

CURRICULUM

Bachelor's degree program in Mechatronic systems as of 2021/2022 academic year

ECTS Subject code T MEHSe No - T – type of course: B for BEng, M for MEng; - I - IV semester – fundamental subjects - professional field 5.1 Mechanical Engineering, - MEHSe – “Mechatronic systems” in English; - No – number of the subject; Lectures (L), Tutorials (Tut.), Labs (Lab.), Auditorium Total (AT), Self-Study (SS), Exam (E), Continuous Assessment (CA), Semester Project (SP), Semester Assignment (course work) (SA).														
№	Code	SUBJECT	Semester Load						Assesment				ECTS credits	
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA		
SEMESTER I														
1	MATe12	Mathematics Part I	30	30	0	60	150	210	1					7
2	PHYe01	Physics	45	15	30	90	120	210	1					7
3	CHEe01	Chemistry	30	0	15	45	105	150		1				5
4	CCEe23	Information and Communication Technologies	30	0	45	75	165	240	1					8
5	LNGe01	Foreign Language I	0	30	0	30	30	60		1				2
6	SPRe01	Sports	0	0	0	0	30	30						1
Total			135	75	90	300	600	900	3	2	0	0	0	30
SEMESTER II														
7	MATe22	Mathematics Part II	30	30	0	60	120	180	1					6
8	ENGe01	Material Science	45	0	45	90	120	210	1				1	7
9	MECe01	Mechanics I	30	15	15	60	150	210	1				1	7
10	EEAe21	Electronics and Electrical Engineering	30	0	30	60	90	150		1				5
11	LNGe02	Foreign language II	0	30	0	30	30	60		1				2
12	PRCe01	Practicum	0	0	0	0	60	60		1				2
13	SPRe02	Sports	0	0	0	0	30	30		1				1
Total			135	75	90	300	600	900	3	4	0	2	2	30
SEMESTER III														
14	MATe31	Mathematics Part III	30	30	0	60	120	180	1					6
15	MECe02	Mechanics II	30	0	30	60	150	210	1				1	7
16	MECe03	Strength of Materials	45	0	30	75	135	210	1				1	7
17	ENGe02	Engineering Graphics	30	0	45	75	105	180		1			1	6
18	CCEe24	Internet Technologies	15	15	0	30	60	90		1				3
19	SPRe03	Sports	0	0	0	0	30	30		1				1
Total			150	45	105	300	600	900	3	3	0	3	3	30
SEMESTER IV														
20	MECe04	Machine Elements	45	15	30	90	120	210	1					7
21	MECe05	Hydraulic and Pneumatic Fluid Power	30	0	30	60	90	150	1					5
22	ENRe01	Theory of Signals and Measuring Transducers	30	0	15	45	45	90	1					3
23	MECe09	Theory of Mechanisms and Machines	30	0	15	45	75	120	1				1	4
24	EEAe23	Analog and Digital Circuitry	30	15	15	60	90	150		1			1	5
25	MECe07	Machine Elements - Course Project	0	0	0	0	90	90				1		3
26	PRCe02	Practicum	0	0	0	0	60	60		1				2
27	SPRe04	Sports	0	0	0	0	30	30		1				1
Total			165	30	105	300	600	900	4	3	1	2	2	30

