03	30	60	2	1,2	Т	Ζ		K	W
		Degree Profile: MiAaM	5	0	8	2	0		225	510	17	11,4					
		Degree Profile:MiBaV	6	0	6	3	0]	225	510	17	11,3					
		Degree Profile: MS	6	0	7	2	0]	225	510	17	11,3					
								-									

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of ours	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical ⁵	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

	To	otal nu	mber	of hou	ırs	Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes1
	lec	cl	lab	pr	sem				
Degree Profile: MiAaM	11	0	10	6	0	405	900	30	19,9
Degree Profile:MiBaV	12	0	8	10 6 0 8 7 0	405	900	30	19,8	
Degree Profile: MS	12	0	9	6	0	405	900	30	19,8

Obligatory courses number of ECTS points

	8 1	1																
	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of h	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	rses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical5	kind ⁶	type ⁷
		Total	0	0	0	0	0		0	0	0	0						

Groups of obligatory courses number of ECTS points

	Course/group	Name of course/group of courses	Wee	kly n	umbe	r of l	ours	Field-of-study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse/grou	p of cou	irses
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	practical5	kind ⁶	type ⁷
									0	0								
									0	0								
									0	0								
-		Total	0	0	0	0	0		0	0	0	0						

Optional courses (minimum 12 hours in semester, 30 ECTS points)

	Course/group	Name of course/group of courses	Wee	ekly n	umbe	r of h	ours	Field of study	Num ho	ber of urs	Num ECTS	ber of points	Form ² of	Way ³ of	Cou	rse
No.	of courses code	(denote group of courses with symbol GK)	lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g roup of courses	creditin g	universi ty-wide ⁴	pra
1.	HMH100035BK	Block of humanistic courses					1	K1MTR_U25, K1MTR_K15	15	60	2	1,4	Т	Ζ	0	
	MCR036201BK	Degree Profile														
Degr	ee Profile: Mecha	tronics in Automation and Measurements														
2.	MCR037301S MCR037201S MCR037103S	Diploma seminar					2	KIMTR_MAP_U01, KIMTR_MAP_U02, KIMTR_MAP_U03, KIMTR_MAP_U04, KIMTR_MAP_U05, KIMTR_MAP_U06, KIMTR_MAP_U07, KIMTR_MAP_U08, KIMTR_K04, KIMTR_K06	30	60	2	1,4	Т	Z		
3.	MCR037100D MCR037200D MCR037300D	Diploma thesis				2		K1MTR_U24, K1MTR_K01, K1MTR_K04, K1MTR_K06	30	360	12	12	Т	Z		
4.	MCR037001Q	Practice						K1MTR_U29	0	120	4	4	Т	Ζ		
5.	MCR037231W	Building automation	1					K1MTR_MAP_W06	15	60	2	1,2	Т	Z		
6.	MCR037231P	Building automation				2		K1MTR_MAP_U06, K1MTR_K06	30	60	2	1,4	Т	Ζ		
7.	MCR037101P	Numerical methods				1		K1MTR_U01, K1MTR_K04, K1MTR_K06	15	60	2	1,4	Т	Z		
8.	MCR037102W	Thin-layer technologies	1					K1MTR_W02, K1MTR_W18, K1MTR_MAP_W07	15	60	2	1,2	Т	Z		
9.	MCR037102L	Thin-layer technologies			2			K1MTR_U02, K1MTR_U03	30	60	2	1,4	Т	Ζ		Γ

e/grou	p of cou	irses
actical ⁵	kind ⁶	type ⁷
Р	KO	W
Р	К	W
Р	K	W
Р	K	W
_	K	W
Р	K	W
Р	K	W
	K	W
Р	K	W

Degr	ee Profile: • Mech	atronics in Machine Building and Vehicles														
10.	MCM037001S	Diploma seminar				2	K1MTR_U24, K1MTR_K01, K1MTR_K03, K1MTR_K04, K1MTR_K06	30	60	2	1,4	Т	Z	Р	K	w
11.	MCM037002D	Diploma thesis			2		K1MTR_U24, K1MTR_K01, K1MTR_K04, K1MTR_K06	30	360	12	12	Т	Z	Р	К	W
12.	MCM037003Q	Practice					K1MTR_U29	0	120	4	4	Т	Z	Р	Κ	W
13.	MCM037205W	Monitoring of machines and processes	1				K1MTR_W03, K1MTR_W11, K1MTR_W15, K1MTR_W17	15	60	2	1,2	Т	Z		К	W
14.	MCM037205L	Monitoring of machines and processes		1			K1MTR_U02, K1MTR_U03, K1MTR_U17, K1MTR_U21, K1MTR_U19, K1MTR_K01, K1MTR_K02, K1MTR_K04, K1MTR_K05, K1MTR_K06, K1MTR_K07, K1MTR_K08, K1MTR_K09	15	30	1	0,7	Т	Z	Р	K	W
15.	MCM037206P	Numerical methods			1		K1MTR_U21, K1MTR_U03, K1MTR_K03, K1MTR_K04	15	60	2	1,4	Т	Z	Р	К	W
16.	MCM037207W	Programing of machine numerical controled	2				K1MTR_M_W04, K1MTR_W11	30	60	2	1,2	Т	Ζ		K	W
17.	MCM037207P	Programing of machine numerical controled			1		K1MTR_M_U05, K1MTR_M_U06, K1MTR_U24	15	60	2	1,4	Т	Z	Р	K	w
18.	MCM037208W	SCADA i HMI	1				K1MTR_W19	15	30	1	0,6	Т	Z		K	W
Degr	ee Profile: - Mech	atronic Systems														
19.	MCD037001S	Diploma seminar				2	KIMTR_MM_W05, KIMTR_MM_U01, KIMTR_MM_U02, KIMTR_MM_U03, KIMTR_MM_U04, KIMTR_MM_U05, KIMTR_U03, KIMTR_U02, KIMTR_U03, KIMTR_U04, KIMTR_U05, KIMTR_U04, KIMTR_U05, KIMTR_U06, KIMTR_U07, KIMTR_U08, KIMTR_U09, KIMTR_U14, KIMTR_U13, KIMTR_U12, KIMTR_U13, KIMTR_U14, KIMTR_U15, KIMTR_U14, KIMTR_U17, KIMTR_U14, KIMTR_U17, KIMTR_U18, KIMTR_U20, KIMTR_U21, KIMTR_U22, KIMTR_U23, KIMTR_U24, KIMTR_U25, KIMTR_U26, KIMTR_U27, KIMTR_U28, KIMTR_U29, KIMTR_U30, KIMTR_U31,	30	60	2	1,4	Т	Z	Р	K	W

