



TECHNICAL UNIVERSITY OF SOFIA

Approved:

Rector:

/Prof. Dr. Sc. Ing. G. Mihov/

Date: 21.01.2019

Graduation	Bachelor
Professional Qualification:	Mechatronics and information technology engineer
Duration of study:	4 Years
Form of training:	regular

S T U D Y S C H E D U L E

Specialization “**Mechatronics and information technology**” (in German language)

Occupation 5.13 **General engineering**

I. TIME SCHEDULE (in weeks)

Acad emic year	Number of weeks							
	Events	Exam time	Teaching internship	Operational internship	Subject- internship	Bachelor thesis	Vacation	Total of
I	30	9	4	0	0	0	9	52
II	30	9	0	4	0	0	9	52
III	30	9	0	0	0	0	13	52
IV	15	4	0	0	13	9	11	52

II. CURRICULUM

Cod of subjects, according to ECTS **T MIg No.**

- **T** – Type of graduation: **B** - „Bachelor“, **M** – „Master“
- **MIg** – „Mechatronics and information technology“ (in German language)
- **No** – Numbering

Lecture (**L**), Tutorials (**T**), Laboratory work (**LW**) weekly;

Exam (**E**), Exams during the semester (**ES**); Course Project (**CP**) / Course Work (**CW**)

No	SUBJECT	Weekly hours						Control				Code	ECTS
		L	T	LW	Total	Self work	Σ	E	ES	CP	CW		

SEMESTER I

1	Pre - Mathematics	5	3	0	8	8	16	1			1	BMIg01	9
2	Physics	4	2	1	7	7	14	1				BMIg02	8
3	Chemistry	3	0	1	4	7	11	1				BMIg03	7
4	Electrical engineering and electronics	2	0	1	3	4	7	1				BMIg04	4
5	German language - preparatory	0	(10)	0	(10)	(8)	(18)		(1)			BMIg05	-
6	Sports	0	(3)	0	(3)	0	(3)					BMIg06	-
	Total:	14	5	3	22	26	48	4	0	0	1		28

SEMESTER II

7	Mathematics I	4	2	0	6	6	12	1				BMIg07	7
8	Technical mechanics I	3	2	0	5	5	10	1				BMIg08	7
9	Linear electrical networks	4	0	1	5	5	10	1				BMIg09	7
10	Digital technology	3	0	1	4	6	10	1				BMIg10	6
11	Machine design theory I	2	0	1	3	3	6		1			BMIg11	3
12	Workshop electrical engineering and information technology I	0	0	1	1	3	4		1	1		BMIg12	2
13	German language	0	(8)	0	(8)	(8)	(16)		(1)			BMIg13	-
14	Sports	0	(3)	0	(3)	0	(3)					BMIg14	-
	Total:	16	4	4	24	28	52	4	2	1	0		32

No	SUBJECT	Weekly hours						Control				Code	ECTS
		L	T	LW	Total	Self work	Σ	E	ES	CP	CW		

SEMESTER III

15	Mathematics 2	4	2	0	6	6	12	1				BMIg15	7
16	Technical mechanics II	2	2	0	4	5	9	1				BMIg16	6
17	Electronic circuits	3	0	1	4	4	8	1				BMIg17	6
18	Machine design theory II	2	0	3	5	5	10	1				BMIg18	5
19	Electromagnetic fields	4	2	0	6	6	12	1				BMIg19	6
20	Workshop electrical engineering and information technology II	0	0	1	1	1	2		1	1		BMIg20	1
21	German Studies	(1)	(1)	0	(2)	(2)	(4)		1			BMIg21	1
22	Sports	0	(3)	0	0	0	(3)					BMIg22	-
Total:		15	6	5	26	76	53	5	2	1	0		32

SEMESTER IV

23	Mathematics 3	4	2	0	6	6	12	1				BMIg23	7
24	Technical mechanics III	2	2	0	4	4	8	1				BMIg24	5
25	Electrical machines and power converters	2	0	2	4	5	9	1				BMIg25	6
26	Signals and systems	2	2	0	4	4	8	1				BMIg26	6
27	Workshop electrical engineering and information technology III	0	0	1	1	1	2		1	1		BMIg27	1
28	Production management	3	0	1	4	4	8		1			BMIg28	5
29	Communication training	(1)	(1)	0	(2)	(1)	(3)		1			BMIg29	1
30	English Language	0	(2)	0	(2)	(2)	(4)		(1)			BMIg30	-
31	Sports	0	(3)	0	(3)	0	(3)					BMIg31	-
Total:		13	6	4	23	24	47	4	3	1	0		31

No	SUBJECT	Weekly hours						Control				Code	ECTS
		L	T	LW	Total	Self work	Σ	E	ES	CP	CW		

SEMESTER V

32	Cooperation in interdisciplinary teams (key qualifications)	0	0	1	1	2	3			1		BMIg32	2
33	System dynamics and control engineering	2	0	2	4	6	10	1		1		BMIg33	6
34	Mechatronic systems and products incl. workshop	3	0	2	5	5	10	1				BMIg34	6
35	Elective course I (List 1)	2	0	0	2	5	7	1				BMIg35	4
36	Elective course II (List 2)	2	1	0	3	4	7	1				BMIg36	4
37	Elective course III (List 3)	3	2	0	5	8	13	1				BMIg37	8
Total:		12	3	5	20	30	50	5	0	2	0		30

