

Faculty of Computer Science and Material Science
Discipline: Computer Science

three-and-half-year engineer's studies
 full-time studies
 valid for academic year **2012/2013**

A GENERAL COURSES

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year			III year			IV year																					
				Lectures	Class ex.	Laborat.	Conver.	semin.		em. 1 15 weeks	sem. 2 15 weeks		sem. 3 15 weeks		sem. 4 15 weeks		sem. 5 15 weeks		sem. 6 15 weeks		sem. 7 15 weeks																			
											Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS												
1	Logic for informatics	C	60	30	30				4	30	30	4																												
2	Mathematical analysis	E	50	20	30				4	20	30	4																												
3	Probability calculus and statistics	E	60	30	30				4						30	30	4																							
4	Numerical methods	C	50	20		30			4				20	30	4																									
5	Algebra	E	50	20	30				4				20	30	4																									
6	Discrete mathematics	E	60	30	30				4								30	30	4																					
7	Basics of digital technics	E	60	30		30			5				30	30	5																									
8	Physics	E	50	20	30				4	20	30	4																												
Total A:			440	200	180	60	0	0	33	70	90	12	70	90	13	30	30	4	30	30	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

B PROFESSIONAL COURSES

No	Course name	E/ C	Total	incl.					Total ECTS	I year			II year			III year			IV year																
				Lectures	Class ex.	Laborat.	Conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks			sem. 5 15 weeks			sem. 6 15 weeks			sem. 7 15 weeks							
										Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS					
9	Computer graphics	C	60	30		30			5				30	30	5																				
10	Computer architecture	E	60	30		30			4							30	30	4																	
11	Computer networks and teletransmission of data	E	75	30		45			5									30	45	5															
12	Introduction to computer science	E	60	30		30			5	30	30	5																							
13	Fundamentals of programming	C	45	15		30			5	15	30	5																							
14	Programming languages	E	75	30		45			5	30	45	5																							
15	Object-oriented and graphical programming lang.	E	75	30		45			5				30	45	5																				
16	Algorithms and data structures	E	60	30		30			4							30	30	4																	
17	Operating systems	E	60	30		30			4							30	30	4																	
18	Systems of information retrieval	E	60	30		30			4							30	30	4																	
19	Data bases	E	60	30		30			4				30	30	4																				
20	Expert systems	E	75	30		45			5									30	45	5															
21	Basics of software engineering	E	60	30		30			3							30	30	3																	
22	Basics of computer system design	E	60	30		30			4												30	30	4												
23	Embedded systems	E	60	30		30			3									30	30	3															
24	Facultative courses		330	150		180			28									30	30	5	60	60	12	30	60	6	30	30	5						
25	Courses to choose		360	180		180			32									30	30	6	60	60	10	60	60	10	30	30	6						
26	Monographic lecture	C	30	30					5															30		5									
27	Social and professional problems of computer specialists	C	60	30	30				3							30	30	3																	
Total B:			1725	825	30	870	0	0	133	75	105	15	90	105	14	180	180	22	150	180	24	150	150	26	120	120	21	60	60	11					

C OTHER

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year			III year			IV year															
				Lectures	Class ex.	Laborat.	Conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks			sem. 5 15 weeks			sem. 6 15 weeks			sem. 7 15 weeks						
										Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS				
28	Industrial safety regulations and ergonomics	C	5	5					0	5																								
29	English language	E	150				150		10		30	2		30	2		30	2		30	2		30	2										
30	Physical exercises	C	60		60				2		30	1		30	1																			
31	Ethics applied to computer specialists	C	60	30	30				2							30	30	2																
32	Diploma seminar	C	75					75	12												15	2		30	5			30	5					
33	Diploma Laboratory	C	60					60	8															30	4			30	4					
34	Engineer's thesis	E							10																							10		
Total C:			410	35	90	0	150	135	44	5	60	3	0	60	3	30	60	4	0	30	2	0	45	4	0	60	9	0	60	19	0	60	19	
Total sem.Y (A+B+C)			2 575	1 060	300	930	150	135	210	405	30	415	30	510	30	420	30	345	30	300	30	180	30	180	30	180	30	180	30	180	30	30		
Total annually									820			930			645			180																
TOTAL									2 575																									

