

# Master's degree program in Computer systems and technologies

as of 2020/2021 academic year

## CURRICULUM

for graduated form educational degrees BSc and/or MSc in professional directions: 4.1 Physics; 4.5 Mathematics; 5.1. Mechanical engineering; 5.2 Electrical engineering, Electronics and Automation; 5.4. Power engineering; 5.5. Transport, naval and avio engineering; 5.7. Architecture, building and geodesy; 5.10. Chemistry; 5.11. Biotechnologies; 5.12. Food technologies; 5.13 Common engineering; 9.1. National security; 9.2. Military

### II. PLAN OF STUDY

ECTS Subject code **T p CST SN**

- **T** – type of course: **B** for BEng, **M** for MEng
- **p** – for Plovdiv branch
- **CST** – Industrial Electronics
- **SN** – subsequent 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)

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

#### SEMESTER I

1	Digital Circuits	30	0	30	60	90	150	1				MpCST21	5
2	Programming Languages	30	0	30	60	90	150		1		1	MpCST22	5
3	Computer organisation	30	0	30	60	90	150	1				MpCST23	5
4	Databases	30	0	30	60	90	150	1			1	MpCST24	5
5	Computer Networks	30	0	30	60	120	180	1				MpCST25	6
6	Programming and usage of computers – part III	30	0	30	60	60	120		1			MpCST26	4
Total		180	0	180	360	540	900	4	2		2		30

#### SEMESTER II

7	Discrete Structures	30	15	15	60	90	150	1				MpCST27	5
8	Synthesis and Analysis of Algorithms	30	0	30	60	90	150	1				MpCST28	5
9	Computer Architectures	30	0	30	60	90	150	1				MpCST29	5
10	Programming environments	30	0	30	60	90	150	1				MpCST30	5
11	Analysis and Design of Logic Circuits	30	0	30	60	90	150	1				MpCST31	5
12	Operating systems	30	0	30	60	90	150		1		1	MpCST32	5
Total		180	15	165	360	540	900	5	1		1		30



**SEMESTER III (15 weeks + 3weeks exams)**

1	Computer vision	30	0	15	45	105	150		1			MpCST01	5
2	Natural language interfaces	30	0	15	45	105	150	1				MpCST02	5
3	Distributed systems and communication	30	0	15	45	75	120	1				MpCST03	4
4	Optional Subject – List 1	30	0	15	45	105	150	1				MpCST04	5
5	Optional Subject – List 2	30	0	15	45	105	150		1		1	MpCST05	5
6	Optional Subject – List 3	30	0	15	45	75	120		1			MpCST06	4
7	Projects (selected subject form semester 1 No1-6)	0	0	0	0	60	60			1		MpCST07	2
<b>TOTAL</b>		<b>180</b>	<b>0</b>	<b>90</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>		<b>30</b>

**SEMESTER IV (10 weeks + 8 weeks diploma project (incl. 3 w. exams)**

8	Distributed embedded systems	30	0	15	45	105	150		1		1	MpCST08	5
9	VLSI design	30	0	15	45	105	150	1				MpCST09	5
10	Optional Subject – List 4	30	0	15	45	105	150	1				MpCST10	5
11	Diploma project (11-18 w.)					450	450	Diploma thesis defence			MpCST11	15	
<b>TOTAL</b>		<b>90</b>		<b>45</b>	<b>135</b>	<b>765</b>	<b>900</b>	<b>2</b>	<b>1</b>		<b>1</b>		<b>30</b>

**Note: \*Diploma project is included in the semester 2 study time.**

### List of optional subjects

<b>List 1 (MpCST04 – ECTS 5)</b>		
1	GRID technologies	MpCST4.1
2	Programming of modern heterogeneous architectures	MpCST4.2
<b>List 2 (MpCST05 – ECTS 5)</b>		
1	UML object-oriented design	MpCST5.1
2	Internet programming	MpCST5.2
<b>List 3 (MpCST06 – ECTS 4)</b>		
1	Systems for remote monitoring and control of space crafts	MpCST6.1
2	Methods and devices for digital signal processing	MpCST6.2
<b>List 4 (MpCST10 – ECTS 5)</b>		
1	Bioinformatics	MCS10.1
2	Combinatorial Algorithms	MCS10.2
3	Learning and self-learning in programming	MCS10.3

### LIST OF FACULTATIVE SUBJECTS

No	SUBJECT	Semester Load						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			FaMpCST01	3
---	-------------------------	----	---	----	----	----	----	--	---	--	--	-----------	---

#### SEMESTER II

2	Mathematical methods for digital signal processing	20	0	20	40	50	90		1			FaMpCST02	3
---	--	----	---	----	----	----	----	--	---	--	--	-----------	---

Note:

1. The contents of the lists of optional courses and their names are subject to update before the start of the academic year.
2. The schedule of the facultative courses in accordance with the interests of the students will be announced by the faculty office.