

Informatics

Master, academic studies

2 years, 120 ECTS points

Obligatory courses for all (53 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	IA011	Differential equations	2+2+0	5
1	W	IA012	Probability	2+2+0	5
1	S	IA021	Data structure and algorithms III	2+2+1	7
2	W	IA031	Statistics	2+3+0	6
2	S	IA041	Master thesis		30

Obligatory courses for elective module '*Computer science*' (31 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	IA111	Compiler construction I	2+2+1	7
1	S	IA121	Project	2+4+3	10
2	W	IA131	Computer graphics I	2+2+1	7
2	W	IA132	Mathematical modeling and simulation	3+2+0	7

Obligatory courses for elective module '*Teaching informatics*' (30 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	PG207	Development and pedagogical psychology	3+1+0	5
1	S	IA221	Educational software	2+0+4	7
1	S	IA222	Methodic of informatics	2+2+1	7
1	S	MA223	Pedagogy	3+0+0	4
2	W	IA231	Methodic of programming	2+1+1	7

Obligatory courses for elective module '*Theoretical computer science*' (26 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	IA311	Graph theory	2+2+0	6
1	W	IA312	Mathematical logic in computing	2+2+0	6
1	S	IA321	Artificial intelligence II	2+1+2	7
2	W	IA331	Combinatorial algorithms	2+2+1	7

Elective courses for all, up to 120 ECTS.

	Code	Course	Contact hours	ECTS	Availability according to				
					years		Modules		
					1	2	CS	TI	TCS
Winter semester	IA411	Seminar paper C	1+0+3	6	+	+	+	+	+
	IA412	Fuzzy systems	2+2+0	6	+	+	+	+	+
	IA413	History of informatics	2+0+0	4	+	+		+	
	PG506	Psychology of education	2+2+0	6	+	+		+	
	IA111	Compiler construction I	2+2+1	7	+	+		+	+
	IA131	Computer graphics II	2+2+1	7	+	+		+	+
	IA132	Mathematical modeling and simulation	3+2+0	7		+		+	+
	IA311	Graph theory	2+2+0	6	+	+	+	+	
	IA312	Mathematical logic in computing	2+2+0	6	+	+	+	+	
	IA331	Combinatorial algorithms	2+2+1	7		+	+		
	IB031	Privacy, ethics and social responsibility	3+1+1	7.5	+	+		+	+
	IB333	Formal methods engineering	2+1+2	7.5	+	+	+		+
Summer	IA421	Seminar paper D	1+0+3	6	+	+	+	+	+
	IA422	Compiler construction II	2+1+2	7	+	+	+		+
	IA423	Operational research	3+3+0	8	+	+	+	+	+
	IA121	Project	2+4+3	10	+	+		+	+
	IA321	Artificial intelligence II	2+1+2	7	+	+	+		
	IB123	Research methods	3+1+1	7.5	+	+			+
	IB221	Information system development process	3+1+1	7.5	+	+	+		
M163	Number theory	2+2+0	5	+	+	+	+	+	

Information technologies

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Obligatory courses for all (45.5 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	IB011	Software project management	3+2+1	8
2	W	IB031	Privacy, ethics and social responsibility	3+1+1	7.5
2	S	IB041	Master thesis		30

Obligatory courses for elective module '*Software engineering*' (22.5 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	S	IB121	Requirements engineering	3+1+1	7.5
1	S	IB122	Architecture, design and patterns	3+1+1	7.5
1	S	IB123	Research methods	3+1+1	7.5

Obligatory courses for elective module '*Information systems*' (32.5 ECTS), with recommended year of enrollment:

Year	Semester	Code	Course	Contact hours	ECTS
1	W	IB211	Project	2+4+3	10
1	S	IB221	Information systems development process	3+1+1	7.5
1	S	IB222	System integration	3+1+1	7.5
2	W	IB231	Software engineering for database systems	3+1+1	7.5

Elective courses for all, up to 120 ECTS.

	Code	Course	Contact hours	ECTS	Availability according to			
					years		modules	
					1	2	SE	IS
Winter semester	IB221	Project	2+4+3	10	+		+	
	IA012	Probability	2+2+0	5	+			+
	IA111	Compiler construction I	2+2+1	7	+		+	+
	IA311	Graph theory	2+2+0	6	+		+	+
	IA312	Mathematical logic in computing	2+2+0	6	+		+	+
	IA411	Seminar paper C	1+0+3	6	+		+	+
	IB331	Software evolution	2+1+2	7.5		+	+	+
	IB332	Component based development	2+1+2	7.5		+	+	+
	IB333	Formal methods engineering	2+1+2	7.5		+	+	+
	IB334	Software engineering in critical systems	2+1+2	7.5		+	+	+
	IB335	Advanced topics of software engineering	2+1+2	7.5		+	+	+
	IB336	Decision methods	3+3+0	8		+		+
	IB231	Software engineering for database systems	3+1+1	7.5		+	+	
IA031	Statistics	2+3+0	6		+		+	
Summer	IB321	Software testing	2+1+2	7.5	+		+	+
	IB222	System integration	3+1+1	7.5	+		+	
	IB121	Requirements engineering	3+1+1	7.5	+			+
	IB122	Architecture, design and patterns	3+1+1	7.5	+			+
	IA421	Seminar paper D	1+0+3	6	+			+
	M351	Revisions	3+3+0	8	+			+

Remark: Master studies 'Information technologies', elective module 'Software engineering' was created as a result of the Tempus project 'Joint MSc curriculum in software engineering' (<http://perun.im.ns.ac.yu/msc-se>). Some of the developed courses are also used in other elective modules.