Practical training - 4 weeks after 4 sem.					4 weeks			
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Faculty of Computer Science and Material Science
 Discipline: Computer Science
 Specialty: Video game developer

three-and-half-year engineer's studies
 full-time studies
 valid for academic year 2012/2013

A GENERAL COURSES

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year			III year			IV year											
				Lectures	Class ex.	Laborat.	Conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks			sem. 5 15 weeks			sem. 6 15 weeks			sem. 7 15 weeks		
										Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS
1	Logic for informatics	C	60	30	30				4	30	30	4																		
2	Mathematical analysis	E	50	20	30				4	20	30	4																		
3	Probability calculus and statistics	E	60	30	30				4						30	30	4													
4	Numerical methods	C	50	20		30			4				20	30	4															
5	Algebra	E	50	20	30				4				20	30	4															
6	Discrete mathematics	E	60	30	30				4								30	30	4											
7	Basics of digital technics	E	60	30		30			5				30	30	5															
8	Physics	E	50	20	30				4	20	30	4																		
Total A:			440	200	180	60	0	0	33	70	90	12	70	90	13	30	30	4	30	30	4	0	0	0	0	0	0	0	0	

B PROFESSIONAL COURSES

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year			III year			IV year													
				Lectures	Class ex.	Laborat.	Conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks			sem. 5 15 weeks			sem. 6 15 weeks			sem. 7 15 weeks				
										Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS		
9	Computer graphics	C	60	30		30			5				30	30	5																	
10	Computer architecture	E	60	30		30			4						30	30	4															
11	Computer networks and teletransmission of data	E	75	30		45			5									30	45	5												
12	Introduction to computer science	E	60	30		30			5	30	30	5																				
13	Fundamentals of programming	C	45	15		30			5	15	30	5																				
14	Programming languages	E	75	30		45			5	30	45	5																				
15	Object-oriented and graphical programming lang.	E	75	30		45			5				30	45	5																	
16	Algorithms and data structures	E	60	30		30			4						30	30	4															
17	Operating systems	E	60	30		30			4						30	30	4															
18	Databases	E	60	30		30			4				30	30	4																	
19	Embedded systems	E	60	30		30			3									30	30	3												
20	Social and professional problems of computer specialists	C	60	30	30				3						30	30	3															
21	Introduction to games programming	C	45	15		30			5						15	30	5															
22	Scripting programming languages	C	30	15		15			4						15	15	4															
23	Level design	E	45	15		30			4									15	30	4												
24	Programming patterns	C	30	0		30			3											30	3											
25	Visual game programming	E	45	15		30			4									15	30	4												
26	Fundamentals of physics in computer games	C	60	30		30			4									30	30	4												
27	Animation programming	C	45	15		30			4											15	30	4										
28	Creating a game virtual world	E	45	15		30			4											15	30	4										
29	Fundamentals of artificial intelligence	E	45	30		15			4											30	15	4										

	and expert systems																													
30	Fundamentals of 3D engine programming	C	60	30		30		4								30	30	4												
31	Swarm intelligent systems	C	30	15		15		3							15	15	3													
32	Introduction to game theory	C	30	15		15		3							15	15	3													
33	Introduction to shaders	E	45	15		30		4							15	30	4													
34	Designing and game managing	C	45	30		15		4											30	15	4									
35	Physical processes simulation	C	45	15		30		4										15	30	4										
36	Introduction to HDR technology	E	45	15		30		4										15	30	4										
37	Programming in DirectX library	E	60	15		45		4										15	45	4										
38	3D modeling	C	30	0		30		4												30	4									
39	Team project	C	30	0		30		4												30	4									
40	Interaction design in 3D engine	C	45	15		30		3															15	30	3					
41	Game creation in network space	C	45	15		30		3														15	30	3						
Total B:			1650	675	30	945	0	0	133	75	105	15	90	105	14	150	165	24	120	195	24	135	165	26	75	180	24	30	60	6

