UNIVERSITY OF SPLIT

FACULTY OF ELECTRICAL ENGINEERING, MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE

DETAILED PROPOSAL OF THE STUDY PROGRAMME

UNDERGRADUATE UNIVERSITY STUDY IN COMPUTING

SPLIT, July 2017

CONTENTS

GENERAL INFORMATION OF HIGHER EDUCATION INSTITUTION

Name of higher education institution	FACULTY OF ELECTRICAL ENGINEERING, MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE
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GENERAL INFORMATION OF THE STUDY PROGRAMME

Name of the study programme	Computing		
Provider of the study programme	FACULTY OF ELECTRICAL ENGINEERING, MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE		
Other participants			
Type of study programme	Vocational study programme ☐	University study programme ☒	
Level of study programme	Undergraduate ☒	Graduate ☐	Integrated ☐
	Postgraduate ☐	Postgraduate specialist ☐	Graduate specialist ☐
Academic/vocational title earned at completion of study	University Bachelor of Computing; univ. bacc. ing. comp.		

1. INTRODUCTION

1.1. Reasons for starting the study programme

Computing is a field of science and engineering which encompasses, in a wider sense, the study and use of information, specifically the processes of design, implementation and modification of structures used for information exchange, filing and processing. At the present time, computing is interrelated with a large number of areas of human activity. The fundamental concepts are very similar, whether they concern hardware or software systems, or natural and social systems. Accordingly, the demand for experts in the field of computing is very high, and covers the needs for professional use of ready-made solutions, design, application and use of highly complex systems and producing original scientific papers in the area of computing and interdisciplinary areas linked with computing.

The current demands of the economy are primarily reflected in the constant demand for and permanent lack of experts in the field of computing. The prevailing trends indicate that the demand for this profile of experts will further increase. Necessary requirement for reaching the goals defined in the "Croatian Development Strategy in the 21st Century" is sufficient number of highly educated experts in the field of computing.

In the previous time period, computing strongly influenced the development of science, engineering, business management and other areas of human activity. These days nearly every person uses a computer for some of their activities, and many students want to study at least some forms of computing. Computing shall still be present in forming the careers of a large number of experts, and those who choose computing as their professional career path will occupy a crucial role in forming the future society. Development of modern society necessitates that the study of computing attracts excellent students with variety of interests and prepares them to become capable and responsible experts.

The goal of the proposed study programme in Computing is to educate professional staff in the area of computing to meet the demands of the industry, higher education institutions, governmental and public institutions.

1.2. Relationship with the local community (economy, entrepreneurship, civil society, etc.)

Split is the economic and university hub of the major part of the Dalmatian region, as well as one part of the neighbouring region of Bosnia and Herzegovina, and FESB is the only institution offering study programme in computing in the area. According to the labour market estimates for the area of ICT, during the following short-term period several thousand experts in the area of computing will be required in the Republic of Croatia, and several hundred thousand similar experts in the area of the EU. These estimates are confirmed through regular contact with the companies in the wider area and prospects for this profile of experts are excellent. The fact is confirmed by data

on interest of students in the study programme in computing at FESB-u, which is constantly growing and attracting students from various secondary school programmes.

Following the completion of studies, the acquired knowledge enables the students to find employment in the industrial sector, software and ICT companies, education, service industries, etc. There is virtually no working environment in which experts with completed undergraduate university degree in Computing could not find employment and the labour market demand for this profile of experts is very high. This is especially relevant in this moment, with social and economic changes driving the development of new, small and medium technologically advanced enterprises that could serve as the new driving force for economic development.

At the undergraduate university study programme in Computing, students acquire competencies for work in various fields computing and information and communication technologies. Following the completion of studies, graduates can demonstrate skills in design, implementation and maintenance of fairly complex computer systems which include integration of software and hardware solutions. The study programme has a crucial role in relation to the labour market as the first stage in the framework of two cycle system training broadly educated professionals able to perform the most complex engineering tasks. The demand for experts with these competences considerably exceeds the available number of educated experts in the region, Croatia and the world.

1.3. Compatibility with requirements of professional organizations

The study programme is compatible with the recommendations of IEEE-ACM Computing Curricula.

1.4. Name possible partners outside the higher education system that expressed interest in the study programme

FESB is a signatory to a number of cooperation agreements with the aim of promoting academic and educational activities, concluded with private enterprises and public organisations, e.g. Ericsson Nikola Tesla, Hrvatska elektroprivreda (national power company), Split-Dalmatia County, Ministry of Defence, Energy institute “Hrvoje Požar”, Croatian Telecom, Croatian academic and research network - CARNet, Technology Centre Split, Brodosplit, Siemens, VIPnet, Microsoft Croatia, etc. It is important to note that the Croatian Armed Forces expressed a special interest in cooperation, since prospective officers are trained at the Faculty.

1.5. Financing

The study programme is financed by the Ministry of Science, Education and Sports.

1.6. Comparability of the study programme with other accredited programmes in higher education institutions in the Republic of Croatia and EU countries

During the implementation of the university undergraduate study programme in Computing, the Faculty is actively pursuing the process of development in higher education on global level, and especially in Europe. When developing the new curriculum, special attention was given to consolidating the curriculum and course contents with other renowned foreign higher education institutions. Best practice examples from American universities were included, summarised in the document "Computing Curricula" prepared by the leading professional associations in the area of computing (The Association for Computing - ACM, The Association for Information Systems - AIS, The Computer Society - IEEE-CS). The educational systems in the field of computing differ a lot, both worldwide and in Europe, and there are practically no countries with identical educational systems. The former applies to almost all components of education: type and organisation of studies, fields of study, duration of studies, titles and degrees awarded at individual institutions, names of higher education institutions, etc. As a rule, the first stage is acquiring knowledge of mathematics and fundamental natural sciences, followed by core courses in engineering and information technology and specific specialist courses related to particular branches of computing. In addition, the programme includes a number of non-engineering courses.

The study programme proposal is consolidated with the recommendations given in the framework of the ERASMUS project THEIERE (Towards the Harmonisation of Electrical and Information Engineering Education in Europe, http://www.eaeeie.org/theiere/). The proposal for the programme is consolidated with the recommendations of associations SEFI (European Society for Engineering Education) and CESAER (Conference of European Schools for Advanced Engineering Education and Research). The organisation of the proposed study programme is comparable with related study programmes at renowned European universities, e.g.:

- Techniche Univerzität Wien/ Engineering University Vienna, Austria
  http://www.tuwien.ac.at/informationen_fuer/studierende
- Eidgenössische Technische Hochschule (ETH)/ Swiss Federal Institute of Technology in Zürich, Switzerland
  https://www.ethz.ch/de/studium.html

1.7. Openness of the study programme to student mobility (horizontal, vertical in the Republic of Croatia, and international)

Undergraduate university study programme in Computing enables vertical and horizontal mobility of students. In terms of vertical mobility, the undergraduate university study programme in Computing can primarily be followed by the graduate university study programme in Computing. For students who enrol the graduate programme after the undergraduate programme, these two cycles represent integral five-year educational programme which provides a comprehensive quality education in the field of computing. Vertical mobility is enabled also for other graduate study programmes. In terms of horizontal mobility, the undergraduate university study programme in Computing is open for mobility of students of related studies at all

Croatian universities, including the Faculty of Electrical Engineering and Computing at the University of Zagreb, Faculty of Engineering at the University of Rijeka and the Faculty of Electrical Engineering at the University of Osijek. Students have the opportunity to complete a part of the study programme at a similar institution in Croatia or abroad. The comparability of the study programme with similar study programmes enables the students to fulfil a part of their course requirements at other higher education institutions in Croatia or abroad.

1.8. Compatibility of the study programme with the University mission and the strategy of the proposer, as well as with the strategy statement of the network of higher education institutions

Undergraduate university study programme in Computing conforms with the Strategy of the University of Split 2015-2020. In addition to mission and vision of the University of Split, in the process of defining strategic goals, the following strategic documents were taken into account as guidelines:

- EUROPA 2020 strategy for smart, sustainable and inclusive growth,
- Strategic documents of the European Research Area (ERA),
- Strategic documents of the European Higher Education Area (EHEA),
- Strategy of Education, Science and Technology of the Republic of Croatia.

Preparation of the study programme was done in line with the mission, vision and goals which are partly derived from the Scientific Strategy of the University of Split 2009 – 2014, document which promotes creation of internal development plans at the level of University constituents.

Undergraduate university study programme in Computing conforms with the development guidelines of the Faculty, as well as mission, vision and strategic goals defined in the FESB Development Strategy for the period 2012 – 2016, and is the only programme of this type at the University of Split and the wider region.

The proposed study programme conforms with the strategic document Network of Higher Education Institutions and Study Programmes in the Republic of Croatia, which encourages launching new study programmes in STEM area, as computing is one of STEM disciplinary program areas.

1.9. Current experiences in equivalent or similar study programmes

FESB has extensive experience in delivering courses at similar programmes. Faculty of Electrical Engineering in Split was established in 1960 and after the integration with the studies in mechanical engineering and naval architecture, the Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture (FESB) was established in 1971. Since 1974 the Faculty has been a constituent part of the University of Split. The Faculty has implemented professional studies (level VI in former qualifications system) since 1979 until today, with hiatus during the period 1998-2001. In 1985, at the university undergraduate study in Electrical Engineering the field of study in Computer Engineering was introduced and so far over 200 students completed this study programme.

Responding to increased demand for experts in this area, the complete study programme in Computing at FESB was introduced in 2001. So far, over 700 students enrolled the study programme in Computing and in the first semester of the academic year 2005/2006 the first graduates were awarded degrees.

The Faculty offers complete vocational undergraduate study programme in Computing, with duration of 6 semesters. The courses at the study programme last for five semesters, and the sixth semester is provided for preparation of the final thesis.

The Faculty delivers postgraduate study programme in Electrical Engineering, providing specialisation in the areas of telecommunications and computer information systems, electronics, power engineering and electromechanical engineering, automation and computing.

Quality of education at FESB is confirmed by success and excellence of FESB graduates worldwide, including the highly developed countries. However, the most important is the fact that professionals trained at FESB represent a foundation of highly educated science and engineering labour force in the region.

2. DESCRIPTION OF THE STUDY PROGRAMME

2.1. General information

Scientific/artistic area of the study programme	Engineering sciences
Duration of the study programme	3 years
The minimum number of ECTS required for completion of study	180
Enrolment requirements and admission procedure	Completed 4-year high school programme and state graduation exam. Rankings are formed based on the average grade point average achieved in high school and the state exam results in the fields of mathematics and physics. Students of related undergraduate studies may also be admitted, with at least 30 ECTS credit recognition.

2.2. Learning outcomes of the study programme (name 15-30 learning outcomes)

The learning outcomes of the study programme are directly related to the learning outcomes of an individual course and represent learning outcomes to be achieved by each student who completes the undergraduate university study programme in *Computing*. The learning outcomes are aligned with the Croatian Qualification Framework Act and are listed in the areas of knowledge, skills and related fields of independence and responsibility.

KNOWLEDGE

1. Apply appropriate mathematical, physical and scientific principles in solving complex problems in the field of computing.
2. Apply fundamental engineering principles in the field of computing.
3. Consolidate the theoretical knowledge and practical skills in solving problems in the field of computing.
4. Analyse different assumptions, approaches and procedures related to practical problems in the field of computing.
5. To select appropriate analytical methods, modelling procedures and computer equipment in the analysis of systems with expected independent and purposeful functioning, with special emphasis on computer systems.
6. Design experiments by applying scientific principles in the field of computing.
7. Recognise the possibilities and limitations of applied techniques and methods.
8. Provide creative solutions for development, design and implementation of programming solutions and computer-based networking systems.

9. Select appropriate analytical methods and modelling procedures in the analysis of information systems.
10. Plan development, construction, safety, maintenance and monitoring of computer networks and computer-based networking systems.
11. Apply appropriate programming tools for the development of computer systems and software support.
12. Manage development projects for simple information and computer systems, from preparation to implementation.

SKILLS

13. Apply the techniques, skills and advanced engineering tools necessary in the engineering work.
14. Develop the structure of information system and programming equipment, by applying scientific principles in the field of computing.
15. Conduct experiments, measurements and simulations and analyse and interpret collected data and measurement and simulation results.
16. Apply the engineering knowledge and skills to effectively resolve the engineering problems, both independently and as a part of team.
17. Prepare design documents and technical reports, using modern technologies.
18. Use the literature, databases and other sources of information.
19. Give public oral presentation, to prepare written reports and present project results, in Croatian and English language

INDEPENDENCE

20. Actively participate in and manage projects in the area of computing, from the preparation stage to completion.
21. Continuously acquire knowledge of new methods and technologies.

RESPONSIBILITY

22. Demonstrate awareness of the influences of engineering processes on the individual, society and environment.
23. Demonstrate professional and ethical responsibility in unforeseen conditions.
24. Demonstrate awareness on health, safety and legal issues related to the individuals and social groups.
25. Recognise the need for participating in life-long learning and acquiring the knowledge about new technologies.

2.3. Employment possibilities

Following the completion of studies, the acquired knowledge enables the students to find employment in the industry, electric power industry, software and ICT companies, education, service industry, etc. There is virtually no working environment in which experts with completed undergraduate university degree in Computing could not find employment and the labour market demand for this profile of experts are very high. This is especially relevant in this moment, with social and economic changes driving the development of new, small and medium technologically advanced enterprises that could serve as the new driving force for economic development.

At the undergraduate university study programme in Computing, students acquire competencies for work in various fields of computing, such as software development, information system design, development of network applications and information system management. Following the completion of studies, graduates can demonstrate skills in testing, maintenance, monitoring of information systems and the use of corresponding software tools and equipment necessary for their functioning. The special importance of this study programme, with regard to the labour market, is that it represents the first stage of the comprehensive two-cycle educational process which results in producing a fully educated expert capable of solving the most complex engineering tasks and participating in scientific research. The demand for experts with these competences considerably exceeds the available number of educated experts in the region, Croatia and the world.

2.4. Possibilities of continuing studies at a higher level

After completing the undergraduate university study programme in Computing, graduates may continue their studies at the graduate study programme in Computing or any other related study programme in accordance with the admission requirements of that study programme.

2.5. Name lower level studies of the proposer or other institutions that qualify for admission to the proposed study

Completed 4-year high school programme in general education or engineering field and completed state graduation exam.

2.6. Structure of the study

The study programme is structured per semesters, lasting 6 semesters, two in each academic year. Each semester corresponds to 30 ECTS credits. During the first two years of the studies, the students acquire fundamental knowledge in mathematics and natural sciences and fundamental knowledge in computing. In the third year of study, the students select one elective course per semester. The final component of the study programme is preparing and defending the final thesis. The conditions for enrolling a course are listed in the course table. Lectures are delivered in groups up to 100 students, auditory exercises and seminars in groups of 30 students and laboratory exercises in groups of 10 students.

2.7. Guiding and tutoring through the study system

During the course of study programme activities, students have access to all the Faculty services. For the purpose of timely and effective communication, notifications and information are provided to students through the e-learning portal.

2.8. List of courses that the student can take in other study programmes

Students may enrol courses from other study programmes only as elective courses which are not included in the standard workload of 30 ECTS credits per semester.

2.9. List of courses offered in a foreign language as well

Course tables for individual courses list the option of teaching a course in a foreign language.

2.10. Criteria and conditions for transferring the ECTS credits

Transfer or recognition of ECTS credits between related undergraduate university study programmes is allowed. The criteria and conditions for transferring the ECTS credits are regulated by the *Regulations on Studies and Study System at the University of Split*.

2.11. Completion of study

Final requirement for completion of study	Final thesis ☒ Diploma thesis ☐	Final exam ☐ Diploma exam ☐
Requirements for final/diploma thesis or final/diploma/exam	The requirement for applying for the final paper is acquired 120 ECTS credits.	
Procedure of evaluation of final/diploma exam and evaluation and defence of final/diploma thesis	The final thesis is evaluated by the mentor (supervisor) and the defence of the final thesis is conducted orally, in the presence of the mentor and students who also defend their paper with the same mentor.	

2.12. List of mandatory and elective courses

List of courses								
Year of study: 1.								
Semester: I.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FEMX01	Mathematics 1	45	0	45	0	0	7
	FEMB03	Physics 1	45	0	30	0	0	7
	FENB01	Electrical engineering	45	0	30	0	0	7
	FELB01	Introduction to computers and programming	45	0	0	30	0	7
	FEOB03	English language 1	0	30	0	0	0	2
	Total		180	30	105	30	0	30
	*L = predavanja, S = seminar, AE = auditorne vježbe, LE = laboratorijske vježbe, DE = konstrukcijske vježbe							
	Nema izbornih predmeta							

List of courses								
Year of study: 1.								
Semester: II.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FEMX02	Mathematics 2	45	0	45	0	0	7
	FEMB04	Physics 2	45	0	30	0	0	7
	FELB04	Basic electronics	45	0	30	0	0	7
	FESB01	Programming	45	0	0	30	0	7
	FEOB04	English language 2	0	30	0	0	0	2
	Total		180	30	105	30	0	30
	*L = predavanja, S = seminar, AE = auditorne vježbe, LE = laboratorijske vježbe, DE = konstrukcijske vježbe							
	Nema izbornih predmeta							

List of courses								
Year of study: 2.								
Semester: III.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FEMB02	Discrete mathematics	30	0	30	0	0	6
	FELB06	Discrete systems and structures	45	0	30	15	0	7
	FELB02	Object oriented programming	45	0	0	30	0	7
	FELB03	Data Structures	30	0	0	30	0	6
	FENB02	Practicum	0	0	0	45	0	2
	FEOB02	Communication skills	0	30	0	0	0	2
	Total		150	30	60	120	0	30
	*L = predavanja, S = seminar, AE = auditorne vježbe, LE = laboratorijske vježbe, DE = konstrukcijske vježbe							
	Nema izbornih predmeta							

List of courses								
Year of study: 2.								
Semester: IV.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FEMB01	Probability and statistics	30	0	30	0	0	5
	FELB05	Computer architectures	45	0	0	30	0	7
	FELB07	Algorithms	45	0	0	30	0	7
	FELB08	Databases	30	0	0	30	0	6
	FELB09	Signals and systems	30	0	15	15	0	5
	Total		180	0	45	105	0	30
	*L = predavanja, S = seminar, AE = auditorne vježbe, LE = laboratorijske vježbe, DE = konstrukcijske vježbe							
	Nema izbornih predmeta							

List of courses								
Year of study: 3.								
Semester: V.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FELB10	Operating systems	45	0	0	30	0	7
	FELB11	Computer networks	45	0	0	30	0	6
	FELB12	Software Engineering	45	0	0	30	0	7
	FELB13	Internet programming	45	0	0	30	0	6
		Elective course 1**						
	Total		180	0	0	120	0	26
Elective**	FELB17	Programming in the unix environment	30	0	0	15	0	4
	FELB18	Computer and data security	30	0	0	15	0	4
	FELB24	Programming for Android	30	0	0	15	0	4
	FELB25	Programming in Python	30	0	0	15	0	4
	Bira se: **1 Elective course**							
*L=predavanja, S=seminar, AE=auditorne vježbe, LE=laboratorijske vježbe, DE=konstrukcijske vježbe								
Izborni se predmeti mogu birati s predložene liste ili s lista obveznih i izbornih predmeta zimskih semestara smjerova AIS, ERI i KIT preddiplomskog studija EIT **pod uvjetom da se istovrsni predmeti ne nalaze u vertikali studija kao obvezni ili izborni predmeti. Ukupni broj ECTS bodova po semestru može biti veći od 30.								

POPIS PREDMETA								
Year of study: 3.								
Semester: VI.								
STATUS	CODE	COURSE	HOURS IN SEMESTER*					ECTS
			L	S	AE	LE	DE	
Mandatory	FELB14	System analysis and design	30	0	0	30	0	5
	FELB15	Introduction to distributed information systems	30	0	0	30	0	5
	FETB01	Business Informatics	30	0	0	15	0	4
		Elective course 1**						
	FEXX01	Final thesis	0	0	0		0	12
	Total		90	0	0	75	0	26
Elective**	FELB16	Windows programming	30	0	0	15	0	4
	FELB19	Communication protocols and architectures	30	0	0	15	0	4
	FELB21	Introduction to embedded systems	30	0	0	15	0	4
	FELB20	Signal processing	30	0	0	15	0	4
	FENB03	Engineering economy	30	0	0	30	0	4
	FEXX06	Professional training	0	0	0	0	0	5
	Bira se: **1 Elective course**							
*L=predavanja, S=seminar, AE=auditorne vježbe, LE=laboratorijske vježbe, DE=konstrukcijske vježbe								
Izborni se predmeti mogu birati s predložene liste ili s lista obveznih i izbornih predmeta ljetnih semestara smjerova AIS, ERI i KIT preddiplomskog studija EIT **pod uvjetom da se istovrsni predmeti ne nalaze u vertikali studija kao obvezni ili izborni predmeti. Ukupni broj ECTS bodova po semestru može biti veći od 30.								

2.1. List of mandatory and elective courses

NAME OF THE COURSE	ALGORITHMS							
Code	FELB07	Year of study	2.					
Course teacher	Matko Šarić, Ph.D., Assistant Professor	Credits (ECTS)	7					
Associate teachers	Ante Topić, dipl. ing.	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45	0	0	30	0	
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION

Course objectives	Training students for: - Design of efficient algorithms and analysis of algorithms properties (speed and memory) - Adopting the practical knowledge about sorting algorithms and graph-based algorithms		
Course enrolment requirements and entry competences required for the course	Passed exams “Introduction to the computers and programming” and “Programming”		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Analyze the execution time of the algorithm - explain and apply different sorting algorithms - explain and apply graph-based algorithms - apply dynamic programming		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L or S hours	AE hours
	Introduction. What are algorithms. Analyzing algorithms in Example D-2 maximum	3	0
	Analyzing of the loops. Solving of summations. Solving 2-D maximum - method of crossing the plane.	3	0
	Asymptotic notation. Limited rule.	3	0
	The technique of divide and rule. Mergesort (pseudocode, execution time analysis).	3	0
	Recursion (search pattern, iteration, recursion tree method). Master theorem.	3	0
	Heap data structure. Heapsort (pseudocode, execution time analysis).	3	0
	Quicksort (pseudocode, execution time analysis)	3	0
	The lower limit of sorting algorithms execution time. Sorting by linear time. (counting sort, radix sort).	3	0
	The algorithms based on graphs (basic concepts and definitions).	3	0
	Graph representation using the adjacency matrix and adjacency list. BFS algorithm.	3	0
	All pairs shortest paths. Dynamic programming. Floyd-Warshall algorithm.	3	0
	Longest common subsequence. Matrix chain multiplication	3	0
	Decision problems. NP-problems and polynomial time verification. NP completeness. Reduction. Hamiltonian path and Hamiltonian cycle.	3	0

	List of laboratory or design exercises	LE or DE hours
	Analysis of typical running times	2
	Solving of summations	2
	Recursions	2
	Merge sort I	2
	Merge sort II	2
	Heap sort	2
	Quicksort	2
	Linear time sorting algorithms	2
	Graph representation	2
	BFS algorithm	2
	Floyd-Warshall algorithm	2
	Longest common subsequence	2
	Matrix chain multiplication	2

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	2,5	Research		Practical training	
	Experimental work		Report		Individual work	3,2
	Essay		Seminar essay		Laboratory exercises	1
	Tests	0,2	Oral exam		Preparation for laboratory exercises	
	Written exam	0,1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Midterm test and final test consist of theoretical questions and numerical problems. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade(%) = 0,5 (M1 + M2) the activities in percentage: • M1, M2 – test results. The final grade is defined in the next way: 50% do 63% sufficient (2) 64% do 77% good (3) 78% do 91% very good (4) 92% do 100% excellent (5)

<table>
<tr><td rowspan="6">Required literature (available in the library and via other media)</td><td>Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td>Individual work</td><td></td><td>e-learning portal</td></tr>
<tr><td>Laboratory exercises</td><td></td><td></td></tr>
<tr><td>Preparation for laboratory exercises</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="3">• T.Cormen, C.Leiserson, R.Rivest, C.Stein: „Introduction to Algorithms“, second edition, third printing, McGraw-Hill, 2002</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="3">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Feedback from students who have already obtained BsC degree</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="3"></td></tr>
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NAME OF THE COURSE	BASIC ELECTRONICS							
Code	FELB04	Year of study	1					
Course teacher	Tihomir Betti, Ph.D., Assistant Professor Ivan Marasović, Ph.D., Assistant Professor	Credits (ECTS)	7					
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE	
			45		30	0		
Status of the course	Obligatory	Percentage of application of e-learning						

COURSE DESCRIPTION

Course objectives	Training students for: - Understanding the main properties of semiconductors and operating principles of the basic electronic devices. - Analysis of simple amplifier circuits with bipolar or field-effect transistors at DC and small-signal AC conditions. - Analysis of basic circuits with operational amplifier.		
Course enrolment requirements and entry competences required for the course	No.		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - State the basic properties of semiconductors. - Explain the operating principle of basic semiconductor devices (diodes and transistors). - Calculate the main parameters of semiconductor materials and electronic devices. - Apply the basic electronic device models and to calculate main properties of the simple amplifier circuits. - Explain the operation and calculate the properties of the simple circuits with operating amplifier.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction. Semiconductor materials. Energy bands in semiconductors. Intrinsic and extrinsic semiconductors.	3	2
	Carrier transport phenomena: diffusion and drift transport. Carrier mobilities. Einstein relation. Generation and recombination of carriers. Continuity equation.	3	2
	Abrupt p-n junction. P-n junction under bias. Current-voltage characteristics.	3	2
	Narrow and wide side of the diode. Accumulated charge of minority carriers. Temperature dependence of the diode current and voltage.	3	2
	Bipolar junction transistors (BJT): structure and technology. Transistor operation in the active mode. Transistor parameters. Static characteristics of BJT. The Early effect.	3	2
	Ebers-Moll model of a BJT. BJT modes of operation.	3	2
	Unipolar transistors (FETs). Types of unipolar transistors. JFET and MOSFET: operation, dynamic parameters and static characteristics.	3	2
	Introduction to electronic amplifiers. Amplification (relative and in decibels). Types of electronic amplifiers.	3	2
	BJT and FET amplifier circuits at DC conditions. The quiescent (DC operating) point. Temperature stabilization of	3	2

<table>
<tr><td></td><td>the BJT common emitter amplifier using emitter resistor.</td><td></td><td></td></tr>
<tr><td></td><td>Dynamic properties of BJT amplifiers. Hybrid (h-parameter) BJT model. Common emitter, common collector and common base amplifiers.</td><td>3</td><td>2</td></tr>
<tr><td></td><td>Dynamic properties of FET amplifiers. FET small-signal equivalent circuit model. Common sourse, common drain and common gate amplifiers.</td><td>3</td><td>2</td></tr>
<tr><td></td><td>The amplifier frequency response. Transistor amplifier equivalent circuits for low and high frequencies. Cutoff frequencies. Bode plots.</td><td>3</td><td>2</td></tr>
<tr><td></td><td>Operational amplifier: definition and basic properties. Examples of circuits with operational amplifier.</td><td>3</td><td>2</td></tr>
<tr><td>Format of instruction</td><td colspan="3">☒ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work
☐ independent assignments
☒ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="3">Students should attend at least 70% of the lectures and exercises.</td></tr>
<tr><td>Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td colspan="3"><table>
<tr><td>Class attendance</td><td>2.5</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>4.25</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td></td><td></td></tr>
<tr><td>Tests</td><td>0.15</td><td>Oral exam</td><td></td><td></td><td></td></tr>
<tr><td>Written exam</td><td>0.1</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
</table></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="3">There are two midterm exams and a final exam. The first midterm exam is scheduled after 7 weeks of classes and the second one after the following 6 weeks. Each midterm exam is written and consists of 4 theoretical questions and 3 numerical problems, which are graded independently. Each midterm exam lasts 105 minutes. To pass an exam, the student should score at least 50% both from theoretical questions and numerical problems in the midterms and also have a positive assesment of the laboratory exercises.
The final grade (in percentage) is determined according to the formula:
Grade(%) = 0.2(T1+T2)+0.2(P1+P2)+0.2L,
where:
• T1, T2 – grade from theoretical questions in midterms given in percentage,
• P1, P2 – grade from numerical problems in midterms given in percentage,
• L – grade from laboratory exercises given in percentage.
Students not passing the midterm exams take part in the final exam. It consists of 8 theoretical questions and 6 numerical problems and lasts 165 minutes. For passing the final exam, students must score at least 50% both from theoretical part and from numerical problems, as well as have a positive assesment of the laboratory exercise. The grade on final exams is determined by the formula:
Grade(%) = 0.4(T)+0.4(P)+0.2L,
where:
• T – grade from theoretical questions given in percentage,
• P – grade from numerical problems given in percentage,
• L – grade from laboratory exercises given in percentage.</td></tr>
</table>

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• T. Betti, I. Marasović – autorizirana predavanja (PowerPoint)		e-learning portal
	• I. Zulim, S. Gotovac: Osnovni poluvodički elektronički elementi, FESB, Split, 1998.		
	• P. Biljanović: Elektronički sklopovi, Školska knjiga, Zagreb, 2005.		
	• I. Zulim, P. Biljanović: Elektronički sklopovi – zbirka zadataka, Školska knjiga, Zagreb, 1994.		
Optional literature (at the time of submission of study programme proposal)	- P. Biljanović: Poluvodički elektronički elementi, Školska knjiga, Zagreb, 2004. - B. Juzbašić: Elektronički elementi, Školska knjiga, Zagreb, 1984. - J. Millman, A. Grabel: Microelectronics, 2nd edition, McGraw-Hill, 1987. - P. Horowitz, W. Hill: The Art of Electronics, Cambridge University Press, 2015.		
Quality assurance methods that ensure the acquisition of exit competences	- Record of number of students attending the classes - Evaluation of results in accordance with expected learning outcomes - Feedback from students via student surveys - Teachers self-evaluation - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	BUSINESS INFORMATICS						
Code	FETB01	Year of study	3.				
Course teacher	Stipo Čelar, Ph.D., Associate Professor	Credits (ECTS)	4				
Associate teachers	Mili Turić, mag. comp.	Type of instruction (number of hours)	L	S	AE	LE	DE
			30			15	
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - understanding of the role of ICT in the business environment, - understanding of the basic forms of intellectual property in ICT, - understanding of the principles of ICT projects organizing, - organization, start-up and financing of ICT companies, - basic understanding of standards and models for SW process improvement.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define the role of ICT in the business environment, - understand the benefits of knowledge-based companies, - understand the value of intellectual property and its importance for the modern economy, - apply general principles of project management to SW quality management, - understand the most common forms of today's companies, - understand basic models of SW process maturity and capability, - apply project approach in the finding of financing sources and in the project proposals preparation.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction to Business Informatics. Architectural models (NIST model Zachman model)	2	
	Industrial revolution. The foundations of the new technological revolution	2	
	Knowledge. Competence. Education	2	
	Knowledge and business. The role of ICT	2	
	Intellectual property and innovation. Copyright and related rights	2	
	Patent. SW and Intellectual Property Rights (IPR)	2	
	Projects and Project Management	2	
	First midterm exam		
	Company model. The transition from the project to the company	2	
	Forms of companies (d.o.o, d.d, j.d.o.o, ….)	2	
	The processes generally and processes in ICT companies. Porter's process model. SWEBOK. ISO / IEC12207	2	
	The maturity and the capability of process. CMM and CMMI Model	2	
	Control - Assurance - Planning - Quality Management. Characteristics of SW quality. SW quality standards	2	
	Sources of financing. The project proposal. Logical Framework	2	
	Second midterm exam		

