

Master's degree program in Automation, Information and Control Engineering

as of 2020/2021 academic year

CURRICULUM

ECTS subject code: **T AICE No**

- **T** – type of course: **M** – for MEng;
- **p** – additional symbol for branch Plovdiv;
- **AICE** – "Automation, Information and Control Engineering";
- **No** – subsequent number of the subject;

Lectures (L), Tutorial (Tut), Labs (Lab), Auditorium total (AT), Self-Study (SS); Exam (E), Continuous Assessment (CA); Semester Project (SP), Semester Assessment (course work) (SA).

No	SUBJECT	Semester schedule						Assessment				ECTS code	ECTS credits
		L	Tut	Lab	AT	SS	Total	E	CA	SP	SA		

I. SEMESTER I

1	Control theory I	30	0	30	60	90	150	x			x	MpAICE21	5
2	Electrical measurements	30	0	30	60	90	150	x				MpAICE22	5
3	Control instrumentation	30	0	30	60	90	150	x		x		MpAICE23	5
4	Theoretical electrical engineering	30	15	15	60	90	150		x			MpAICE24	5
5	Microprocessor systems	30	0	30	60	90	150		x			MpAICE25	5
6	Semiconductor Electronics	30	0	30	60	90	150		x			MpAICE26	5
Total		180	15	165	360	540	900	3	3	1	1		30

II. SEMESTER II

7	Electromechanical devices	30	0	30	60	90	150	x		x		MpAICE27	5
8	Control Theory II	30	0	30	60	90	150		x			MpAICE28	5
9	Pulse and digital circuit engineering	30	0	30	60	90	150		x			MpAICE29	5
10	Systems Identification	30	0	30	60	90	150	x				MpAICE30	5
11	Process Control	30	0	30	60	90	150	x				MpAICE31	5
12	Control of Electromechanical Systems	30	0	30	60	90	150	x			x	MpAICE32	5
Total		180	0	180	360	540	900	4	1	1	1		30

III. SEMESTER III

1	Optimal control	30	0	30	60	60	120	x				MpAICE01	4
2	Adaptive control	30	0	30	60	60	120	x				MpAICE02	4
3	Intelligent Measurement Systems	30	0	30	60	60	120	x				MpAICE03	4
4	Optional subject (List OS 1)	30	0	30	60	60	120	x				MpAICE04	4
5	Optional subject (List OS 2)	30	0	30	60	60	120		x		x	MpAICE05	4
6	Optional subject (List OS 3)	30	0	15	45	45	90		x	x		MpAICE06	3
	Diploma project	0	0	0	0	210	210					MpAICE13	7
	Total	180	0	165	345	555	900	4	2	1	1		30

IV. SEMESTER IV

7	Automated Production Systems	30	0	30	60	60	120	x				MpAICE07	4
8	Robotics	30	0	30	60	60	120	x				MpAICE08	4
9	Fuzzy and Neural Network-based Control	30	0	30	60	60	120	x				MpAICE09	4
10	System Analysis	30	0	30	60	60	120	x				MpAICE10	4
11	Optional subject (List OS 4)	30	0	15	45	45	90		x	x		MpAICE11	3
12	Optional subject (List OS 5)	30	0	15	45	45	90		x	x		MpAICE12	3
13	Diploma project *	0	0	0	0	240	240	Diploma defence			MpAICE13	8	
	Total	180	0	150	330	570	900	4	2	2	0		30

Notes: *The Pre-graduation practice and Diploma project are included in the semesters

LISTS OF OPTIONAL SUBJECTS

List OS 1 (ECTS credits- 4)		
1	Energetic of Electrical Drives	MpAICE 04.1
2	Engineering Methods in Electro Mechanics	MpAICE 04.2

List OS 2 (ECTS credits – 4)		
1	Management Information Systems	MpAICE 05.1
2	Industrial Control Systems	MpAICE 05.2

List OS 3 (ECTS credits – 3)		
1	Distributed Control Systems	MpAICE 06.1
2	Predictive Control	MpAICE 06.2

List OS 4 (ECTS credits – 3)		
1	Project Planning for Electrical Drives	MpAICE 11.1
2	Control Systems of Combustion Processes	MpAICE 11.2

List OS 5 (ECTS credits - 3)		
1	Control of Industrial Manipulators	MpAICE 12.1
2	Automatic Tuning of Controllers	MpAICE 12.2
3	Electromagnetic Compatibility in Electrical Drives	MpAICE 12.3
4	Protections in Electrical Drives	MpAICE 12.4
5	Modelling and Optimization	MpAICE 12.5
6	Robust Control	MpAICE 12.6

LIST OF FACULTATIVE SUBJECTS

No	SUBJECT	Semester schedule						Assessment				ECTS code	ECTS credits
		L	Tut	Lab	AT	SS	Total	E	CA	SP	SA		

SEMESTER I

1	Time Series Forecasting	20	0	20	40	50	90		1			FaMpAICE 01	3
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SEMESTER II

2	Mathematical Methods for Digital Signal Processing	20	0	20	40	50	90		1			FaMpAICE 02	3
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NOTES: The lists of optional subjects and the facultative subjects are updated annually.