C OTHER

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year			III year			IV year											
				Lectures	Class ex.	Laborat.	Conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks			sem. 5 15 weeks			sem. 6 15 weeks			sem. 7 15 weeks		
										Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS	Lect.	Class ex.	ECTS
28	Industrial safety regulations and ergonomics	C	5	5					0	5																				
29	English language	E	150				150		10		30	2		30	2		30	2		30	2		30	2						
30	Physical exercises	C	60		60				2		30	1		30	1															
32	Diploma seminar	C	75					75	9										15	2		30	3				30	4		
33	Diploma Laboratory	C	60					60	7														30	3			30	4		
34	Engineer's thesis	E							16																					16

Total C:	350	5	60	0	150	135	44	5	60	3	0	60	3	0	30	2	0	30	2	0	45	4	0	60	6	0	60	24
Total sem.Y (A+B+C)	2 440	880	270	1005	150	135	210	405	30	415	30	405	30	405	30	345	30	315	30	150	30							
Total annually								820				810				660				150								
TOTAL								2 440																				

Practical training - 4 weeks after 4 sem.																					4 weeks							
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Faculty of Computer Science and material Science
Discipline: Computer Science

two-year master's studies
 full-time studies
 valid for academic year **2012/2013**

A PROFESSIONAL COURSES

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year								
				lectures	class.ex.	laborat.	conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
										lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
1	System modeling and analysis	E	60	30		30			6	30	30	6									
2	Analysis of algorithms and their numerical complexity	C	60	30		30			5				30	30	5						
3	Object-oriented programming	E	60	30		30			6	30	30	6									
4	Image processing	C	60	30		30			6	30	30	6									
5	Programmable control	C	45	15		30			6	15	30	6									
6	Network resources - management and protection	C	45	30		15			6				30	15	5						
7	Personal data protection	C	60	30	30				5				30	30	5						
8	Modern Internet applications	E	60	30		30			6	30	30	6									
9	Monographic lecture	C	90	90					9				30		3	30		3	30		3
10	Facultative courses		360	180		180			30				90	90	10	60	60	15	30	30	5
Total A:			900	495	30	375	0	0	84	135	150	30	210	165	28	90	60	18	60	30	8

B OTHER										I year						II year					
No.	Course name	E/C	Total	incl.					Total ECTS	sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
				lectures	class.ex.	laborat.	conver.	semin.		lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
11	Master's thesis preparation	C	60			60			6								30	3		30	3
12	Master's laboratory	C	60			60			6								30	4		30	4
13	Master's seminar	C	75					75	12				15	2			30	5		30	5
14	Master's thesis	E							10												10
Total B:			195			120		75	36	0	0	0	0	15	2	0	90	12	0	90	22
Total sem. (A+B)			1 095	495	30	495		75	120	285	30	390	30	240	30	180	30				30
Total annually										675						420					
TOTAL										1 095											

13	Graphic elements and 3D modeling	C	45	15		30			4						15	30	4				
14	Introduction to bioinformatics	E	45	15		30			4						15	30	4				
15	Bioinformatics databases	C	15	0		15			2							15	2				
16	Specialist computer software	C	30	0		30			3							30	3				
17	Basics of biostatistics with elements of data mining	E	45	15		30			4						15	30	4				
18	Specialist project	C	30	0			30		4							15	2		15	2	
Total A:			900	435	30	405	30	0	83	135	150	30	195	150	28	75	150	21	30	15	4

