C U R R I C U L U M

ECTS subject code **T MEHS №**

- **T** – type of course: **B** for BEng, **M** for MEng;
- **MEHS** – "Mechatronic Systems";
- **№** – subsequent number of the subject;

lectures (L), tutorials (Tut), labs (Lab), Auditorium Total (AT), Self Study (SS) weekly;

exam (E), continuous assessment (CA), semester project (SP) / semester assignment (course work) (SA)

No	Subject	Week load						Assessment				ECTS code	ECTS credits
		L	Tut	Lab	AT	SS	Total	E	CA	SP	SA		

SEMESTER I

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
1	Introduction to specialty	1	0	0	1	1	2					BMEHS01	0
2	Mathematics Part I	3	2	0	5	6	11	1				BMEHS02	7
3	Theory of Electrical Engineering	3	2	0	5	6	11	1				BMEHS03	7
4	Physics	2	0	1	3	5	8	1				BMEHS04	5
5	Fundamentals of Design and CAD Part I	2	0	2	4	4	8	1			1	BMEHS05	5
6	Computing (Programming 1)	2	0	2	4	6	10		1		1	BMEHS06	6
7	Foreign Language	0	0	(2)	(2)	(2)	(4)		1*			BMEHS07	0
8	Sports	0	(3)	0	(3)	(3)	(3)					BMEHS08	0
	Total	**13**	**4**	**5**	**22**	**28**	**50**	**4**	**1**	**0**	**2**		**30**

SEMESTER II

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
9	Mathematics Part II	3	2	0	5	6	11	1				BMEHS09	7
10	Microprocessor Devices	2	0	1	3	6	9	1				BMEHS10	5
11	Semiconductor Elements	2	0	1	3	6	9	1				BMEHS11	5
12	Fundamentals of Design and CAD Part II	2	0	2	4	7	11	1			1	BMEHS12	7
13	Computing (Programming 2)	2	0	2	4	6	10		1		1	BMEHS13	6
14	Foreign Language	0	0	(2)	(2)	(2)	(4)		1*			BMEHS14	0
15	Sports	0	(3)	0	(3)	(3)						BMEHS15	0
	Total	**11**	**2**	**6**	**19**	**31**	**50**	**4**	**2**	**0**	**2**		**30**

* - the subject "Foreign Language" provides one semester assignment during the academic year

SEMESTER III

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
16	Material Science	2	0	2	4	5	9	1				BMEHS16	6
17	Mechanics	2	2	0	4	6	10	1			1	BMEHS17	6
18	Machine Parts I	2	0	2	4	5	9		1			BMEHS18	6
19	Databases	2	0	2	4	5	9	1				BMEHS19	6
20	Strength of Materials	2	2	0	4	5	9	1				BMEHS20	6
21	Foreign Language	0	0	(2)	(2)	(2)	(4)		1*			BMEHS21	0
22	Sports	0	(3)	0	(3)							BMEHS22	0
	Total	**10**	**4**	**6**	**20**	**26**	**50**	**4**	**1**	**0**	**1**		**30**

SEMESTER IV

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
23	Hydraulic and pneumatic fluid power	3	0	2	5	6	11		1			BMEHS23	6
24	Digital Electronics	2	0	2	4	6	10	1				BMEHS24	6
25	Machine Parts II	2	1	1	4	6	10	1		1		BMEHS25	6
26	Electrical engineering	2	0	2	4	5	9	1			1	BMEHS26	6
27	Theory of Mechanisms and Machines	2	1	1	4	6	10	1				BMEHS27	6
28	Foreign Language	0	0	(2)	(2)	(2)	(4)		1*			BMEHS28	0
29	Sports	0	(3)	0	(3)							BMEHS29	0
	Total	**11**	**2**	**8**	**21**	**29**	**50**	**4**	**2**	**1**	**1**		**30**

* - the subject "Foreign Language" provides one semester assignment during the academic year

SEMESTER V

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
30	Basics of the Mechatronic Systems Design Process	2	0	2	4	5	9	1				BMEHS30	5
31	Engineering Metrology	2	0	2	4	5	9	1				BMEHS31	5
32	Programming Frameworks	2	0	2	4	4	8	1				BMEHS32	5
33	Design of electronic devices	2	0	2	4	5	9	1		1		BMEHS33	5
34	Measurement and Control Engineering	2	0	1	3	3	6		1			BMEHS34	5
35	Principles of Optical Engineering	2	0	2	4	5	9		1		1	BMEHS35	5
	Total	**12**	**0**	**11**	**23**	**27**	**50**	**4**	**2**	**1**	**1**		**30**

