

PLAN OF STUDIES

FACULTY OF MECHANICAL AND POWER ENGINEERING

MAIN FIELD OF STUDY: MECHANICAL ENGINEERING AND MACHINE BUILDING

EDUCATION LEVEL: 1st level, Engineer

FORM OF STUDIES: part-time

PROFILE: general academic

SPECIALIZATION: THERMAL ENGINEERING

LANGUAGE OF STUDY: polish

Faculty Council Resolution of 30.09.2015
In effect since 01.10.2015

Plan of studies structure in point layout

30	informatics.					humanities.	
28	informatics						
26						professional practice	engineering
24						engineer individual student project	thesis engineering
22						advanced design methods	
20							
18							
16		humanities.					
14	chemistry	chemistry					
12	physics	physics	physics				
10							
8							
6	mathematics	mathematics	mathematics				
4							
2				sport. classes	humanities.	foreign language	foreign language
	sem.1	sem.2	sem.3	sem.4	sem.5	sem.6	sem.7
							management

Legend

Basic and obligatory courses
General and obligatory courses
General and optional courses
Obligatory main-field-of-study courses
Optional main-field-of-study courses
Optional/specialization courses

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

Semester 1

Obligatory courses number of 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					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MNN0165	Information Technologies	1,2					K1MBM_W08	18	60	2	1	T	Z	O		KO	Ob
2	MAP009027	Mathematic 1	1,2					K1MBM_W02 K1MBM_K01	18	120	4	2	T	E	O		PD	Ob
3	MAP009027	Mathematic 1		1,2				K1MBM_U02 K1MBM_K01	18	120	4	3	T	Z	O	P	PD	Ob
4	FZP009078	Physics 1	1,2					K1MBM_W03	18	120	4	2	T	E	O		PD	Ob
5	CHC003080	Chemistry	1,2					K1MBM_W04	18	60	2	1	T	Z	O		PD	Ob
6	MNN0415	Theory of Machines	1,2					K1MBM_W13	18	60	2	1	T	Z			K	Ob
7	MNN0255	Descriptive Geometry	1,2					K1MBM_W07	18	60	2	1	T	Z			K	Ob
8	MNN0255	Descriptive Geometry		0,6				K1MBM_U07	9	60	2	1,5	T	Z		P	K	Ob
9	MNN0826	Basics of Metrology and Experiment Techniques	1,2					K1MBM_W10	18	60	2	1	T	Z			K	Ob
10	MNN0826	Basics of Metrology and Experiment Techniques		0,6				K1MBM_U10	9	60	2	1,5	T	Z		P	K	Ob
11	MNN0821	Fundamentals of Materials Science	1,2					K1MBM_W06	18	120	4	2	T	E			K	Ob
Total			9,6	2,4					180	900	30	17						

Altogether in semester 1

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
9,6	2,4				180	900	30	17

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

²Traditional – enter T, remote – enter Z

³Exam – 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)