<table>
<tr><td rowspan="4"></td><td colspan="5">List of laboratory exercises</td><td>LE hours</td></tr>
<tr><td colspan="5">Introduction to the work method. Defining of project teams and seminar topics selecting</td><td>2</td></tr>
<tr><td colspan="5">Weekly meetings with a mentor (professor / assistant)</td><td>10</td></tr>
<tr><td colspan="5">Seminar presentation (with colleagues)</td><td>3</td></tr>
<tr><td>Format of instruction</td><td colspan="6">☒ lectures
☒ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work
☒ independent assignments
☐ multimedia
☒ laboratory
☒ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="6">The presence on lectures in the amount of at least 70 % of the times scheduled.
Well made (written material) and personally presented seminar.</td></tr>
<tr><td rowspan="6">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1</td><td>Research</td><td>0,5</td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>1</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td>0,5</td><td>Laboratory exercises</td><td></td></tr>
<tr><td>Tests</td><td>0,5</td><td>Oral exam</td><td>0,5</td><td>Preparation for laboratory exercises</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks of lecturing. Each midterm test consists of 5 to 10 theoretical questions. The final test consists of 7 to 10 theoretical questions. In the final exams students that did not pass the midterm exams take part. The midterms and final exams are carried out as written tests.
The requirement for passing grade is the positive assessment of seminar and 50 % points on each midterm exam or the final exam. After that the students take the oral exam.
Grade (in percentage) is formed according to the formula:
Grade(%) = 0,3 OE + 0,2 LE + 0,25 (M1 + M2)
the activities in percentage:
• OE – oral exam,
• LE – laboratory assessment (seminar),
• M1, M2 – test results.</td></tr>
<tr><td rowspan="4">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">• S. Čelar: Authorised lectures, FESB</td><td></td><td>e-learning portal</td></tr>
<tr><td colspan="3">• CMMI® for Development, Version 1.3, SEI, Technical Report, 2010</td><td></td><td>e-learning portal</td></tr>
<tr><td colspan="3">• S. Čelar: Authorised instructions for seminars, FESB</td><td></td><td>e-learning portal</td></tr>
</table>

Optional literature (at the time of submission of study programme proposal)	
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	COMMUNICATION PROTOCOLS AND ARCHITECTURES						
Code	FELB19	Year of study	3.				
Course teacher	Matko Šarić, Ph.D., Assistant Professor	Credits (ECTS)	4				
Associate teachers	Tomislav Odrljin, dipl. ing.	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	15	0
Status of the course	Elective	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - adopting theoretical knowledge of communication protocols - understanding and application of analog and digital modulation in communication systems		
Course enrolment requirements and entry competences required for the course	Passed exam Information and communication		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - describe the basic communication models - explain communication between adjacent layers and define the fundamental quality parameters (QoS) - explain fundamental functions of different protocol layers - apply the communication process algebra to describe basic protocol functions		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Communication models, architecture, communications systems and protocols	2	0
	Multi-layer reference model (OSI-ISO), definition of data units and communication between adjacent layers	2	0
	Circuit switching network and packet switching network, the physical layer protocols (RS-232, USB, bi-level and multi-level modulation), link layer protocol (HDLC)	4	0
	Point-to-point and multipoint communication, flow control and ARQ	2	0
	LAN protocols, network layer (IP),transport layer (TCP, UDP)	4	0
	Application layer protocols	2	0
	Communication models and formal methods (Z, LOTOS, SDL, PSF)	2	0
	Communication processes algebra (ACP)	2	0
	Algebraic description of the basic functions of communication protocol	2	0
	Description of channel with ARQ mechanism	2	0
	Specification of simple LAN protocols	2	0
	List of laboratory or design exercises		LE hours
	USB protocol		2
	Flow control		2
	Network layer protocols		2
	Transport layer protocols		2
	Communication channels with ARQ mechanism		2

<table>
<tr><td>Format of instruction</td><td colspan="6">☒ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="2">☐ independent assignments
☐ multimedia
☒ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="8"></td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1,5</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>1,7</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td>Laboratory exercises</td><td>0,2</td></tr>
<tr><td>Tests</td><td>0,2</td><td>Oral exam</td><td></td><td>Preparation for laboratory exercises</td><td>0,3</td></tr>
<tr><td>Written exam</td><td>0,1</td><td>Project</td><td></td><td></td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="8">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Midterm test and final test consist of theoretical questions and numerical problems. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula:
Grade(%) = 0,33 LV + 0,66 (M1 + M2)/2
the activities in percentage:
• LV – laboratory assessment,
• M1, M2 – test results.

The final grade is defined in the next way:

50% do 63% sufficient (2)
64% do 77% good (3)
78% do 91% very good (4)
92% do 100% excellent (5)</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="5">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="5">M.Schwartz: Telecommunication Networks: Protocols, Modeling and Analysis, Addison Wesley.</td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="8">• W. Stallings: Computer Communications, Sams Publ.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="8">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Feedback from students who have already obtained BsC degree</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="8"></td></tr>
</table>

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="5">COMMUNICATION SKILLS</td></tr>
<tr><td>Code</td><td>FEOB02</td><td>Year of study</td><td colspan="3">2</td></tr>
<tr><td>Course teacher</td><td>Mirjana M. Kovač
Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="3">2</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>E</td><td>F</td></tr>
<tr><td>0</td><td>30</td><td>0</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Mandatory</td><td>Percentage of application of e-learning</td><td colspan="3"></td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">• understand the basic concepts related to verbal and nonverbal communication, as well as the factors that influence these concepts;
• develop the skills of presentation planning, presentation structure, and presentation performance in the Croatian language;
• develop pragmatic language competence;
• adopt the basic principles of written communication.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="5">None.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="5">Students will be able to:
1. describe the theories and models of communication;
2. employ active listening techniques;
3. demonstrate questioning skills;
4. give a technical presentation;
5. critically evaluate their own communication skills;
6. recognize disfluent speech;
7. negotiate and demonstrate the skills of assertive communication.</td></tr>
<tr><td rowspan="15">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="4">Course content</td><td>L/S</td></tr>
<tr><td colspan="4">Definitions of communication; Overview of the theory of communication; Cross-cultural communication</td><td>0/2</td></tr>
<tr><td colspan="4">Verbal and nonverbal communication</td><td>0/2</td></tr>
<tr><td colspan="4">Questioning as a communication skill</td><td>0/2</td></tr>
<tr><td colspan="4">Active listening and Barriers to active listening</td><td>0/2</td></tr>
<tr><td colspan="4">Persuasion skills</td><td>0/2</td></tr>
<tr><td colspan="4">Written communication; Project reports</td><td>0/2</td></tr>
<tr><td colspan="4">Presentation skills (systematic guide)</td><td>0/2</td></tr>
<tr><td colspan="4">Technical presentation</td><td>0/2</td></tr>
<tr><td colspan="4">Technical presentation and peer evaluation</td><td>0/2</td></tr>
<tr><td colspan="4">Assertive communication and Critical thinking</td><td>0/2</td></tr>
<tr><td colspan="4">Public speaking skills</td><td>0/2</td></tr>
<tr><td colspan="4">Types of speech disfluencies</td><td>0/2</td></tr>
<tr><td colspan="4">Group and Team communication</td><td>0/2</td></tr>
<tr><td>Format of instruction</td><td colspan="2">☐ lectures
☒ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="3">☒ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="5">Active participation in all activities: lectures, consultations, searching the literature, individual work.</td></tr>
</table>

<table>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>0,7</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>0,7</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td>0,3</td><td>(Other)</td><td></td></tr>
<tr><td>Midterm exam</td><td>0,2</td><td>Oral exam</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Written exam</td><td>0,1</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">The final grade is determined as the average of:
• assessment of oral presentation and peer assessment of oral presentation;
• assessment of written communication skills,
written and oral assessment.

There are two midterm exams and two examination periods. The first midterm exam is after 7 weeks of lecturing, and the second one is after the next 6 weeks. The lowest passing point is 50% in each midterm exam. The students who do not pass the midterm exams write the exams. The final grade for the course is calculated as a percentage of points earned. The final grade is determined applying the absolute ECTS grading system in accordance with the Rules of the Studying System of the University of Split.

At the end of the semester the grades are averaged to form a grade Point Average, according to this scale:
50% - 61% - sufficient (2),
62% - 74%- good (3),
75% - 87% - very good (4),
88% - 100% - excellent (5).

Students who fail the two exams in the first examination period take the exam in the autumn final examination period. The final exam consists of the material covered in both midterm exams.</td></tr>
<tr><td rowspan="2">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td colspan="2">Availability via other media</td></tr>
<tr><td colspan="3">- Kovač, M.M., Sirković, N.: Presentation, Writing and Interpersonal Communication Skills. FESB, 2014.</td><td>20</td><td colspan="2"></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="6">Davies, J. W.: Communication skills: A Guide for Engineering and Applied Science Students. Pearson: Prentice Hall, 2001

Harris, T. E., Sherblom, J.C.: Small Group and Team Communication. Pearson Education/Allyn & Bacon, 2010.Press/Wiley, 2003</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="6">• Evaluation of results in accordance with the above learning outcomes
• Feedback from students via surveys
• Self-evaluation of teachers
• Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="6"></td></tr>
</table>

NAME OF THE COURSE	COMPUTER AND DATA SECURITY						
Code	FELB18	Year of study	3.				
Course teacher	Mario Čagalj, Ph.D., Full Professor	Credits (ECTS)	4				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	15	
Status of the course	Elective	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Introduce students to: - fundamentals of computer and data security, - critical thinking on security issues in computer systems.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define the basic concepts of computer security such as authentication, access control, data confidentiality, system and data integrity - analyse vulnerabilities of password-based authentication systems, - suggest basic protection measures.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction to computer security.	2	
	Basic cryptographic primitives (encryption and authentication)	4	
	User authentication (passwords, security tokens, biometry, attacks)	2	
	User authentication on Windows and Unix-like operating systems	2	
	Attacks on passwords (brute-force, dictionary, rainbow tables)	2	
	Access control (Windows, Unix-like OS)	4	
	First midterm exam		
	Malware (viruses, computer worms, botnets)	2	
	Protection against malware (AV software)	2	
	Denial-of-Service (DoS) and Distributed DoS (DDoS) attacks	2	
	Software security (buffer overflow attacks)	2	
	Risk assessment and management	2	
	Second midterm exam		
	List of laboratory exercises		LE hours
	Intro to computer security using Cryptool		2
	User authentication and access control		3
	Malicious software (keyloggers)		3
	Malicious software (man-in-the-browser attacks)		2
	DoS attacks		2
	Software security (buffer overflow attacks)		1
Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)	

<table>
<tr><td>Student responsibilities</td><td colspan="6">The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>0,7</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>2</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td>Laboratory exercises</td><td>1</td></tr>
<tr><td>Tests</td><td>0,2</td><td>Oral exam</td><td></td><td></td><td></td></tr>
<tr><td>Written exam</td><td>0,1</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Students are also required to submit a written report on their work on laboratory assignments; these are also graded.

The final grade is formed as follows:
Grade = Round[0,05 P + 0,15 LV + 0,35 M1 + 0,45 M2]
where:
• P – is a grade based on attendance at lectures,
• LV – a grade earned during laboratory exercises,
• M1, M2 – test results.

NOTE: If a student fails a given task (P, LV, M1, M2), the corresponding grade is set to 0 in the above formula.</td></tr>
<tr><td rowspan="2">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Lecture notes and presentations</td><td></td><td>e-learning portal</td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="6">• Stallings W., Borwn L.: Computer Security, Principles and Practice, Pearson Prentice Hall, 2008.
• Gollmann D.: Computer Security, 2nd Edition, Wiley, 2005.
• Pfleeger C. P., Pfleeger S. L. : Security in Computing, 4th Edition, Prentice Hall, 2006.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="6">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="6"></td></tr>
</table>

NAME OF THE COURSE	COMPUTER ARCHITECTURES						
Code	FELB05	Year of study	2				
Course teacher	Sven Gotovac, Ph.D., Full Professor	Credits (ECTS)	7				
Associate teachers	Dunja Gotovac, Teaching Assistant	Type of instruction (number of hours)	L	S	AE	LE	DE
			45			30	
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: 1. Understand digital computer architecture. 2. Define difference between different computer architecture on assembler level. 3. Understand computer architecture on the digital circuits level. 4. Understand and apply different computer architecture according to the application problem.		
Course enrolment requirements and entry competences required for the course	C programming language Digital electronics and circuits		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: 1. Understand difference between computer architecture from the Instruction Set Point of view (ISA) 2. Identify the properties and performance of different architectures at the level of logic circuits 3. Select and apply the appropriate computer architecture according to the problem being solved. 4. Evaluate the impact of architecture on a software solution (advantages and disadvantages).		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction. Different views on the computer.	3	
	Data and instructions. Classification of Computers and Their Instructions, Instruction set. Instruction format. Addressing Modes. CISC. RISC.	3	
	Instruction level processor design (Instruction Set Architecture)	3	
	Arithmetical and Logical instructions, Instruction for Data Transfer.	3	
	Flow control instructions, Translation from C to assembler and then to binary code.	3	
	Processor design on digital circuits level. Single bus microarchitecture.	3	
	Data Path Implementation, Logic Design for the 1-Bus Microarchitecture.	3	
	Control Unit design, 2-Bus and 3-Bus Microarchitecture	3	
	Pipeline architecture.	3	
	Instruction-Level Parallelism – Problems and Solutions	3	
	Memory System Design, Memory System Components, Two-Level Memory Hierarchy.	3	
	Cache, Associative cache, Direct Mapped Cache, 2-way Cache.	3	
	U/I system design.	3	

	List of laboratory or design exercises	LE hours
	ARM Architecture - Introduction.	2
	ARM Instruction Set Architecture, Registers, Memory, Stack.	2
	Atmel Studio IDE. Program Structure	2
	Instruction Set, Arithmetical and Logical Instructions, Dana Transfer Instructions, Branch Control Instructions	8
	Procedures	2
	Program Examples	10
	Problems for Exercise and Test	4

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	
	Experimental work		Report		Laboratory exercises	1
	Essay		Seminar essay		Preparation for laboratory exercises	1,5
	Tests		Oral exam		Self-study	**3**
	Written exam		Project			

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test lasts 60 minutes and consists of 5 to 7 theoretical questions and numerical problems and final tests consist of 6 theoretical questions and numerical problems. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade(%) = 0,33 LV + 0,33 (M1 + M2) the activities in percentage: • LV – laboratory assessment, • M1, M2 – test results. The final grade will be determined after the first test term by applying a relative ECTS grading system in accordance with the Regulations on the study and study system of the University of Split. The group of students who passed the exam is divided into four groups: 15% of the best gets the grade A (excellent), 35% of the following B (very good), the next 35% rating C (good), and the last 15% rating D, E). A group of students who did not pass the exam gains FX score (additional work is required), or F (significant additional work is required). In accordance with the Rulebook for Exam, only two exam periods are organized in the exam period after the completion of classes. According to Article 65 of the Statute of the Faculty, the student is obliged to participate in all forms of teaching and attend: lectures at least 70% of teaching hours and laboratory exercises 100% of teaching hours. If you do not meet these conditions, the student will not be able to access the exam

Required literature	**Title**	**Number of**	**Availability via**

(available in the library and via other media)		**copies in the library**	**other media**
	Heuring, V.P., Joredan, H.F.: Computer Systems Design and Architecture, 2rd edition, AddisonWesley, 2003	2	Electronic copy On e-learning
	S.Gotovac Authorized lectures from the Digital Computer Architecture		On e-learning
Optional literature (at the time of submission of study programme proposal)	Hennesy & Patterson, "Computer Architecture: A Quantitative Approach", 5rd edition, Morgan Kaufmann, 2011		
Quality assurance methods that ensure the acquisition of exit competences	1. Class attendance records. 2. Evaluation of results in accordance with the above learning outcomes 3. Feedback from students via surveys 4. Self-evaluation of teachers 5. Feedback from students who have already graduated. 6. Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	COMPUTER NETWORKS						
Code	FELB11	Year of study	3				
Course teacher	Julije Ožegović, Ph.D., Full Professor	Credits (ECTS)	6				
Associate teachers	Vesna Pekić,Ph.D. Ante Kristic, Ph.D.	Type of instruction (number of hours)	L	S	AE	LE	DE
			45	0	0	30	0
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - Course provides fundamental knowledge of computer networks as computer engineering core.
Course enrolment requirements and entry competences required for the course	None
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - argue fundamental terms and architecture of computer networks - present and compare ISO/OSI and TCP/IP protocol stacks - justify usage of TCP/IP protocol stack on application layer - evaluate usage of TCP and UDP protocols on transport layer - organize functionality of IP protocol, IP addressing and IP routing - plan LAN protocols and their functionality on physical and data layers - plan WAN protocols and their functionality on physical and data layers - organize addressing on physical, data, network and transport layers

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L or S hours	AE hours
	Development of data communications networks. Basic characteristics. Switching methods.	3	0
	Importance of standardization. Open systems. Network elements. Channels, nodes, terminals.	3	0
	Computer and terminal network architecture. Hierarchical layered structures. ISO model.	3	0
	Protocols. Protocol mechanism: synchronization, addressing, flow control and error control.	3	0
	Quality of service. Traffic and congestion control, flow control.	3	0
	Physical level: DTE-DCE interface, RS232, X.24. Modem connections, intelligent modems. Signal codes.	3	0
	Local networks. Access methods. Ethernet.	3	0
	Wireless local networks. Digital subscriber networks: ISDN, xDSL. ATM.	3	0
	Data level: Error control. Cyclic codes.	3	0
	Character and bit oriented protocols. Frame-relay networks.	3	0
	Local networks: MAC, LLC. ATM networks. Ethernet. Wireless local networks.	3	0
	Network level: Packet networks. Traffic routing. Algorithms Bellman-Ford and Dijkstra.	3	0
	Internet. IP protocol (v4, v6), addressing, intranet, routing. Routing protocols OSPF and RIP	3	0
	Transport level: TCP and UDP Internet protocols. TCP protocol flow control.	3	0
	Queuing systems. M/M/1 system Little formula.	3	0
	List of laboratory or design exercises		LE or DE

		hours
	DTE DCE interface.	4
	Modem - data transfer using analogue telephone channel.	4
	Local network Ethenet.	4
	Connecting computer to Internet subnetwork.	4
	Connecting subnetwork to public Internet.	4
	Virtual local networks.	4
	Wireless local networks	4

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	Attend all forms of teaching, pass ingress and egress tests, perform 100% laboratory exercises, pass preliminary exams or full exam (numeric and theory).	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	1
	Experimental work		Report		Auditory exercises	
	Essay		Seminar essay		Individual learning	3,5
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	Continuous assessment: laboratory tests, practical tests, knowledge tests, preliminary exams. Exam: written and oral (numeric and theory) as unity.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Turk, S.: Računarske mreže, Školska knjiga, Zagreb, 1991..		
	2. Rožić, N.: Informacije i komunikacije: kodiranje s primjenama, Zagreb 1992.		

Optional literature (at the time of submission of study programme proposal)	- Ožegović, J. Računalne mreže, Veleučilište u Splitu, 2000 - Lecture notes: Ožegović, J., Računalne mreže, continuously upgraded - A. Kristić, V. Pekić: Upute za laboratorijske vježbe, Internet
Quality assurance methods that ensure the acquisition of exit competences	- Lecture attending evidence - Annual exam passing analysis - Student feedback with teacher evaluation - Teacher self-evaluation - Graduated students feedback
Other (as the proposer wishes to add)	

NAME OF THE COURSE	DATA STRUCTURES						
Code	FELB03	Year of study	2.				
Course teacher	Linda Vicković, Ph.D., Associate Professor	Credits (ECTS)	6				
Associate teachers	Ivica Crnjac, Teaching Assistant	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	30	
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Cbegišićourse objectives	Training students for: - understanding and appliance of basic algorithm analysis principles, - permanent adoption and deepening of knowledge form the area of dynamic memory allocation, as well as management of abstract data types like stacks, queues and different kind of trees, - understanding and appliance of hashing and heaps.		
Course enrolment requirements and entry competences required for the course	Students have to pass Introduction to computing and Programming from the first year of study.		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define basic terms related to algorithm analysis, - describe and perform adding, deleting, searching, of elements in single and double linked lists, - create functions for adding and deleting of stack and queue elements, - recognise appliance of abstract data types in problem solving, - describe steps of adding, deleting and searching of elements in binary search trees, - using basic AVL rotations to reach a balance condition, - apply different kind of hash functions, - describe basic working principles of heaps.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction to the course. Review of basic elements of C programming language (recursive functions, data structures, pointers, dynamic memory allocation, file handling).	2	
	Algorithm analyses mathematical background and running time calculation of algorithm.	2	
	Abstract data types, simple implementation of linked lists and its basic operations.	2	
	Doubly linked lists, circularly linked lists.	2	
	Stack and its applications (stack frames, balancing symbols), queue.	2	
	Binary trees.	2	
	Basic operations on binary search trees.	2	
	AVL trees.	2	
	Splay and B trees.	2	
	Hashing principles.	2	
	Separate chaining and open addressing.	2	
	Rehashing and extensible hashing	2	
	Heaps	2	

	List of laboratory or design exercises	LE hours
	Basic operations in the array of structures.	2
	Adding new element at the end and beginning of linked list as well as Printing and deleting elements.	2
	Adding new element behind and in front of the specified element in linked list. Sorting of elements in list, reading list elements from file and writing list elements in file.	2
	Using linked lists for polynomial adding and multiplying.	2
	Union and cross section of two linked lists.	2
	Stack and queue implementation of linked lists.	2
	Using stack for postfix expression.	2
	Tree usage for directory structure presentation and implementation of DOS commands md, cd, cd.. adn dir on that tree.	2
	Binary search tree.	2
	Binary expression tree.	2
	AVL tree	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	
	Experimental work		Report		Individual work	1,8
	Essay		Seminar essay		Laboratory exercises	1,7
	Tests	0,2	Oral exam		Preparation for laboratory exercises	0,7
	Written exam	0,1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two parts of the exam, theoretical and laboratory part. Laboratory part of exam is held on computers at the end of all laboratory exercises, and after that on final exams. Theoretical part of exam is written and there are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 5 questions some practical and some theoretical. The requirement for passing grade is the positive grade of laboratory part of exam and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade = 0,5 LV + 0,5 T where: • LV – grade from laboratory part of exam, • T – grade from the theoretical part of exam.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	• Vicković, L. Strukture podataka, prezentacije s predavanja.		e-learning portal
	• Weiss, M., Data Structures and Algorithm Analysis in C (sections 1-6), Addison-Wesley, 1997.		

	• Sedgewick, R. Algorithms in C, Addison-Wesley, 1990.		
Optional literature (at the time of submission of study programme proposal)	- Neapolitan, R., Naimipour, K. Foundations of Algorithms, Jones & Barlett Learning, 2015.		
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	DATABASES						
Code	FELB08	Year of study	2.				
Course teacher	Vladan Papić, Ph.D., Full Professor	Credits (ECTS)	6				
Associate teachers	Tea Marasović, Ph.D., Assistant Professor	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	30	
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - Understanding how typical database work, - Modelling, normalization and design of simple databases, - Retreaval, input, deleting and updating of data using simple and complex SQL queries.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Explain basic terms used in databases, types and structures, methodology and life cycle, - Use standard DBMS, - Come up with queries for creation and retreaval of dana from tables, - Translate given E-R diagram into relational form, - Analyze relations in a database and conclude about level of normalization, - Model simple databases according to given specification, - Explain basic problems of databases working in multi user environment..		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Basic terms. File model. Database and database managament system. Physical and logical independence of data. Database design methodology.	2	
	Database models. Database types and structures. Database life cycle.	2	
	Data modelling. Steps in designing database. Entities and attributes. Relationship and relationship set. Functionality of relationship. Entity membership in relationships.	2	
	Representation of ER-model with diagram. Complex ER diagrams. Conceptual database design using ER-model. How to make data model in easiest way?	2	
	Relational database model. Structure of relational database. Transfeer of ER model into relational model. Comparison of relational model with network and hierarhical models.	2	
	Normalization and normal forms. First normal form (1NF). Functional dependencies – basic definitions and terminology. Second normal form (2NF). Third normal form (3NF)	2	
	Boyce-Codd normal form (BCNF). Multi-valued dependencies and forth normal form (4NF). Joining dependencies and fifth normal form (5NF). Normal form of keys and domains. Reasons for aborting with normalization.	2	
	Relational model operations. Relational algebra. Relational calculus.	2	
	SQL (Structured Query Language). Processing of SQL instruction. Database definition using SQL (DDL). Modification	2	

	of existing table. Deleting table. Indexes. Inserting data into tables.		
	Database queries. Simple queries on a relation. Search condition. Reports.	1	
	Queries on more than one relation. Query for table creation. Queries for insert, modification and deleting of dana. Aliases.	1	
	Aggregate functions. Group queries. Nested queries – subqueries.. Union. SQL queries optimization.	1	
	Multiuser environment problems. Views.	1	
	Protection from unautorizhed use. Ading privileges – single and cascade. Revoking priviledges. User groups. Data integrity and security. Time stamps.	2	
	Database storing and recovery. Database replication. Transaction log. Criteriums for DBMS evaluation.	2	

List of laboratory exercises	LE hours
Introduction to DBMS.	2
ER-diagrams	2
Transfering ER-diagrams into relational model	2
Data modelling: etities and relationships.	2
Creating writing dana into database.	2
Filtering, sorting and searching for data.	2
Simple queries.	2
Complex queries.	2
Input forms.	2
Views and reports.	6
Macro commands.	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	
	Experimental work		Report		Individual work	2
	Essay		Seminar essay	1,2	Laboratory exercises	0,5
	Tests	0,2	Oral exam		Preparation for laboratory exercises	0,5
	Written exam	0,1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. In the final exams students are answering parts they did not pass in the midterms. The midterm and final exams are carried out as written tests and it lasts for max. 90 minutes. The requirement for passing grade is 40% points on each midterm exam or final exam and positive assessment of laboratory exercises. In final grading (in percentage), each midterm exam contributes with max. 40%, lab. exercises with max. 20% out of total possible points (40%+40%+20%). Final grade is formed in the following way: Percentage Grade 50% to 61% sufficient (2) 62% to 74% good (3) 75% to 87% very good (4) 88% to 100% excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• Papić, V. Databases, lectures. Textbook, FESB (in Croatian)		e-learning portal
Optional literature (at the time of submission of study programme proposal)	• An Introduction to Database Systems, Eighth Edition by C.J. Date, Addison Wesley 2003. • Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer D. Widom: Database Systems: The Complete Book, Prentice-Hall 2002. • Clare Churcher, Beginning Database Design From Novice to Professional, Apress, 2007.		
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="7">DISCRETE MATHEMATICS</td></tr>
<tr><td>Code</td><td>FEMB02</td><td>Year of study</td><td colspan="5">2</td></tr>
<tr><td>Course teacher</td><td>Josipa Barić, Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="5">6</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">Ivana Grgić, Lea Dujić</td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>30</td><td></td><td>30</td><td></td><td></td></tr>
<tr><td>Status of the course</td><td>Obligatory</td><td>Percentage of application of e-learning</td><td colspan="5">10</td></tr>
<tr><td colspan="8">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="7">Training students for:
- application of mathematical concepts and tools from the area of mathematics logic, set theory, number theory and combinatorics.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="7">Good knowledge of High School mathematics, passed State Exam in Mathematics and passed exam in Mathematics 1.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="7">Students will be able to:
- state definitions and theorems from the enitre course,
- reproduce proofs of basic theorems,
- illustrate theorems with examples,
- prove relations between sets,
- apply basic rules of concluding,
- analyse properties of binary relations,
- use Division theorem, the Euclidean algorithm and fundamental theorem of arithmetics in proving different properties of integers and prime numbers
- apply congruence relation on simple tasks with integers
- solve combinatory problems counting permutations, combinations and partitions
- solve linear homogeneous and non-homogenous recurrence relations</td></tr>
<tr><td rowspan="15">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5">Course content</td><td>L hours</td><td>AE hours</td></tr>
<tr><td colspan="5">1. Mathematical induction. Sets and set operations. Cardinal number. Countable and uncountable sets.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">2. Mathematical logic. Basic definitions and notations.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">3. Tautology and its properties</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">4. Boolean algebra. Conjunctive and disjunctive normal forms.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">5. Binary relations and basic properties. Equivalence relations and equivalence classes.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">6. Partial order and partially ordered sets.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">7. Integers. Euclidean algorithm, Division theorem, Diophantine equation.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">8. Prime numbers. Fundamental theorem of arithmetics.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">9. Congruence relation. Euler function.</td><td></td><td></td></tr>
<tr><td colspan="5">10. Combinatorics: Permutations, combinations and partitions</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">11. Binomial and multinomial theorem.</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">12. Inclusion–exclusion principle. Dirichlet’s principle</td><td>3</td><td>3</td></tr>
<tr><td colspan="5">13. Homogeneous and non-homogenous recurrence relations. Fibonacci sequence.</td><td>3</td><td>3</td></tr>
</table>

<table>
<tr><td></td><td colspan="5">List of laboratory or design exercises</td><td>LE hours</td></tr>
<tr><td></td><td colspan="5"></td><td></td></tr>
<tr><td></td><td colspan="5"></td><td></td></tr>
<tr><td>Format of instruction</td><td colspan="3">☒ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="3">☒ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="6">Regular attendence to and active participation in lectures and excercises.</td></tr>
<tr><td rowspan="6">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>2</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Self study</td><td>3.6</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Tests</td><td>0.2</td><td>Oral exam</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Written exam</td><td>0.2</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">During semester two mid-term exams are held. The first exam is scheduled after 7 weeks of lectures, and the second in the week following the lectures. At each mid-term exam students can get 40 points, while the remaining 20 points are attained through assignements during lectures and excercises. The condition for passing the course is minimum 20 points on each mid-term exams and a total of at least 50 points. After semester, two final exams and a correction exam are held.