20.	MCD037002D	Diploma thesis				2		KIMTR_MM_U01, KIMTR_MM_U02, KIMTR_MM_U03, KIMTR_MM_U04, KIMTR_U03, KIMTR_MM_U06, KIMTR_U01, KIMTR_U02, KIMTR_U03, KIMTR_U04, KIMTR_U05, KIMTR_U04, KIMTR_U07, KIMTR_U06, KIMTR_U07, KIMTR_U10, KIMTR_U11, KIMTR_U12, KIMTR_U13, KIMTR_U14, KIMTR_U13, KIMTR_U14, KIMTR_U15, KIMTR_U14, KIMTR_U17, KIMTR_U18, KIMTR_U17, KIMTR_U20, KIMTR_U21, KIMTR_U20, KIMTR_U23, KIMTR_U24, KIMTR_U25, KIMTR_U26, KIMTR_U29, KIMTR_U28, KIMTR_U29, KIMTR_U30, KIMTR_U31, KIMTR_K03,	30	360	12	12	Т	Z	Р	K	W
21.	MCD030001Q	Practice						K1MTR_U29	0	120	4	4	Т	Z	Р	K	W
22.	MCD037201L	Laboratory on micro- and nanoelectronics			1			K1MTR_MM_U03	15	60	2	1,4	Т	Z	Р	K	W
23.	MCD037202L	Numerical methods			1			K1MTR_MM_W04, K1MTR_MM_U04	15	60	2	1,4	Т	Z	Р	K	W
24.	MCD037203W	Packaging of Electronic and Photonics Systems	1					K1MTR_W18	15	60	2	1,2	Т	Z		K	W
25.	MCD037203L	Packaging of Electronic and Photonics Systems			1			K1MTR_U18	15	30	1	0,7	Т	Z	Р	K	W
26.	MCD037204W	Peripheral Devices in Computer Systems	2					K1MTR_MM_W02, K1MTR_MM_W06	30	60	2	1,2	Т	Z		К	W
27.	MCD037204L	Peripheral Devices in Computer Systems			1			K1MTR_MM_U02, K1MTR_K03	15	30	1	0,7	Т	Z	Р	K	W
		obszar: MwAiP	2	0	2	5	3		180	900	30	25,4					
		obszar: MwBMiP	4	0	1	4	3		180	900	30	25,3					
		obszar: MM	3	0	4	2	3]	180	900	30	25,4					

Groups of optional courses (e.g. name of specialization) (minimum hours in semester, ECTS points)

No.	No. Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours				ours	Field-of-study	Number of hours		Number of ECTS points		Form ² of	Way ³ of	Course/group of courses			
No.			lec	cl	lab	pr	sem	educational effect symbol	ZZU	CNPS	total	BK classes ¹	course/g credit roup of g courses	creditin g	universi ty-wide ⁴	practical55	kind ⁶	type ⁷
									0	0								
									0	0								
									0	0								
		Total	0	0	0	0	0		0	0	0	0						

	To	Total number of hours		ırs	Total number of ZZU	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for	
	lec	cl	lab	pr	sem	nours			DK Classes I
Degree Profile: MiAaM	2	0	2	5	3	180	900	30	25,4
Degree Profile:MiBaV	4	0	1	4	3	180	900	30	25,3
Degree Profile: MS	3	0	4	2	3	180	900	30	25,4

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester		
MAP001140W MAP001142W FZP001058W	 Algebra and Analytic Geometry Mathematical Analysis1.1 A Physics 1.2 	1		
MCR032102W MAP001156W FZP003002W	 Fundamentals of Electrotechnics Mathematical Analysis 2.1 A Physics 2.8 	2		
MCR033102W MCM033006W	 Material Science II Mechanics II (Dynamika) 	3		
MCR034211W MCM034005W MCM034007W	 Fundamentals of control engineering Analysis and Synthesis of Kinematic Systems Systems for Manufacturing and Assembly 	4		
MCR035301W MCM035004W	 Electrical Drives Drive systems, hydraulic components and pneumatic components 	5		
MCM036005W MCD036001W	 Industrial robots Microsystems (MEMS) 	6		

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

Semester	Allowable deficit of ECTS points after semester
1	13
2	13
3	13
4	10
5	7
6	5
7	0