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

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

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

⁷ Optional – enter W, obligatory – enter Ob

Semester 2

Obligatory courses

number of ECTS points 29

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	ENN0585	Application Packages			0,6			K1MBM_U08	9	30	1	0,75	T	Z	O	P	KO	Ob
2	MAP009028	Mathematic 2	1,2					K1MBM_W01 K1MBM_W02 K1MBM_K01	18	120	4	2	T	E	O		PD	Ob
3	MAP009028	Mathematic 2		1,2				K1MBM_U01 K1MBM_U02 K1MBM_K01	18	120	4	3	T	Z	O	P	PD	Ob
4	FZP009079	Physics 2	1,2					K1MBM_W03	18	120	4	2	T	E	O		PD	Ob
5	FZP009079	Physics 2		1,2				K1MBM_W03	18	60	2	1,5	T	Z	O	P	PD	Ob
6	CHC003080	Chemistry			0,6			K1MBM_U04	9	30	1	0,75	T	Z	O	P	PD	Ob
7	MNN0826	Basics of Metrology and Experiment Techniques			0,6			K1MBM_U10	9	30	1	0,75	T	Z		P	K	Ob
8	MNN0515	Mechanics 1	0,6					K1MBM_W05	9	60	2	1	T	Z			K	Ob
9	MNN0515	Mechanics 1		0,6				K1MBM_U05	9	60	2	1,5	T	Z		P	K	Ob
10	MNN0855	Basics of Thermodynamics	1,2					K1MBM_W09	18	60	2	1	T	Z			K	Ob.
11	MNN0855	Basics of Thermodynamics		0,6				K1MBM_U09	9	60	2	1,5	T	Z		P	K	Ob
12	MNN0835	Fundamentals of Fluid Mechanics	1,2					K1MBM_W09	18	60	2	1	T	Z			K	Ob
13	MNN0835	Fundamentals of Fluid Mechanics		0,6				K1MBM_U09	9	60	2	1,5	T	Z		P	K	Ob
Total			5,4	4,2	1,8				171	870	29	18,25						

Optional courses (minimum 9 hours in semester)

number of ECTS points 1

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	HNN100300BK	Humanities	0,6					K1MBM_W18 K1MBM_K06	9	30	1	0,5	T	Z	O		KO	W
Total			0,6						9	30	1	0,5						

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

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

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

⁷Optional – enter W, obligatory – enter Ob

Altogether in semester 2

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
6	4,2	1,8			180	900	30	18,75

Semester 3

Obligatory courses number of 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					Field-of-study educational effect symbol	Number of hours		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	BK classes ¹			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MAP009029	Mathematic 3	1,8					K1MBM_W01 K1MBM_W02 K1MBM_K01	27	150	5	2,5	T	E	O		PD	Ob
2	MAP009029	Mathematic 3		1,2				K1MBM_U01 K1MBM_U02 K1MBM_K01	18	120	4	3	T	Z	O	P	PD	Ob
3	FZP009080	Physics 3			1,2			K1MBM_U03	18	60	2	1,5	T	Z	O	P	PD	Ob
4	MNN0525	Mechanics 2	1,2					K1MBM_W05	18	120	4	2	T	E			K	Ob
5	MNN0525	Mechanics 2		0,6				K1MBM_U05	9	30	1	0,75	T	Z		P	K	Ob
6	MNN0865	Fundamental Strength of Materials	1,2					K1MBM_W05	18	60	2	1	T	Z			K	Ob
7	MNN0865	Fundamental Strength of Materials		0,6				K1MBM_U05	9	60	2	1,5	T	Z		P	K	Ob
8	MNN0465	Materials Science	0,6					K1MBM_W06	9	30	1	0,5	T	Z			K	Ob
9	MNN0465	Materials Science			0,6			K1MBM_U06 K1MBM_K03 K1MBM_K06	9	30	1	0,75	T	Z		P	K	Ob
10	MNN1065	Combustion and Fuels	1,2					K1MBM_W15	18	120	4	2	T	E			K	Ob
11	MNN0815	Electrical Engineering Fundamentals	1,2					K1MBM_W12	18	60	2	1	T	Z			K	Ob
12	MNN0815	Electrical Engineering Fundamentals		0,6				K1MBM_U12	9	60	2	1,5	T	Z		P	K	Ob
Total			7,2	3	1,8				180	900	30	18						

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³Exam – 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)