Students which did not pass one mid-term exam, can take only this part of the exam during final exams.

Student which did not pass any mid-term exam, take the final exam with comprehensive course content. In that case, masimum numbers of available points is 80. The condition for passing the course is minimum 40 points in the final exam and a total of at least 50 points. The grade is formed after the second final exam according to article 75 of the Statute of FESB:
15% of the best students get the mark excellent (5),
next 35% students get the mark very good (4),
next 35% students get the mark good (3), and
the last 15% students get thet mark sufficient (2).

Students who did not pass the course after final exams, and have obtained total of at leat 10 points, can attend the correction exam. On the correction exam maximal number of points is 100, and the minimum requirement for a passing grade is 50 points.

Mid-term exams, final exams and correction exams are held according to the exam schedule.</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">• D. Žubrinić: Diskretna matematika, Element, Zagreb, 2001.</td><td>20</td><td></td></tr>
<tr><td colspan="3">• Dž. Lugić, Diskretna matematika, zbirka zadataka, FESB, Split, 2005.</td><td>20</td><td></td></tr>
</table>

Optional literature (at the time of submission of study programme proposal)	• D. Veljan, Kombinatorna i diskretna matematika, Algoritam, Zagreb, 2001. • D. Žubrinić, Uvod u diskretnu matematiku, Element, Zagreb, 2009. • B. Dakić, N. Elezović, Matematika 4, udžbenik i zbirka zadataka za 4. razred prirodoslovne gimnazije, Element, Zagreb, 2003.
Quality assurance methods that ensure the acquisition of exit competences	- homework - short tests - quizzes - mid-term exams - final exam - student questionnaires
Other (as the proposer wishes to add)	

NAME OF THE COURSE	DISCRETE SYSTEMS AND STRUCTURES							
Code	FELB06	Year of study	2					
Course teacher	Julije Ožegović, Ph.D., Full Professor	Credits (ECTS)	7					
Associate teachers	Josip Musić, Duje Čoko, Vesna Pekić, Ante Kristic	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45	0	30	15	0	
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION

Course objectives	Training students for: - Course provides fundamental knowledge of Boolean algebra and automata theory as the digital electronics basis, with practical skills of combinatorial and sequential circuits' synthesis, including programmable structures.
Course enrolment requirements and entry competences required for the course	None
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - design combinatorial and sequential logic circuit - choose optimal design method - discuss on Boolean algebra properties application - model digital systems using finite state automata - explain application of small, medium and high scale integration circuits - determine the information structure of the system - evaluate the achieved results of digital system modelling and synthesis

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Digital and analog signals, information and coding-	3	0
	Number systems. Binary number system-	3	1
	Modulo arithmetic-	2	0
	Logic gates-	1	0
	Boolean algebra and logic algebra-	2	1
	Boolean functions. Decomposition to partial functions.	3	1
	Logic algebra complete systems	1	0
	Minimization of Boolean function and circuit realization using logic gates.	6	4
	Circuit realization using multiplexers and demultiplexers.	3	4
	Multiplexer - demultiplexer structures (ROM). Programmable logic structures.	3	4
	Time relations. Bistables. Bistable synthesis. Registers, shift registers and counters. Memories (RAM).	3	4
	Discrete finite digital automata. Specification and minimization. Structural synthesis.	6	4
	Programmable automata. Wilkies' model. Microprogramming concept. Algorithms.	3	3
	Automata, grammars and languages taxonomy.	3	0
	Event algebra. Automata specification using regular expressions.	3	4
	List of laboratory or design exercises		LE hours
	Logic gates.		2
	Minimization of Boolean function and circuit realization using logic gates.		2
	Circuit realization using multiplexers and demultiplexers.		2

	Programmable logic structures synthesis (EPROM, GAL).	2
	Bistable synthesis.	2
	Finite automata synthesis using logical gates and bistables.	2
	Finite automata synthesis using programmable logic structures (EPROM, GAL). Turing machine simulation.	2

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	Attend all forms of teaching, pass ingress and egress tests, perform 100% laboratory exercises, pass preliminary exams or full exam (numeric and theory).	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	0,5
	Experimental work		Report		Auditory exercises	1
	Essay		Seminar essay		Individual learning	4
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	Continuous assessment: laboratory tests, practical tests, knowledge tests, preliminary exams. Exam: written and oral (numeric and theory) as unity.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	3. Ožegović, J. Digitalna i mikroprocesorska tehnika, Veleučilište u Splitu, 2002.		Yes
	4. Župan-Tkalić-Kunštić: Logičko projektiranje digitalnih sustava, Školska knjiga, Zagreb, 1984, 1995.		

Optional literature (at the time of submission of study programme proposal)	- Ožegović, J. Digitalna i mikroprocesorska tehnika, upute za laboratorijske vježbe, interna skripta, FESB Split 1995. - Lecture notes: Ožegović, J., Digitalna elektronika, continuously upgraded
Quality assurance methods that ensure the acquisition of exit competences	- Lecture attending evidence - Annual exam passing analysis - Student feedback with teacher evaluation - Teacher self-evaluation - Graduated students feedback
Other (as the proposer wishes to add)	

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="6">ELECTRICAL ENGINEERING</td></tr>
<tr><td>Code</td><td>FENB01</td><td>Year of study</td><td colspan="5">1.</td></tr>
<tr><td>Course teacher</td><td>Slavko Vujević, Ph.D., Full Professor</td><td>Credits (ECTS)</td><td colspan="5">7</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">Dino Lovrić, Ph.D., Research Assistant</td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>45</td><td>0</td><td>30</td><td>0</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Obligatory</td><td>Percentage of application of e-learning</td><td colspan="5">0</td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Training students for:
- understanding and application of basic principles and laws of electrical engineering,
- defining and solving of simple electrical systems,
- acquiring and deepening the knowledge in the field of electrical engineering.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">None</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will be able to:
- define the fundamental phenomena, physical quantities and laws of electrical engineering,
- apply the fundamental laws of electrical engineering in solving of electromagnetic problems,
- apply the methods and techniques for analysing of linear electric circuits,
- mathematically describe simple DC and AC electrical networks,
- analyse simple magnetic circuits,
- measure basic electrical quantities (current, voltage, resistance).</td></tr>
<tr><td rowspan="6">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="4">Course content</td><td>L hours</td><td>AE hours</td></tr>
<tr><td colspan="4">Basic terms. Electrostatics: Coulomb law; electrostatic field; Gauss law; electrical potential and voltage; matter in electrostatic field; electric capacitance and capacitors; electrostatic energy; static electricity.</td><td>9</td><td>6</td></tr>
<tr><td colspan="4">Direct currents: electric circuit; Ohm law, serial and parallel resistors; Kirchhoff laws; electrical energy and power; methods for analysis of direct current circuits.</td><td>9</td><td>6</td></tr>
<tr><td colspan="4">Magnetostatics: basic terms; magnetic circuit; Ampere law, Biot-Savart law; self and mutual inductance; electromagnetic induction; forces in magnetostatic field; magnetostatic energy.</td><td>9</td><td>6</td></tr>
<tr><td colspan="4">Alternating currents: basic terms; phasor representation of time-harmonic voltages and currents; impedance; analysis of linear AC circuits using symbolic method; power and energy; resonance; three-phase systems.</td><td>12</td><td>8</td></tr>
<tr><td colspan="4">Two midterm exams</td><td></td><td></td></tr>
<tr><td>Format of instruction</td><td colspan="3">☒ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="2">☐ independent assignments
☒ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="6">Attendance on lectures in the amount of at least 70 % of the times scheduled.</td></tr>
</table>

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	3	Research		Practical training	
	Experimental work		Report		Individual work	3.7
	Essay		Seminar essay		Laboratory exercises	
	Tests	0.2	Oral exam		Preparation for laboratory exercises	
	Written exam	0.1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterm exams. After two midterm exams, student can pass the entire exam. In the two final exams students take course parts that they did not pass in the preliminary exams. If in the first final exam student passes one of the two course parts, that course part the student does not have to take in the second final exam. The requirement for a positive evaluation of the course part is that the student has completed at least 50 % points from that course part, with the additional condition that the theoretical and numerical parts are passed with at least 20 % points. Theoretical and numerical part of the course parts both contribute 50 % points. After the second final exam, the final grade (in percentage) can be calculated using the formula: Grade (%) = (G1 + G2) / 2 where activities in percentage are: G1 - points from the first course part, G2 - points from the second course part. The final numerical grade is determined after the second final exam, applying the relative ECTS grading system in accordance with the Rules of Study and Study System of the University of Split. Group of students who passed the exam is divided into four sub-groups: the best 15 % are graded excellent (5), next 35 % very good (4), next 35 % good (3) and the last 15 % pass (2). Students who did not pass the entire exam after two final exams can pass the exam in an additional exam. In this exam students take the whole course. The requirement for a positive assessment of the additional exam is that the student has completed at least 50 % points from the entire course, with the additional condition that the theoretical and numerical parts are passed with at least 20 % points. Theoretical and numerical part of the entire course both contribute 50 % points. In accordance with the relative ECTS system of grading, student who passes the exam on the additional examination period gets a positive grade pass (2). Each of the midterm exams consists of ten theoretical questions and two numerical problems. Two final exams and additional exam consist of twenty theoretical questions and four numerical problems.

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Vujević, S., "Predavanja iz Elektrotehnike (120)", Sveučilište u Splitu, FESB, Split, 2014. (lecture notes – electronic version)		e-learning portal
	Jurić-Grgić, I. i Vujević, S., "Auditorne vježbe iz Elektrotehnike (120)", Sveučilište u Splitu, FESB, Split, 2014. (lecture notes – electronic version)		e-learning portal
	Maletić, A., "Osnove elektrotehnike", ELMAP, Split, 1993.	5	

Optional literature (at the time of submission of study programme proposal)	• Pinter, V., "Osnove elektrotehnike - knjiga prva", Tehnička knjiga, Zagreb, 1978. • Pinter, V., "Osnove elektrotehnike - knjiga druga", Tehnička knjiga, Zagreb, 1978.
Quality assurance methods that ensure the acquisition of exit competences	• Evaluation of results in accordance with the above learning outcomes • Feedback from students via surveys • Self-evaluation of teachers • Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	ENGINEERING ECONOMY						
Code	FENB03	Year of study	3.				
Course teacher	Ranko Goić; Ph:D., Full Professor	Credits (ECTS)	4				
Associate teachers	Josip Vasilj, PhD Damir Jakus, Ph.D., Assistant Professor Stipe Vodopija, MSc	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	30	0
Status of the course	Elective	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - understanding and application of basic knowledge of engineering economy and understanding of time value of money, - cost estimation and bill of quantity preparation - analysis of feasibility calculations for investment decisions - evaluation of projects feasibility - preparation of spreadsheet models for decision making
Course enrolment requirements and entry competences required for the course	None
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - describe and apply calculations for compound interest, - describe and apply methods for analysis of investment decisions - prepare terms of reference and key input parameters for feasibility calculation and overall decision making models - design and make spreadsheet models for analysis of feasibility calculation and overall decision making models - design and make spreadsheet models for analysis of alternatives, sensitivity analysis and risk analysis

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours
	Introduction in engineering economy	2
	Theory of costs	2
	Time value of money (1st part - theory)	2
	Time value of money (2nd part - examples)	2
	Methods for calculation of profitability of investments (1st part – theory)	2
	Methods for calculation of profitability of investments (2nd part – theory)	2
	Analysis of alternatives	2
	Analysis of equipment replacement	2
	Decision models	2
	Income taxes and depreciation	2
	Bill of quantity, contracting	2
	Feasibility studies	2
	Sensitivity analysis, risk analysis	2
	Case study (1)	2
	Case study (2)	2
	List of laboratory exercises	LE hours
	Basic spreadsheet models (MS Excel)	2
	Basic of programming in MS Excel	2
	Example of cost analysis (1)	2
	Example of cost analysis (2)	2
	Compound interest calculation (1)	2
	Compound interest calculation (2)	2
	Model for loan repayment	2

	Model for profitability calculation (1)	2
	Model for profitability calculation (2)	2
	Model for analysis of alternatives	2
	Model for analysis of equipment replacement	2
	Model for sensitivity analysis	2
	Model for risk analysis	2
	Model for analysis of profitability with depreciation	2
	Making of BoQ	2

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☒ partial e-learning ☐ field work	☐ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1	Research		Practical training	
	Experimental work		Report		Individual work	1,2
	Essay		Seminar essay		Laboratory exercises	1
	Tests	0,2	Oral exam		Preparation for laboratory exercises	0,5
	Written exam	0,1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	During semester, students are solving colloquiums through homeworks based on additional tasks over the basic spreadsheet models form laboratory exercises. Final exam is possible in three ways: 1. Making of seminar – advanced spreadsheet model 2. Making on spreadsheet model on computer, based on existing model from laboratory exercises (max. grade 4) 3. Making on spreadsheet model on computer, new model (max. grade 5) In 2nd and 3rd option, first possibility to take the exam is during last week of lecturing. After that, there are two final exams. Students who did not pass the entire exam after two final exams can pass the exam in the two additional exams. The requirement for passing grade of the course is at least 50 % in all options of final exam. Grade is formed according to following: • 50 % to 61 % - pass (2) • 62 % to 74 % - good (3) • 75 % to 87 % - very good (4) • 88 % to 100 % - excellent (5)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Goić, R., "Predavanja iz Inženjerske ekonomike", Sveučilište u Splitu, FESB, Split, 2014. (internal script)		e-learning portal
	W.G. Sullivan, J.A. Bontadelli, E.M. Wicks: Engineering economy, Prentice Hall, 1999.	1	-

Optional literature (at the time of submission of study programme proposal)	• W.L.Winston, S.C.Albright: Practical Management Science, Duxbury Press, 2001. • F. Khan, R. Parra: Financing Large Projects: Using Project Finance Techniques and Practices, Pearson Education Asia Pte., 2003. • Lj. Vidučić: Financijski menadžment, RRIF-plus d.o.o., 2002. • http://www.ise.ufl.edu/ein6357/downloads.html

Quality assurance methods that ensure the acquisition of exit competences	• Evaluation of results in accordance with the above learning outcomes • Feedback from students via surveys • Self-evaluation of teachers • Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="6">ENGLISH LANGUAGE 1</td></tr>
<tr><td>Code</td><td>FEOB03</td><td>Year of study</td><td colspan="5">1</td></tr>
<tr><td>Course teacher</td><td>Daniela Matić, Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="5">2</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">/</td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>0</td><td>30</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Mandatory</td><td>Percentage of application of e-learning</td><td colspan="5">0%</td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Training students for:
- developing communicative and social skills necessary in information and communications technologies, primarily in everyday situations and those beyond the limits of their future professional life;
- acquiring and enhancing knowledge on foreign language structures;
- improving English for special purposes knowledge at receptive level (written and oral reception) depending on the course of studies;
- raising awareness of students' own responsibility in learning process.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">None</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will be able to:
- recognize various text types, textual patterns and language activities;
- identify and explain professional vocabulary;
- recognize key ideas, words and sentences;
- find and eventually use grammar structures typical for professional and scientific texts;
- apply various reading and listening methods in order to comprehend the context of authentic general English and professional texts;
- present various topics orally and in written form;
- analyze various professional materials and present them within professional communication procedures.</td></tr>
<tr><td rowspan="17">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="4">Course content</td><td>S hours</td><td>AE hours</td></tr>
<tr><td colspan="4">1. Introduction to the course and requirements; introduction to Instructions and Presentation guide on the e-learning portal
Unit 1 – Living in a digital age</td><td>2</td><td></td></tr>
<tr><td colspan="4">2. Unit 2 - Computer Essentials
Unit 3 - Inside the system</td><td>2</td><td></td></tr>
<tr><td colspan="4">3. Unit 4 - Buying a computer</td><td>2</td><td></td></tr>
<tr><td colspan="4">4. Unit 5 - Type, click and talk!</td><td>2</td><td></td></tr>
<tr><td colspan="4">5. Unit 6 - Capture your favourite image</td><td>2</td><td></td></tr>
<tr><td colspan="4">6. Unit 7 - Display screen and ergonomics</td><td>2</td><td></td></tr>
<tr><td colspan="4">7. Unit 8 - Choosing a printer</td><td>2</td><td></td></tr>
<tr><td colspan="4">8. Mid-term exam</td><td>2</td><td></td></tr>
<tr><td colspan="4">9. Unit 9 - Devices for the disabled</td><td>2</td><td></td></tr>
<tr><td colspan="4">10. Unit 10 - Magnetic storage</td><td>2</td><td></td></tr>
<tr><td colspan="4">11. Unit 11 - Optical storage</td><td>2</td><td></td></tr>
<tr><td colspan="4">12. Unit 12 - Flash memory</td><td>2</td><td></td></tr>
<tr><td colspan="4">13. Unit 13 - The operating system (OS)</td><td>2</td><td></td></tr>
<tr><td colspan="4">14. Unit 14 - Word processing (WP)
Unit 15 - Spreadsheets and databases</td><td>2</td><td></td></tr>
<tr><td colspan="4">15. End-of-term exam</td><td>2</td><td></td></tr>
</table>

<table>
<tr><td>Format of instruction</td><td colspan="6">☐ lectures
☒ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="2">☒ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="8">In order to take an exam and eventually obtain a grade, each student has to fulfill the following requirements:
- minimum class attendance of 70%;
- delivered and positively graded presentation in English before other students during regular classes.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1</td><td>Research</td><td>0.25</td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td>/</td><td>Report</td><td>0.25</td><td>(Other)</td><td></td></tr>
<tr><td>Essay</td><td>/</td><td>Seminar essay</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Tests</td><td>0.5</td><td>Oral exam</td><td>/</td><td>(Other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td>/</td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="8">During regular classes students are supposed to prepare and deliver a presentation on a topic of their choice, which will be graded.
During the semester, students will be continuously assessed as they will take two exams, a mid-term and an end-of term exam. The former will be held in week 8 and the latter in week 15. Both exams will test their knowledge of English ICT lexis from the textbooks and grammar structures specific for their profession. If they fail at either of these exams or do not sit for them, they have to take the final exam scheduled in the examination period after the classes have finished.
The final grade is calculated as follows:
- written exam (mean of mid-term and end-of term exam positive results, or final exam) – 70%
- positively graded presentation – 20%
- regular attendance – 5%
- written assignments (homework) – 5%
All exams are scheduled according to the current academic year calendar.</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="5">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="5">• Esteras, Santiago Remacha (2008). Infotech-English for computer users, fourth edition. Cambridge: Cambridge University Press.</td><td>•</td><td>•</td></tr>
<tr><td colspan="5">• Fitzgerald, P. et al. (2011). English for ICT Studies in Higher Education Studies. Garnet Education: Reading.</td><td>•</td><td>•</td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="8">• Glendinning, Eric H., McEwan, J. (2006). Oxford English for Information Technology. Oxford:OUP.</td></tr>
</table>

Quality assurance methods that ensure the acquisition of exit competences	- Regular class attendance records - Tutorials - Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	/

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="6">ENGLISH LANGUAGE 2</td></tr>
<tr><td>Code</td><td>FEOB04</td><td>Year of study</td><td colspan="5">1</td></tr>
<tr><td>Course teacher</td><td>Daniela Matić, Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="5">2</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">/</td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>0</td><td>30</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Mandatory</td><td>Percentage of application of e-learning</td><td colspan="5">0%</td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Training students for:
- developing communicative and social skills necessary in information and communications technologies, primarily in everyday situations and those beyond the limits of their professional life;
- acquiring and enhancing knowledge on foreign language structures;
- improving English for special purposes knowledge at receptive level (written and oral reception) depending on the course of studies;
- raising awareness of students' own responsibility in learning process.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">None</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will be able to:
- recognize various text types, textual patterns and language activities;
- identify and explain professional vocabulary;
- recognize key ideas, words and sentences;
- find and eventually use grammar structures typical for professional and scientific texts;
- use various reading and listening methods in order to comprehend the context of authentic general English and professional texts;
- present various topics orally and in written form;
- analyze various professional materials and present them within professional communication procedures.</td></tr>
<tr><td rowspan="19">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="4">Course content</td><td>S hours</td><td>AE hours</td></tr>
<tr><td colspan="4">1. Unit 16 - The Internet and email
2. Unit 17 - The Web</td><td>2</td><td></td></tr>
<tr><td colspan="4">3. Unit 18 - Chat and conferencing</td><td>2</td><td></td></tr>
<tr><td colspan="4">4. Unit 19 - Internet security</td><td>2</td><td></td></tr>
<tr><td colspan="4">5. Unit 20 - Graphics and design</td><td>2</td><td></td></tr>
<tr><td colspan="4">6. Unit 21 - Desktop publishing</td><td>2</td><td></td></tr>
<tr><td colspan="4">7. Unit 22 - Multimedia</td><td>2</td><td></td></tr>
<tr><td colspan="4">8. Unit 23 - Web design</td><td>2</td><td></td></tr>
<tr><td colspan="4">9. Mid-term exam</td><td>2</td><td></td></tr>
<tr><td colspan="4">10. Unit 24 - Program design and computer languages</td><td>2</td><td></td></tr>
<tr><td colspan="4">11. Unit 25 - Java</td><td>2</td><td></td></tr>
<tr><td colspan="4">12. Unit 26 - Jobs in ICT</td><td>2</td><td></td></tr>
<tr><td colspan="4">13. Unit 27 - Communication systems</td><td>2</td><td></td></tr>
<tr><td colspan="4">14. Unit 28 - Networks
15. Unit 29 - Video games</td><td>2</td><td></td></tr>
<tr><td colspan="4">16. Unit 30 - New technologies</td><td>2</td><td></td></tr>
<tr><td colspan="4">17. End-of-term exam</td><td>2</td><td></td></tr>
</table>

<table>
<tr><td>Format of instruction</td><td colspan="6">☐ lectures
☒ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="2">☒ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="8">In order to take an exam and eventually obtain a grade, each student has to fulfill the following requirements:
- minimum class attendance of 70%;
- delivered and positively graded presentation in English before other students during regular classes.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1</td><td>Research</td><td>0.25</td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td>/</td><td>Report</td><td>0.25</td><td>(Other)</td><td></td></tr>
<tr><td>Essay</td><td>/</td><td>Seminar essay</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Tests</td><td>0.5</td><td>Oral exam</td><td>/</td><td>(Other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td>/</td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="8">During regular classes students are supposed to prepare and deliver a presentation on a topic of their choice, which will be graded.
During the semester, students will be continuously assessed as they will take two exams, a mid-term and an end-of term exam. The former will be held in week 8 and the latter in week 15. Both exams will test their knowledge of English ICT lexis from the textbooks and grammar structures specific for their profession. If they fail at either of these exams or do not sit for them, they have to take the final exam scheduled in the examination period after the classes have finished.
The final grade is calculated as follows:
- written exam (mean of mid-term and end-of term exam positive results, or final exam) – 70%
- positively graded presentation – 20%
- regular attendance – 5%
- written assignments (homework) – 5%
All exams are scheduled according to the current academic year calendar.</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="5">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="5">• Esteras, Santiago Remacha (2008). Infotech-English for computer users, fourth edition. Cambridge: Cambridge University Press.</td><td></td><td></td></tr>
<tr><td colspan="5">• Fitzgerald, P. et al. (2011). English for ICT Studies in Higher Education Studies. Garnet Education: Reading.</td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="8">• Glendinning, Eric H., McEwan, J. (2006). Oxford English for Information Technology. Oxford:OUP.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="8">- Regular class attendance records
- Tutorials
- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="8">/</td></tr>
</table>

NAME OF THE COURSE	INTERNET PROGRAMMING							
Code	FELB13	Year of study	3					
Course teacher	Maja Štula, Ph.D., Full Professor	Credits (ECTS)	6					
Associate teachers	Josip Maras, Ph.D.	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45			30		
Status of the course	Obligatory	Percentage of application of e-learning	20%					

COURSE DESCRIPTION

Course objectives	Training students for: - Internet functioning, structure and possibilities with special emphasis on web - Understanding Internet at all levels of Internet - Understanding web applications both on a client and server side - Acquiring knowledge on different web application development technologies - Acquiring basic knowledge necessary for basic web application development
Course enrolment requirements and entry competences required for the course	Knowing at least one programming language Basic programming knowledge (algorithms and data structures) Computer engineering basic knowledge
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Explain Internet functioning and structure - Explain Internet communication protocols especially HTTP - Describe Internet and web application functioning - Present basic web technologies - Identify web application structure - Choose technology suitable for particular web application development - Develop simple web application both on a client and server side

Course content broken down in detail by weekly class schedule (syllabus)

Course content	L hours	AE hours
Internet definition, architecture, history of Internet and web, usage and development	3	0
Communication protocols, network model, model level part, network services, network process unique identification, computer identification, basics of data, network and transport protocols	3	0
Application level protocols, Telnet, DNS, DNS servers organisation, computer name formant, DNS resolver	3	0
HTTP protocol, HTTP message format, HTTP request, response, HTTP headings, status code, URI standard for unique information resource addressing on Internet, HTTP methods, conditional, partial GET, MIME standard	8	0
Markup languages, SGML, HTML, W3 consortium, DTD, HTML links, colour and size definition in HTML, XHTML, CSS	3	0
DHTML, Document Object Model, DOM parts, layout engine, HTML DOM, XML DOM, XML	6	0
JavaScript basics, Ajax	6	0
Web application development, server oriented technologies	3	0
Web hosting service, PHP introductions, database in web application	6	0
ASP.NET and Java Servlet basics	4	0
List of laboratory or design exercises		LE hours
Setting up simple web page		2
HTML, CSS basics		2
Advanced HTML, CSS		2
JavaScript basics		2
JavaScript application building		2

	jQuery	3
	PHP basics	2
	PHP debugging with Eclipse	2
	JSON data formatting	2
	Ajax and PHP	3
	PHP sessions	3
	PHP form data processing	2
	PHP with MySQL data base	3

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☒ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed and uploaded on e-learning portal all required laboratory exercises and home works.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3	Research	0,5	Practical training	1
	Experimental work		Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests	0,5	Oral exam	0,5	(Other)	
	Written exam	0,5	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams duration of 90 minutes. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 10 theoretical questions and final tests consist of 10 theoretical questions (five from each midterm test). In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is 50 % points on each midterm exam or the final exam and positive laboratory assessment. Grade (in percentage) is formed according to the formula: Grade(%) = 0,2 LV + 0,4 (M1 + M2) the activities in percentage: • NP - attendance at lectures, • LV – laboratory assessment, • M1, M2 – test results.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	M. Štula, Authorized lecture materials		e-learning portal

Optional literature (at the time of submission of study programme proposal)	- Goodman, D. Dynamic HTML: The Definitive Reference 2nd Edition, O'Reilly, 2002. - Welling, L., Thomspon L., PHP and MySQL Web Development 2nd Edition, Sams Publishing, 2003. - Essential ASP.NET with Examples in C#, Fritz Onion, Addison Wesley
Quality assurance methods that ensure the acquisition of exit competences	- Students' surveys for teacher evaluation - Students attendance track - Annual statistic on passed exam
Other (as the proposer wishes to add)	Feedback from potential employers on students employability

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="6">INTRODUCTION TO COMPUTERS AND PROGRAMMING</td></tr>
<tr><td>Code</td><td>FELB01</td><td>Year of study</td><td colspan="4">1.</td></tr>
<tr><td>Course teacher</td><td>Mirjana Bonković, Ph.D., Full Professor
Ana Kuzmanić Skelin, Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="4">7</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>45</td><td>0</td><td>0</td><td>30</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Obligatory</td><td>Percentage of application of e-learning</td><td colspan="4">0</td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Training students:
- to develop an understanding of basic computer architecture
- to understand numbering systems and data presentation
- to be familiar with concept of data presentaiton in the computer's memory,
- to understand semantic structures that build the program code,
- to understand techniques of programming in C</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6"></td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will be able to:
- Define areas of computing and the role of the algorithm as the basis of computers' functionality
- Describe the principles of storing various data types in the computer memory and illustrate the process with concrete examples
- Define and apply the role of the operators, the meaning and the way of expression coding
- Implement the basic semantic structures: assignment, branching, and repeatition (loops) for simple problem solving
- Define the algoriths and software solutions for given problems using C language.</td></tr>
<tr><td rowspan="12">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5">Course content</td><td>L hours</td></tr>
<tr><td colspan="5">Introduction: History of computing.</td><td>2</td></tr>
<tr><td colspan="5">Number systems. The binary representation of data.</td><td>2</td></tr>
<tr><td colspan="5">Development of the programming languages. The notion of abstraction. The concept of the algorithm.</td><td>2</td></tr>
<tr><td colspan="5">Storing the integer and the real numbers, characters and instructions. Data types, constants, variables.</td><td>6</td></tr>
<tr><td colspan="5">Arithmetic, logical, relational and bitwise expressions and operators.</td><td>4</td></tr>
<tr><td colspan="5">Sequential execution, branching and looping.</td><td>4</td></tr>
<tr><td colspan="5">Sequences. Debugging techniques.</td><td>4</td></tr>
<tr><td colspan="5">Using Arrays.</td><td>6</td></tr>
<tr><td colspan="5">Using functions. The block structure of the program. Modules.</td><td>6</td></tr>
<tr><td colspan="5">Development of the algorithm. Problem solving techniques. Flowchart. Gradually improving. A simple numerical examples.</td><td>3</td></tr>
<tr><td colspan="5">Programming of the frequently used algorithms: sorting, matrix multiplication, rearranging the spreadsheet elements</td><td>6</td></tr>
</table>

