



## CURRICULUM

Professional orientation: **Electrical Engineering, Electronics And Automation**

Program: **Automation, Robotics and Control Computer Systems**

Professional qualification: **Engineer in Automation**

Educational and qualificational degree: **Bachelor**

Form of study: **Full - Time**

Term of study: **4 years / 8 semesters**

No	Subject Name	Types of term control				Semester auditorium load					Unsupervised load	Total work hours	ECTS credits
		E	PA	CP	A	L	S	L	CP CPR	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Mathematics, part 1	1				15	45			60	115	175	7
2	Physics	1				30		30		60	115	175	7
3	Computer Technologies		1			15		30		45	120	165	6
4	Technical Documentation		1			15		30		45	120	165	6
5	English, part 1				1		30			30	30	60	2
6	Elective Subject				1						30	30	1
6a	Specialized Sport Activities, part 1				1						30	30	1
6b	Sport and Social Adaptation, part 1				1						30	30	1
7	Practical Training, part 1				1						30	30	1
<b>Total for the 1 semester:</b>		<b>2</b>	<b>2</b>		<b>3</b>	<b>75</b>	<b>75</b>	<b>90</b>		<b>240</b>	<b>560</b>	<b>800</b>	<b>30</b>
8	Mathematics, part 2	2				30	30			60	115	175	7
9	Circuit and Field Theory	2				30		30		60	105	165	6
10	Materials in Electrical Engineering	2				30		15		45	90	135	5
11	Technical Mechanics	2				30		15		45	90	135	5
12	Economics		2			30		15		45	60	105	4
13	English, part 2		2				30			30	30	60	2
14	Elective Subject				2						30	30	1
14a	Specialized Sport Activities, part 2				2						30	30	1
14b	Sport and Social Adaptation, part 2				2						30	30	1
<b>Total for the 2 semester:</b>		<b>4</b>	<b>2</b>		<b>1</b>	<b>150</b>	<b>60</b>	<b>75</b>		<b>285</b>	<b>520</b>	<b>805</b>	<b>30</b>
15	MATLAB Introduction	3				15	15	30		60	105	165	6
16	Electrical Measurements	3				30		30		60	105	165	6
17	Electronics, part 1	3				30		30		60	105	165	6
18	Electromechanical Devices	3				30		30		60	105	165	6
19	Industrial Electronic Devices		3			30		15		45	90	135	5
20	Elective Subject				3						30	30	1
20a	Specialized Sport Activities, part 3				3						30	30	1
20b	Sports Management, part 1				3						30	30	1
<b>Total for the 3 semester:</b>		<b>4</b>	<b>1</b>		<b>1</b>	<b>135</b>	<b>15</b>	<b>135</b>		<b>285</b>	<b>540</b>	<b>825</b>	<b>30</b>