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
28	BMEHSe01	Basics of the Mechatronic Systems Design Process	30	15	15	60	90	150	1			1	5
29	BMEHSe02	Engineering Metrology	30	0	30	60	120	180	1			1	6
30	BMEHSe03	Microprocessor Technics	30	15	15	60	90	150	1				5
31	BMEHSe04	Quality Control	30	0	30	60	120	180		1			6
32	BMEHSe05	Optical Technics	30	0	30	60	90	150	1				5
33	BMEHSe06	Optical Technics- Course Project	0	0	0	0	90	90			1		3
Total			150	30	120	300	600	900	4	1	1	2	30
SEMESTER VI													
34	BMEHSe07	Automation of Discrete Mechanical Engineering	30	0	30	60	90	150	1				5
35	BMEHSe08	Intelligent Measurement Systems	30	0	30	60	90	150	1				5
36	BMEHSe09	Sensors and Actuators	45	0	15	60	90	150		1			5
37	BMEHSe10	Synthesis, Kinematics and Dynamics of Robots	30	15	15	60	90	150	1				5
38	BMEHSe11	Precision Mechatronic Systems	30	15	15	60	90	150	1				5
39	BMEHSe12	Course project subjects BMEHSe08, BMEHSe09 or BMEHSe10	0	0	0	0	90	90			1		3
40	PRCe03	Practicum	0	0	0	0	60	60		1			2
Total			165	30	105	300	600	900	4	2	1	0	30
SEMESTER VII													
41	BMEHSe13	Micro Electromechanical Systems (MEMS)	30	0	15	45	105	150		1		1	5
42	BMEHSe14	Modeling and Simulation of Mechatronic Systems	30	15	15	60	90	150	1				5
43	BMEHSe15	Industrial Robots	45	0	30	75	105	180	1				6
44	BMEHSe16	Electronic Regulating and Controlling Devices and Systems	30	0	30	60	90	150	1				5
45	BMEHSe17	Intelligent Manufacturing Systems	30	0	30	60	120	180	1				6
46	BMEHSe18	Industrial Robots-Course project	0	0	0	0	90	90			1		3
Total			165	15	120	300	600	900	4	1	1	1	30
SEMESTER VIII													
47	BMEHSe19	Optoelectronic and Laser Technics	20	0	20	40	80	120	1			1	4
48	BMEHSe20	Databases	20	0	15	35	55	90	1				3
49	BMEHSe21	Economics	20	15	0	35	55	90	1				3
50	BMEHSe22	Optional Subject (List 1)	30	0	15	45	75	120	1				4
51	BMEHSe23	Optional Subject 2 (List 2)	30	0	15	45	75	120		1			4
52	PRCe04	Practicum	0	0	0	0	60	60		1			2
53	BMEHSe24	Diploma Project	0	0	0	0	0	300	Defense of diploma thesis			10	
Total			120	15	65	200	400	900	4	2	0	1	30

LIST OF THE OPTIONAL SUBJECTS

List 1 BMEHSe22		ECTS = 4
1	Implementation and Maintenance of Industrial Robots	BMEHSe22.1
2	Engineering and Business Solutions in Mechatronic	BMEHSe22.2
List 2 BMEHSe23		ECTS = 4
1	Reliability and Diagnostics of Mechatronic Systems	BMEHSe23.1
2	Office Equipment	BMEHSe23.2

LIST OF THE FACULTATIVE SUBJECTS

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
1	FaSPR05	Sport	0	0	0	0	30	30		1			1
2	FaBMEHSe01	Theoretical Electrotechnic	30	30	0	60	90	150		1			5
SEMESTER VI													
1	FaSPR06	Sport	0	0	0	0	30	30		1			1
2	FaBMEHSe02	Design of Electronic Devices	30	0	30	60	90	150		1			5
SEMESTER VII													
1	FaSPR07	Sport	0	0	0	0	30	30		1			1
2	FaBMEHSe03	Bussines Ethics	30	15	0	45	75	120		1			4
SEMESTER VIII													
1	FaSPR08	Sport	0	0	0	0	30	30		1			1

CURRICULUM

Bachelor's degree program in Mechanical Engineering as of 2021/2022 academic year

ECTS Subject code T MECe No - T – type of course: B for BEng, M for MEng; - I - IV semester – fundamental subjects - professional field 5.1 Mechanical Engineering, 5.4 Electrical Power 5.5 Transport, shipping and aviation - MECe – “Mechanical Engineering” in English; - No – number of the subject; Lectures (L), Tutorials (Tut.), Labs (Lab.), Auditorium Total (AT), Self-Study (SS), Exam (E), Continuous Assessment (CA), Semester Project (SP), Semester Assignment (course work) (SA).														
№	Code	SUBJECT	Semester Load						Assesment				ECTS credits	
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA		
SEMESTER I														
1	MATe12	Mathematics Part I	30	30	0	60	150	210	1					7
2	PHYe01	Physics	45	15	30	90	120	210	1					7
3	CHEe01	Chemistry	30	0	15	45	105	150		1				5
4	CCEe23	Information and communication technologies	30	0	45	75	165	240	1					8
5	LNGe01	Foreign language I	0	30	0	30	30	60		1				2
6	SPRe01	Sports	0	0	0	0	30	30						1
Total			135	75	90	300	600	900	3	2	0	0	0	30
SEMESTER II														
7	MATe22	Mathematics Part II	30	30	0	60	120	180	1					6
8	ENGe01	Material Science	45	0	45	90	120	210	1				1	7
9	MECe01	Mechanics I	30	15	15	60	150	210	1				1	7
10	EEAe21	Electronics and Electrical engineering	30	0	30	60	90	150		1				5
11	LNGe02	Foreign language II	0	30	0	30	30	60		1				2
12	PRCe01	Practicum	0	0	0	0	60	60		1				2
13	SPRe02	Sports	0	0	0	0	30	30		1				1
Total			135	75	90	300	600	900	3	4	0	2	0	30
SEMESTER III														
14	MATe31	Mathematics Part III	30	30	0	60	120	180	1					6
15	MECe02	Mechanics II	30	0	30	60	150	210	1				1	7
16	MECe03	Strength of Materials	45	0	30	75	135	210	1				1	7
17	ENGe02	Engineering Graphics	30	0	45	75	105	180		1			1	6
18	CCEe24	Internet technologies	15	15	0	30	60	90		1				3
19	SPRe03	Sports	0	0	0	0	30	30		1				1
Total			150	45	105	300	600	900	3	3	0	3	0	30
SEMESTER IV														
20	MECe04	Machine Elements	45	15	30	90	120	210	1					7
21	MECe05	Hydraulic and pneumatic fluid power	45	0	30	75	105	180	1					6
22	ENRe01	Thermodynamics and heat transfer	30	0	30	60	90	150	1					5
23	MECe06	Theory of Mechanisms and Machines	30	15	15	60	120	180	1				1	6
24	MECe07	Machine Elements - Course project	0	0	0	0	90	90					1	3
25	PRCe02	Practicum	0	0	0	0	60	60		1				2
26	SPRe04	Sports	0	0	0	0	30	30		1				1
Total			150	30	105	285	615	900	4	2	1	1	0	30