	List of laboratory or design exercises	LE hours
	The binary representation of data. Data formats.	4
	The basic structure of C programs.	4
	Expressions. Operators.	4
	The basic programming structures: sequence, iteration, loop. Simple examples.	4
	Arryas.	4
	Functions in C.	4
	Typical examples.	6

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☒ multimedia ☒ laboratory ☒ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	2,5	Research		Practical training	
	Experimental work		Report		Individual work	1,7
	Essay		Seminar essay		Laboratory exercises	1
	Tests	0,4	Oral exam		Preparation for laboratory exercises	1
	Written exam	**0,4**	Project		(Other)	

Grading and evaluating student work in class and at the final exam	During the semester there are two midterm exams. The first midterm exam is after 7 weeks of lectures and the second one is after 13 weeks of lectures (in a form of presentation and defense of the project assignment). Each midterm test (as well as the final test) is carried out in a written format with duration of 90 minutes. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on average midterm exam ((M1 + M2)/2) or the final exam. Students are allowed to have at least 45% of total points on each midterm exams, as long as the final midterm average is at least 50% of total points. Grade (in percentage) is formed according to the formula: Grade(%) = 0,2L + 0,4M1 + 0,4M2 where: • L – laboratory assessment, • M1, M2 – midterm test results. According to Article 65. of Faculty's Bylaw, student is required to participate in all teaching activities attending at least 70% of lectures, and 100% of laboratory exercises. If student does not meet these criteria, she or he won't be able to take part in the final exam, and will be required to enroll in the course the next year.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	• M. Bonković, R. Goić i ost.: Introduction to computers and programming (internal book In croatian), 2010		e-learning
	• Ivo Mateljan: Programming with C language, internal book in Croatian, FESB, 2005	5	

Optional literature (at the time of submission of study programme proposal)	• J. Glenn Brookshear: Computer Science: An Overview, Addison Wesley, 2004 • Tannenbaum, S. Structured Computer Organisation., Prentice-Hall, Englewood Cliffs, N.J., 1990.
Quality assurance methods that ensure the acquisition of exit competences	• Keeping records of student attendance. • Annual analysis of course statistics in terms of midterm and finals exams. • Feedback from students via surveys. • Teacher self-evaluation. • Feedback from graduated students (or senior students) on course content relevance. • Periodic institutional evolution of course teachers.
Other (as the proposer wishes to add)	

NAME OF THE COURSE	INTRODUCTION TO DISTRIBUTED INFORMATION SYSTEMS							
Code	FELB15	Year of study	3					
Course teacher	Ljiljana Šerić. Ph.,D., Assistant Professor	Credits (ECTS)	5					
Associate teachers	Maja Braović, Ph.D.	Type of instruction (number of hours)	L	S	AE	LE	DE	
			30	0	0	30	0	
Status of the course	Obligatory	Percentage of application of e-learning	30					

COURSE DESCRIPTION

Course objectives	Training students for: • Distinguish basic types of distributed systems • Know the Basic concepts and technologies for building distributed system • Problems and ways of dealing with problems emerging in the construction of distributed systems
Course enrolment requirements and entry competences required for the course	Completed courses: Object-oriented programming, Algorithms Data structures
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After successfully mastering the subject the students will be able to: 1. Define distributed systems, list the type of distributed systems and describe the differences 2. Classify architectures of distributed systems 3. Describe the performance steps od multi-process and multi-threaded applications 4. Design and implement a simple distributed system in which components communicate using Socket technology, RPC, RMI and Web services 5. Describe naming mechanisms in distributed systems 6. Describe algorithms for synchronization of distributed systems

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Distributed Information Systems, definitions, objectives, characteristics, types of distributed systems	2	
	The architectures of distributed systems: client-server, P2P, distributed objects architecture, centralized, decentralized, hybrid, cloud arhiektura	2	
	The processes and threads, process states	2	
	The processes of the client and the server. Virtualization	2	
	Communication mechanisms. Interprocess communication (IPC System V IPC)), network communication (Socket, RPC, message oriented models, straming, multicast)	2	
	Sockets, definitions, data preparation. NBO	2	
	Sockets, implementation, C, C #, Java	2	
	RPC	2	
	ORPC (DCOM, RMI, CORBA)	2	
	Message-oriented distributed systems	2	
	Web services, SOAP, REST, XML RPC	2	
	Naming and name resolution	2	
	Process synchronization, time synchronization. UTC, a logical clock, the vector clock	2	

	List of laboratory or design exercises	LE hours
	POSIX threads	2
	C ++ thread library	2
	Socket applications in the programming languages C, C # and Java	6
	RPC applications in C.	4
	RMI applications in Java	4
	DCOM applications in the C-in	2
	Web service in PHP	4
	Compensation of missed exercises	2

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	2	Research		Practical training	
	Experimental work		Report		Individual work	2
	Essay		Seminar essay		Laboratory exercises	0,5
	Tests		Oral exam		Preparation for laboratory exercises	0,5
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	During the semester there will be two written mid-term exams, an oral exam and a final exam. The first mid-term exam will be held in the eighth week of classes, and the other after the end of classes, after which oral exam will be organized. At the oral exam only those students who achieved a total of at least 45% points from tests will participate. Oral exam corresponds to the material of the entire semester. At the final exam students can take only parts of material that they did not pass in the mid-term exams. The requirement for a passing grade of the course is at least 50% points of the total number of points. Rating (%) = ((M1 + M2) / 2 + U) / 2 M1, M2 - points to the mid-term expressed as a percentage. U - the number of points on the oral exam in% The final grade is determined as follows: Percentage Rating 50% to 61% is sufficient (2) 62% to 74% good (3) 75% to 87% of very good (4) 88% 100% Excellent (5) Each pre-exam consists of 10 questions, a final exam consists of 15. Student are required to achieve at least 50% of points of the total number of questions to pass the exam.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• Andrew S. Tanenbaum, Maarten van Steen: Distributed Systems, Principles and Paradigms, 2007 Pearson Education	1	no
	• Lj.Šerić, M.Štula , Uvod u distribuiranie informacijske sustave, predavanja, FESB		e-learning portal
	• M.Braović, upute za laboratorijske vježbe		e-learning portal
Optional literature (at the time of submission of study programme proposal)	Cameron Hughes, Tracey Hughes: Parallel and Distributed Programming Using C++, Addison Wesley 2003 Tom Barnaby: Distributed .NET Programming in C#, Apress 2002 Ajay D. Kshemkalyani, Mukesh Singhal: Distributed Computing, Principles,Algorithms, and Systems, Cambridge University Press 2008		
Quality assurance methods that ensure the acquisition of exit competences	• Keeping records of the class attendance • Annual review of the performance of exam • Student survey in order to evaluate teachers • Self-evaluation of teachers • Feedback from students who have already graduated from about the relevance of the course content		
Other (as the proposer wishes to add)			

FELB21	Introduction to embedded systems - GOTOVAC (Osnove ugradbenih računalnih sustava)

NAME OF THE COURSE	MATHEMATICS 1						
Code	FEMX01	Year of study	1				
Course teacher	Ivan Slapničar, Ph.D., Full Professor, Anita Matković, Ph.D., Associate Professor, Josipa Barić, Ph.D., Assistant Professor	Credits (ECTS)	7				
Associate teachers	Ph.D. Nevena Jakovčević Stor, Irena Bego, Anita Carević, Marija Čatipović, Lea Dujić, Ivana Grgić, Lana Periša, Marina Mandić, Dajana Radišić, Mirjana Strukan, Stjepan Vedran Vukasović, Vanja Županović.	Type of instruction (number of hours)	L	S	AE	LE	DE
			45		45		
Status of the course	Obligatory	Percentage of application of e-learning	10				

COURSE DESCRIPTION

Course objectives	Training students for: - application of mathematical concepts and tools from the area of linear algebra, vector calculus, analytic geometry, diferential calculus, analysis of real functions of real variable, sequences and series of numbers and functions, to solving engineering problems.		
Course enrolment requirements and entry competences required for the course	Good knowledge of High School mathematics and passed State Exam in Mathematics.		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - state definitions and theorems from the enitre course, - reproduce proofs of basic theorems, - illustrate theorems with examples, - solve systems of linear equations, - apply vector calculus to analytical geometry of space, - interpret derivatives mathematically, geometrically and physically, - analyse functions of one variable, - test convergence of sequences and series of numbers and functions.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L or S hours	AE hours
	1. Introduction. Relations. Functions. Sets of numbers, complex numbers, trigonometric form of complex number, Moivre formulas.	3	3
	2. Matrices. Basic operations with matrices. Matrix formulation of system of linear equations. Gaussian elimination. Linear independence and rank of a matrix. Kronecker-Capelli theorem.	3	3
	3. Inverse matrix. Determinants. Submatrices and subdeterminants. Laplace expansion of a determinant. Cramer's rule.	3	3
	4. Vectors. Basic operations with vectors. Coordinate system. Unit vector and cosines of directions. Linear independence of vectors and basis of a space. Scalar (dot) product, vector product and mixed product.	3	3
	5. Equations of a line. Equations of a plane. Applications of analytic geometry.	3	3
	6. Functions of a real variable: defining function, classification of functions. Limits and continuity. Asymptotes. Review of	3	3

	elementary functions.		
	7. Derivatives. Tangent and normal. Differential and approximate computation.	3	3
	8. Higher derivatives and differentials. Derivatve of a parametric function. Theorems of differential calculus (Fermat, Rolle, Cauchy, Lagrange). L'Hospital's rule and limits of undetermined forms.	3	3
	9. Monotonicity. Necessary and sufficient conditions for extrema. Geometrical extrema.	3	3
	10. Curvature. Sufficient condition for convexity and concavity. Necessary and sufficient conditions for inflection points. Examining functions and drawing graphs.	3	3
	11. Sequences of real numbers. Basic inequality of convergence. Accumulation point and sub-sequence. Boundedness, monotonicity and convergence. Properties of limits. Cauchy series. Some important limits.	3	3
	12. Series of real numbers. Sufficient condition for convergence. Convergence criteria. Absolute convergence. Alternating series.	3	3
	13. Sequences of functions. Series of functions. Power series and convergence radius. Differentiating series of functions. Taylor series and applications.	3	3
	List of laboratory or design exercises		LE or DE hours

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	3	Research		Practical training	
	Experimental work		Report		Self study	3.6
	Essay		Seminar essay		(Other)	
	Tests	0.2	Oral exam		(Other)	
	Written exam	0.2	Project		(Other)	

Grading and evaluating student work in class and at the final exam	During semester two mid-term exams are held. The first exam is scheduled after 7 weeks of lectures, and the second in the week following the lectures. At each mid-term exam students can get 40 points, while the remaining 20 points are attained through assignements during lectures and excercises. The condition for passing the course is minimum 20 points on each mid-term exams and a total of at least 50 points. After semester, two final exams and a correction exam are held. Students which did not pass one mid-term exam, can take only this part of the exam during final exams. Student which did not pass any mid-term exam, take the final exam with comprehensive course content. In that case, masimum numbers of available points is 80. The condition for passing the course is minimum 40 points in the final exam and a total of at least 50 points. The grade is formed after the second final exam according to article 75 of the Statute of FESB: 15% of the best students get the mark excellent (5), next 35% students get the mark very good (4),

<table>
<tr><td></td><td colspan="3">next 35% students get the mark good (3), and
the last 15% students get thet mark sufficient (2).

Students who did not pass the course after final exams, and have obtained total of at leat 10 points, can attend the correction exam. On the correction exam maximal number of points is 100, and the minimum requirement for a passing grade is 50 points.

Mid-term exams, final exams and correction exams are held according to the exam schedule.</td></tr>
<tr><td rowspan="6">Required literature (available in the library and via other media)</td><td>Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td>I. Slapničar, Matematika 1, FESB, Split, 2002.</td><td>20</td><td>http://www.fesb.unist.hr/mat1</td></tr>
<tr><td>I. Slapničar, J. Barić, M. Ninčević, Matematika 1 – zbirka zadataka, FESB, Split, 2010.</td><td>20</td><td>http://www.fesb.unist.hr/mat1</td></tr>
<tr><td>Lecture materials on FESB e-learning portal.</td><td></td><td>httpd://elearning.fesb.unist.hr</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="3">- Petar Javor, Matematička analiza 1, Element, Zagreb, 2001.
- Luka Krnić i Zvonimir Šikić, Račun diferencijalni i integralni, I. dio, Školska knjiga, Zagreb, 1993.
- S. Pavasović i ostali, Matematika - riješeni zadaci, Građevinski fakultet, Split, 1999.
- B. P. Demidovič, Zadaci i riješeni primjeri iz više matematike s primjenom na tehničke nauke, Tehnička knjiga, Zagreb, 1995.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="3">- homework
- short tests
- quizzes
- mid-term exams
- final exam
- student questionnaires</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="3"></td></tr>
</table>

<table>
<tr><td>NAME OF THE COURSE</td><td colspan="6">MATHEMATICS 2</td></tr>
<tr><td>Code</td><td>FEMX02</td><td>Year of study</td><td colspan="5">1</td></tr>
<tr><td>Course teacher</td><td>Ivan Slapničar, Ph.D., Full Professor
Anita Matković, Ph.D., Associate Professor
Josipa Barić, Ph.D., Assistant Professor</td><td>Credits (ECTS)</td><td colspan="5">7</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">Ph.D. Nevena Jakovčević Stor, Irena Bego, Anita Carević, Marija Čatipović, Lea Dujić, Ivana Grgić, Lana Periša, Marina Mandić, Dajana Radišić, Mirjana Strukan, Stjepan Vedran Vukasović, Vanja Županović.</td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>AE</td><td>LE</td><td>DE</td></tr>
<tr><td>45</td><td></td><td>45</td><td></td><td></td></tr>
<tr><td>Status of the course</td><td>obligatory</td><td>Percentage of application of e-learning</td><td colspan="5">10</td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Training students for:
- application of mathematical concepts and tools from the area of integral calculus, ordinary differential equations, functions of several variables and multiple integrals, to analyze and solve engineering problems.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">Good knowledge of High School mathematics and passed State Exam in Mathematics.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will be able to:
- state definitions and theorems from the enitre course,
- reproduce proofs of basic theorems,
- illustrate theorems with examples,
- identify integrals which are elementary integrable and solve them.
- solve ordinary differential equations and systems of differential equations.
- apply differential equations to model population growth, heat conduction, the oscillator and the predator-prey system.
- identify quadratic surfaces
- analyze the extrema of real functions of several variables.
- apply a single and multiple definite integrals to computation of area, curve length, volume and center of gravity in the standard coordinate systems.</td></tr>
<tr><td rowspan="6">Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="4">Course content</td><td>L or S hours</td><td>AE hours</td></tr>
<tr><td colspan="4">1. Indefinite integrals. Definition and basic properties. Table of basic integrals. Basic techniques of integration.</td><td>3</td><td>3</td></tr>
<tr><td colspan="4">2. Integration of rational functions. Integration of trigonometric functions. Recursive formulae.</td><td>3</td><td>3</td></tr>
<tr><td colspan="4">3. Integration of some irrational functions. Integrating a series of functions. Application of integrals to free fall with air resistance problem.</td><td>3</td><td>3</td></tr>
<tr><td colspan="4">4. Definite integrals. Definition and basic properties. Newton-Leibnitz formulae. Techniques of integration. Improper integrals.</td><td>3</td><td>3</td></tr>
<tr><td colspan="4">5. Application of definite integrals - the length of arc planar curve, volume and surface area of the rotating body. Numerical integration – trapezoid rule, Simpson’s rule, Richardson extrapolation.</td><td>3</td><td>3</td></tr>
</table>

	6. The functions of several variables. Definition and basic properties. Domain of the function. Limits and continuity. Quadratic surfaces.	3	3
	7. Partial derivatives. Differentiability. Tangent plane. Extrema of functions of several variables. Conditional extrema.	3	3
	8. Multiple integrals. Basic concepts and definitions. Double integral. Double integral in polar coordinates. Applications of double integral.	3	3
	9. Triple integral. Triple integral in cylindrical and spherical coordinates. Change of variables in multiple integrals.	3	3
	10. Introduction to Differential Equations. Basic concepts and definitions. Examples: modeling population growth, logistic equation, equation of heat conduction, Hooke's law. Equations with separable variables.	3	3
	11. Homogeneous differential equations. Exact differential equations. Integration factor. Linear differential equations of the first order.	3	3
	12. Bernoulli differential equation. Euler method as numerical procedure for solving linear differential equations. Differential equations of second order.	3	3
	13. Linear differential equations of second order with constant coefficients. Example: electronic circuits - harmonic oscillator. Systems of differential equations. Lotka-Volterra equations for predator-prey system.	3	3
	List of laboratory or design exercises		LE hours

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3	Research		Practical training	
	Experimental work		Report		Self study	3.6
	Essay		Seminar essay		(Other)	
	Tests	0.2	Oral exam		(Other)	
	Written exam	0.2	Project		(Other)	

Grading and evaluating student work in class and at the final exam	During semester two mid-term exams are held. The first exam is scheduled after 7 weeks of lectures, and the second in the week following the lectures. At each mid-term exam students can get 40 points, while the remaining 20 points are attained through assignements during lectures and excercises. The condition for passing the course is minimum 20 points on each mid-term exams and a total of at least 50 points. After semester, two final exams and a correction exam are held. Students which did not pass one mid-term exam, can take only this part of the exam during final exams. Student which did not pass any mid-term exam, take the final exam with comprehensive course content. In that case, maximum numbers of available points is 80. The condition for passing the course is minimum 40 points in the final exam and a total of at least 50 points. The grade is formed after the second final exam according to article 75 of the Statute of FESB: 15% of the best students get the mark excellent (5),

<table>
<tr><td></td><td colspan="3">next 35% students get the mark very good (4),
next 35% students get the mark good (3), and
the last 15% students get thet mark sufficient (2).

Students who did not pass the course after final exams, and have obtained total of at least 10 points, can attend the correction exam. On the correction exam maximal number of points is 100, and the minimum requirement for a passing grade is 50 points.

Mid-term exams, final exams and correction exams are held according to the exam schedule.</td></tr>
<tr><td rowspan="6">Required literature (available in the library and via other media)</td><td>Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td>I. Slapničar, Matematika 2, skripta, FESB, Split</td><td></td><td>http://www.fesb.unist.hr/mat2</td></tr>
<tr><td>Lecture materials on FESB e-learning portal.</td><td></td><td>https://elearning.fesb.unist.hr</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="3">- Petar Javor, Matematička analiza 2, Element, Zagreb, 2000.
- Luka Krnić i Zvonimir Šikić, Račun diferencijalni i integralni, I. dio, Školska knjiga, Zagreb, 1993.
- B. P. Demidovič, Zadaci i riješeni primjeri iz više matematike s primjenom na tehničke nauke, Tehnička knjiga, Zagreb, 1995.
- Dž. Lugić, Matematika II: metodički riješeni zadaci i kratki pregled definicija i teorema, FESB, 1999.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="3">- homework
- short tests
- quizzes
- mid-term exams
- final exam
- student questionnaires</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="3"></td></tr>
</table>

NAME OF THE COURSE	OBJECT ORIENTED PROGRAMMING							
Code	FELB02	Year of study	2					
Course teacher	Ivo Mateljan, Ph.D., Full Professor Marjan Sikora, Ph.D., Assistant Professor	Credits (ECTS)	7					
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE	
			45			30		
Status of the course	Obligatory	Percentage of application of e-learning	30					

COURSE DESCRIPTION

Course objectives	Training students for: - programming with C++ language, - understanding the principles of object oriented programming
Course enrolment requirements and entry competences required for the course	Competences from the first year of study.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	On completion of the course, students should, regarding C++ language, be able to: - explain the concept of namespace, scope and lifetime - explain difference between object based and object oriented programming - explain the polymorphism - use fundamental STL classes: string, vector, list - use the facilities in the "iostream" to provide user and file i/o in programs - use the exception handling mechanism - use Microsoft Visual Studio, to make programs with GUI, with MFC classes

Course content broken down in detail by weekly class schedule (syllabus)

Course content	L hours	AE hours
Introduction to class. Object based and object oriented programming.	3	
Structural programming, functions and primitive data types. Pointers and references.	3	
Operators, type conversion, variable scope and lifetime.	3	
Classes and objects.	3	
Class abstraction, interface and implementation.	3	
Recapitulation and preparation for mid-term.	3	
Operator overloading.	3	
Streams and file operations.	3	
Generic programming and templates. Strings.	3	
Inheritance and STL library.	3	
Polymorphism.	3	
Exception handling. Multithreading.	3	
Recapitulation and preparation for exam	3	

List of laboratory or design exercises	LE hours
Compilation, debugging, functions	2
Overloaded functions, pointers and references.	2
Operators, type conversion, scope and lifetime of memory objects.	2
Classes an objects I	2
Classes an objects II	2
Dynamic memory allocation, operator overloading	2
Streams and file operations	2

	Strings	2
	Templates	2
	Inheritance	2
	Polymorphism	2

Format of instruction	☒ lectures ☒ seminars and workshops ☒ exercises ☐ *on line* in entirety ☒ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☒ laboratory ☒ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3	Research	1	Practical training	
	Experimental work		Report		Team work	
	Essay		Seminar essay		(Other)	
	Tests	1	Oral exam		(Other)	
	Written exam		Project	2	(Other)	

Grading and evaluating student work in class and at the final exam	Grade (%) = 0,15L + 0,15P + 0,35(M1 + M2) Two mid-term exams (M); Laboratory (L); Project (P)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	• Ivo Mateljan: OOP, lecture notes, FESB, 2001.		
	• Stroustrup, B., The C++ programming Language, Adison Wesley, 1986.		

Optional literature (at the time of submission of study programme proposal)	• Owen L. Astrachan, Computer Science Tapestry, McGrawHill 2000.
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	OPERATING SYSTEMS							
Code	FELB10	Year of study	3					
Course teacher	Sven Gotovac, Ph.D., Full Professor	Credits (ECTS)	7					
Associate teachers	Petra Lončar, Teaching Assistant	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45			30		
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION

Course objectives	Training students for: 1. Understand the architecture, complexity and functionality of the operating system. 2. Understand the methodology of implementing operating system functionalities. 3. Apply and use the functionality of the operating systems in their solutions. 4. Estimate which solutions are appropriate for particular applications.		
Course enrolment requirements and entry competences required for the course	Computer Architecture Data Structures Algorithms		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: 1. Understand and explain the operating system architecture and functionality. 2. Distinguish the functionality of the operating system 3. Understand and explain how individual functionalities are solved. 4. Evaluate the performance of individual solutions 5. Choose appropriate solutions for a particular application 6. Use appropriate solutions in their own applications		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction to the course, Brief description of topics to be considered, Operating system tasks.	3	
	Process Management, Process Definition, Process Descriptor Block, Process States, Context Switch.	3	
	Implementation of Process Management Systems, Process State Management, CPU Scheduling Algorithms.	3	
	Cooperating Processes, Process Synchronization. Producer-Consumer Problem.	3	
	Test&Set Instruction, Mutex, Semaphores. Producer-Consumer Problem Solution by Semaphores.	3	
	Deadlock Problem. Possible Solutions.	3	
	Memory management system – Introduction to topic.	3	
	Logical vs. Physical Address Space. Logical Address Space Creation.	3	
	Paging	3	
	Virtual Memory.	3	
	I/O Subsystem Architecture	3	
	Interrupt Driven I/O. DMA.	3	
	File Subsystem.	3	
	Disk Block Allocation.	3	
	Real Time Operating Systems.	3	
	List of laboratory or design exercises		LE hours
	Introduction to Linux OS		2
	Linux OS Processes		2

	Linux Processes - Fork Command	2
	Linux processes - communication with pipelines	2
	Windows OS Multitasking	2
	Write multi-tasking programs for the Windows platform	2
	Write multi-threading programs for the Windows platform	2
	Time control of thread execution within the process	2
	Thread Sync Synchronization (Intro, Event)	2
	Synchronization of thread execution (mutex, semaphores)	2
	Java multithreading	2
	Windows interprocess communication	2
	OS on a virtual machine	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	
	Experimental work		Report		Laboratory exercises	1
	Essay		Seminar essay		Preparation for laboratory exercises	1,5
	Tests		Oral exam		Self-study	**3**
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam

There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test lasts 60 minutes and consists of 5 to 7 theoretical questions and numerical problems and final tests consist of 6 theoretical questions and numerical problems. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula:

Grade(%) = 0,33 LV + 0,33 (M1 + M2)

the activities in percentage:

- LV – laboratory assessment,
- M1, M2 – test results.

The final grade will be determined after the first test term by applying a relative ECTS grading system in accordance with the Regulations on the study and study system of the University of Split. The group of students who passed the exam is divided into four groups: 15% of the best gets the grade A (excellent), 35% of the following B (very good), the next 35% rating C (good), and the last 15% rating D, E). A group of students who did not pass the exam gains FX score (additional work is required), or F (significant additional work is required). In accordance with the Rulebook for Exam, only two exam periods are organized in the exam period after the completion of classes.

According to Article 65 of the Statute of the Faculty, the student is obliged to participate in all forms of teaching and attend: lectures at least 70% of teaching hours and laboratory exercises 100% of teaching hours. If you do not meet these conditions, the student will not be able to access the exam

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• Tanenbaum, A.S.: Woodhull, A.S.: Operating Systems: Design and Implementation, (3rd Edition) Prentice Hall, 2006.	2	Electronic copy on e-learning
	• S.Gotovac Autorizirana predavanja iz Operacijskih sustava		e-learning
Optional literature (at the time of submission of study programme proposal)	Stalings, W.: Internals and Design Principles (7th Edition), 2011.		
Quality assurance methods that ensure the acquisition of exit competences	1. Class attendance records. 2. Evaluation of results in accordance with the above learning outcomes 3. Feedback from students via surveys 4. Self-evaluation of teachers 5. Feedback from students who have already graduated. 6. Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	PHYSICS 1						
Code	FEMB03	Year of study	1				
Course teacher	Ivica Puljak, Ph.D., Full Professor Nikola Godinović, Ph.D., Associate Professor Ilja Doršner, Ph.D., Associate Professor, Damir Lelas, Ph.D., Assistant Professor	Credits (ECTS)	7				
Associate teachers	Dunja Polić, Ivica Sorić, Toni Šćulac, Darko Zarić, Toni Vrdoljak	Type of instruction (number of hours)	L	S	AE	LE	DE
			45	0	30	0	0
Status of the course	Obligatory	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - uderstanding of basic laws of classical physics; - ability to apply laws of classical physics to real-life problems.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define fundamental physical variables and laws of classical physics; - calculate position of a point-like particle while it moves with i) constant velocity, ii) constant acceleration, iii) constant angular velocity and iv) constant angular acceleration; - apply laws of classical physics to evaluate trajectory of a point-like particle under the influence of external forces; - apply relevant laws of conservation to the elastic and inelastic collisions; - analyse simple systems of point-like particles and calculate coordinates of associated centers of mass; - explain laws of thermodynamics and associated fundamental physical quantities; - describe how the refrigerators and heat pumps work; - apply laws of thermodynamics to calculate work of circular thermodynamic processes.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introductory lecture. About physics. Dimensions and measurement of physical quantities. Scalars and vectors.	3	2
	Kinematics of point-like particles. Constant velocity motion. Motion along straight line with variable velocity. Constant acceleration motion. Free fall.	3	2
	Rotational motion with constant or arbitrary angular velocity. Projectile motion. Arbitrary two-dimensional motions.	3	2
	Particle dynamics. Mass and force. Newton's laws of motion. Momentum and impulse. Law of momentum conservation.	3	2
	Particle dynamics. Point-like particle system. Center of mass. Friction. Centripetal force.	3	2
	Statics. Rotations.	3	2
	Work. Energy. Law of energy conservation. Power. Collisions.	3	2
	Inertial and non-inertial systems. Gravity.	3	2

	Fluid statics. Fluid dynamics.	3	2
	Heat and temperature.	3	2
	Thermodynamical processes. First law of thermodynamics.	3	2
	Thermodynamical work. Second law of thermodynamics. Carnot's cycle. Entropy. Refregerator and heat pump.	3	2
	Kinetic-molecular theory of heat.	3	2
	List of laboratory or design exercises		LE or DE hours

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3,0	Research		Practical training	
	Experimental work		Report		Individual work	3,6
	Essay		Seminar essay		(Other)	
	Tests	0,2	Oral exam		(Other)	
	Written exam	0,2	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterm exams, two final exams and one make-up exam. The first midterm exam is after 7 weeks of lectures and the second one is after the next 6 weeks. Each midterm test lasts for 105 minutes and consists of the following 6 questions: - 2 obligatory questions (basic course questions); - 4 additional questions that test the theory and problem solving knowledge. The requirement for passing grade at the midterm exams is to have at least 90% from each obligatory question and at least 50% from each of remaining 4 questions. Students that do not pass one of the midterm exams can retake it during the final exams. Final exams lasts 165 minutes each and consist out of the following 12 questions: - 4 obligatory questions (basic course questions); - 8 additional questions that test the theory and problem solving knowledge. The requirement for passing grade at the final exam is to have at least 90% from each of obligatory questions and at least 50% from each of remaining 8 questions. Final grade is determined using the relative grading system based on the arithmetic mean of the per cents of each of the additional questions. Obligatory questions do not enter the arithmetic mean. Students that have passed both midterm exams or final exams are grouped in four categories: 15% of the students with the highest arithmetic means are assigned grade A (excellent), 35% of the students with the next best arithmetic means are assigned grade B (very good), 35% of the students with the next to next best arithmetic means are assigned grade C (good), and 15% of the students with the lowest passing arithmetic means are assigned grade D (satisfactory). Students who fail to pass the course through midetrms and/or final exams have one make-up exam at the beginning of fall. This exam features the same format as the final exam. Exam schedule is predetermined through the academic calendar.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• P. Kulišić: Mehanika i toplina, Školska knjiga, Zagreb, 2004.		
	• M. Grbac, L. Rađa-Ljubić: Zadaci iz mehanike i hidromehanike, FESB, Split, 1991.		
	• P. Kulišić i suradnici: Riješeni zadaci iz mehanike i topline, Školska knjiga, Zagreb, 1996.		
Optional literature (at the time of submission of study programme proposal)	- D. Halliday, R. Resnick, J. Walker: Fundamental of Physics, 7th Edition, John Wiley & Sons, Inc., 2005; N. Cindro: Fizika 1, Školska knjiga, Zagreb, 1991; C. Kittel, W. D. Knight, M. A. Ruderman: Udžbenik Sveučilišta u Berkeleyu, Svezak 1, Mehanika, Tehnička knjiga, Zagreb, 1992.		
Quality assurance methods that ensure the acquisition of exit competences	- Student evaluation surveys - Teacher self-evaluation - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	PHYSICS 2							
Code	FEMB04	Year of study	1					
Course teacher	Ivica Puljak, Ph.D., Full Professor, Nikola Godinović, Ph.D., Associate Professor,Ilja Doršner, Ph.D., Associate Professor, Damir Lelas, Ph.D., Assistant Professor	Credits (ECTS)	7					
Associate teachers	Dunja Polić, Ivica Sorić, Toni Šćulac, Darko Zarić, Toni Vrdoljak	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45	0	30	0	0	
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION

Course objectives	Training students for: - uderstanding of basic laws of classical and quantum physics; - ability to apply laws of classical and quantum physics to real-life problems.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define fundamental physical variables and equations that are used to describe simple harmonic oscillations, dumped harmonic oscillations and forced harmonic oscillations; - name types of mechanical waves and provide associated examples; - apply superposition principle to evaluate interference between two or more coherent waves; - describe Maxwell's equations; - define fundamental quantities and laws that are used in geometric and physical optics; - explain quantum nature of light using the example of photoelectric effect; - name quantum numbers of atoms; - describe wave nature of matter.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Matter elasticity. Simple harmonic motion. Mathematical and physical pendulum. Dumped oscillations. Resonant osscilations.	3	2
	Interference of harmonic oscillations. Mechanical waves: nomenclature, simple harmonic wave, wave equation, wave equation of transversal wave on a wire, energy of mechanical waves.	3	2
	Wave superposition. Reflection and transmition of waves. Standing waves. Wave interference. Wave packets. Phase and group wave speed. Spherical waves, plane waves.	3	2
	Sound waves. Sound intensity and loudness. Doppler's effect. Ultrasound.	3	2
	Gauss' law for electric and magnetic fields, Amper's law. Biot-Savart's law. Electromagnetic oscillations..	3	2
	Maxwell's equations. Electromagnetic waves.	3	2
	Geometrical optics. Laws of geometrical optics. Mirrors. Lenses. Magnifying glass. Microscope. Physics of human eye.	3	2

	Physical optics. Interference. Young's experiment. Optical lattice.	3	2
	Heat radiation. Ultraviolet catastophe. Planck's law of black body radiation. Quanta of light. Photoelectric effect. Compton's effect.	3	2
	Atomic structure. Line spectra. Rutherford's model of atom. Bohr's model of atom.	3	2
	Quantum numbers. Periodic system of elements. Roentgen's radiation. Lasers.	3	2
	Wave nature of matter.	3	2
	Atomic nucleus.	3	2
	List of laboratory or design exercises		LE or DE hours

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	3,0	Research		Practical training	
	Experimental work		Report		Individual work	3,6
	Essay		Seminar essay		(Other)	
	Tests	0,2	Oral exam		(Other)	
	Written exam	0,2	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterm exams, two final exams and one make-up exam. The first midterm exam is after 7 weeks of lectures and the second one is after the next 6 weeks. Each midterm test lasts for 105 minutes and consists of the following 6 questions: - 2 obligatory questions (basic course questions); - 4 additional questions that test the theory and problem solving knowledge. The requirement for passing grade at the midterm exams is to have at least 90% from each obligatory question and at least 50% from each of remaining 4 questions. Students that do not pass one of the midterm exams can retake it during the final exams. Final exams lasts 165 minutes each and consist out of the following 12 questions: - 4 obligatory questions (basic course questions); - 8 additional questions that test the theory and problem solving knowledge. The requirement for passing grade at the final exam is to have at least 90% from each of obligatory questions and at least 50% from each of remaining 8 questions. Final grade is determined using the relative grading system based on the arithmetic mean of the per cents of each of the additional questions. Obligatory questions do not enter the arithmetic mean. Students that have passed both midterm exams or final exams are grouped in four categories: 15% of the students with the highest arithmetic means are assigned grade A (excellent), 35% of the students with the next best arithmetic means are assigned grade B (very good), 35% of the students with the next to next best arithmetic means are assigned grade C (good), and 15% of the students with the lowest passing arithmetic means are assigned grade D (satisfactory).