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

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

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

⁷Optional – enter W, obligatory – enter Ob

Altogether in semester 3

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
7,2	3	1,8			180	900	30	18

Semester 4

Obligatory courses number of ECTS points 18

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK classes ¹			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MNN0815	Electrical Engineering Fundamentals			0,6			K1MBM_U12	9	30	1	0,75	T	Z		P	K	Ob
2	MNN1065	Combustion and Fuels			0,6			K1MBM_U14	9	30	1	0,75	T	Z		P	K	Ob
3	MNN0615	Workshop Metrology	0,6					K1MBM_W11 K1MBM_K01 K1MBM_K03	9	30	1	0,5	T	Z			K	Ob
4	MNN0615	Workshop Metrology			0,6			K1MBM_U11 K1MBM_K01 K1MBM_K03	9	30	1	0,75	T	Z		P	K	Ob
5	MNN1145	Production Technics	1,8					K1MBM_W11	27	90	3	1,5	T	Z			K	Ob
6	MNN1005	Technical Drawing				1,2		K1MBM_U07	18	120	4	3	T	Z		P	K	Ob
7	MNN0785	Fundamentals of Control Systems	1,2					K1MBM_W12	18	120	4	2	T	E			K	Ob
8	MNN0785	Fundamentals of Control Systems		0,6				K1MBM_U12	9	30	1	0,75	T	Z		P	K	Ob
9	MNN0805	Fundamentals of Electronics	0,6					K1MBM_W12	9	30	1	0,5	T	Z			K	Ob
10	MNN0805	Fundamentals of Electronics			0,6			K1MBM_U12	9	30	1	0,75	T	Z		P	K	Ob
Total			4,2	0,6	2,4	1,2			126	540	18	11,25						

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

⁵Practical 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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⁷Optional – enter W, obligatory – enter Ob

Optional courses (minimum 62 hours in semester)
number of ECTS points 12

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	WFW02000BK	Sporting Classes		0,53				K1MBM_K07	8	8	1	1	T	Z	O	P	KO	W
2	MNN1125	Technical Fluid Mechanics	1,2					S1INC_W03	18	120	4	2	T	E			S	W
3	MNN1125	Technical Fluid Mechanics		0,6				S1INC_U03	9	30	1	0,75	T	Z		P	S	W
4	MNN1455	Strength of Materials	1,2					S1INC_W01	18	120	4	2	T	E			S	W
5	MNN1455	Strength of Materials		0,6				S1INC_U01	9	60	2	1,5	T	Z		P	S	W
Total			2,4	1,73					62	338	12	7,25						

Altogether in semester 4

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
6,6	2,33	2,4	1,2		188	878	30	18,5

Semester 5
Obligatory courses
number of ECTS points 13

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MNN1145	Production Technics			1,2			K1MBM_U11	18	60	2	1,5	T	Z		P	K	Ob
2	MNN0785	Fundamentals of Control Systems			1,2			K1MBM_U12	18	60	2	1,5	T	Z		P	K	Ob
3	MNN0745	Basics of Machine Design I	1,2					K1MBM_W14	18	60	2	1	T	Z			K	Ob
4	MNN0745	Basics of Machine Design I				1,2		K1MBM_U13	18	120	4	3	T	Z		P	K	Ob
5	MNN0085	CAD I			1,2			K1MBM_U07	18	90	3	1,5	T	Z		P	K	Ob
Total			1,2		3,6	1,2			90	390	13	8,5						

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

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

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

⁷Optional – enter W, obligatory – enter Ob

Optional courses (minimum 99 hours in semester) number of ECTS points 17

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes ¹			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	HNN100300BK	Humanities	1,2					K1MBM_W18 K1MBM_K06	18	90	3	1,5	T	Z	O		KO	W
2	MNN1405	Heat transfer and heat exchangers	1,2					S1INC_W04	18	60	2	1	T	Z			S	W
3	MNN1405	Heat transfer and heat exchangers		0,6				S1INC_U04	9	30	1	0,75	T	Z		P	S	W
4	MNN0135	Refrigeration and Cryogenics	1,2					S1INC_W05	18	120	4	2	T	E			S	W
5	MNN0135	Refrigeration and Cryogenics		0,6				S1INC_U06	9	30	1	0,75	T	Z		P	S	W
6	MNN1205	Theory of Thermal Machines	0,6					S1INC_W02	9	90	3	1,5	T	E			S	W
7	MNN1205	Theory of Thermal Machines		1,2				S1INC_U02	18	90	3	2,25	T	Z		P	S	W
Total			4,2	2,4					99	510	17	9,75						