SEMESTER VI

38	Information technology	2	1	0	3	4	7		1			BMIg38	4
39	Internship - information technology	0	0	2	2	2	4			1		BMIg39	2
40	Elective course IV (List 4)	2	1	0	3	4	7	1				BMIg40	5
41	Elective course V (List 5)	2	1	0	3	4	7	1				BMIg41	5
42	Elective course VI (List 6)	3	1	2	6	6	12	1				BMIg42	6
43	Elective course VII (List 7)	4	2	0	6	7	13	1				BMIg43	8
Total:		13	6	4	23	27	50	4	1	1	0		30

Comment: The control from position No. 39 is included in the control from position No. 38

No	SUBJECT	Weekly hours						Control				Code	ECTS
		L	T	LW	Total	Self work	Σ	E	ES	CP	CW		

SEMESTER VII

44	Data exchange in mechatronic systems	2	0	3	5	5	10		1		1	BMIg44	6
45	Patents and Patent Strategies in the Enterprise	3	1	0	4	4	8		1			BMIg45	5
46	Elective course VIII (List 8)	3	0	2	5	7	12	1				BMIg46	7
47	Elective course IX (List 9)	3	0	2	5	7	12	1				BMIg47	7
48	Elective course X (List 10)	3	0	2	5	7	12	1		1		BMIg48	7
	Total:	14	1	9	24	30	54	3	2	1	1		32

SEMESTER VIII

49	Internship 13 weeks											BMIg49	15
50	Bachelor thesis											BMIg50	12
	Total:												27

Comment:

Study in the mechatronics and information technology course takes place in German in cooperation with the Karlsruhe Institute of Technology (KIT), with the course being coordinated between the two universities. Graduates receive the Bachelor's degree from TU Sofia and the Bachelor's degree from KIT after all requirements have been met in accordance with the examination regulations of both universities.

III. Basic parameters of the curriculum:

1. Duration of study – 4 Years, 8 Semesters
2. Total number of teaching hours – 2234
From that:
 - 2.1 Lecture (L) – 1329 hours
 - 2.2 Tutorials (T) – 456 hours
 - Laboratory work (LW) – 429 hours
3. Total number of subjects – 48
From that:
 - 3.1 Compulsory subjects – 38
 - 3.2 Elective courses – 10
4. Control
 - 4.1. Exams (E) – 29
 - 4.2. Exams during the semester (ES) – 10
 - 4.3. Course Projects (CP) – 7
 - 4.4. Course Work (CW) – 2
5. Credit points (ECTS) – 242

Dean of FDIBA:
/Assoc. prof. PhD Aleksandar Tsenov/

Adopted by the Faculty Council of FDIBA on February 18, 2016 with Protocol No. 1

Confirmed by the Academic Council of TU Sofia on April 27, 2016 with Protocol No. 4

Updated by the Faculty Council of FDIBA on June 28, 2018 with Protocol No. 6

Confirmed by the Academic Council of TU Sofia on September 26, 2018 with Protocol No. 7

Updated by the Faculty Council of FDIBA on December 13, 2018 with Protocol No. 10

Confirmed by the Academic Council of TU Sofia on December 19, 2018 with Protocol No. 10

Comment:

From the winter semester 2018/2019, the update applies to all years of mechatronics and information technology.

LIST OF COMPULSORY SUBJECTS

List 1 (4 ECTS)		
1	Hybrid and electric vehicles	BMIg35.1
List 2 (4 ECTS)		
1	Materials science I	BMIg36.1
List 3 (8 ECTS)		
1	Technical thermodynamics and heat transfer I	BMIg37.1
List 4 (5 ECTS)		
1	Materials science II	BMIg40.1
2	Machine design theory III	BMIg40.2
List 5 (5 ECTS)		
1	Electrical energy systems	BMIg41.1
2	Selected topics in virtual engineering applications	BMIg41.2
List 6 (6 ECTS)		
1	Computer architectures	BMIg42.1
2	Software in robotics and automation	BMIg42.2
List 7 (8 ECTS)		
1	Machine design theory IV	BMIg43.1
2	Computer-aided development in mechatronics	BMIg43.2
List 8 (7 ECTS)		
1	BioMEMS – Microsystem technology for life sciences and medicine	BMIg46.1
List 9 (7 ECTS)		
1	Machine tools and handling technology	BMIg47.1
2	Sensor systems	BMIg47.2
List 10 (7 ECTS)		
1	Biomechatronics	BMIg48.1
2	Real-time systems	BMIg48.2

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Adopted by the Faculty Council of FDIBA on February 18, 2016 with Protocol No. 1

Updated by the Faculty Council of FDIBA on June 28, 2018 with Protocol No. 6

Updated by the Faculty Council of FDIBA on January 16, 2020 with Protocol No. 1