<table>
<tr><td></td><td colspan="3">Students who fail to pass the course through midetrms and/or final exams have one make-up exam at the beginning of fall. This exam features the same format as the final exam.
Exam schedule is predetermined through the academic calendar.</td></tr>
<tr><td rowspan="6">Required literature (available in the library and via other media)</td><td>Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td>• V. Henč-Bartolić, P. Kulišić: Valovi i optika, Školska knjiga Zagreb, 1989.</td><td></td><td></td></tr>
<tr><td>• V. Henč-Bartolić i suradnici: Riješeni zadaci iz valova i optike, Školska knjiga, Zagreb 1992.</td><td></td><td></td></tr>
<tr><td>• J. Vuletin: Zadaci iz Fizike (Titraji i valovi, Toplina, Atomi), FESB, Split, 1996.</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="3">- N. Cindro: Fizika 2, Školska knjiga, Zagreb, 1991; D. Halliday, R. Resnick, J. Walker: Fundamentals of Physics, 7th Edition, John Wiley & Sons, Inc., 2005; E. M. Purcell: Udžbenik fizike Sveučilišta u Berkeleyu, Svezak 2., Elektricitet i magnetizam, Tehnička knjiga, Zagreb, 1988; E. V. Wichmann: Udžbenik fizike Sveučilišta u Berkeleyu, Svezak 4., Kvantna Fizika, Tehnička knjiga, Zagreb, 1988.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="3">- Student evaluation surveys
- Teacher self-evaluation
- Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="3"></td></tr>
</table>

NAME OF THE COURSE	PRACTICUM							
Code	FENB02	Year of study	2.					
Course teacher	M.Sc. Spomenka Bovan	Credits (ECTS)	2					
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE	
						45		
Status of the course	Obligatory	Percentage of application of e-learning						

COURSE DESCRIPTION

Course objectives	Training students for: - applying of electrical measuring instruments and measuring methods - using the signal generator - using the oscilloscope - understanding the main properties and operating principles of basic electronic devices and basic electronic circuits
Course enrolment requirements and entry competences required for the course	Completed courses: Physics 1, Electrical Engineering, Basic Electronics
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - measure voltage, current and resistance in simple electrical circuits with multimeter - adjust the desired waveform from signal generator - measure electrical signals with oscilloscope - measure the main parameters of basic electronic devices - measure the main parameters of basic amplifier circuits - measure the main parameters of simple operational amplifier circuits

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours
	List of laboratory exercises	LE hours
	Introduction. Basic equipment for measuring electrical signals. Measuring voltage, current and resistance in simple electrical circuits with multimeter.	3
	Series and parallel resistor circuits.	3
	Measurement of electrical quantities with oscilloscope.	3
	Adjustment of desired waveforms from signal generator.	3
	Semiconductor diode. LED diode.	3
	Zener diode.	3
	Bipolar junction transistor (BJT).	3
	Junction field effect transistor (JFET).	3
	Common emitter amplifier.	3
	Common base and common collector amplifier.	3
	Common source JFET amplifier.	3
	Operational amplifier – Inverting and non-inverting amplifier.	3
	Operational amplifier as summing amplifier. Dynamic behaviour of the operational amplifier.	3

<table>
<tr><td>Format of instruction</td><td colspan="3">☐ lectures
☐ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="3">☐ independent assignments
☐ multimedia
☒ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="6">Students must complete all laboratory exercises.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td>Laboratory exercises</td><td>1.5</td></tr>
<tr><td>Tests</td><td>0.15</td><td>Oral exam</td><td>0.1</td><td>Preparation for laboratory exercises</td><td>0.25</td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">Each exercise is separately graded. The first midterm exam is after 7 weeks of lecturing (first 7 laboratory exercises), and the second one is after the next 6 weeks (next 6 exercises). Each midterm test and final exam consists of two parts: practical skill exam (measurements) and oral part in which the students will comment written reports of the exercises and the obtained measurement results. The requirement for passing grade is the positive grade of each laboratory exercise. The final grade is based on the average of each exercise grade. In the final exams students that did not pass the midterm exams take part.</td></tr>
<tr><td rowspan="2">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">• S. Bovan: Upute za laboratorijske vježbe iz kolegija PRAKTIKUM, autorizirana skripta, FESB, Split</td><td>•</td><td>•</td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="6">• I Zulim, S. Gotovac: Osnovni poluvodički elektronički elementi, FESB Split, 1998.
• P. Biljanović: Poluvodički elektronički elementi, Školska knjiga, Zagreb, 2004.
• P. Biljanović: Elektronički sklopovi, Školska knjiga, Zagreb, 2005.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="6">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="6"></td></tr>
</table>

NAME OF THE COURSE	PROBABILITY AND STATISTICS						
Code	FEMB01	Year of study	2				
Course teacher	Ante Rozga, Ph.D., Full Professor	Credits (ECTS)	5				
Associate teachers	Marina Mandić	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	30	0	0
Status of the course	Obligatory	Percentage of application of e-learning	20				

COURSE DESCRIPTION

Course objectives	Getting to know the importance of statistical methods in the professional and scientific work. Independent analysis and interpretation of data obtained through statistical surveys. Statistical way of thinking with the help of probability theory. Qualification for independent reasoning with statistical estimation and hypothesis testing.		
Course enrolment requirements and entry competences required for the course	None.		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After completing the course, students will be able to: • Choose and apply methods of descriptive and inferential statistics. • Calculate and interpret indicators of descriptive statistics. • Estimate parameters, point estimate and interval estimate. • Calculate the accuracy and reliability of statistical estimates. • Set up and test the statistical hypothesis. • Connect variable correlation analysis and regression analysis. • Analyze and interpret the results of statistical surveys. -		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	The Scales of Measurement. Grouping and Presentation of data.	2	2
	Measures of Central Tendency. Measures of Variability. Measures of Skewness and Kurtosis.	2	2
	Probability. Addition and Multiplication law. Conditional probability. Bayes theorem.	2	2
	Discrete Random Variables. Discrete Probability Distributions.	2	2
	Continuous Random Variable. Continuous Probability Distributions.	2	2
	Sample Design. Point and Interval Estimation of Population Parameters.	2	2
	Hypothesis Testing of One Mean. Hypothesis Testing of One Proportion.	2	2
	First Midterm Exam.		
	Errors in Hypothesis Testing. Sample Size Design.	2	2
	Hypothesis Testing of Difference between Two Population Means. Hypothesis Testing of Difference between Two Population Proportions. Dependent and Independent Samples.	2	2
	Distribution Fitting. Goodness-of-Fit Tests.	2	2
	Contingency Tables Tests.	2	2
	Analysis of Variance.	2	2
	Correlation.	2	2
	Second midterm exam		

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☒ exercises
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☐ field work</td><td colspan="2">☐ independent assignments
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☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="8">The presence on lectures in the amount of at least 70 % of the times scheduled..</td></tr>
<tr><td rowspan="6">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>2</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work</td><td>2</td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td></td><td>Laboratory exercises</td><td></td></tr>
<tr><td>Tests</td><td>1</td><td>Oral exam</td><td></td><td>Preparation for laboratory exercises</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="8">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 2 theoretical questions and 8 numerical problems and final tests consist of 4 theoretical questions and 10 numerical problems. Final grade is as follows:
50% - 61% sufficient
62% - 74% good,
75% - 87% very good,
88% - 100% excellent.
In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests.</td></tr>
<tr><td rowspan="5">Required literature (available in the library and via other media)</td><td colspan="5">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="5">• A.Rozga: Statistika za ekonomiste. Ekonomski fakultet 2009.</td><td>2</td><td></td></tr>
<tr><td colspan="5">• I.Pavlić: Statistička teorija i primjena. Tehnička knjiga. Zagreb. 1985.</td><td>5</td><td></td></tr>
<tr><td colspan="5"></td><td>5</td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="8">• V.Vranić: Vjerojatnost i statistika. Tehnička knjiga 1971.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="8">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Institutional and non-institutional evaluations</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="8"></td></tr>
</table>

NAME OF THE COURSE	PROFESSIONAL TRAINING									
Code	FEXX06	Year of study	3							
Course teacher	Head of the professional training from the Faculty	Credits (ECTS)	5							
Associate teachers	Head of the professional training from the private institution	Type of instruction (number of hours)	L	S	AE	LE	DE			
Status of the course	Elective	Percentage of application of e-learning								
COURSE DESCRIPTION										
Course objectives	Training students for: - consolidating theoretical knowledge and practical skills in solving highly complex engineering problems - acquaintance with the organization, work and business of the receiving institution, - solving practical problems, - inclusion in the labour market, - writing technical reports									
Course enrolment requirements and entry competences required for the course	Acquired 120 ECTS credits									
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - consolidate theoretical knowledge and practical skills in solving problems - use literature, databases and other sources of information - select appropriate methods and procedures for solving practical problems - apply technical knowledge and skills to effectively solve engineering problems - prepare a written report on the work results									
Course content broken down in detail by weekly class schedule (syllabus)	Professional training is the independent work of the student performed in the receiving institution in accordance with the plan and programme agreed between the head of the professional training from the receiving institution and the head of professional training from the Faculty.									
Format of instruction	☐ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☒ field work		☒ independent assignments ☐ multimedia ☐ laboratory ☒ work with mentor ☐ (other)							
Student responsibilities	Independent work									
Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance		Research		Practical training	4				
	Experimental work		Report		Independent work					
	Essay		Seminar essay		Report writing	1				
	Tests		Oral exam		(Other)					
	Written exam		Project		(Other)					
Grading and evaluating student work in class and at the final exam	Professional training is not evaluated. Students are obliged to complete professional training in accordance with the Regulation on professional training and to write a Professional training report. Professional training report is validated by the head of professional training from the receiving institution and the head of professional training from the Faculty.									

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
Optional literature (at the time of submission of study programme proposal)			
Quality assurance methods that ensure the acquisition of exit competences	- Questionnaire on professional training - Self-evaluation of the head of professional training - Student survey of the whole study programme		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	PROGRAMMING							
Code	FESB01	Year of study	1					
Course teacher	Damir Vučina, Ph.D., Full Professor Damir Sedlar, Ph.D., Assistant Professor	Credits (ECTS)	7					
Associate teachers	Igor Pehnec, Ph.D.,Assistant Professor Ivan Tomac, Ph.D., Assistant Professor	Type of instruction (number of hours)	L	S	AE	LE	DE	
			45			30		
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION			
Course objectives	Training students for: The ability to use the C programming language to solve programming tasks.		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - create an algorithm for solving simple programming and numerical problems, - use the syntax and semantics of the C programming language in the creation of program code, - design, implement, test and debug the program which uses fields and loop, - design, implement, test and debug the program which uses the functions, - design, implement, test and debug the program which uses pointers, pointers to the function and an array of pointers, - design, implement, test and debug the program which uses recursive functions, - design, implement, test and debug the program which uses structures and pointers to structures, - design, implement, test and debug the program which write and read data from files.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	LE hours
	Introduction. Repetition of basic concepts. Computer, processor, memory. Programming language. Paradigms: object, logical, functional. Algorithms - basic terms: linear, branched and cyclic structures.	3	2
	Compiler and interpreter. Abstraction. Object. Variable. Constant. Data types. Examples of implementation in the programming language C. The functions of the standard inputs and outputs.	3	2
	User data types, operators, control flow of the program. The pre-processor instructions.	3	2
	Functions, scope, lifetime and a memory classes, the functions, pass by value and by reference.	3	2
	Arrays, arrays and the functions, recursion.	3	2
	Pointers and arrays, pointers to function.	3	2
	Dynamic memory allocation, error handling. Working with libraries.	3	2
	A pointer to the array, the array of pointer, a pointer to a pointer.	3	2
	The structures, structures and pointers. The structures and dynamic memory allocation.	3	2
	The arguments of main functions. Working with files.	3	2

	Union, enumerated data types, bit operators and bit fields.	3	2
	Working with strings. The functions of the standard library.	3	2
	Fundamentals of of numerical methods.	3	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3	Research		Practical training	
	Experimental work		Report		Individual work	4
	Essay		Seminar essay		(Other)	
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade(%) = 0,5 (M1 + M2) • M1, M2 – test results.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	• Lectures, FESB		Elearning portal
	• Željan Lozina: Uvod u programiranje, Sveučilište u Splitu, Split, 2006.		

Optional literature (at the time of submission of study programme proposal)	• Herbert Shildt: C: The complete reference, Osborne/McGraw-Hill, 4th ed., 2000. • Eric Roberts: Programming abstractions in C, Addison Weslay, 1998. • Bayron Gottfried: Programming with C, McGraw-Hill/schaum's outlines, 2nd ed. 1996
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	PROGRAMMING FOR ANDROID						
Code	FELB24	Year of study	3.				
Course teacher	Toni Jakovčević, Ph.D., Assistant Professor	Credits (ECTS)	4				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
			30			15	
Status of the course	Elective	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - application of fundamental programming principles for Android operating system - development of application for Android operating system - presenting the functioning of Android operating system on the programmatic level - using the native sensors and the corresponding programming interfaces		
Course enrolment requirements and entry competences required for the course	Successfully completed and passed following courses: - Programming - Object-oriented programming		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Describe the fundamental concepts in Android programming - Define the program structure necessary for the development of basic Android applications - Create a user interface for an Android application - Use the programming interface for working with native sensors - Demonstrate the use of local and on-line multimedia resources		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction. Basic concepts. Writing basic Android programs.	2	
	Creating applications and activities. Introduction to services. Application manifest. Application lifecycle. Application class.	2	
	Introduction to Intents. Broadcasting Intents. Intent Filters. Monitoring device changes.	2	
	Using internet resources. Connecting to the internet and downloading resources. Download manager.	2	
	Working with files. Managing application preferences. Managing local filesystem.	2	
	Working with databases. Asynchronous queries. Searching within the application.	2	
	Working with services. Binding services to activities. Creating background threads.	2	
	User interfaces. Working with notifications. Interfaces non-dependent on resolution. Hardware acceleration.	2	
	Working with device sensors. Available sensor types. Device orientation. Interpreting sensor values.	2	
	Working with maps. Geocoding. Working with location-based services.	2	
	Working with multimedia. Using the device camera sensor.	2	
	Connectivity over Wi-Fi network. Monitoring internet connectivity. Configuring Wi-Fi. Connecting to Bluetooth devices.	2	
	Initiating phone calls and sending SMS and MMS messages. Working with incoming SMS messages.	2	

	List of laboratory or design exercises	LE hours

	Introduction to the development environment and creating a minimal Android application	2
	Creating a user interface	2
	Working with device sensors and creating an app reactive to the change in sensor values	2
	Using Internet resources in an application	2
	Working with notifications	2
	Working with files and the file system	2
	Working with services and creating background threads	3

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1.2	Research		Practical training	
	Experimental work		Report		Individual work	1.36
	Essay		Seminar essay		Laboratory exercises	0.6
	Tests	0.16	Oral exam		Preparation for laboratory exercises	0.6
	Written exam	0.08	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 4 assignments of which one is a theoretical question, and 3 are programming assignments. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50% points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade(%) = 0.1 LV + 0.45 (M1 + M2) the activities in percentage: • LV – laboratory assessment, • M1, M2 – test results.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	• T. Jakovčević: Lectures from class – • Programming for Android, FESB	•	• e-learning portal

Optional literature (at the time of submission of study programme proposal)	• R. Meier: Professional Android 4 Aplplication Development, Wrox Press, 2012 • J. Annuzzi Jr., L. Darcey, S. Conder: Advanced Android Application Development (4th Edition), Addison-Wesley, 2014 • B. Phillips, B. Hardy: Android Programming: The Big Nerd Ranch Guide (1st Edition), Big Nerd Ranch Inc., 2013
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE	**PROGRAMMING IN PYTHON**

COURSE							
Code	FELB25	Year of study	3.				
Course teacher	Tea Marasović, Ph.D., Assistant Professor	Credits (ECTS)	4				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	15	0
Status of the course	Elective	Percentage of application of e-learning	0				

COURSE DESCRIPTION

Course objectives	Training students for: - understanding the basic principles of computing in Python; - making programs in Python; - using Python for simple data analysis and visualization tasks.
Course enrolment requirements and entry competences required for the course	None
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After completing this course, students will be able to: – interpret the code written in Python; – make use of different supported data structures; – create a modular program in Python; – troubleshoot errors in code; – use standard Python data analytics libraries.

Course content broken down in detail by weekly class schedule (syllabus)

Course content	L hours	AE hours
Introduction. Getting started with Python.	2	0
Simple data types, expressions and operators.	2	0
Flow control.	2	0
Data collections.	2	0
Iterators and iterative procedures.	2	0
User-defined functions. Lambda functions.	2	0
Modules and packages.	2	0
Classes and object-oriented programming.	2	0
Errors and exceptions.	2	0
File management.	2	0
Numerical data analysis. NumPy and SciPy libraries.	2	0
Table data analysis. Pandas library.	2	0
Data visualisation tools.	2	0

List of laboratory or design exercises	LE hours
Setting up programming environment. Using Python as a calculator.	2
Loops and conditional statements.	2
Lists, tuples, sets and dictionaries.	2
Functions, programs and modules.	2
Classes and objects.	2
Standard input and output. Working with files.	2
Exploratory data analysis in Python.	3

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☐ field work</td><td colspan="6">☒ independent assignments
☐ multimedia
☒ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="12">Minimum of 70 percent lecture attendance. Completing all the required laboratory exercises.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td colspan="2">Class attendance</td><td>2</td><td colspan="2">Research</td><td></td><td colspan="2">Practical training</td><td></td></tr>
<tr><td colspan="2">Experimental work</td><td></td><td colspan="2">Report</td><td></td><td colspan="2">Individual work</td><td>0.5</td></tr>
<tr><td colspan="2">Essay</td><td></td><td colspan="2">Seminar essay</td><td></td><td colspan="2">Laboratory exercises</td><td>1</td></tr>
<tr><td colspan="2">Tests</td><td>0.25</td><td colspan="2">Oral exam</td><td></td><td colspan="2">(Other)</td><td></td></tr>
<tr><td colspan="2">Written exam</td><td>0.25</td><td colspan="2">Project</td><td></td><td colspan="2">(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="12">During semester, there will be two mid-term exams, according to the class schedule. The requirement for the positive grade is the attendance and commitment at the laboratory exercises and a minimum of 40 percent correct answers at each mid-term.

The final grade is determined based on the total number of points earned, which is calculated as follows:

Grade [%] = 0.5 * M1 + 0.5*M2

Percentage Grade
50% to 61% sufficient (2)
62% to 74% good (3)
75% to 87% very good (4)
88% to 100% excellent (5)

The final exam encompasses the entire course load or selected parts of it that students did not pass at either of mid-term exams. The correction exam encompasses the entire course load. The requirement for passing the exam is minimum of 50 percent correct answers. The exams are held according to the class schedule.</td></tr>
<tr><td>Required literature (available in the library and via other media)</td><td colspan="8">Title</td><td colspan="2">Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td></td><td colspan="8">• T. Marasović; Authorized lectures</td><td colspan="2"></td><td>e-Learning portal</td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="12">• Official webpage; http://www.python.org
• "The Python Tutorial“, http://docs.python.org/3/tutorial/
• M. Pilgrim; “Dive Into Python 3“, Apress, 2009, ISBN: 978-1430224150.
• Z. Shaw; "Learn Python the Hard Way“, Addison-Weasly, 2014, ISBN: 978-0321884916</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="12">- Keeping records on class attendance
- Annual analysis of exam results
- Student survey on teaching performance
- Teacher self-evaluation
- Feedback information from graduates regarding course content relevancy</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="12"></td></tr>
</table>

NAME OF THE COURSE	PROGRAMMING IN THE UNIX ENVIRONMENT						
Code	FELB17	Year of study	3				
Course teacher	Damir Krstinić, Ph.D., Associate Professor	Credits (ECTS)	4				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
			30			15	
Status of the course	Elective	Percentage of application of e-learning	30%				

COURSE DESCRIPTION			
Course objectives	Training students for: • understanding the principles of the unix operating system • understanding and using unix environment • using unix development environments and tools • application development for unix operating system		
Course enrolment requirements and entry competences required for the course	Compleeted course "Introduction to computer science and programming"		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: • appoint main unix standards and conventions • understand and describe concepts and working principles of the unix operating system • identify and understand elements of unix shell scripts, create simple unix shell scripts • use develompent environments and tools on the unix operating system • develop programs for the unix operating system • understand Makefile ruels • create Makefile rules for automatization of the compiling and linking		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction, historical review, unix basics	2	
	File system, shell, basic commands, file system permissions	2	
	Introduction to shell scripts	2	
	Simple unix program, source and object code, compiling and linking, gcc, make utility	2	
	Memory image of the unix process, unix process environment, stack and heap, functions, recursion	2	
	Processes, function main, command line arguments	2	
	Creating new unix process	2	
	Preliminary exam	2	
	Unix file, file descriptors, read and write system calls, positioning in the file	2	
	Process cloning and open files, file sharing, atomic operations	2	
	Replacing the memory image of the process	2	
	Unix signals	2	
	Introduction to interprocess communication, pipes, fifos, sockets, System V IPC	2	
	Preliminary exam	2	

	List of laboratory or design exercises	LE hours

	Introduction to unix shell, using unix operating system	2
	Compiling and linking	2
	Command line arguments, working with files	2
	Standard input and output	2
	Creating a new process	2
	Starting a new program (exec functions)	3
	Intput/output redirection, signals	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☒ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	1	Research		Practical training	1
	Experimental work		Report		(Other)	
	Essay	1	Seminar essay		(Other)	
	Tests	1	Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	The final grade is determined based on: • assesment of laboratory exercices • assesment of written seminar essay and its oral presentation • grade achieved in two peliminary exams, or grade achieved in final exam, if positive grade was not achieved in one or both preliminary exams

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	On-line course script: http://www.csc.unist.hr/~dkrst/unix/		
	FORMTEXTStevens, W. R.; Rago, S. A., Advanced Programming in the UNIX Environment, Addison-Wesley Professional Computing Series, ISBN 978-0-321-63773-4		

Optional literature (at the time of submission of study programme proposal)	
Quality assurance methods that ensure the acquisition of exit competences	• Evaluation of resutls in accordance with the above learning outcomes • Feedback from student via surveys • Self-evaluation of teachers • Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	SIGNAL PROCESSING						
Code	FELB20	Year of study	3.				
Course teacher	Dinko Begušić, Ph.D., Full Professor	Credits (ECTS)	4				
Associate teachers	Maja Stella, Ph.D., Assistant Professor	Type of instruction (number of hours)	L	S	AE	LE	DE
			30	0	0	15	0
Status of the course	Elective	Percentage of application of e-learning					

COURSE DESCRIPTION

Course objectives	Training students for: - understanding and application of basic concepts and methods of digital signal processing, - application of methods for analysis and synthesis of discrete time signals and systems, - application and design of digital filters, - permanent adoption and deepening of the knowledge in the area of digital signal processing.
Course enrolment requirements and entry competences required for the course	None
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define the basic concepts and methods for analysis of discrete time signals and systems, - apply the the methods for frequency analysis of signals and systems defined in the discrete time domain, - apply the linear integral transforms for discrete time signals and systems analysis and synthesis, - apply and design digital FIR and IIR filters, - understanding of the basic methods of adaptive signal processing, - peroform analysis and synthesis of disrete signals and systems by using standard software environment (MATLAB).

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	The basic concepts of discrete time signals and systems.	2	-
	Analysis of linear time invariant systems.	2	-
	z- transform.	2	-
	Application of the z-transform in the analysisi of discrete time signals and systems.	2	-
	Frequency analysis of discrete time signals and systems.	2	-
	Discrete Fourier transform (DFT).	2	-
	Fast Fourier transform (FFT).	2	-
	Implementation and application of discrete time systems.	2	-
	Analysis and synthesis of discrete time systems.	2	-
	Digital filter structures.	2	-
	Design of FIR filters.	2	-
	Design of IIR filters.	2	-
	Adaptive signal processing methods and applications.	2	-
	List of laboratory or design exercises		LE hours
	Generation and presentation of discrete time domain signal.		2

<table>
<tr><td></td><td colspan="6">Linear time invariant systems in discrete time domain.</td><td>2</td></tr>
<tr><td></td><td colspan="6">Analysis of inear time invariant systems using z-transform.</td><td>2</td></tr>
<tr><td></td><td colspan="6">Application of DFT in linear filtering.</td><td>2</td></tr>
<tr><td></td><td colspan="6">Linear filtering of long signal sequences using the overlap-save method.</td><td>2</td></tr>
<tr><td></td><td colspan="6">Design of FIR filters.</td><td>2</td></tr>
<tr><td></td><td colspan="6">Design of IIR filters.</td><td>2</td></tr>
<tr><td>Format of instruction</td><td colspan="3">☒ lectures
☐ seminars and workshops
☒ exercises
☐ on line in entirety
☐ partial e-learning
☐ field work</td><td colspan="4">☐ independent assignments
☐ multimedia
☒ laboratory
☐ work with mentor
☐ (other)</td></tr>
<tr><td>Student responsibilities</td><td colspan="7"></td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1,0</td><td>Research</td><td>-</td><td>Practical training</td><td>-</td></tr>
<tr><td>Experimental work</td><td>-</td><td>Report</td><td>-</td><td>Individual work</td><td>1,7</td></tr>
<tr><td>Essay</td><td>-</td><td>Seminar essay</td><td>-</td><td>Laboratory exercises</td><td>0,5</td></tr>
<tr><td>Tests</td><td>0,2</td><td>Oral exam</td><td>-</td><td>Preparation for laboratory exercises</td><td>0,5</td></tr>
<tr><td>Written exam</td><td>0,1</td><td>Project</td><td>-</td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm and final test consists of 10 theoretical questions and numerical problems. The duration of each test is 2 school hour. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises, the seminar exercise and 50 % points on each midterm exam or the final exam. The continuous knowledge assessment grade (in percentage) is formed according to the formula:
Grade(%) = 0,05 NP + 0,15 LV + 0,4 (M1 + M2)
the activities in percentage:
• NP - attendance at lectures,
• LV – laboratory assessment,
• M1, M2 – test results.