Altogether in semester 5

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
5,4	2,4	3,6	1,2		189	900	30	18,25

Semester 6

Obligatory courses number of ECTS points 11

No.	Course/gr oup of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes ¹			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MNN0755	Basics of Machine Design II	1,2					K1MBM_W14	18	120	4	2	T	E			K	Ob
2	MNN0755	Basics of Machine Design II				1,2		K1MBM_U13	18	120	4	3	T	Z		P	K	Ob
3	MNN0105	CAD II			1,2			K1MBM_U07	18	90	3	2,25	T	Z		P	K	Ob
Total			1,2		1,2	1,2			54	330	11	7,25						

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³Exam – 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)

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

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

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

⁷Optional – enter W, obligatory – enter Ob

Optional courses (minimum 135 hours in semester) number of ECTS points 19

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK classes ¹			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL100789C JZL100792C JZL100845C	Foreign Language B2.1		2,4				K1MBM_U15	36	60	2	1,5	T	Z	O	P	KO	W
2	MNN0305	Process Engineering and Apparatus	1,2					S1INC_W08	18	120	4	2	T	E			S	W
3	MNN0305	Process Engineering and Apparatus		1,2				S1INC_U09	18	90	3	2,25	T	Z		P	S	W
4	MNN0155	Thermal fluid–flow machinery	1,2					S1INC_W06	18	60	2	1	T	Z			S	W
5	MNN0155	Thermal fluid–flow machinery		0,6				S1INC_U07	9	60	2	1,5	T	Z		P	S	W
6	MNN0565	Fluid Mechanics			1,2			S1INC_U03	18	90	3	2,25	T	Z		P	S	W
7	MNN1225	Thermodynamics			1,2			S1INC_U05 K1MBM_K03	18	90	3	2,25	T	Z		P	S	W
Total			2,4	4,2	2,4				135	570	19	12,75						

Altogether in semester 6

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
3,6	4,2	3,6	1,2		189	900	30	20

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

⁵Practical 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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⁷Optional – enter W, obligatory – enter Ob

Semester 7

Obligatory courses

number of ECTS points 4

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	PRZ0330W	Intellectual and Industrial Property Protection	1,2					K1MBM_W16	18	60	2	1	T	Z	O		KO	Ob
2	MNN0115	Ecology	1,2					K1MBM_W17 K1MBM_K02	18	60	2	1	T	Z			K	Ob
Total			2,4						36	120	4	2						

Optional courses (minimum 213 hours in semester)

number of ECTS points 26

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL100790C JZL100793C JZL100844C	Foreign Language B2.2		2,4				K1MBM_U15	36	90	3	2,25	T	Z	O	P	KO	W
2		Advanced Design Methods:			1,2				18	90	3	2,25	T	Z		P	K	W
	MNN0112	CATIA						K1MBM_U07										
	MNN1046	Solid Edge						K1MBM_U07										
	MNN0267	3D Graphic						K1MBM_U07 K1MBM_K06										
3	MNN0875	Pumps	1,2					S1INC_W07	18	60	2	1	T	Z			S	W
4	MNN0875	Pumps		0,6				S1INC_U08	9	30	1	0,75	T	Z		P	S	W
5	MNN1355	Boiler Devices	1,2					S1INC_W10	18	90	3	1,5	T	E			S	W
6	MNN1355	Boiler Devices				1,2		S1INC_U11	18	60	2	1,5	T	Z		P	S	W
7	MNN0045	Research and Testing of Machines	1,2					S1INC_W12	18	90	3	1,5	T	E			S	W
8	MNN0045	Research and Testing of Machines			1,2			S1INC_U13	18	30	1	0,75	T	Z		P	S	W
9	MNN1481	Engineer Individual Student Project				4		K1MBM_U17 K1MBM_K04 K1MBM_K05	60	120	4	1	T	Z		P	K	W

