

I. CURRICULUM

ECTS Subject code T MIg SN

- T - type of course: B for BEng, M for MEng;

- BMIg – “Mechatronics and information technics” in German;

- SN - subsequent number of the subject;

Lectures (L), tutorials (Tut.), labs (Lab.);

exam (E), continuous assessment (CA); semester projects (SP)/ semester assignment (course work) (SA).

№	ECTS Subject code	Subject	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	Audit. Total	Self Study	Total	E	CA	SP	SA	
SEMESTER I													
1	BMIg01	Pre - Mathematics	30	30	0	60	150	210	1			1	7
2	BMIg02	Physics	60	30	15	105	135	240	1				8
3	BMIg03	Chemistry	45	0	15	60	150	210	1				7
4	BMIg04	Electrical engineering and electronics	30	0	15	45	75	120	1				4
5	BMIg05	Workshop electrical engineering and electronics	0	0	15	15	45	60		1		1	2
6	BMIg06	Sports	0	0	0	0	30	30		1			1
TOTAL			165	60	60	285	585	870	4	2	0	2	29
SEMESTER II													
7	BMIg07	Mathematics I	60	30	0	90	120	210	1				7
8	BMIg08	Technical mechanics I	45	30	0	75	135	210	1				7
9	BMIg09	Linear electrical networks with workshop	60	0	15	75	135	210	1				8
10	BMIg10	Basics of digital technology	30	0	15	45	75	120	1				4
11	BMIg11	Machine design theory A	45	0	15	60	150	210	1				7
12	BMIg12	Sports	0	0	0	0	30	30		1			1
TOTAL			240	60	45	345	645	990	5	1	0	0	34
SEMESTER III													
13	BMIg13	Mathematics II	60	30	0	90	120	210	1				7
14	BMIg14	Technical mechanics II	45	30	0	75	135	210	1				7
15	BMIg15	Electronic circuits	45	0	15	60	120	180	1				6
16	BMIg16	Information and automation technology	45	0	45	90	120	210	1			1	7
17	BMIg17	Key qualification	15	15	0	30	30	60		1			2
18	BMIg18	Workshop electronic circuits	0	0	15	15	15	30			1		1
19	BMIg19	Sports	0	0	0	0	30	30		1			1
TOTAL			210	75	75	360	570	930	4	2	1	1	31
SEMESTER IV													
20	BMIg20	Mathematics III	60	30	0	90	120	210	1				7
21	BMIg21	Technical mechanics III	45	30	0	75	135	210	1				7
22	BMIg22	Electromagnetic fields	30	0	30	60	60	120	1				4
23	BMIg23	Signals and systems	60	0	30	90	120	210	1			1	7
24	BMIg24	Workshop signals and systems	0	0	15	15	15	30			1		1
25	BMIg25	Fundamentals of production technology	30	0		30	60	90	1				3
26	BMIg26	Systems modeling	15	0	15	30	30	60	1				2
27	BMIg27	Sports	0	0	0	0	30	30		1			1
TOTAL			240	60	90	390	570	960	6	1	1	1	32

№	ECTS Subject code	Subject	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	Audit. Total	Self Study	Total	E	CA	SP	SA	
SEMESTER V													
28	BMIg28	Data exchange in mechatronic systems	30	0	45	75	105	180		1		1	6
29	BMIg29	BioMEMS – Microsystem technology for life sciences and medicine	45	0	45	90	90	180		1	1		6
30	BMIg30	Patents and enterprise patent strategies	45	15	0	60	60	120	1				4
31	BMIg31	Elective subject 5.1 (List 5.1)	45	0	45	90	90	180	1			1	6
32	BMIg32	Elective subject 5.2 (List 5.2)	45	0	45	90	90	180	1				6
TOTAL			210	15	180	405	435	840	3	2	1	2	28
SEMESTER VI													
33	BMIg33	Elective subject 6.1 (List 6.1)	60	0	30	90	120	210	1				7
34	BMIg34	Elective subject 6.2 (List 6.2)	30	0	60	90	90	180	1			1	6
35	BMIg35	Elective subject 6.3 (List 6.3)	0	0	60	60	60	120			1		4
36	BMIg36	Elective subject 6.4 (List 6.4)	45	0	15	60	120	180	1		1		6
37	BMIg37	Elective subject 6.5 (List 6.5)	45	0	0	45	45	90	1				3
38	BMIg38	Elective subject 6.6 (List 6.6)	60	0	0	60	120	180	1				6
TOTAL			240	0	165	405	555	960	5	0	2	1	32
SEMESTER VII													
39	BMIg39	Elective subject 7.1 (List 7.1)	45	0	45	90	150	240	1			1	8
40	BMIg40	Elective subject 7.2 (List 7.2)	45	0	15	60	120	180	1				6
41	BMIg41	Elective subject 7.3 (List 7.3)	30	0	15	45	105	150	1				5
42	BMIg42	Elective subject 7.4 (List 7.4)	40	0	0	40	80	120	1				4
43	BMIg43	Elective subject 7.5 (List 7.5)	30	0	15	45	45	90	1				3
44	BMIg44	Elective subject 7.6 (List 7.6)	15	0	5	20	40	60		1			2
TOTAL			205	0	95	300	540	840	5	1	0	1	28
№	ECTS Subject code	Subject	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	Audit. Total	Self Study	Total	E	CA	SP	SA	
SEMESTER VIII													
45	BMIg45	Internship 13 weeks	0	0	0	0	450	450	Internship report				15
46	BMIg46	Bachelor thesis	0	0	0	0	450	450	Diploma defense				15
TOTAL							900	900	0	0	0	0	30