No	Subject Name	Types of term control				Semester auditorium load					Unsupervised load	Total work hours	ECTS credits
		E	PA	CP	A	L	S	L	CP CPR	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
21	Electronics, part 2	4				30		30		60	105	165	6
22	Control Theory, part 1	4				30		30		60	105	165	6
23	Data and Signal Processing in Automation	4				30		30		60	105	165	6
24	Technical Devices for Automation, part 1	4				30		30		60	105	165	6
25	Logic Control Systems		4			15		30		45	90	135	5
26	Practical Training, part 2				4						30	30	1
27	Elective Subject				4						30	30	1
27a	Specialized Sport Activities, part 4				4						30	30	1
27b	Sports Management, part 2				4						30	30	1
<b>Total for the 4 semester:</b>		<b>4</b>	<b>1</b>		<b>2</b>	<b>135</b>		<b>150</b>		<b>285</b>	<b>570</b>	<b>855</b>	<b>31</b>
28	Control Theory, part 2	5				30		30		60	105	165	6
29	Digital Control Systems	5				30		30		60	105	165	6
30	Technical Devices for Automation, part 2	5				30		30		60	105	165	6
31	Programmable Logic Controllers	5				30		30		60	105	165	6
32	Technical Safety		5			30		15		45	60	105	4
33	Elective Subject			5					30	30	30	60	2
33a	Control Theory, project			5					30	30	30	60	2
33b	Digital Control Systems, project			5					30	30	30	60	2
<b>Total for the 5 semester:</b>		<b>4</b>	<b>1</b>	<b>1</b>		<b>150</b>		<b>135</b>	<b>30</b>	<b>315</b>	<b>510</b>	<b>825</b>	<b>30</b>
34	Systems Identification	6				30		30		60	105	165	6
35	Embedded Systems	6				30		30		60	105	165	6
36	Automated Electric Drives	6				30		30		60	105	165	6
37	Electronic Power Devices in Automation	6				30		30		60	105	165	6
38	Industrial Communication Networks		6			15		30	15	60	105	165	6
39	Elective Subject			6					30	30	30	60	2
39a	Systems Identification, project			6					30	30	30	60	2
39b	Automated Electric Drives, project			6					30	30	30	60	2
40	Specialized Practice				6						120	120	4
<b>Total for the 6 semester:</b>		<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>135</b>		<b>150</b>	<b>45</b>	<b>330</b>	<b>675</b>	<b>1005</b>	<b>36</b>
41	Technological Processes Control	7				30		30		60	105	165	6
42	Electromechanical Systems Control	7				30		30		60	105	165	6
43	Elective Subject	7				30		30		60	105	165	6
43a	System Modelling and Optimization	7				30		30		60	105	165	6
43b	Industrial Machineries Automation	7				30		30		60	105	165	6
43c	Robots Control Algorithms	7				30		30		60	105	165	6
44	Elective Subject	7				30		15	15	60	105	165	6
44a	Industrial Information Systems	7				30		15	15	60	105	165	6
44b	Electrical Drives Control Systems	7				30		15	15	60	105	165	6
44c	Machine Vision	7				30		15	15	60	105	165	6
45	Elective Subject		7			30		15		45	90	135	5
45a	Building Automation		7			30		15		45	90	135	5
45b	Automation Systems for Renewable Energy Sources		7			30		15		45	90	135	5
45c	Robots Drive		7			30		15		45	90	135	5
46	Elective Subject			7					30	30	30	60	2
46a	Technological Processes Control, project			7					30	30	30	60	2
46b	Electromechanical Systems Control, project			7					30	30	30	60	2

No	Subject Name	Types of term control				Semester auditorium load					Unsuper vised load	Total work hours	ECTS credits
		E	PA	CP	A	L	S	L	CP CPR	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
46c	Robots Control Algorithms,project			7					30	30	30	60	2
<b>Total for the 7 semester:</b>		<b>4</b>	<b>1</b>	<b>1</b>		<b>150</b>		<b>120</b>	<b>45</b>	<b>315</b>	<b>540</b>	<b>855</b>	<b>31</b>
47	Automation Systems Design	8				30		30		60	105	165	6
48	Elective Subject	8				15		30		45	90	135	5
48a	Computer Aided Design	8				15		30		45	90	135	5
48b	Microcontroller Based Electric Drives	8				15		30		45	90	135	5
48c	Mobile Robots	8				15		30		45	90	135	5
49	Elective Subject	8				30		30		60	105	165	6
49a	Intelligent Control Systems	8				30		30		60	105	165	6
49b	Adaptive and Robust Control	8				30		30		60	105	165	6
49c	Industrial Robots	8				30		30		60	105	165	6
50	Complex Project			8					30	30	120	150	5
<b>Total for the 8 semester:</b>		<b>3</b>		<b>1</b>		<b>75</b>		<b>90</b>	<b>30</b>	<b>195</b>	<b>420</b>	<b>615</b>	<b>22</b>
<b>Total for all courses of education:</b>		<b>29</b>	<b>9</b>	<b>4</b>	<b>8</b>	<b>1005</b>	<b>150</b>	<b>945</b>	<b>150</b>	<b>2250</b>	<b>4335</b>	<b>6585</b>	<b>240</b>

### Facultative subjects

No	Subject Name	Types of term control				Semester auditorium load incl:					Unsuper-vised load	Total work hours	ECTS credits
		E	PA	CP	A	L	S	L	CP CPR	Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Types of graduation	Semester	Unsupervised load	ECTS credits
Preparation of Diploma Thesis / Preparation for State Examination	8	300	10
Defence of Diploma Thesis / State Examination	8		

**Accepted from AU with**

Protocol No 19 / 27.02.2017

**Valid from the 2017 / 2018 academic year.**

**The weekly allocation of the classes is fixed according to the "Structure of the Learning Process" Academic Board adopted for the current academic year.**

Head of Department A:

/ Assoc. Prof. PhD Nikolov N. /

Dean of Faculty FCA:

/ Assoc. Prof. PhD Nikolov N. /