The final grade is based on the grade of the continuous knowledge assesment grade and the oral part of the final exam. The students whose grade may be formed without the need for the oral part of the final exam may not be obliged to attend tthe oral part of the exam.
There are two terms for the final exam and one additional term for the make up exam.
The requirement for attendance of the final exam or the make up exam is the passing grade for all laboratory excercises and submitted seminar excercis work. At the final exam the student writes the test from the area of the miterm exam(s) which has/have not been succesfully passed before. At the make up exam the student writes the test from the complete course.</td></tr>
</table>

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	• D.Begušić: Signal processing, handouts, FESB, 2016.		e-learning portal
Optional literature (at the time of submission of study programme proposal)	- Martin Vetterli, Jelena Kovačević, Goyal Vivek K: Foundations of Signal Processing, Cambridge University Press, 2014 - Proakis, J.G., Manolakis, D.G.: Digital Signal Processing: Principles, Algorithms, and Applications, Prentice Hall, 1996 - Haykin,S.: Adaptive Filter Theory, Prentice Hall, 1996		
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			

NAME OF THE COURSE	SIGNALS AND SYSTEMS							
Code	FELB09	Year of study	2.					
Course teacher	Tamara Grujić, Ph.D., Full Professor	Credits (ECTS)	5					
Associate teachers	-	Type of instruction (number of hours)	L	S	AE	LE	DE	
			30	0	15	15	0	
Status of the course	Obligatory	Percentage of application of e-learning	0					

COURSE DESCRIPTION

Course objectives	Training students for: - Understanding and application of fundamental concepts in the field of time-continuous and discrete signals and systems, - Mathematical modeling and simulation of continuous and discrete systems, computing system response to a given input (by convolution, solving differential equations and difference equations, and Laplace transform) - Acquiring programming skills in Matlab and Simulink		
Course enrolment requirements and entry competences required for the course	Basic knowledge of mathematics and computer programming		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Define the basic concepts related to time-continuous and discrete signals and systems - Mathematical model (formulate) a continuous and discrete systems and present them by block diagrams - Analyze the properties of the system - Calculate the time response of the system described by impulse response, using the convolution in discrete and continuous time domain - Describe continuous systems by transfer functions (in Laplace domain) and calculate the system response - Programming in Matlab and model and simulate systems in Simulink		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction to signals and systems, system definitions, examples of technical systems, linear, time-invariant (LTI) systems, time continuous and discrete systems	2	1
	Definition and mathematical formulation of signals (continuous and discrete time and digital signals), AD conversion, mathematical modeling of systems, MIMO and SISO systems, signal energy and power	2	1
	Transformation of the independent variable in the signal (time shift, time reversal, time-scaling), periodic signals, even and odd signals	2	1
	Time continuous and discrete exponential and sinusoidal signals (real exponential signals, periodical complex and sine signals, the general complex exponential signals); Periodicity of discrete complex exponential signals (the condition of periodicity)	2	1
	Discrete and continuous unit impulse and unit step signal and their relationship; Continuous and discrete systems; Interconnections of systems (serial, parallel and feedback)	2	1

	The basic properties of the system: systems with and without memory, invertibility and inverse systems, causality, stability, time invariance, linearity	2	1
	Discrete LTI systems: The representation of discrete time signals in terms of impulses; The discrete-time LTI system unit impulse response and the convolution-sum representation of LTI systems	2	1
	First midterm exam		
	Continuous LTI systems: The representation of continuous time signals in terms of impulses; The continuous-time LTI system unit impulse response and the convolution-integral representation of LTI systems; properties of LTI systems expressed by convolution	2	1
	The unit step response of an LTI system; Description of causal LTI systems by differential equations (continuous-time systems) and difference equations (discrete-time systems); Equations solving; Presentation of systems by block diagrams	2	1
	Laplace transform (definition, properties, theorems), the inverse Laplace transform, solving differential equations that describe the continuous LTI systems using Laplace transform	2	1
	Transfer function of continuous LTI systems; The stability of the system described by transfer function	2	1
	Block algebra (rules of block algebra and applications)	2	1
	Modeling of electrical and mechanical systems by transfer function and calculation of the time response of electrical and mechanical systems	2	1
	Second midterm exam		
	List of laboratory exercises		LE hours
	Programming in Matlab - introduction		3
	The signal properties (formulation and display of continuous and discrete signals in Matlab, transformation of independent variables, periodicity and parity of continuous and discrete signals, computing power and energy of signals), Matlab programming		3
	Introduction to Simulink. System properties. Modeling and simulation of continuous and discrete systems in Simulink and checking the properties of given system (linearity, time invariance, stability, invertibility), serial and parallel connection of systems, computing convolution of discrete signals, working in Matlab and Simulink		3
	Time responses of continuous LTI systems described by differential equations and discrete LTI systems described by difference equations, working in Matlab		3
	Description of continuous systems by transfer functions. Modeling and simulation of electrical and mechanical systems by transfer functions and calculating the time response in Matlab and Simulink		3

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed and positively assessed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the*	Class attendance	2	Research		Practical training	
	Experimental work		Report		Individual work	1
	Essay		Seminar essay		Laboratory exercises	1

<table>
<tr><td rowspan="2">total number of ECTS credits is equal to the ECTS value of the course)</td><td>Tests</td><td>0,25</td><td>Oral exam</td><td></td><td>Preparation for laboratory exercises</td><td>0,5</td></tr>
<tr><td>Written exam</td><td>0,25</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">There are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 8 theoretical questions and numerical problems and final tests consist of 10 theoretical questions and numerical problems. In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is the positive assessment of laboratory exercises and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula:
Grade(%) = 0,1 LV + 0,45 (M1 + M2)
the activities in percentage:
• LV – laboratory assessment,
• M1, M2 – test results.

The final grade is determined as follows:
<table>
<tr><th>Percentage:</th><th>Grade:</th></tr>
<tr><td>50% do 61,9%</td><td>2</td></tr>
<tr><td>62% do 74,9%</td><td>3</td></tr>
<tr><td>75% do 89,9%</td><td>4</td></tr>
<tr><td>90% do 100%</td><td>5</td></tr>
</table></td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Tamara Grujić: "Osnove signala i sustava – Predavanja sa zadacima", Interna skripta, FESB</td><td></td><td>e-learning portal</td></tr>
<tr><td colspan="3">Tamara Grujić: "Upute za laboratorijske vježbe iz kolegija Signali i sustavi", interna skripta, FESB</td><td></td><td>e-learning portal</td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="6">• A.V. Oppenheim, A.S. Willsky, S.H. Nawab, "Signals and Systems", Second Edition, Prentice-Hall, 1997.
• S.T. Karris, "Signals and Systems With Matlab Applications", Second Edition, Orchard Publications, 2003.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="6">- Evaluation of results in accordance with the above learning outcomes
- Feedback from students via surveys
- Self-evaluation of teachers
- Institutional and non-institutional evaluations
- Keeping records of lectures attendance
- Keeping records of the presence of the laboratory exercises and a review and assessment of submitted reports</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="6"></td></tr>
</table>

NAME OF THE COURSE	SOFTWARE ENGINEERING						
Code	FELB12	Year of study	3.				
Course teacher	Linda Vicković, Ph.D., Associate Professor	Credits (ECTS)	7				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
			45	0	0	30	
Status of the course	Obligatory	Percentage of application of e-learning					

COURSE DESCRIPTION

Course objectives	Training students for: - understanding and usage of engineering approach to software development, - how to write user requirements specification, software design specification and test plan documents in software development process, - applying acquired knowledge in the practical software development.
Course enrolment requirements and entry competences required for the course	Students have to pass Object oriented programming and Algorithms from the second year of study.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - define fundamental terms of engineering approach in software development, - identify different steps in software development, - differ agile and classical software development methods, - provide required documents during software development process, - using UML diagrams for software architecture description, - recognize different architecture and design patterns, - describe different software verification and validation phases, - define importance of software evolution.

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Introduction in Software engineering.	3	0
	Software processes and software process models.	3	0
	Agile software development. Extreme programming..	3	0
	Scrum and Scaling agile methods.	3	0
	Software requirements.	3	0
	The software requirements document. Requirements elicitation, analysis and validation.	3	0
	System modelling. Introduction to UML.	3	0
	Architectural design.	3	0
	Architectural patterns.	3	0
	Design and implementation. Design patterns.	3	0
	Software testing.	3	0
	Test driven development	3	0
	Software maintenance and evolution.	3	0
	List of laboratory or design exercises		LE hours
	Advanced features of Microsoft Office for document formatting.		2
	Using Microsoft Project in project management.		2
	Using Microsoft Visio for system modelling (UML diagrams).		2
	Using testing package in Microsoft Visual Studio.		2
	Visiting lecture – Project management.		2

	Visiting lecture – Estimation effort for software development product.	2
	Visiting lecture – Scrum methodology for software development.	2
	Visiting lecture – Kanban methodology for software development.	2
	Visiting lecture – Software testing	2
	Visiting lecture – Software engineering in Ericsson Nikola Tesla – environment, market and evolution.	2

Format of instruction	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	1,5	Research		Practical training	1
	Experimental work		Report		Individual work	3
	Essay		Seminar essay		Laboratory exercises	1
	Tests	0,2	Oral exam		Preparation for laboratory exercises	0,2
	Written exam	0,1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two parts of the exam, practical and theoretical. For practical part students have to make a software project and related documentations. It is done in groups from 3 to 5 students. Project is divided in three phases and each is graded. Finale project grade is counted as average. Theoretical part of exam is written and there are two midterms and final exams. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 10 theoretical questions. The requirement for passing grade is the positive grade from project part and 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula: Grade = 0,6 P + 0,4 T where: • P – project grade, • T – grade from the theoretical part of exam.

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	• Vicković, L. Programsko inženjerstvo, prezentacije s predavanja.		e-learning portal
	• Somerville, I. Software engineering, Addison Wesley, 9 edition, 2011.		
	• Sach, S. Object Oriented Software Engineering, McGraw-HIll, 2008.		
	• Fowler, M. UML Distilled, Addison Wesley, third edition, 2003.		

Optional literature (at the time of submission of study programme proposal)	-
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations
Other (as the proposer wishes to add)	

NAME OF THE COURSE	SYSTEM ANALYSIS AND DESIGN							
Code	FELB14	Year of study	3					
Course teacher	Maja Štula, Ph.D., Full Professor	Credits (ECTS)	5					
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE	
			30			30		
Status of the course	Obligatory	Percentage of application of e-learning	10%					

COURSE DESCRIPTION

Course objectives	Training students for: - Acquiring knowledge on methodologies and tools used for information system analysis and development - Understanding information system analysis and design processes - Acquiring basic knowledge necessary for defining, developing, managing and deployment of information systems		
Course enrolment requirements and entry competences required for the course	None		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Describe methods and techniques for information system analysis and design - Explain differences in IT systems development methodologies - Explain reasons for usage of formally defined methodologies - Use software tools for information system analysis and design		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	System analysis and design introduction, system development life cycle, software development methodologies	3	0
	Project initiation, identification, setting system request, feasibility study	2	0
	Project management, project size assessment, function point approach, project workplan, Gant, PERT diagrams, CASE tools	2	0
	System requirements identification, requirements analysis techniques, JAD (Joint Application Development)	2	0
	Use case analysis, elements	2	0
	Process modelling, Data Flow Diagram, process model definition, DFD hierarchy	2	0
	Data modelling, Entity-Relation diagram, data dictionary, ER diagram validation and normalization	2	0
	Developing system design from system request, system design strategies, strategy selection factors	2	0
	System architecture design, basic software architecture types, operational, security requirements, hardware and software specification	3	0
	User interface design, user experience, navigation, input, output design	2	0
	Program design, converting logical process model to physical, structure chart development, program specification	2	0
	Data storage design, files, databases, choosing format of storage, converting logical data model to physical, data storage optimization	2	0
	Information system implementation, programming tasks assignment, activities coordination, testing, documenting	2	0
	Information system introduction, maintenance and customers support	2	0

	List of laboratory or design exercises	LE hours
	GIT versioning system usage	4
	Project feasibility analysis, ROI, BEP for case study project	4
	Unit Test definition and execution	6
	Creating and maintaining workplan with gant diagram using software tools	4
	Use case definition for case study	4
	Data models and CRUD matrix creation	4
	System architecture design	4

Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☒ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed and uploaded on e-learning portal all required laboratory exercises.	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	3	Research		Practical training	
	Experimental work		Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests	1	Oral exam		(Other)	
	Written exam	1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	There are two midterms and final exams duration of 90 minutes. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. Each midterm test consists of 10 theoretical questions and final tests consist of 10 theoretical questions (five from each midterm test). In the final exams students that did not pass the midterm exams take part. The midterm and final exams are carried out as written tests. The requirement for passing grade is 50 % points on each midterm exam or the final exam and positive laboratory assessment. Grade (in percentage) is formed according to the formula: Grade(%) = (M1 + M2)/2 the activities in percentage: • M1, M2 – test results.

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	M. Štula, Authorized lecture materials		e-learning portal

Optional literature (at the time of submission of study programme proposal)	- Dennis, Haley Wixom, M. Roth: Systems Analysis and Design, Fourth Edition, 2009. - Christian Dawson: Project in Computing and Information Systems: A Student's Guide, 2009.
Quality assurance methods that ensure the acquisition of exit competences	- Students' surveys for teacher evaluation - Students attendance track - Annual statistic on passed exam
Other (as the proposer wishes to add)	

NAME OF THE COURSE	WINDOWS PROGRAMMING							
Code	FELB16	Year of study	3					
Course teacher	Maja Štula, Ph.D., Full Professor	Credits (ECTS)	4					
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE	
			30			15		
Status of the course	Elective	Percentage of application of e-learning	10%					

COURSE DESCRIPTION

Course objectives	Training students for: - Understanding functioning of Microsoft Windows operating systems and communication between application and OS - Acquiring basic knowledge necessary for development of applications based on .NET 2.x and .NET 3.x frameworks - Acquiring knowledge on desktop applications with graphical interface
Course enrolment requirements and entry competences required for the course	Object oriented programming Data structures Algorithms
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - Use .NET environment - Understand MS windows application functioning - Design and develop simple graphical user interface for desktop application - Choose appropriate user controls for required application functions - Choose suitable .NET framework to fulfil user application requirements

Course content broken down in detail by weekly class schedule (syllabus)	Course content	L hours	AE hours
	Microsoft Windows operating system, GUI history, dynamic linking, native API	2	0
	NET framework 2.x, 3.x, 4.x structure, .NET basic elements and properties	2	0
	Application entry point, message loop, working with messages	3	0
	Creating windows, windows types, hierarchy, .NET 2.x and 3.x windows	3	0
	XAML language	3	0
	Controls, windows, application resources	3	0
	MDI application, tab design, navigation design	2	0
	Working with data, data binding	3	0
	WPF triggers and animations	2	0
	GDI+ and WPF graphics subsystem	3	0
	Windows 8 OS, windows Store application	4	0
	List of laboratory or design exercises		LE hours
	Different data types in .NET applications, NET 2.x and .NET 3.x applications with basic GUI with basic window		2
	Developing UI in XAML		3
	User controls		4
	MVVM (Model-View-ViewModel) pattern introduction		3
	LINQ, Extension methods, Anonymous types		3

Format of instruction		
	☒ lectures	☐ independent assignments
	☐ seminars and workshops	☐ multimedia
	☒ exercises	☒ laboratory
	☐ *on line* in entirety	☐ work with mentor
	☐ partial e-learning	☐ (other)

<table>
<tr><td></td><td colspan="6">☐ field work</td><td></td></tr>
<tr><td>Student responsibilities</td><td colspan="7">The presence on lectures in the amount of at least 70 % of the times scheduled. Performed and uploaded on e-learning portal all required laboratory exercises.</td></tr>
<tr><td rowspan="5">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>2</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar essay</td><td>1</td><td>(Other)</td><td></td></tr>
<tr><td>Tests</td><td>0,2</td><td>Oral exam</td><td>0,6</td><td>(Other)</td><td></td></tr>
<tr><td>Written exam</td><td>0,2</td><td>Project</td><td></td><td>(Other)</td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="7">There are two midterms and final exams duration of 90 minutes. The first midterm exam is after 7 weeks of lecturing and the second one is after the next 6 weeks. In the final exams students that did not pass the midterm exams take part. The requirement for passing grade is 50 % points on each midterm exam or the final exam. Grade (in percentage) is formed according to the formula:
Grade(%) = (M1 + M2)/2
the activities in percentage:
• M1, M2 – test results.</td></tr>
<tr><td rowspan="5">Required literature (available in the library and via other media)</td><td colspan="4">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="4">M. Štula: Programiranje korisničkih sučelja na Windows platformama, 2010, University textbook, FESB</td><td>1</td><td></td></tr>
<tr><td colspan="4">M. Štula, Authorized lecture materials</td><td></td><td>e-learning portal</td></tr>
<tr><td colspan="4"></td><td></td><td></td></tr>
<tr><td colspan="4"></td><td></td><td></td></tr>
<tr><td colspan="4"></td><td></td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="7">- C# 3.0 Unleashed With the .NET Framework 3.5, Joseph Mayo
- Foundations of WPF: An Introduction to Windows Presentation Foundation, Laurence Moroney, Apress</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="7">- Students’ surveys for teacher evaluation
- Students attendance track
- Annual statistic on passed exam</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="7"></td></tr>
</table>

NAME OF THE COURSE	FINAL THESIS						
Code	FEXX01	Year of study	3				
Course teacher		Credits (ECTS)	12				
Associate teachers		Type of instruction (number of hours)	L	S	AE	LE	DE
Status of the course	Obligatory	Percentage of application of e-learning					

COURSE DESCRIPTION						
Course objectives	Training students for: - consolidating theoretical knowledge and practical skills in solving highly complex engineering problems - being independent in solving problems under the given conditions - writing and presenting the project results					
Course enrolment requirements and entry competences required for the course	Acquired 120 ECTS credits					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - consolidate theoretical knowledge and practical skills in solving problems - use literature, databases and other sources of information - select appropriate methods and procedures for solving practical problems - apply technical knowledge and skills to effectively solve engineering problems - give public presentation, to prepare written report and present project results					
Course content broken down in detail by weekly class schedule (syllabus)	Final thesis is the independent work of the student produced according to the task and instructions given by the supervisor					
Format of instruction	☐ lectures ☐ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work		☐ independent assignments ☐ multimedia ☐ laboratory ☒ work with mentor ☐ (other)			
Student responsibilities	Independent work					
Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance		Research		Practical training	
	Experimental work		Report		Individual work	12
	Essay		Seminar essay		(Other)	
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	Final thesis is evaluated by the supervisor based on the student's achievements during the process of the final thesis production and on written and oral presentation.					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Literature depends on the given problem. The literature list may be given by the supervisor or the student should find the appropriate literature to help solve the problem.		
Optional literature (at the time of submission of study programme proposal)			
Quality assurance methods that ensure the acquisition of exit competences	- Self-evaluation of teachers - Student survey of the whole study programme		
Other (as the proposer wishes to add)			

3. STUDY PERFORMANCE CONDITIONS

3.1. Places of the study performance

Buildings of the constituent part (name existing, under construction and planned buildings)	
Identification of building	
Location of building	
Year of completion	
Total square area in m^2	
Identification of building	
Location of building	
Year of completion	
Total square area in m^2	

3.2. List of teachers and associate teachers

CODE	Course	Teachers and associate teachers
	List the courses in alphabetical order	

FELB07	Algorithms	Matko Šarić, Ph.D., Assistant Professor Associate teachers: Ante Topić, dipl. ing.
FELB04	Basic electronics	Tihomir Betti, Ph.D., Assistant Professor Ivan Marasović, Ph.D., Assistant Professor
FETB01	Business Informatics	Stipo Čelar, Ph.D., Associate Professor Associate teachers:Mili Turić, mag. comp, Associate teachers
FELB19	Communication protocols and architectures	Matko Šarić, Ph.D., Assistant Professor Associate teachers:Tomislav Odrljin, Teaching Assistant
FEOB02	Communication skills	Mirjana M. Kovač, Ph.D., Assistant Professor
FELB18	Computer and data security	Mario Čagalj, Ph.D., Full Professor
FELB05	Computer architectures	Sven Gotovac, Ph.D., Full Professor Associate teachers: Dunja Gotovac, Teaching Assistant
FELB11	Computer networks	Julije Ožegović, Ph.D., Full Professor Associate teachers: Vesna Pekić,Ph.D. Ante Kristic, Ph.D.
FELB03	Data Structures	Linda Vicković, Ph.D., Associate Professor Associate teachers: Ivica Crnjac, Teaching Assistant
FELB08	Databases	Vladan Papić, Ph.D., Full Professor Associate teachers: Tea Marasović, Ph.D., Assistant Professor
FEMB02	Discrete mathematics	Josipa Barić, Ph.D., Assistant Professor Associate teachers: Ivana Grgić, Lea Dujić

FELB06	Discrete systems and structures	Julije Ožegović, Ph.D., Full Professor Associate teachers: Josip Musić,Ph.D., Assistant Professor, Duje Čoko, Ph.D., Assistant Professor, Vesna Pekić, Ph.D. Ante Kristic, Ph.D.
FENB01	Electrical engineering	Slavko Vujević, Ph.D., Full Professor Associate teachers: Dino Lovrić, Ph.D., Research Assistant
FENB03	Engineering economy	Ranko Goić; Ph:D., Full Professor Associate teachers: Damir Jakus, Ph.D., Assistant Professor, Josip Vasilj, PhD, Stipe Vodopija, MSc
FEOB03	English language 1	Daniela Matić, Ph.D., Assistant Professor
FEOB04	English language 2	Daniela Matić, Ph.D., Assistant Professor
FELB13	Internet programming	Maja Štula, Ph.D., Full Professor Josip Maras, Ph.D.
FELB01	Introduction to computers and programming	Mirjana Bonković, Ph.D., Full Professor Ana Kuzmanić Skelin, Ph.D., Assistant Professor
FELB15	Introduction to distributed information systems	Ljiljana Šerić, Ph.D., Assistant Professor Associate teachers: Maja Braović, Ph.D.
FELB21	Introduction to embedded systems	Sven Gotovac, Ph.D., Full Professor Associate teachers:
FEMX01	Mathematics 1	Ivan Slapničar, Ph.D., Full Professor, Anita Matković, Ph.D., Associate Professor, Josipa Barić, Ph.D., Assistant Professor Associate teachers: Ph.D. Nevena Jakovčević Stor, Irena Bego, Anita Carević, Marija Čatipović, Lea Dujić, Ivana Grgić, Lana Periša, Marina Mandić, Dajana Radišić, Mirjana Strukan, Stjepan Vedran Vukasović, Vanja Županović.
FEMX02	Mathematics 2	Ivan Slapničar, Ph.D., Full Professor, Anita Matković, Ph.D., Associate Professor, Josipa Barić, Ph.D., Assistant Professor Associate teachers: Ph.D. Nevena Jakovčević Stor, Irena Bego, Anita Carević, Marija Čatipović, Lea Dujić, Ivana Grgić, Lana Periša, Marina Mandić, Dajana Radišić, Mirjana Strukan, Stjepan Vedran Vukasović, Vanja Županović
FELB02	Object oriented programming	Ivo Mateljan, Ph.D., Full Professor Marjan Sikora, Ph.D., Assistant Professor
FELB10	Operating systems	Sven Gotovac, Ph.D., Full Professor Associate teachers: Petra Lončar, Teaching Assistant
FEMB03	Physics 1	Ivica Puljak, Ph.D., Full Professor Nikola Godinović, Ph.D., Associate Professor Ilja Doršner, Ph.D., Associate Professor, Damir Lelas, Ph.D., Assistant Professor Associate teachers: Dunja Polić, Ivica Sorić, Toni Šćulac, Darko Zarić, Toni Vrdoljak
FEMB04	Physics 2	Ivica Puljak, Ph.D., Full Professor, Nikola Godinović, Ph.D., Associate Professor,Ilja Doršner, Ph.D., Associate Professor, Damir Lelas, Ph.D., Assistant Professor Associate teachers: Dunja Polić, Ivica Sorić, Toni Šćulac, Darko Zarić, Toni Vrdoljak

FENB02	Practicum	M.Sc. Spomenka Bovan
FEMB01	Probability and statistics	Ante Rozga, Ph. D., Full Professor Associate teachers: Marina Mandić
FEXX06	Professional training	
FESB01	Programming	Damir Vučina, Ph.D., Full Professor Damir Sedlar, Ph.D., Assistant Professor Associate teachers: Igor Pehnec, Ph.D., Assistant Professor Ivan Tomac, Ph.D., Assistant Professor
FELB24	Programming for Android	Toni Jakovčević, Ph.D., Assistant Professor
FELB25	Programming in Python	Tea Marasović, Ph.D., Assistant Professor
FELB17	Programming in the unix environment	Damir Krstinić, Ph.D., Associate Professor
FELB20	Signal processing	Dinko Begušić, Ph.D., Full Professor Associate teachers: Maja Stella, Ph.D., Assistant Professor
FELB09	Signals and systems	Tamara Grujić, Ph.D., Full Professor
FELB12	Software Engineering	Linda Vicković, Ph.D., Associate Professor
FELB14	System analysis and design	Maja Štula, Ph.D., Full Professor
FELB16	Windows programming	Maja Štula, Ph.D., Full Professor

FEXX01	Final Thesis	

3.3. Curriculum vitae of the course teacher

First and last name and title of teacher	**Josipa Barić, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Mathematics 1, Mathematics 2 Discrete mathematics
GENERAL INFORMATION ON COURSE TEACHER	
Address	FESB, R. Boškovića 32, B809
Telephone number	021 305899
E-mail address	josipa.baric@fesb.hr
Personal web page	
Year of birth	1974.
Scientist ID	248871
Research or art rank, and date of last rank appointment	scientific assistant
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, permanent position, since 2011.
Area and field of election into research or art rank	Area od Natural Sciences, Field of Mathematics
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	FESB, Split
Date of employment	2001.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Mathematics
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D.
Institution	PMF
Place	Zagreb
Date	January 2011.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
Year	
Place	
Institution	
Field of training	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Lecturer of various courses since 2001.
Authorship of university/faculty textbooks in the field of the course	Ivan Slapničar, Josipa Barić i Marina Ninčević, Matematika 2 – zbirka zadataka, FESB, Split, 2010. (Manualia Universitatis studiorum Spalatensis) Barić, Josipa; Bibi, Rabia; Bohner, Martin; Nosheen, Ammara; Pečarić, Josip. Jensen Inequalities on Time Scales, Theory and Applications . Zagreb : Element, 2015
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Barić, Josipa; Jakšić, Rozarija; Pečarić, Josip. Converses of Jessen's inequality on time scales II. // Mathematical inequalities & applications. 19 (2016) , 4; 1271-1285. 2. Barić, Josipa; Bohner, Martin; Jakšić, Rozarija; Pečarić, Josip. Converses of Jessen's inequality on time scales. // Mathematical notes. 98 (2015) , 1; 11-24. 3. Barić, Josipa; Nosheen, Ammara; Pečarić, Josip. Time scale Hardy-type inequalities with general kernel for superquadratic functions. // Proceedings of A. Razmadze Mathematical Institute. 165 (2014) ; 1-18, 4. Barić, Josipa; Bibi, Rabia; Bohner, Martin; Pečarić, Josip. Time scales integral inequalities for superquadratic functions. // Journal of the Korean Mathematical Society. 50 (2013) , 3; 465-477
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on	Evaluations organized by the Quality Enhancement Centre of the University of Split each semester. Average grade is 4.5 on the 1-5 scale.

grading scale and course evaluated)	

First and last name and title of teacher	**Dinko Begušić, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Signal processing
GENERAL INFORMATION ON COURSE TEACHER	
Address	Trondheimska 4d, Split
Telephone number	021305637
E-mail address	begusic@fesb.hr
Personal web page	www.fesb.hr/~begusic
Year of birth	1960.
Scientist ID	129685
Research or art rank, and date of last rank appointment	Scientific advisor, scientific field of electrical engineering Scientific advisor, scientific field of computing
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full professor, permanent position (date of election Spetember 11, 2008)
Area and field of election into research or art rank	Scientific area of technical sciences, scientific field of electrical engineering Scientific area of technical sciences, scientific field of computing
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	University of Split, Faculty of electrical engineering, mechanical engineering and naval architecture
Date of employment	1985.
Name of position (professor, researcher, associate teacher, etc.)	Full professor, permanent position
Field of research	Information and communication technology, Telecommunications and informatics, Information processing, Networking technologies, Digital signal processing
Function	Chair of communication technologies and signal processing
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	University of Zagreb, Faculty of electrical engineering and computing
Place	Zagreb
Date	1992.
INFORMATION ON ADDITIONAL TRAINING	
Year	1990.
Place	Bruxelles, Belgija
Institution	Universite Libre de Bruxelles
Field of training	Telecommunications and informatics, Digital signal processing
Year	1992.
Place	London
Institution	King's College London
Field of training	Telecommunications and informatics, Digital signal processing
Year	1998.
Place	Dallas, SAD
Institution	University of Texas at Dallas
Field of training	Telecommunications and informatics, Digital signal processing

MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English, 5
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Digital signal processing (bachelor study of electrical engineering)
Authorship of university/faculty textbooks in the field of the course	D.Begušić: "Signal processing", handouts, 2016. D.Begušić: "Digital signal processing", handouts, 2016.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	T.Perković, M.Čagalj, T.Mastelić,N.Saxena, D.Begušić: "Secure Initialization of Multiple Constrained Wireless Devices for an Unaided User", IEEE Transactions on Mobile Computing (1536-1233) 11 (2012), 2; pp.337-351 M. Stella, M. Russo, D. Begušić: "RF Localization in Indoor Environment", Radioengineering, Special issue on advanced RF measurements (ISSN 1210-2512), Vol 21, No. 2, 2012, pp. 557-567 J. Lorincz, A. Capone, D. Begušić, "Optimized Network Management for Energy Savings of Wireless Access Networks", Computer Networks Journal (ISSN: 1389-1286), svezak 55, broj 3, February 2011, str.: 626-648 J.Lorincz, A. Capone, D. Begušić, "*Heuristic Algorithms for Optimization of Energy Consumption in Wireless Access Networks*", KSII Transactions on Internet and Information Systems (ISSN: 1976-7277), svezak 5, broj 5, April 2011., str.: 514-540 D.Begušić, N.Rožić: "Frequency Estimation for Complex Field Image Channel Coding", IEE Proceedings – Communications,ISSN 1350-2425, UK, Vol.147, No.2, pp.75-80, April 2000.1053-587X, Vol.48, No.4, pp.1097-1109, April 2000.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	T.Kilić, I.Puljak, D.Begušić: "*Studying electrical engineering and information technology at the University of Split, Croatia*", International Journal of Electrical Engineering Education, Manchester University Press, ISSN 0020-7209, Vol. 44, No. 2; pp.175-183, Manchester, UK, 2007. D.Begušić, B.Bilić, T.Kilić, I.Puljak:"*Bolonjski proces na Fakultetu elektrotehnike, strojarstva i brodogradnje u Splitu*", Zbornik sažetaka Obrazovanje inženjera Bolonjski proces 3 godine kasnije, Hrvatska akademija tehničkih znanosti, pp.38-39, Zagreb, 2007.
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	Advanced networking technologies and systems, project FESB Advanced heterogeneous networking technologies, project MZOS Collaborative internationalization of software engineering in Croatia j, project TEMPUS Research in the area fo telecommunications, joint project FESB - Ericsson Nikola Tesla

	International conference on Software, Telecommunications and Computer Networks SoftCOM Journal of Communications Software and Systems
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Member of Croatain Academy of Engineering, Department of Information systems
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Tihomir Betti, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Basic electronics
GENERAL INFORMATION ON COURSE TEACHER	
Address	Kaštelanska 2, HR-21000, Split
Telephone number	091 4305 889
E-mail address	betti@fesb.hr
Personal web page	
Year of birth	1977
Scientist ID	248722
Research or art rank, and date of last rank appointment	Assistant research fellow, 22.11.2012.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, 18.09.2013.
Area and field of election into research or art rank	Technical sciences, electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	08.06.2001.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Electronics, Nanoelectronics, Photovoltaics
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	04.12.2009.
INFORMATION ON ADDITIONAL TRAINING	
Year	2013. (7 weeks)
Place	Freiburg, Germany
Institution	Fraunhofer ISE
Field of training	Photovoltaics
Year	2011. (3 weeks)
Place	Ljubljana, Slovenia
Institution	Institute „Jožef Stefan“
Field of training	Hybrid polymer solar cells
Year	2007-2009. (several visits, 4 weeks in total)
Place	Munich, Germany
Institution	Walter Schottky Institute
Field of training	Application of semiconductor nanostructures in third generation photovoltaics
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian, 2

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Electronic devices and circuits, Undergraduate study of Electrical Engineering and Information Technology Pulse and digital circuits, Undergraduate study of Control Engineering and Automation, Electronic and Computer Engineering and Communication and Information Technology Digital instrumentation 1, Undergraduate study of Control Engineering and Automation, Electronic and Computer Engineering and Communication
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. I. Marasović, Ž. Milanović, T. Betti, "Resistance Fluctuations in GaAs Nanowire Grids", Journal of Nanomaterials, (2014), 428390 2. I. Marasović, T. Garma, T. Betti, "Modelling a nanowire grid for light-sensing applications", Journal of Physics D: Applied Physics 45 (2012)
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Mirjana Bonković, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Introduction to Computers and Programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	R. Boškovića 32, 21 000 Split, HR
Telephone number	+385 91 4 305 641
E-mail address	mirjana.bonkovic@fesb.hr
Personal web page	
Year of birth	
Scientist ID	190481
Research or art rank, and date of last rank appointment	
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full professor, 2016.
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	01/7/1991
Name of position (professor, researcher, associate teacher, etc.)	Full professor, 2016.
Field of research	control systems, robotics, computer vision, optimization
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	10/3/2000.
INFORMATION ON ADDITIONAL TRAINING	
Year	1995
Place	Oxford, UK
Institution	Robotics Research Group
Field of training	Robot production lines optimization
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (2)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Computers and Programming, Undergraduate study program Programming, Undergraduate professional study program Object oriented programming, Undergraduate study program
Authorship of university/faculty textbooks in the field of the course	Zbirka riješenih zadataka iz programiranja u Cu, upute za laboratorijske vježbe, Interna skripta, FESB Split Mikroregulatori i ugradbeni mrežni sustavi, Interna skripta, FESB Split, 2014
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Kuzmanić Skelin, Ana; Grujić, Tamara; Bonković, Mirjana, Visual Peoplemeter: A Vision-based Television Audience Measurement System. // Advances in Electrical and Computer Engineering. 14 (2014) , 4; 73-80 2. Mazić Igor, Bonković Mirjana, Džaja Barbara. Two-Level Coarse-to-Fine Classification Algorithm for Asthma Wheezing Recognition in Children's Respiratory Sounds. //Biomedical Signal Processing and Control. 5 (2015) ; 105-118 (članak, znanstveni). 3. Džaja, Barbara; Bonković, Mirjana; Malešević, Ljubomir. Solving a two-colour problem by applying probabilistic approach to a full-colour multi- frame image super-resolution. // Signal processing. Image communication. 28 (2013) , 5; 509-521 (članak, znanstveni). 4. Čić, Maja; Šoda, Joško; Bonković, Mirjana. Automatic classification of infant sleep based on instantaneous frequencies in a single-channel EEG signal. // Computers in biology and medicine. 43 (2013) , 12; 2110-2117 (članak, znanstveni). 5. Musić, Josip; Bonković, Mirjana; Cecić, Mojmil. Comparison of uncalibrated model-free visual servoing methods for small amplitude movement: a simulation study. //International journal of advanced robotic systems. 11 (2014) , 108; 1-16 (članak, znanstveni).
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	Provjera inovativnog koncepta, Alarm astmatičnog napada, projekt HAMAG-BICRO, agencija za malo gospodarstvo, inovacije i investicije., 2014. /2015. "Virtual CulTourist - Razvoj korisničkog sučelja za virtualno predstavljanje kulturne baštine kroz integraciju inovativnih 3D tehnologija", 2016-2017. Programa tehnološkog razvoja, istraživanja i primjene inovacija (2014.-2017.), SDŽ "Napredne metode 3D virtualizacije – na putu prema virtualnom turizmu i digitalizaciji splitske kulturne baštine", 2015-2016. Programa tehnološkog razvoja, istraživanja i primjene inovacija (2014.-2017.), SDŽ

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Spomenka Bovan, M.Sc.E.E.**
The course he/she teaches in the proposed study programme	Practicum
GENERAL INFORMATION ON COURSE TEACHER	
Address	Split, Trondheimska 4d
Telephone number	+385 21 305 697
E-mail address	spomenka.bovan@fesb.hr
Personal web page	
Year of birth	1960
Scientist ID	154920
Research or art rank, and date of last rank appointment	
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior lecturer 17.04.2013.
Area and field of election into research or art rank	Technical sciences, electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	22.04.1987.
Name of position (professor, researcher, associate teacher, etc.)	Senior lecturer
Field of research	Electronics
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	M. Sc.
Institution	Faculty of Electrical Engineering
Place	Zagreb
Date	27.02.1992.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (2)
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Electronic devices, Professional study programme, 2nd semester Electronic circuits, Professional study programme, 3rd semester Basic electronics, Professional study Programme, 2nd semester
Authorship of university/faculty textbooks in the field of the course	1. S. Bovan: *Osnove elektronike – autorizirana predavanja*, e-learning portal FESB 2. S. Bovan: *Elektronički elementi – Repetitorij s laboratorijskim*

	vježbama, Veleučilište u Splitu, 2000. 3. S. Bovan, I. Marasović: *Poluvodički elektronički elementi – upute za laboratorijske vježbe*, autorizirana skripta, FESB, Split 4. S. Bovan: *Elektronički sklopovi – Upute za laboratorijske vježbe,*autorizirana skripta, FESB, Split
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4,4

First and last name and title of teacher	**Mario Čagalj, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Computer and data security
GENERAL INFORMATION ON COURSE TEACHER	
Address	B. Kašića 18, 21312 Podstrana
Telephone number	021 305 663 (posao)
E-mail address	mario.cagalj@fesb.hr
Personal web page	http://www.fesb.hr/~mcagalj/
Year of birth	10.12.1975.
Scientist ID	282821
Research or art rank, and date of last rank appointment	Scientific Adviser, 2016
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full Professor, 2016
Area and field of election into research or art rank	Technical Sciences, Computer Science and Computing
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	FESB
Date of employment	2006
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Information security, applied cryptography, computer and communication networks
Function	-
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Swiss Federal Institute of Technology Lausanne (EPFL)
Place	Lausanne, Switzerland
Date	16.01.2006.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	1. Cryptography and Network Security, (FELK10, 250), graduate study, FESB 2. Wireless Security (FELK19, 250), graduate study, FESB
Authorship of university/faculty textbooks in the field of the course	Notes for laboratory exercises for the course „Cryptography and Network Security“
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Čagalj, Mario; Perković, Toni; Bugarić, Marin. **Timing Attacks on Cognitive Authentication Schemes**. *// IEEE transactions on information forensics and security*. **10** (2015) , 3; 584-596 (članak, znanstveni).

	2. Čagalj, Mario; Perković, Toni; Bugarić, Marin; Li, Shujun. **Fortune cookies and smartphones: Weakly unrelayable channels to counter relay attacks**. // *Pervasive and Mobile Computing*. **20** (2015) ; 64-81 (članak, znanstveni). 3. Kovačević, Tonko; Perković, Toni; Čagalj, Mario. **Flashing displays : User-friendly solution for bootstrapping secure associations between multiple constrained wireless devices**. // *Security and Communication Networks*. **9** (2015) , 10; 1050-1071 (članak, znanstveni). 4. Perković, Toni; Čagalj, Mario; Mastelić, Toni; Saxena, Nitesh; Begušić, Dinko. **Secure Initialization of Multiple Constrained Wireless Devices for an Unaided User**. // *IEEE transactions on mobile computing*. **11** (2012) , 2; 337-351 (članak, znanstveni). 5. Perković, Toni; Bugarić, Marin; Čagalj, Mario. **Optimizing Decision Tree Attack on CAS Scheme**. // *Advances in Electrical and Computer Engineering*. **16** (2016) , 2; 69-74 (članak, znanstveni).
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. EU FP7 projekt „EPISECC: Establish Pan-European Information Space to Enhance Security of Citizens“ (2014 - 2017) 2. Stručni projekt s Ericsson Nikola Tesla dd, „Zaštitni mehanizmi u novoj generaciji M2M sustava (N-M2M-Sec)“, (2010 - 2013)
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Stipo Čelar, Ph.D., Associate Professor**
The course he/she teaches in the proposed study programme	Business Informatics
GENERAL INFORMATION ON COURSE TEACHER	
Address	Vrboran 45
Telephone number	+385 21 305 843
E-mail address	stipe.celar@fesb.hr
Personal web page	https://nastava.fesb.hr/nastava/nastavnici/detalji/scelar
Year of birth	1967
Scientist ID	297890
Research or art rank, and date of last rank appointment	Senior Research Associate, 14/03/2014
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Associate Professor 20/09/2016
Area and field of election into research or art rank	• Technical science, Field Computer science (*senior research associate*) • Technical science, Field Basic techn.science (*research associate*)
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	University of Split, FESB
Date of employment	01/01/2008
Name of position (professor, researcher, associate teacher, etc.)	Associate Professor
Field of research	Software engineering, Information systems
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D.
Institution	Technische Universität Wien
Place	Vienna, Austria
Date	28/08/1997
INFORMATION ON ADDITIONAL TRAINING	
Year	2009.
Place	Paderborn, Germany
Institution	Fakultät für Elektrotechnik, Informatik und Mathematik, Universität Paderborn
Field of training	Software engineering
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	english 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Russian 3
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Slovak 2

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Information Systems Design, University of Mostar FSR, Graduate study programme
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Dragicevic, Srdjana; Celar, Stipe; Turic, Mili. Bayesian network model for task effort estimation in agile software development. // *Journal of systems and software*. 127 (2017) ; 109-119. 2. Celar, Stipe; Mudnic, Eugen; Seremet, Zeljko. State-of-the-art of messaging for distributed computing systems // *Procedia Engineering* / Katalinic, B. (ur.). Mostar : Elsevier & DAAAM, 2016. 298-307. 3. Vicković, Linda; Gotovac, Sven; Čelar, Stipo. Simulation-Based Performance Analysis of the ALICE Mass Storage System. // *International journal of simulation modelling*. 15 (2016) , 1; 70-82. 4. Celar, Stipe; Stojkic, Zeljko; Seremet, Zeljko; Marusic, Zeljko; Zelenika, Danijel. Classification of test documents based on handwritten student id's characteristics // *Procedia Engineering*, Volume 100-2015 / B. Katalinic (ur.). Beč : Elsevier, 2015. 782-790. 5. Dragičević, Srđana; Čelar, Stipo. Method for Elicitation, Documentation and Validation of Software User Requirements (MEDoV) // Proceedings of 18th IEEE International Symposium on Computers and Communications (ISCC 2013). 2013, IEEE, 2013, 956-961.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	1. Čelar, Stipe; Turić, Mili; Dragičević, Srdjana; Veža, Ivica. Digital Learning Factory at FESB – University of Split // *ZBORNIK RADOVA YU INFO 2016* / Prof. dr. Miodrag Ivković (ur.). Beograd : Društvo za informacione sisteme i računarske mreže, 2016. 001-006. 2. Klarin, Karmen; Čelar Stipo. Knowledge representation in the ontological engineering using conceptual modeling and graph- based reasoning // Contemporary Issues in Economy and Technology - CIET 2016. Split : University of Split, University Department of Professional Studies, 2016. S-153-S-164. 3. Klarin, Karmen; Čelar, Stipo. Modeling information resources and application using ontological engineering // WSCAR 2015 / Rachid Sammouda (ur.). Rim, Italy : IEEE, 2015. 1-6. 4. Klarin, Karmen; Čelar, Stipo. Ontology-based knowledge management approach for information system development // Proceedings of Papers / George Paunovic (ur.). Beograd : IEEE, 2013. 805-808.
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. INSENT – INovative Smart ENTerprise (HRZZ-1355), 2014 – 2018 (znanstveni projekt HRZZ) 2. Plan-PRO, Softver za planiranje proizvodnje, 2015 – 2016 (tehnologijski projekt, SDŽ) 3. VENIO FIN – Programsko rješenje za računovodstvo i financije primjenom .NET tehnologija, 2014 – 2015 (tehnologijski projekt, SDŽ) 4. PIVIS Projekt – Informatizacija MIB Pivac, 2010 - danas (stručni projekt) 5. VENIO indicium – start up i spin off, 2011 – danas, (stručni projekt)

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	In October 1995. Prof. Stipe Čelar graduated in philosophy at the University of Zagreb.
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	1. In 1994 Prof. Stipe Čelar won a scholarship "Bertha von Suttner" from the Ministry of Science and Research of the Republic of Austria for his Ph.D research at the Department of Intelligent Manufacturing Systems at the Vienna University of Technology (TU Wien), Austria. 2. In 2009 received the Jubilee Gold Medal of DAAAM International Vienna
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Ilja Doršner, Ph.D., Associate Professor**
The course he/she teaches in the proposed study programme	Physics 1 Physics 2
GENERAL INFORMATION ON COURSE TEACHER	
Address	Ulica pod Kosom 15, 21000 SPLIT
Telephone number	0914305883
E-mail address	dorsner@fesb.hr
Personal web page	
Year of birth	1971
Scientist ID	341315
Research or art rank, and date of last rank appointment	
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Associate professor, 16.4.2014.
Area and field of election into research or art rank	Area of natural sciences, field of physics
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, R. Boškovića 32, 21000 Split, Croatia
Date of employment	1.9.2014.
Name of position (professor, researcher, associate teacher, etc.)	professor
Field of research	Physics
Function	Head of Chair of Physics
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	University of Delaware
Place	Newark, Delaware, United States of America
Date	10.1.2004.
INFORMATION ON ADDITIONAL TRAINING	
Year	2007. – 2009. god.
Place	Ljubljana, Slovenia
Institution	Institute Jožef Stefan
Field of training	Elementary Particle Physics
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Slovenian 4
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Fundamentals in Physics II, undergraduate program, University of Delaware, USA

Authorship of university/faculty textbooks in the field of the course	*Symmetries in physics*, Ilja Doršner, ISBN 978-9958-592-35-5, 2013.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	Ilja Doršner, Svjetlana Fajfer, Admir Greljo, Jernej F. Kamenik, and Nejc Košnik, "**Physics of leptoquarks in precision experiments and at particle colliders"**," *Phys. Rept.* 641 (2016) 1-68, arXiv:1603.04993. Ilja Doršner, Svjetlana Fajfer, and Nejc Košnik, "**Is symmetry breaking of** *SU*(5) **theory responsible for the diphoton excess?**," *Phys. Rev. D* 94 (2016) no.1, 015009, arXiv:1601.03267. Ilja Doršner, "**Comment on "***SU*(5) **octet scalar at the LHC**"," *Phys. Rev. D* **91** (2015) 118701. Ilja Doršner, Svjetlana Fajfer, Admir Greljo, Jernej F. Kamenik, Nejc Košnik, and Ivan Nišandžić, "**New physics models facing lepton flavor violating Higgs decays at the percent level**," JHEP (2015) 0615:108, arXiv:1502.07784. Ilja Doršner, Svjetlana Fajfer, and Admir Greljo, "**Cornering Scalar Leptoquarks at LHC**," JHEP (2014) 1014:154, arXiv:1406.4831.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	None
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	***HRZZ Research Projects* (IP-11-2013)**, Hrvatska zaklada za znanost (1.10.2014. god. – 30.9.2018. god.). ***Exploiting the LHC Potential to build Collaboration in Science and Technology* (IZ74Z0_ 137346)**, Swiss Science National Foundation (1.1.2012. – 31.12.2014. god.). ***Sofinanciranje znanstveno raziskovalnega sodelovanja med RS in ZDA v letih* 2009-2012**, Slovenian Research Agency (ARRS) (1.7. 2009. – 30.6.2012. god.).
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Competitive Scholarship 2002, University of Delaware
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Ranko Goić, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Engineering Economy
GENERAL INFORMATION ON COURSE TEACHER	
Address	Put Žnjana 14G, 21000 Split, HR
Telephone number	+385 21 305604
E-mail address	rgoic@fesb.hr
Personal web page	www.fesb.hr/~rgoic
Year of birth	1969.
Scientist ID	207263
Research or art rank, and date of last rank appointment	Senior scientific associate, 2011
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Associate Professor, 2011
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	1993
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Transmission and distribution networks, Power system analysis, Energy economics
Function	Head of Chair of Electrical Networks and Substations
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	11/July/2002
INFORMATION ON ADDITIONAL TRAINING	
Year	2002
Place	Tokyo, Japan
Institution	JICA
Field of training	Energy efficiency
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (4)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Electrical networks (undergraduate), Distribution networks (undergraduate), Fundamentals of power engineering (undergraduate)
Authorship of university/faculty textbooks in the field of the course	

Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Sarajčev, Petar; Goić, Ranko: Assessment of the backflashover occurrence rate on HV transmission line towers, European transactions on electrical power (2011) 2. Vasilj, Josip; Sarajcev, Petar; Goic, Ranko: Modeling of current-limiting air-core series reactor for transient recovery voltage studies, Electric power systems research, 117 (2014) 3. Jakus, Damir; Goić, Ranko; Krstulović Opara, Jakov: The impact of wind power plants on slow voltage variations in distribution networks, Electric power systems research 81 (2011), 2 4. Parida, B.; Iniyan, S.; Goić, Ranko: A review of solar photovoltaic technologies, Renewable & sustainable energy reviews 15 (2011), 3 5. Goić, Ranko; Krstulović-Opara, Jakov; Jakus, Damir: Simulation of aggregate wind farm short-term production variations, Renewable energy 35 (2010), 11
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. Development of mid-voltage distribution grid for next 20 years for Zadar county, 2014 2. Engineering studies (short circuit, load flow, overvoltage protection, earthing system). – basis for design of new submarine cable 110 kV Dugi rat – Postire and reconstruction of substation Dugi rat", 2014 3. Energy-economic analysis of construction of small HPP Peruća, 2013 4. Engineering studies (short circuit, load flow, overvoltage protection, earthing system) – basis for design of refurbishment of HPP Ozalj 1, 2013 5. Optimal technical solution for grid connection of refurbished HPP Zakučac 4x140 MW, 2013
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4,6/5

First and last name and title of teacher	**Sven Gotovac, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Computer architectures Operating systems Introduction to embedded systems
GENERAL INFORMATION ON COURSE TEACHER	
Address	Đorđićeva 5, 21000 Split
Telephone number	+385 21 305850
E-mail address	sven.gotovac@fesb.hr
Personal web page	www.fesb.hr
Year of birth	1960
Scientist ID	108173
Research or art rank, and date of last rank appointment	Scientific Adviser/2004.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor/2009.
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	December, 1983
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Computer architecture, Implementation of Computer Vison Algorithms on Advanced Computer Architecture.
Function	Head of Chair of Computer Architecture and Operating Systems, Dean of Faculty
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Tehnical University Berlin, Germany
Place	Berlin, Germany
Date	24.5.1994.
INFORMATION ON ADDITIONAL TRAINING	
Year	From 2004.
Place	CERN, Genève, Switzerland
Institution	Genève, Switzerland
Field of training	Distributed Computer Architecture
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian 3
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Digital circuits Impulse electronics

Authorship of university/faculty textbooks in the field of the course	Elektronički sklopovi, P.Slapničar, S. Gotovac, FESB, Split 2000. Osnovni elektronicki poluvodički elementi, I. Zulim, S. Gotovac., FESB, Split 1998.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Vicković, Tomislav. Razvoj i realizacija digitalnog uređaja za mjerenje jakosti treperenja napona/znanstveni magistarski rad. Split : Fakultet elektrotehnike, strojarstva i brodogradnje, 08.11. 2010, 161 str. Voditelj: Gotovac, Sven. 2. Vicković, Linda; Mudnić, Eugen; Gotovac, Sven. Parity information placement in the disk array model. //COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering. 28 (2009) , 6; 1428-1441
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. ALICE experiment CERN, Modelling of the distributed computing system for storage and retrieval of mass data for high energy physics. – HPC Systems. International scientific project since 2004. 2. Computing system of the University of Mostar.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-pedagoške kompetencije?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Special award for the development of the University of Mostar Award for Scientific Achievements from University of Split
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4.7/5

First and last name and title of teacher	**Tamara Grujić, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Signals and Systems
GENERAL INFORMATION ON COURSE TEACHER	
Address	Dinka Šimunovića 5, 21000, Split
Telephone number	++38591-4305-642
E-mail address	tamara.grujic@fesb.hr
Personal web page	
Year of birth	1973.
Scientist ID	248770
Research or art rank, and date of last rank appointment	Scientific Adviser, 06. June, 2013.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full Professor, 23. Februar, 2017.
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture – FESB, University of Split
Date of employment	01. September, 2000.
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Electrical Engineering, Biomedical Engineering
Function	Head of Chair of Automatic Control and Systems
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Dr. sc. (Ph.D.)
Institution	Faculty of Electrical Engineering, University of Ljubljana, Slovenia
Place	Ljubljana, Slovenia
Date	24. November, 2006.
INFORMATION ON ADDITIONAL TRAINING	
Year	Additional trainings (Visiting stays in total of 5 months, during the time period since 2003. to 2006.)
Place	Ljubljana, Slovenia
Institution	Faculty of Electrical Engineering, University of Ljubljana, Slovenia
Field of training	Electrical Engineering, Biomedical Engineering
Year	2003.g. (three months stay)
Place	Reading, UK
Institution	University of Reading, Department of Cybernetics, School of Systems Engineering
Field of training	Biomedical Engineering
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English language (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian language (3)

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	• Linear Control Systems, Graduate study programme, • Practicum of Automatic Control, Graduate study programme, • Multimedia Systems, Graduate study programme, • Signals and Systems in Biomedical Engineering, Postgraduate (PhD) study programme
Authorship of university/faculty textbooks in the field of the course	Faculty textbook: Tamara Grujić: "Osnove signala i sustava – Predavanja sa zadacima", Interna skripta, FESB, Split, 2009.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	Scientific papers published in international journals cited by CC or SCI-Expanded: 1. Grujić Tamara; Kuzmanić Skelin, Ana; Čić, Maja. Design, Development and Testing of a Low-Cost sEMG System and Its Use in Recording Muscle Activity in Human Gait. // *Sensors*. 14 (2014) , 5; 8235-8258 2. Kuzmanić Skelin, Ana; Grujić, Tamara; Bonković, Mirjana. Visual Peoplemeter: A Vision-based Television Audience Measurement System. // *Advances in Electrical and Computer Engineering*. 14 (2014) , 4; 73-80 3. Stančić, Ivo; Grujić, Tamara; Panjkota Ante. Design, Development, and Evaluation of Optical Motion-Tracking System Based on Active White Light Markers. // *IET science measurement & technology*. 7 (2013) , 4; 206-214 4. Stančić, Ivo; Grujić, Tamara; Bonković, Mirjana. New Kinematic Parameters for Quantifying Irregularities in the Human and Humanoid Robot Gait. // *International Journal of Advanced Robotic Systems*. 9 (2012) ; 215-1-215-8 5. Grujić Šupuk, Tamara; Bajd, Tadej; Kurillo, Gregorij. Assessment of Reach-to-Grasp Trajectories Toward Stationary Objects. // *Clinical biomechanics*. 26 (2011) , 8; 811-818
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. Project: "Advanced Methods of 3D Visualization - Towards Virtual Tourism and Cultural Heritage Digitalization of Town of Split", 2015-2016. Tamara Grujić is project researcher. 2. Project: Biomechanics of Human Movements, Control and Rehabilitation", 2007-2014. Tamara Grujić was project researcher. 3. Program: Biomechanics of Human Movements – BioPok, 2007-2014. Tamara Grujić was project researcher.