*Remark: The subject "German language" from the list of optional subjects in the I and II semesters is mandatory, according to the decision of the AC Protocol 8 / 29.09.2021

**Remark: The form of control in the subject "Sport" is "Pass / No-Pass".

***Remark: The updated plan comes into effect from the summer semester of the 2023/2024 academic year.

II. MAIN PARAMETERS OF THE CURRICULUM

	4 Years	8 Semesters
1. Program duration		
2. Auditorium total		
2.1. Total –		2490 hours
2.2. Lectures –		1510 hours
2.3. Tutorials –		270 hours
2.4. Laboratory exercises –		710 hours
3. Self-Study –		4800 hours
4. Total –		7290 hours
5. Total number of academic subjects –		
5.1. Compulsory –		36
5.2. Elective –		10
5.4. Facultative –		9
5.5. Foreign language –		3
5.6. Sports –		8
5.7. Project –		5
5.8. Internships –		1
6. Assessment		
6.1. Exams –		32
6.2. Continuous assesment –		8
6.3. Semester projects –		5
6.4. Semester assignment (course work) –		8
7. Practical training		13 weeks
8. Total number of ECTS credits:		244

Date: 10.1.2024

Dean of FDIBA:

/Prof. Marin Marinov, PhD/

Adopted by the FC of FDIBA on	17.6.2021	with protocol №	5
Approved by the AC of TU-Sofia on	7.7.2021	with protocol №	7
Updated by the FC of FDIBA on	15.11.2023	with protocol №	2
Updated by the FC of FDIBA on	10.1.2024	with protocol №	3

LIST OF ELECTIVE SUBJECTS

List 5.1 Elective subject		ECTS = 6
1	Neural networks and fuzzy systems	BMIg31.1
2	Software in robotics and automation	BMIg31.2
List 5.2 Elective subject		ECTS = 6
1	Materials science I	BMIg32.1
2	Sensor systems	BMIg32.2
List 6.1 Elective subject		ECTS = 7
1	Fluid mechanics	BMIg33.1
2	Machine design theory B	BMIg33.2
3	Combustion engines	BMIg33.3
List 6.2 Elective subject		ECTS = 6
1	Systems engineering and processes with artificial intelligence	BMIg34.1
2	Data transmission basics	BMIg34.2
3	Computer aided design in mechatronics	BMIg34.3
List 6.3 Elective subject		ECTS = 4
1	Workshop mechatronic systems and products	BMIg35.1
2	Workshop embedded systems	BMIg35.2
List 6.4 Elective subject		ECTS = 6
1	Measurement and control technology	BMIg36.1
2	Technical logistics	BMIg36.2
List 6.5 Elective subject		ECTS = 3
1	Mechatronic systems and products	BMIg37.1
2	Fundamentals of embedded systems	BMIg37.2
List 6.6 Elective subject		ECTS = 6
1	Electrical power engineering	BMIg38.1
2	Selected topics of virtual engineering applications	BMIg38.2
List 7.1 Elective subject		ECTS = 8
1	Technical thermodynamics and heat transfer	BMIg39.1
2	Engineering design in biomechatronics	BMIg39.2
List 7.2 Elective subject		ECTS = 6
1	Introduction to robotics	BMIg40.1
2		BMIg40.2
List 7.3 Elective subject		ECTS = 5
1	Probability theory	BMIg41.1
2	Machine design theory C	BMIg41.2
List 7.4 Elective subject		ECTS = 4
1	Mechano-informatics in robotics	BMIg42.1
2		BMIg42.2
List 7.5 Elective subject		ECTS = 3
1	Electromagnetic phenomena	BMIg43.1
2	Materials science II	BMIg43.2

3	Human-machine interaction	BMIg43.3
List 7.6 Elective subject		ECTS = 2
1	Technology ethics	BMIg44.1
2		BMIg44.2

Dean of FDIBA:
/Prof. Marin Marinov, PhD/

Updated by FC of FDIBA on 10.1.2024 with protocol № 3

LIST OF FACULTATIVE SUBJECTS

№	ECTS Subject code	SUBJECT	Semester Load						Assesment				ECTS credits	
			L	Tut.	Lab.	Audit. Total	Self Study	Total	E	CA	SP	SA		
SEMESTER I														
1	FaBMIg01	Introduction to speciality	15	0	0	15	15	30		1				1
2	FaBMIg02	German language	0	150	0	150	150	300		1				10
SEMESTER II														
1	FaBMIg03	German language	0	150	0	150	150	300		1				10
SEMESTER III														
1	FaBMIg04	German studies	15	15	0	30	30	60		1				2
SEMESTER IV														
1	FaBMIg05	English language	0	45	0	45	45	90		1				3
SEMESTER V														
1	FaBMIg06	Sports	0	0	0	0	30	30		1				1
SEMESTER VI														
1	FaBMIg07	Sports	0	0	0	0	30	30		1				1
SEMESTER VII														
1	FaBMIg08	Sports	0	0	0	0	30	30		1				1
SEMESTER VIII														
1	FaBMIg09	Sports	0	0	0	0	30	30		1				1

Remark: The content of the lists of elective and facultative subjects is subject to update before the start of the academic year by decision of the Faculty Council.

Date: 10.1.2024

Dean of FDIBA :

/Prof. Marin Marinov, PhD/

Adopted by FC of FDIBA on 10.1.2024 with protocol № 3