SEMESTER VI

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
36	Technology of Micro electromechanical systems	2	0	2	4	7	11		1			BMEHS36	5
37	Automation of Discrete Mechanical Engineering	2	0	2	4	7	11	1				BMEHS37	5
38	Sensors and Actuators	2	0	1	3	5	8	1				BMEHS38	5
39	Micro electromechanical systems (MEMS)	3	0	2	5	7	12	1				BMEHS39	6
40	Electronics	2	0	1	3	5	8		1		1	BMEHS40	5
41	Engineering Design Part I (positions 34, 35,37,38,39)	0	0	(3)	(3)					1		BMEHS41	4
	Total	**11**	**0**	**8**	**19**	**31**	**50**	**3**	**2**	**1**	**1**		**30**

SEMESTER VII

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
42	Electronic Regulating and Controlling Devices and Systems	2	0	2	4	7	11		1			BMEHS42	6
43	Modeling and Simulation of Mechatronic Systems	2	0	2	4	6	10	1			1	BMEHS43	5
44	Optional subject 1	2	0	2	4	6	10	1				BMEHS44	5
45	Optional subject 2	2	0	1	3	6	9	1				BMEHS45	5
46	Synthesis, Kinematics and Dynamics of Robots	2	0	2	4	6	10	1				BMEHS46	5
47	Engineering Design Part 2 (pos. 44, 45)	0	0	(3)						1		BMEHS47	4
	Total	**10**	**0**	**9**	**19**	**31**	**50**	**4**	**1**	**1**	**1**		**30**

SEMESTER VIII – 10 weeks

No	Subject	L	Tut	Lab	AT	SS	Total	E	CA	SP	SA	ECTS code	ECTS credits
48	Reliability and Diagnostics of Mechatronic Systems	2	0	2	4	5	9	1				BMEHS48	3
49	Intelligent Manufacturing Systems	2	0	2	4	5	9	1				BMEHS49	3
50	Business Ethics	2	2	0	4	5	9		1			BMEHS50	3
51	Technical Legislation, Standardization and Quality Management	2	1	0	3	4	7		1			BMEHS51	3
52	Optional subject 3	2	0	1	3	5	8		1		1	BMEHS52	3
53	Optional subject 4	2	0	1	3	5	8		1		1	BMEHS53	3
54	Pre-Diploma Project	0	0	(3)	0	(3)				1		BMEHS54	2
	Diploma Project				Diploma Thesis							BMEHS55	10
	Total	**12**	**3**	**6**	**21**	**29**	**50**	**2**	**4**	**1**	**2**		**30**

NOTES:

1. The optional subjects (pos. N 44, 45, 52 and 53) are yearly updated and subsequently approved by the Faculty Council of the Faculty of Mechanical Engineering.

2. Engineering Design Part 1 (pos. 34, 35, 37, 38, 39) and Part 2 (pos. 44, 45) are optional subjects and relate to the subject topics shown with numbers.

3. Semester VIII's duration covers 10 academic weeks and 7 weeks of writing the diploma project.

4. Students do one semester assignment choosing from subjects in pos. 52 or 53.

LIST OF GROUPS OF OPTIONAL SUBJECTS

FOR SUBJECTS 46, 47, 53, 54 ONE OF THE FOLLOWING MUST BE CHOSEN:

Group of optional subjects: *ROBOTIC DEVICES*

44a. Industrial Robots
44c. Application of Computer Modeling and Simulations in Computer Aided Engineering Analyses
45a. Programming and Diagnostics for Industrial Robots
52a. Engineering and Business Decisions in Mechatronics
53a. Implementation and Maintenance of Industrial Robots

Group of optional subjects: *FINE AND MICROMECHANICS DEVICES*

44b. Optoelectronic and Laser Devices
44c. Application of Computer Modeling and Simulations in Computer Aided Engineering Analyses
45b. Medical Equipment
52b. Measuring Devices
53b. Office Equipment