B OTHER

No.	Course name	E/C	Total	incl.					Total ECTS	I year						II year					
				lectures	class.ex.	laborat.	conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
										lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
19	Master's thesis preparation	C	60			60			5								30	3		30	3
20	Master's laboratory	C	60			60			5								30	4		30	4
21	Master's seminar	C	75					75	7				15	2			30	5		30	5
22	Master's thesis	E							20												10
Total B:			195			120		75	37	0	0	0	0	15	2	0	90	9	0	90	26
Total sem. (A+B)			1 095	435	30	525		75	120	285	30	390	30	240	30	240	30	180	30		30
Total annually									675						420						
TOTAL									1 095												

Faculty of Computer Science and material Science
Discipline: Computer Science
Specialty: Data analyzer

two-year master's studies

full-time studies

valid for academic year **2012/2013**

A PROFESSIONAL COURSES

No.	Course name	E/C	Total	incl.					Total ECTS	I year			II year								
				lectures	class.ex.	laborat.	conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
										lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
1	System modeling and analysis	E	60	30		30			6	30	30	6									
2	Analysis of algorithms and their numerical complexity	C	60	30		30			5				30	30	5						
3	Object-oriented programming	E	60	30		30			6	30	30	6									
4	Image processing	C	60	30		30			6	30	30	6									
5	Programmable control	C	45	15		30			6	15	30	6									
6	Network resources - management and protection	C	45	30		15			6				30	15	5						
7	Personal data protection	C	60	30	30				5				30	30	5						
8	Modern Internet applications	E	60	30		30			6	30	30	6									
9	Monographic lecture	C	90	90					9				30		3	30		3	30		3
10	Statistical methods of data analysis	E	60	30		30			5				30	30	5						
11	Databases systems	E	60	30		30			5				30	30	5						
12	Machine learning	E	60	30		30			5							30	30	5			
13	Methods and technics of objects classification	E	60	30		30			5							30	30	5			

14	Advanced data analysis systems	C	60	15		45			5						15	45	5				
15	Specialization project	C	60	0		60			5										60	5	
Total A:			900	495	30	420	0	0	84	135	150	30	180	135	28	105	105	18	30	60	8

B OTHER

No.	Course name	E/C	Total	incl.					Total ECTS	I year						II year					
				lectures	class.ex.	laborat.	conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
										lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
16	Master's thesis preparation	C	60			60			6								30	3		30	3
17	Master's laboratory	C	60			60			6								30	4		30	4
18	Master's seminar	C	75					75	12				15	2			30	5		30	5
19	Master's thesis	E							10												10
Total B:			195			120		75	36	0	0	0	0	15	2	0	90	12	0	90	22
Total sem. (A+B)			1 095	495	30	540		75	120	285	30	330	30	300	30	180	30				
Total annually										615						420					
TOTAL										1 095											

15	Multiresolution image analysis	E	60	15		45			6						15	45	6				
16	Specialization project	C	60			60			6							30	3		30	3	
Total A:			825	225	0	420	180	0	86	90	195	30	75	210	29	45	135	21	15	60	6

B OTHER

No.	Course name	E/C	Total	incl.					Total ECTS	I year						II year					
				lectures	class.ex.	laborat.	conver.	semin.		sem. 1 15 weeks			sem. 2 15 weeks			sem. 3 15 weeks			sem. 4 15 weeks		
										lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS	lect.	class.ex.	ECTS
17	Master's thesis preparation	C	60			60			4							30	2		30	2	
18	Master's laboratory	C	60			60			6							30	3		30	3	
19	Master's thesis seminar	C	75					75	7				15	1		30	3		30	3	
20	Master's thesis								14											14	
21	English language course	C	60				60		3							15	1		45	2	
Total B:			255	0	0	120	60	75	34	0	0	0	0	15	1	0	105	9	0	135	24
Total sem. (A+B)			1 080	225	0	540	240	75	120	285	30	300	30	285	30	210	30	210	30	30	
Total annually									585						495						
TOTAL									1 080												