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
27	BMECe01	Technology of Mechanical Engineering	45	0	30	75	105	180	1			1	6
28	BMECe02	Design of Automated Production Machines	30	0	30	60	120	180	1				6
29	BMECe03	Engineering Logistics	45	0	15	60	90	150	1				5
30	BMECe04	Quality Management and Control	30	0	30	60	90	150	1				5
31	BMECe05	Structural Non-metallic Composites	45	0	15	60	90	150		1			5
32	BMECe06	Design of Automated Production Machines - project	0	0	0	0	90	90			1		3
Total			195	0	120	315	585	900	4	1	1	1	30
SEMESTER VI													
33	BMECe07	Metrology and Measurement Devices	45	0	15	60	90	150	1				5
34	BMECe08	Economics	15	15	0	30	30	60		1			2
35	BMECe09	Reliability of Machines	45	0	15	60	90	150	1				5
36	BMECe10	Control and Regulation Systems	30	0	30	60	90	150	1				5
37	BMECe11	Materials Handling Equipment	30	0	15	45	75	120	1				4
38	BMECe12	Fine Mechanical and Optical Technique	30	0	15	45	75	120		1			4
39	BMECe13	Materials Handling Equipment - Course project	0	0	0	0	90	90			1		3
40	PRCe03	Practicum	0	0	0	0	60	60		1			2
Total			195	15	90	300	600	900	4	3	1	0	30
SEMESTER VII													
41	BMECe14	Precise Mechanical Technique	30	0	30	60	90	150	1				5
42	BMECe15	Application of Computer Modeling and Simulations in Engineering	30	0	15	45	105	150	1				5
43	BMECe16	Computer Integrated Manufacturing	45	0	30	75	105	180	1				6
44	BMECe17	Industrial Robots	30	0	30	60	90	150	1				5
45	BMECe18	Construction and Road Equipment	30	0	30	60	120	180		1			6
46	BMECe19	Precise Mechanical Technique - project	0	0	0	0	90	90			1		3
Total			165	0	135	300	600	900	4	1	1	0	30
SEMESTER VIII													
47	BMECe20	Programming of Automated Equipment	30	0	20	50	70	120	1			1	4
48	BMECe21	Modelling and Simulation of Mechanical Systems	20	0	20	40	80	120	1				4
49	BMECe22	Optional subject (List 1)	20	0	20	40	80	120	1				4
50	BMECe23	Kinematics and Dynamics of Lifting and Construction Manipulators	20	20	0	40	50	90	1				3
51	BMECe24	Optional subject (List 2)	15	15	0	30	60	90		1			3
52	PRCe04	Practicum	0	0	0	0	60	60		1			2
53	BMECe25	Diploma project	0	0	0	0	300	300	Defense of diploma thesis			10	
Total			105	35	60	200	700	900	4	2	0	1	30

LIST OF THE OPTIONAL SUBJECTS

List 1 BMECe22		ECTS = 4
1	Loading and Warehouse Logistics	BMECe22.1
2	Non-destructive Control	BMECe22.2
List 2 BMECe24		ECTS = 3
1	European Technical Legislation and Standardization	BMECe24.1
2	Management of Companies	BMECe24.2