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

²Traditional – enter T, remote – enter Z

³Exam – 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)

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

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

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

⁷ Optional – enter W, obligatory – enter Ob

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
10	MNN1530	Professional Practice						K1MBM_K01 K1MBM_K03 K1MBM_K04 K1MBM_K05		120	4	0				P	K	W
Total			3,6	3	2,4	5,2			213	780	26	12,5						

Altogether in semester 7

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
6	3	2,4	5,2		249	900	30	14,5

Semester 8

Obligatory courses

number of ECTS points 2

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	MNN1655	Environmental Management	1,2					K1MBM_W17 K1MBM_K02	18	30	1	0,5	T	Z			K	Ob
4	MNN1515	Engineer Diploma Seminar					0,6	K1MBM_U16 K1MBM_U17 K1MBM_K01 K1MBM_K03	9	30	1	0,75	T	Z		P	K	Ob
Total			1,2				0,6		27	60	2	1,25						

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

⁵Practical 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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Optional courses (minimum 135 hours in semester) number of ECTS points 28

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		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	BK ¹ classes			universit y-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	ZNN100300BK	Management Science	0,6					K1MBM_W18 K1MBM_K06	9	30	1	0,5	T	Z	O		KO	W
2	MNN1085	Fans and Compressors	0,6					S1INC_W07	9	30	1	0,5	T	Z			S	W
3	MNN1085	Fans and Compressors		0,6				S1INC_U08	9	30	1	0,75	T	Z		P	S	W
4	MNN1375	Air Protection Installations	1,2					S1INC_W11	18	60	2	1	T	Z			S	W
5	MNN1375	Air Protection Installations				0,6		S1INC_U12 K1MBM_K01 K1MBM_K02	9	30	1	0,75	T	Z		P	S	W
6	MNN1035	Thermal Power Stations	1,2					S1INC_W13	18	30	1	0,5	T	Z			S	W
7	MNN1035	Thermal Power Stations			0,6			S1INC_U14	9	30	1	0,75	T	Z		P	S	W
8	MNN0455	Volumetric Machines	1,2					S1INC_W07	18	30	1	0,5	T	Z			S	W
9	MNN0455	Volumetric Machines		0,6				S1INC_U08	9	30	1	0,75	T	Z		P	S	W
10	MNN0455	Volumetric Machines				0,6		S1INC_U08	9	30	1	0,75	T	Z		P	S	W
11	MNN0985	Nuclear Reactors	0,6					S1INC_W09	9	30	1	0,5	T	Z			S	W
12	MNN0985	Nuclear Reactors			0,6			S1INC_U10	9	30	1	0,75	T	Z		P	S	W
13	MNN1545	Engineer Thesis						K1MBM_U17 K1MBM_K04 K1MBM_K05		450	15	2	T	Z		P	K	W
Total			5,4	1,2	1,2	1,2			135	840	28	10						

Altogether in semester 8

Total number of hours					Total number of ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
6,6	1,2	1,2	1,2	0,6	162	900	30	11,25

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2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
MAP009027 FZP009078 MNN0821	1. Mathematics 1 2. Physics 1 3. Fundamentals of Materials Science	1
MAP009028 FZP009079	1. Mathematics 2 2. Physics 2	2
MAP009029 MNN1065 MNN0525	1. Mathematics 3 2. Combustion and Fuels 3. Mechanics 2	3
MNN0785 MNN1455 MNN1125	1. Fundamentals of Control Systems 2. Strength of Materials 3. Technical Fluid Mechanics	4
MNN1205 MNN0135	1. Theory of Thermal Machines 2. Refrigeration and Cryogenics	5
MNN0755 MNN0305	1. Basics of Machine Design II 2. Process Engineering and Apparatus	6
MNN1355 MNN0045	1. Boiler Devices 2. Research and Testing of Machines	7

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

Semester	Allowable deficit of ECTS points after semester
1	18
2	32
3	27
4	22
5	18
6	16
7	0