LIST OF THE FACULTATIVE SUBJECTS

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
1	FaSPR05	Sport	0	0	0	0	30	30		1			1
2	FaBMECe01	Introduction to Networking	30	0	30	60	90	150		1			5
SEMESTER VI													
1	FaSPR06	Sport	0	0	0	0	30	30		1			1
2	FaBMECe02	Computer Design of Mechanical Drives and	30	0	30	60	90	150		1			5
SEMESTER VII													
1	FaSPR07	Sport	0	0	0	0	30	30		1			1
2	FaBMECe03	Business Ethics	30	15	0	45	75	120		1			4
SEMESTER VIII													
1	FaSPR08	Sport	0	0	0	0	30	30		1			1

CURRICULUM
Bachelor's degree program in Computer Science and Engineering
as of 2020/2021 academic year

ECTS Subject code T CSE No													
- T – type of course: B for BEng, M for MEng;													
- I - IV semester – fundamental subjects - professional field 5.3. Communications and Computer Engineering;													
- CSC – specialty “Computer Science and Engineering” in English;													
- No – number of the subject;													
Lectures (L), Tutorials (Tut.), Labs (Lab.), Auditorium Total (AT), Self-Study (SS), Exam (E), Continuous Assessment (CA), Semester Project (SP), Semester Assignment (course work) (SA).													
№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER I													
1	MATe13	Mathematics I	30	30	0	60	120	180	1				6
2	PHYe03	Physics	30	15	15	60	120	180	1				6
3	CCEe01	Introduction to Programming	30	15	30	75	135	210	1				7
4	ENGe04	Fundamentals of Engineering	30	15	30	75	135	210		1			7
5	LNGe11	Design	0	30	0	30	60	90		1			3
6	SPRe01	Foreign Language I	0	0	0	0	30	30		1			1
Total			120	105	75	300	600	900	3	3	0	0	30
SEMESTER II													
7	MATe22	Mathematics II	30	30	0	60	120	180	1				6
8	ENGe05	Materials Science	30	0	30	60	120	180	1				6
9	CCEe02	Fundamentals of Programming Languages	30	15	30	75	105	180	1				6
10	EEAe24	Electrical Engineering	30	15	15	60	120	180		1			6
11	LNGe21	Foreign Language II	0	30	0	30	60	90		1			3
12	PRCe01	Practicum in Communications and Computer Engineering	0	0	0	0	60	60		1			2
13	SPRe02	Sport	0	0	0	0	30	30		1			1
Total			120	90	75	285	615	900	3	4	0	0	30
SEMESTER III													
14	MATe33	Mathematics III	30	30	0	60	120	180	1				6
15	EEAe25	Semiconductor Devices	30	0	30	60	120	180		1			6
16	MECe24	Mechanical Systems	30	0	15	45	75	120		1			4
17	CCEe03	Platform Independent Programming Languages	30	15	30	75	135	210	1				7
18	CCEe04	Synthesis and Analysis of Algorithms	30	0	30	60	120	180	1			1	6
19	SPRe03	Sport	0	0	0	0	30	30		1			1
Total			150	45	105	300	600	900	3	3	0	1	30
SEMESTER IV													
20	CCEe05	Computer Systems	30	0	30	60	90	150	1				5
21	CCEe06	Signals and Systems	30	15	15	60	90	150	1			1	5
22	CCEe07	Fundamentals of Computer and Communication Networks	30	0	30	60	90	150	1			1	5
23	CCEe08	Databases	30	0	30	60	120	180		1			6
24	EEAe26	Measurements in Communications and Computer Engineering	30	0	15	45	75	120		1			4
25	CCEe09	Databases – project	0	0	0	0	60	60			1		2
26	PRCe02	Practicum in Communications and Computer Engineering	0	0	0	0	60	60		1			2
27	SPRe04	Sport	0	0	0	0	30	30		1			1
Total			150	15	120	285	615	900	3	4	1	2	30

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
28	BCSCe01	Computer Architectures	30	0	15	45	75	120	1			1*	4
29	BCSCe02	Fundamentals of Logic Design	30	15	15	60	90	150	1			1*	5
30	BCSCe03	Operating Systems	30	0	15	45	105	150	1			1*	5
31	BCSCe04	Programming Languages	30	0	30	60	90	150		1		1*	5
32	BCSCe05	Advanced Software Technologies (C#)	30	0	15	45	75	120	1			1*	4
33	BCSCe06	Software Design and Software Testing	30	0	30	60	90	150		1		1*	5
34	BCSCe07	Project (on selected discipline №28–33)	0	0	0	0	60	60			1		2
Total			180	15	120	315	585	900	4	2	1	2	30
SEMESTER VI													
35	BCSCe08	Agent Based Technologies	30	0	15	45	105	150	1			1*	5
36	BCSCe09	High Performance Computer Systems	30	0	30	60	90	150	1			1*	5
37	BCSCe10	Development of Linux-based software	30	0	15	45	75	120		1		1*	4
38	BCSCe11	Programming Environments	30	0	30	60	90	150	1			1*	5
39	BCSCe12	Computer Graphics	30	0	30	60	90	150	1			1*	5
40	BCSCe13	Elective Discipline (List 1)	30	0	15	45	75	120		1		1*	4
41	BCSCe14	Semester Project (on selected discipline №35–40)	0	0	0	0	60	60			1		2
Total			180	0	135	315	585	900	4	2	1	2	30
SEMESTER VII													
42	BCSCe15	Parallel Programming	30	0	30	60	90	150	1			1*	5
43	BCSCe16	Programming Technologies for Secure Code	30	0	30	60	90	150		1		1*	5
44	BCSCe17	Web Programming Fundamentals	30	0	30	60	90	150	1			1*	5
45	BCSCe18	Artificial Intelligence	30	0	15	45	75	120	1			1*	4
46	BCSCe19	Metaheuristics	30	0	15	45	75	120	1			1*	4
47	BCSCe20	Elective Discipline (List 2)	30	0	15	45	105	150		1			5
48	BCSCe21	Semester Project (on selected discipline №42–47)	0	0	0	0	60	60			1		2
Total			180	0	135	315	585	900	4	2	1	2	30
SEMESTER VIII													
49	BCSCe22	Information Security	20	10	10	40	80	120	1			1**	4
50	BCSCe23	Multimodal Systems	20	10	10	40	80	120	1			1**	4
51	BCSCe24	Elective Discipline (List 3)	20	5	10	35	85	120	1			1**	4
52	BCSCe25	Elective Discipline (List 4)	20	5	10	35	85	120		1		1**	4
53	BCSCe26	Elective Discipline (List 5)	20	15	0	35	85	120		1		1**	4
54	BCSCe27	Diploma project	0	0	0	0	300	300	Defense of diploma			10	
Total			100	45	40	185	715	900	3	2	0	1	30

*Remark: Students prepare two courseworks, the disciplines of the semester project and the coursework should be different.

**Remark: Students prepare one coursework on selected discipline.

LIST OF THE OPTIONAL SUBJECTS

List 1 Elective Discipline (semester 6)			ECTS = 4
1	Discrete Structures		BCSCe13.1
2	Embedded Systems		BCSCe13.2
3	Java Technologies		BCSCe13.3
List 2 Elective Discipline (semester 7)			ECTS = 5
1	Programmable Logic Systems		BCSCe20.1
2	Software Patterns		BCSCe20.2
List 3 Elective Discipline (semester 8)			ECTS = 4
1	Distributed Systems and Computer Communications		BCSCe24.1
2	Bioinformatics		BCSCe24.2
List 4 Elective Discipline (semester 8)			ECTS = 4
1	Intelligent Systems		BCSCe25.1
2	Programming for Embedded Systems		BCSCe25.2
3	Virtual Reality		BCSCe25.3
List 5 Elective Discipline (semester 8)			ECTS = 4
1	Innovation Management and Entrepreneurship		BCSCe26.1
2	Management of IT Projects		BCSCe26.2

LIST OF THE FACULTATIVE SUBJECTS

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER II													
1	FaBCSCe01	Bulgarian Language	0	30	0	30	60	90					3
SEMESTER V													
1	FaBCSCe02	Elective Humanitarian Discipline (List 6)	30	15	0	45	45	90		1			3
2	FaSPR05	Sport	0	0	0	0	30	30		1			1
SEMESTER VI													
1	FaBCSCe03	Elective Law Discipline (List 7)	30	15	0	45	45	90		1			3
2	FaSPR06	Sport	0	0	0	0	30	30		1			1
SEMESTER VII													
1	FaSPR07	Sport	0	0	0	0	30	30		1			1
SEMESTER VIII													
1	FaSPR08	Sport	0	0	0	0	30	30		1			1
List 12 Elective Humanitarian Discipline												ECTS = 3	
1	The Global Society and Technologies												FaBCSCe02.1
2	Research and Analysis of Digital Content												FaBCSCe02.2
3	Business Ethics												FaBCSCe02.3
List 13 Elective Law Discipline												ECTS = 3	
1	Information Technologies Law												FaBCSCe03.1
2	Tech Giants and Legal Protection of Competition												FaBCSCe03.2
3	Protection of Intellection Property												FaBCSCe03.3