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	Tamara Grujić, from the time of employment at the FESB (the year 2000) continuously lead a range of courses at The Undergraduate Study in Electrical Engineering and Information Technology, Undergraduate Study in Computer Science, Graduate Study in Automation and Systems, and Postgraduate (Ph.D.) Study in Electrical Engineering and Information Technology. Also, she is giving lectures as a visiting professor, at The Undergraduate Study of Physiotherapy, at the Department of Health Studies, University of Split, Croatia, and at The Faculty of Mechanical Engineering and Computer Science, University of Mostar, Bosnia and Herzegovina. Total so far she held more than 5,000 hours of lectures, auditory and laboratory exercises, as an research assistant (2000-2007), and as professor (2007 -)
PRIZES AND AWARDS	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	Results of student evaluation taken in the last five years for the course "Signals andSystems": 4.13 / 5 Evaluation organizer: University of Split

First and last name and title of teacher	**Toni Jakovčević, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Programming for Android
GENERAL INFORMATION ON COURSE TEACHER	
Address	Getaldićeva 25, Split
Telephone number	0914305832
E-mail address	toni.jakovcevic@fesb.hr
Personal web page	http://laris.fesb.hr/toni.htm
Year of birth	1982
Scientist ID	292313
Research or art rank, and date of last rank appointment	Scientific associate, March 2014.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, May 2014.
Area and field of election into research or art rank	Technical sciences, Field: Computer science
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	2007.
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Computer science, Artificial intelligence
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D.
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split, Croatia
Date	10.1.2011.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Bugarić, Marin; Jakovčević, Toni; Stipaničev, Darko. Adaptive Estimation of Visual Smoke Detection Parameters Based on Spatial Data and Fire Risk Index. // Computer vision and image understanding. 118 (2014) ; 184-196 2. Jakovčević, Toni; Stipaničev, Darko; Krstinić, Damir. Visual spatial-context based wildfire smoke sensor. // Machine vision and applications. 24 (2013) , 4; 707-719 3. Bugarić, Marin; Jakovčević, Toni; Stipaničev, Darko. Computer Vision Based Measurement of Wildfire Smoke Dynamics. // Advances in Electrical and Computer Engineering. 15 (2015) , 1; 55-62 4. Stipaničev, Darko; Bugarić, Marin; Krstinić, Damir; Šerić, Ljiljana; Jakovčević, Toni; Braović, Maja; Štula, Maja. New generation of automatic ground based wildfire surveillance systems // Advances in forest fire research. Coimbra, Portugal : Imprensa da Universidade de Coimbra, 2014. 1455-1466 5. Stipaničev, Darko; Šerić, Ljiljana; Braović, Maja; Krstinić, Damir; Jakovčević, Toni; Štula, Maja; Bugarić, Marin; Maras, Josip. Vision Based Wildfire and Natural Risk Observers // Proc. of 3rd International Conference on Image Processing Theory, Tools and Applications, OS1: Special session on Image Processing for Natural Risks (IPNR) / Khalifa Djemal (France), Mohamed Deriche (KSA), Istanbul, 2012. P271
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	AgISEco – Agent-oriented intelligent systems for environmental survaillance and protection
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Mirjana M. Kovač, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Communication Skills
GENERAL INFORMATION ON COURSE TEACHER	
Address	Put sv. Lovre 35, 21215 Kaštel Lukšić
Telephone number	021 305715
E-mail address	Mirjana.Kovac@fesb.hr
Personal web page	
Year of birth	1971
Scientist ID	297 640
Research or art rank, and date of last rank appointment	Research Associate
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant Professor, February, 2012
Area and field of election into research or art rank	Humanities and Social Sciences; Philology
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split
Date of employment	June, 2006
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Communication skills, speech production and speech disfluencies, communication strategies
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Philosophy, University of Zagreb
Place	Zagreb
Date	10th March, 2010
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	

Authorship of university/faculty textbooks in the field of the course	1.Kovač, M.M.; Sirković, N. Presentation, Writing and Interpersonal Communication Skills. FESB, Split, 2014. 2.Kovač, Mirjana M.; Sirković, Nina. Strategije rješavanja poteškoća u komunikaciji na stranom jeziku. Hrvatska sveučilišna naklada, Zagreb (2015)
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1.Kovač, Mirjana Matea; Sirković, Nina. Peer Evaluation of Oral Presentations in Croatia. // *English Language Teaching*. 5 (2012) , 7; 8-17 (scientific paper). 2.Kovač, Mirjana Matea. Utjecaj kognitivne složenosti zadatka na samoispravljanja. // *Linguistica Copernicana*. 5 (2011) , 1; 269-300 (scientific paper). 3.Kovač, Mirjana Matea; Horga, Damir. Ponavljanja kao oblik govorne disfluentnosti. // *Linguistica Copernicana*. 5 (2011) , 1; 245-267 (scientific paper). 4. Kovač, Mirjana Matea. The Influence of Task Type on Perceived Fluency. // *Studies in English Language Teaching.* 4 (2016), 2; 241-253 (scientific paper). 5. Kovač, Mirjana Matea. Repetition as a Communication Strategy. // *Studies in English Language Teaching.* 4 (2016), 1; 87-104 (scientific paper).
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	1.Kovač, Mirjana Matea; Sirković, Nina. Peer Evaluation of Oral Presentations in Croatia. // *English Language Teaching*. 5 (2012) , 7; 8-17 (scientific paper).
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	Graduate study program in English Language and Literature; Graduate study program in German Language and Literature
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Damir Krstinić, Ph.D., Associate Professor**
The course he/she teaches in the proposed study programme	Programming in the Unix environment
GENERAL INFORMATION ON COURSE TEACHER	
Address	Slobode 43, Split 21000
Telephone number	+385 (0) 21 305 895
E-mail address	damir.krstinic@fesb.hr
Personal web page	http://www.fesb.hr/~dkrst
Year of birth	1975
Scientist ID	248812
Research or art rank, and date of last rank appointment	senior research associate, 2011.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Associate professor, 25. 01. 2017.
Area and field of election into research or art rank	Computer science, Information systems
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	FESB, University of Split
Date of employment	01. 02. 2000.
Name of position (professor, researcher, associate teacher, etc.)	Associate professor
Field of research	Computer science
Function	Associate professor
INFORMATION ON EDUCATION – Highest degree earned	
Degree	dr. sc.
Institution	FESB, University of Split
Place	Split
Date	2008.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian 2
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	

Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Krstinić, Damir; Kuzmanić Skelin, Ana; Milatić, Ivan, Laser Spot Tracking Based on Modified Circular Hough Transform and Motion Pattern Analysis, Sensors, Vol. 14, no. 11, 2014., pp. 20112-20133 2. Jakovčević, Toni; Stipaničev, Darko; Krstinić, Damir, "Visual spatial-context based wildfire smoke sensor", Machine vision and applications (ISSN 1387-8092), Vol. 24(2013), No. 4, pp. 707-719, 2013. 3. Šerić, Ljiljana; Krstinić, Damir; Braović, Maja; Milatić, Ivan; Mirčevski, Aljoša; Stipaničev, Darko, "Holonic Multi Agent System for Data Fusion in Vehicle Classification", in Proc. Of 10th KES International Conference, KES-AMSTA 2016.; pp- 151-161; Puerto de la Cruz, Tenerife, Spain, June 15. - 17. 2016. 4. Stipaničev, Darko; Šerić, Ljiljana; Krstinić, Damir; Bugarić, Marin, "Wildfire video observers network with phyisical an d virtual sensors", 10th EARSel Forest Special Interest Group Workshop – Sensors, Multi-Sensor Integration, Large Volumes: New Oportunities and Chalenges in Forest Fire Research, Limassol, Cyprus, November 2. - 5. 2015. 5. Štula, Maja; Krstinić, Damir; Šerić, Ljiljana, "Intelligent forest fire monitoring system", Information System Frontiers (ISSN 1387-3326), Vol. 14(2012), No. 3; pp- 725-739, 2012.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	• 2016/2017 – overall average 4.7 • 2015/2016 – overall average 4.3 • 2014/2013 – overall average 4.7 • 2013/2014 – overall average 4.7 • 2012/2013 – overall average 4.6

First and last name and title of teacher	**Ana Kuzmanić Skelin, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Introduction to Computers and Programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	R. Boškovića 32, 21 000 Split, HR
Telephone number	+385-91-4305-652
E-mail address	akuzmani@fesb.hr
Personal web page	
Year of birth	
Scientist ID	254392
Research or art rank, and date of last rank appointment	Research associate (Electrical Engineering), 11/7/2014 Research associate (Computer Science), 6/11/2015
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, 14/6/2016
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering Technical Sciences, Field Computer Science
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	15/6/2002
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	control systems, computer vision, adaptive learning methods
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	4/7/2013
INFORMATION ON ADDITIONAL TRAINING	
Year	2006
Place	Surrey, UK
Institution	Centre for Vision, Speech and Signal Processing
Field of training	Wide-baseline image correspondences
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Computers and Programming, Undergraduate study program Practicum in Digital Image Processing, Undergraduate professional study program
Authorship of university/faculty textbooks in the field of the course	Zbirka riješenih zadataka iz programiranja u Cu, upute za laboratorijske vježbe, Interna skripta, FESB Split Praktikum DOS - upute za laboratorijske vježbe, Interna skripta, FESB Split
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Kuzmanić Skelin, Ana; Grujić, Tamara; Bonković, Mirjana, Visual Peoplemeter: A Vision-based Television Audience Measurement System. // Advances in Electrical and Computer Engineering. 14 (2014) , 4; 73-80 2. Krstinić, Damir; Kuzmanić Skelin, Ana; Milatić, Ivan, Laser Spot Tracking Based on Modified Circular Hough Transform and Motion Pattern Analysis. // Sensors. 14 (11) (2014) ; 20112-20133 3. Krstinić, Damir; Kuzmanić Skelin, Ana; Slapničar, Ivan, Fast Two-Step Histogram-Based Image Segmentation. // IET image processing. 5 (2011) , 1; 63-72
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	"Virtual CulTourist - Razvoj korisničkog sučelja za virtualno predstavljanje kulturne baštine kroz integraciju inovativnih 3D tehnologija", 2016-2017. Programa tehnološkog razvoja, istraživanja i primjene inovacija (2014.-2017.), SDŽ "Napredne metode 3D virtualizacije – na putu prema virtualnom turizmu i digitalizaciji splitske kulturne baštine", 2015-2016. Programa tehnološkog razvoja, istraživanja i primjene inovacija (2014.-2017.), SDŽ
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	Introduction to Computers and Programming: 4,4 (Faculties total average per 1. Semester, 120: 4,4; grading scale: 1-5);

First and last name and title of teacher	**Ivan Marasović, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Basic electronics
GENERAL INFORMATION ON COURSE TEACHER	
Address	Jurja Šižgorića 14, 21000 Split
Telephone number	+385 21 305826
E-mail address	Ivan Marasovic@fesb.hr
Personal web page	
Year of birth	1983.
Scientist ID	297561
Research or art rank, and date of last rank appointment	Assistant research fellow, 07.07.2015.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assitant professor, 01.10.2015.
Area and field of election into research or art rank	Technical Sciences, Field electrical Engineering, Branch Electronics
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	01/09/2007
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Electronics, Micro and nano electronics, Solar cells and photovoltaics, Embedded systems
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	11/05/2012
INFORMATION ON ADDITIONAL TRAINING	
Year	2011. (1 weeks)
Place	Freiburg, Germany
Institution	Fraunhofer ISE
Field of training	Photovoltaics
Year	2011. (2 weeks)
Place	Ljubaljana, Slovenia
Institution	Fakultet za elektrotehniko
Field of training	Semiconductor nanoelectronics
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (4)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Electronic devices and circuits, Undergraduate study of Electrical Engineering and Information Technology Basic electronics, Undergraduate study in Computing Digital instrumentation 1, Undergraduate study of Control Engineering and Automation, Electronic and Computer Engineering and Communication
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. L. Mainetti, I. Marasović, L. Patrono,P. Šolić, M.L. Stefanizzi, R. Vergallo "A Novel IoT-aware Smart Parking System based on the integration of RFID and WSN technologies., (2016), 833257 2. I. Marasović, Ž. Milanović, I. Zulim, "Modelling and detection of failure in medical electrodes", (2015), 789296 3. S. Nižetić, I. Marasović, D. Čoko, "Experimental study on a hybrid energy system with small-and medium-scale applications for mild climates., (2014), 694087 4. I. Marasović, Ž. Milanović, T. Betti, "Resistance Fluctuations in GaAs Nanowire Grids", Journal of Nanomaterials, (2014), 428390 5. I. Marasović, T. Garma, T. Betti, "Modelling a nanowire grid for light-sensing applications", Journal of Physics D: Applied Physics 45 (2012)
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4,0

First and last name and title of teacher	**Tea Marasović, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Programming in Python
GENERAL INFORMATION ON COURSE TEACHER	
Address	Zagrebačka 21, 21000 Split, Croatia
Telephone number	+ 385 21 305 647
E-mail address	tmarasov@fesb.hr
Personal web page	
Year of birth	1984
Scientist ID	299776
Research or art rank, and date of last rank appointment	Research associate, November 6, 2015.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, March 22, 2017.
Area and field of election into research or art rank	Technical sciences, Computer Science
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split
Date of employment	December 1, 2007.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Data analysis, machine learning
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split
Place	Split
Date	December 12, 2013.
INFORMATION ON ADDITIONAL TRAINING	
Year	2016
Place	On-line
Institution	University of Michigan
Field of training	Introduction to Data Science in Python
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	
Authorship of university/faculty textbooks in the field of the course	

Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Musić, Josip; Orović, Irena; Marasović, Tea; Papić, Vladan; Stanković, Srdjan. Gradient compressive sensing for image data reduction in UAV- based search and rescue in the wild. // Mathematical Problems in Engineering. 2016(2016); 1-14. 2. Musić, Josip; Marasović, Tea; Papić, Vladan; Orović, Irena; Stanković, Srdjan. Performance of compressive sensing image reconstruction for search and rescue. // IEEE Geoscience and Remote Sensing Letters. 11(2016), 13; 1739-1743. 3. Marasović, Tea; Papić, Vladan; Zanchi, Vlasta. LMNN metric learning and fuzzy nearest neighbour classifier for hand gesture recognition. // Journal on Multimodal User Interfaces. 9(2015), 3; 211-221. 4. Marasović, Tea; Papić, Vladan; Marasović, Jadranka. Motion-based gesture recognition algorithms for robot manipulation. // International Journal of Advanced Robotic Systems. 12(2015), 51; 1-13.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. FESB: Računalna inteligencija za prepoznavanje i potporu ljudskih aktivnosti, 2014. – today
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4.7/5 (Computer Games Programming)

First and last name and title of teacher	**Ivo Mateljan, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Object oriented programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	J. Rodina 4, 21215 Kaštel Lukšić
Telephone number	+395 21 305 860
E-mail address	ivo.mateljan@fesb.hr
Personal web page	marjan.fesb.hr/~mateljan/
Year of birth	1953
Scientist ID	76394
Research or art rank, and date of last rank appointment	Scientific Adviser, 2007
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor, 2011
Area and field of election into research or art rank	Technical Sciences, Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	1/1/1977
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Programming, Virtual Instrumentation, Electroacoustics
Function	Head of Electroacoustic Laboratory
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PdD
Institution	University of Zagreb, Faculty of Electrical Engineering
Place	Zagreb, Croatia
Date	1992.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (4)
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Programming, OOP, Electronic circuit
Authorship of university/faculty textbooks in the field of the course	Ivo Mateljan: Programiranje jezikom C, book published by University of Split, 2010. Ivo Mateljan: Electronic and Virtual Instrumentation, FESB, internal script,, 2004

Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Sikora, Marjan; Mateljan, Ivo.: A Method for Speeding up Beam-tracing Simulation Using Thread-level Parallelization. // *Engineering with computers*. **30,** 2014. 2. Sikora M., Mateljan I., Bogunovic, N.: *Beam Tracing with Refraction,* Archives of Acoustics Vol.37, 2012. 3. Mateljan I., Sikora M.: *Estimation of loudspeaker drivers parameters*, Proc. of 5th Congress of the Alps Adria Acoustics Association Zadar, 2012. 4. Slamka M., Mateljan I., Howes M.: Virtual Surround for Headphones and Earbuds Headphone Externalization System, US patent 8270616, US class: 381/17; 381/1; 381/309, Assignee: Logitech Europe S.A., Sept. 18,2012.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	Ivo Mateljan: ARTA software, Artalabs, 2004-2017.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4.6/5

First and last name and title of teacher	**Daniela Matić, Ph.D, Assistant Professor**
The course he/she teaches in the proposed study programme	English Language 1 English Language 2
GENERAL INFORMATION ON COURSE TEACHER	
Address	Matice hrvatske 23, 21000 Split
Telephone number	098/ 1766010
E-mail address	daniela.matic@fesb.hr
Personal web page	/
Year of birth	1967
Scientist ID	332846
Research or art rank, and date of last rank appointment	/
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor; January 23, 2013
Area and field of election into research or art rank	Humanities; philology
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	November 11, 2005
Name of position (professor, researcher, associate teacher, etc.)	English teacher
Field of research	ESP, pragmatics, discourse analysis, contact linguistcs
Function	/
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D.
Institution	Faculty of Humanities and Social Sciences, University of Zagreb
Place	Zagreb
Date	December 12, 2011
INFORMATION ON ADDITIONAL TRAINING	
Year	1998
Place	Barnstaple, Velika Britanija
Institution	Services for Open Learning, Barnstaple, Inservice Course in Teacher Training
Field of training	English language teaching methodology
Year	2002.
Place	Gyula, Hungary
Institution	A.S.Hornby International Trust, British Council, "Teaching English through Culture"
Field of training	English language teaching methodology
Year	2003
Place	Krakow, Poland
Institution	A.S.Hornby International Trust, British Council, "Intercultural Studies on the Web: Methodology and Materials"
Field of training	English language teaching methodology

MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English; 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	French; 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian; 3
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent	German; 2
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Course teacher of : - English Language 1, 2 and 3 courses at undergraduate studies of Computer Science, Electrical Engineering and IT and Naval Architecture; - English Language 1 and 2 courses at professional studies of Computer Science, Electrical Engineering and IT and Naval Architecture; - English Language for Academic purposes at graduate studies of Mechanical Engineering.
Authorship of university/faculty textbooks in the field of the course	/
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Matić, Daniela. (2012). Zamjenice u hrvatskim političkim govorima. *Filolog: časopis za jezik, književnost i kulturu*. V/2012, Univerzitet u Banjoj Luci, Filološki fakultet, ISSN 1986-5864. 2. Matić, Daniela. (2012). Jezične igre moći u drami Who's Afraid of Virginia Woolf? Edwarda Albeeja. *LINGUA MONTENEGRINA časopis za jezikoslovna, književna i kulturna pitanja,* god. V/2, br. 10. (2012). Podgorica: Institut za crnogorski jezik i književnost. ISSN 1800-7007. 3. Matić, Daniela. (2012). Ideological Discourse Structures in Political Speeches. *Komunikacija i kultura online. Elektronski časopis za jezik, komunikaciju i kulturu*. Godina III. Broj 3. http://www.komunikacijaikultura.org/KK3.html Beograd: FOKUS – Forum za interkulturnu komunikaciju. e-ISSN 2217-4257 (Online) UDC 8:008:316.7 4. Matić, Daniela. (2013). Pronouns in American Political Speeches. *LINGUA MONTENEGRINA časopis za jezikoslovna, književna i kulturna pitanja*, god. VI/1 br. 11. (2013). Podgorica: Institut za crnogorski jezik i književnost. ISSN 1800-7007. 5. Matić, Daniela, Nataša Stojan. (2013). Rodne oznake u oglasima za posao. Kroz jezike i kulture ; Across Languages and Cultures - *Zbornik radova sa Treće međunarodne konferencije Instituta za strane jezike (ICIFL3) i Treće međunarodne konferencije o interkulturnoj komunikaciji* / Lakić, Igor ; Kostić, Nataša (ur.). - Podgorica : Institut za strane jezike / Institute of Foreign Languages, 2013. 59-69 ISBN: 978-86-85263-10-1. 6. Matić, Daniela. (2014). Ideology Hidden in the Form of Croatian and American Political Speeches. *Teme. Časopis za društvene nauke.* Br.3 (2014). Niš: Univerzitet u Nišu. ISSN 0353-7919.

Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	1. Matić, Daniela. (2014). Attitudes of computer science students to the English element in Croatian ICT magazines. *ESP Today. Journal of English for Specific Purposes at Tertiary Leve*l. Volume 2, Issue 2 (2014). http://www.esptodayjournal.org/index.html e-ISSN 2334-9050. 2. Matić, Daniela. (2015). Percepcija hrvatskih studenata računarstva o prihvatljivosti engleskoga elementa u glagolima, glagolskim imenicama i jukstaponiranim leksičkim segmentima u hrvatskim tekstovima iz područja računalnih i komunikacijskih tehnologija. *Od teorije do prakse u jeziku struke - Zbornik radova s 3. stručno-znanstvenog skupa Udruge nastavnika jezika struke na visokoškolskim ustanovama.*/ Cigan, Vesna; Omrčen, Darija (ur.) – Zagreb: Udruga nastavnika jezika struke na visokoškolskim ustanovama, 2015. 65-81.
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	Students' attitudes toward the English element in ICT terminology
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	Regular four-year studies of the English language and literature and the French language and literature at Zagreb University.
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	/
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	Positive

First and last name and title of teacher	**Julije Ožegović, Ph.D., Full Provessor**
The course he/she teaches in the proposed study programme	Computer Networks Discrete Systems and Structures
GENERAL INFORMATION ON COURSE TEACHER	
Address	Istarska 2, 21000 Split, HR
Telephone number	+385 21 305825
E-mail address	julije.ozegovic@fesb.hr
Personal web page	www.fesb.hr/~julije
Year of birth	1954.
Scientist ID	91795
Research or art rank, and date of last rank appointment	Scientific Advisor, 2008-03-12
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor, 2013-09-15
Area and field of election into research or art rank	Technical Sciences, Field Electrical engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	1979-10-01
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Digital electronics, Computer networks, Automata theory
Function	Head of Chair of Digital Systems and Computer Network
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	1998-02-27
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Digital Electronics, Undergraduate study of Electrotechnics, 2006/2007 - today Discrete systems and structures, Undergraduate study of Computing, 2006/2007 - today Computer Networks, Undergraduate study of Electrotechnics, 2006/2007 - today Computer Networks, Undergraduate study of Computing, 2006/2007 - today

	Digital Electronics, Graduate study of Electrotechnics (pre-Bologna), 1998/1999 -2006/2007 Discrete systems and structures, Graduate study of Computing (pre-Bologna), 19982000/2001 - 2006/2007 Computer Networks, Graduate study of Electrotechnics (pre-Bologna), 1998/1999 -2007/2008 Computer Networks, Graduate study of Computing (pre-Bologna), 1998/1999 -2007/2008
Authorship of university/faculty textbooks in the field of the course	Julije Ožegović, Digitalna i mikroprocesorska tehnika, ISBN 953-6806-26-6, Split University, 2000, several editions Julije Ožegović, Digital electronics, Discrete systems and structures, elearning.fesb.hr, updated from 1998 Julije Ožegović, Computer Networks, elearning.fesb.hr, updated from 1998
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	Kedžo, Ivan; Ožegović, Julije; Kristić, Ante: Contention Overhead — Adaptive Binary Priority Countdown protocol, SoftCOM 2013, ISBN 978-953-290-043-9 Kristić, Ante; Ožegović, Julije; Kedžo, Ivan: Mathematical model of simplified Constrained Priority Countdown Freezing protocol, The 18th IEEE Symposium on Computers and Communications (ISCC'13), 2013, ISBN 978-1-4673-2711 Kristić, Ante; Ožegović, Julije; Kedžo, Ivan: Improved mathematical model of simplified Constrained Priority Countdown Freezing protocol, SoftCOM 2013, ISBN 978-953-290-043-9 Kristić, Ante; Ožegović, Julije; Kedžo, Ivan: Mathematical model of Constrained Priority Countdown Freezing Protocol, SoftCOM 2014, ISBN 978-9-5329-0052-1 Ines Ramadza, Julije Ozegovic, Vesna Pekic: Class based tunnel exclusion router architecture, SoftCOM 2014, ISBN 978-9-5329-0052-1
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. Media access mechanism modelling for wireless local networks (MAMM), FESB Split, od 2014. 2. HGCAL - CERN CMS, from 2015.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-	Me4CataLOgue – Teaching and administrative personnel training
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Coauthor of awarded paper - ISCC conference 2013.
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4

First and last name and title of teacher	**Vladan Papić, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Databases
GENERAL INFORMATION ON COURSE TEACHER	
Address	Makarska 2, 21000 Split
Telephone number	(021) 305649
E-mail address	vpapic@fesb.hr
Personal web page	www.fesb.hr/~vpapic
Year of birth	1968
Scientist ID	227412
Research or art rank, and date of last rank appointment	Scientific Adviser, 20/4/2010
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor, 17/12/2015
Area and field of election into research or art rank	Technical Sciences, Field Computer science
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	1/7/20097
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Computer Vision, Expert Systems
Function	Vice-dean for bussines
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	12/2/2002
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian (2)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Computers in technical systems (PMF, Informatika i tehnička kultura, Undergraduate study programme, 2002-2009.) Electronics (PMF, Informatika i tehnička kultura, Undergraduate study programme 2002 – 2009.) Systems theory (FESB, EIT, Undergraduate study programme, 2009-) Databases (FESB, Computing, Undergraduate study programme, 2009-)
Authorship of university/faculty textbooks in the field of the course	V.Papić, Lectures in electronics, University textbook, 2005. (in Croatian) V. Papić, Computer graphics, Faculty textbook, 2013. (in Croatian)
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. J. Musić, T. Marasović, V. Papić, I. Orović, S. Stanković, Performance of compressive sensing image reconstruction for search and rescue, IEEE Geoscience and Remote Sensing Letters, Volume 13, Issue 11, November 2016, Pages 1739-1743. 2. J. Musić, I. Orović, T. Marasović, V. Papić, S. Stanković, Gradient Compressive Sensing for Image Data Reduction in UAV Based Search and Rescue in the Wild, Mathematical Problems in Engineering, Volume 2016, 2016. 3. I. Orović, V. Papić, C. Ioana, X. Li, S. Stanković, Compressive Sensing in Signal Processing: Algorithms and Transform Domain Formulations, Mathematical Problems in Engineering, Volume 2016, 2016. 4. T. Marasović, V. Papić, V. Zanchi, LMNN metric learning and fuzzy nearest neighbour classifier for hand gesture recognition, Journal on Multimodal User Interfaces, Volume 9, Issue 3, 27 August 2015, Pages 211-221. 5. T. Marasović, V. Papić, J. Marasović, Motion-based gesture recognition algorithms for robot manipulation, International journal of advanced robotic systems. 12 (2015) , 51; 1-13.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	-
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. »Technology transfer infrastructure in the Croatian Adriatic region« - TTAdria (IPA IIIc), 2013-2015. 2. "Computer intelligence for recognition and support of human activities " (RIPrePAkt) (FESB), 2013-. (lead researcher). 3. „Search and rescue system prototype based on image processing " (FESB - Statim d.o.o.), 2014-. (lead researcher) 4. „Advanced methods of 3D virtualization – towards virtual turism and digitalization of cultural heritage“ (FESB – Neir d.o.o.), 2015-. (researcer). 5. International bilateral project Croatia- ”Compressive sensing and superresolution in surveillance systems based on optical sensors and UAVs ", Contract with MZOS RH and MZT Republike Crne Gore, 2015-2016. (researcher)
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	

PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Mentor of best student (Marko Trninić) in field of social and humanistic scienses (annual award HRZZ, 2010).
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	3.9/5

First and last name and title of teacher	**Ivica Puljak, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Physics 1 Physics 2
GENERAL INFORMATION ON COURSE TEACHER	
Address	Vinogradska 80, 21000 Split
Telephone number	0915389040
E-mail address	Ivica.Puljak@fesb.hr
Personal web page	
Year of birth	1969
Scientist ID	233396
Research or art rank, and date of last rank appointment	
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full professor, February 2017
Area and field of election into research or art rank	Area of natural sciences, field of physics
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	University of Split *Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture* R. Boškovića 32 21000 Split Croatia
Date of employment	12.5.1994.
Name of position (professor, researcher, associate teacher, etc.)	professor
Field of research	Physics
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	University of Pierre and Marie Curie
Place	Paris, France
Date	September 2000
INFORMATION ON ADDITIONAL TRAINING	
Year	1994. – 2017. god.
Place	Geneva
Institution	CERN
Field of training	Experimenatal Elementary Particle Physics
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	French 5

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Higgs boson physcis, doctoral program, Ecole Polytechnique, Palaiseau, France and ETH, Zurich, Switzerland Numerical method in high energy physics, graduate program, University of Split, Faculty of Scince
Authorship of university/faculty textbooks in the field of the course	Faculty text book*:* *Instructions for laboratory exercises in Physics 1*
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. **Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC** By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al., Group Author(s): CMS Collaboration PHYSICS LETTERS B Volume: 716 Issue: 1 Pages: 30-61 Published: SEP 17 2012 2. **Combined results of searches for the standard model Higgs boson in pp collisions at root s=7 TeV** By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al., Group Author(s): CMS Collaboration PHYSICS LETTERS B Volume: 710 Issue: 1 Pages: 26-48 Published: MAR 29 2012 3. **Study of the Mass and Spin-Parity of the Higgs Boson Candidate via Its Decays to Z Boson Pairs** By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al., Group Author(s): CMS Collaboration PHYSICAL REVIEW LETTERS Volume: 110 Issue: 8 Article Number: 081803 Published: FEB 21 2013 4. **Observation of a new boson with mass near 125 GeV in pp collisions at root s=7 and 8 TeV** By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al., Group Author(s): CMS Collaboration JOURNAL OF HIGH ENERGY PHYSICS Issue: 6 Article Number: 081 Published: JUN 2013 5. **Measurement of the properties of a Higgs boson in the four-lepton final state** By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al., Group Author(s): CMS Collaboration PHYSICAL REVIEW D Volume: 89 Issue: 9 Article Number: 092007 Published: MAY 14 2014
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	None
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	***HRZZ Research Projects* (IP-11-2013)**, Croatian Science Foundation (1.10.2014. god. – 30.9.2018. god.). ***HRZZ Research Projects* (Very high energy gamma ray astronomy with the MAGIC telescopes)**, Croatian Science Foundation (1.7.2012. god. – 31.12.2016.).

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	2017 Science and art Award from the University of Split 2016 Award for the best presentation from ”Društvo za promociju znanosti i kritičkog mišljenja” 2014 Croatian National Science Award 2014 Science Award from the University of Split 2013 European Physical Society Prize, The 2013 High Energy and Particle Physics Prize *Co-winner as a member of the CMS Collaboration* 2013 Croatian National Order of ”Danica Hrvatska”, with Ruđer Bošković, for scientific contribution 2011 Annual Science Award by the newspaper ”Slobodna Dalmacija” 2011 Distinguished Teaching Award by the student association 2001 Best Thesis Award by the CMS collaboration 2000 PhD from University «Pierre et Marie Currie», Paris VI, obtained with Honours *Très honorable, avec les félicitations du jury*
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Ante Rozga, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Probability and Statistics
GENERAL INFORMATION ON COURSE TEACHER	
Address	21000 Split, 166 Vukovarska
Telephone number	021 430-649
E-mail address	rozga@efst.hr
Personal web page	http://www.efst.unist.hr/o-fakultetu/fakultet/djelatnici/osoba/detalji/rozga
Year of birth	1951
Scientist ID	057876
Research or art rank, and date of last rank appointment	Scientific adviser, 2009
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full Professor Tenure, 2014.
Area and field of election into research or art rank	Social Sciences, Economics. Quantitative Methods.
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Economics, University of Split
Date of employment	1.10. 1977.
Name of position (professor, researcher, associate teacher, etc.)	Professor.
Field of research	Quantitative Methods, Statistics. Multivariate Analysis. Survival Analysis. Statistical Methodology in Scientific Research.
Function	Professor.
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Economics.
Place	Split
Date	2001
INFORMATION ON ADDITIONAL TRAINING	
Year	1985/86
Place	London. U.K.
Institution	The London School of Economics and Political Science, Department of Statistics. Graduate studies.
Field of training	Statistics. The Analysis of Time Series.
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian.
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian, 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	French, 3

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	1. Statistics. Undergraduate studies. Faculty of Economics, University of Split. 2. Statistical Analysis. Undergraduate studies. Faculty of Economics, University of Split. 3. Biostatistics. Undergraduate and PhD studies. School of Medicine. University of Split. 4. Statistics. Graduate Studies. Faculty of Mechanical Engineering. University of Split. 5. Probability and Statistics. Faculty of Electrical Engineering. University of Split. 6. Statistical Methodology in Scientific Research. PhD Studies. Faculty of Economics, University of Split. 7. Multivariate Analysis. PhD Studies. Faculty of Economics, University of Split. 8. Statistical Methods in Forensics. Graduate Studies. School of Forensic Sciences. University of Split.
Authorship of university/faculty textbooks in the field of the course	1. Rozga A., (1994): *Statistička analiza*. Ekonomski fakultet Split. X+148 pages. 2. Rozga A., (2009): *Statistika za ekonomiste*. Ekonomski fakultet Split. X+336 pages. 3. Rozga A. and B. Grčić., (2009): *Poslovna statistika*. Ekonomski fakultet u Splitu. IX + 271 pages. 4. Pivac S. and A. Rozga., (2007): *Statistika za sociološka istraživanja*. Filozofski fakultet Sveučilišta u Splitu. 264 pages. 5. Pivac S. and A. Rozga., (2008): *Statistika za sociologe*. Filozofski fakultet Sveučilišta u Splitu. 231 pages.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Rozga A., E. Jurun and I. Šutalo (2013): *Correction od Chain-Linking Method by Means of Lloyd-Moulton-Fisher-Tornquist Index on Croatian GDP Data.* Croatian Operational Research Review. 2. Šerić N., A. Rozga and A. Luetić (2014): *Relationship between Business Intelligence and Supply Chain Management for Marketing Decisions.* Universal Journal of Industrial and Business Management, 2; 31-35. 3. Visković J., J. Arnerić and A. Rozga (2014): *Volatility Swiching Between Two Regimes.* International Journal of Social, Human Science and Engineering. Madrid. Spain. Madrid. ISNN: 1307-6892. Vol:9, no 3. 4. Arnerić, J., Čeh-Časni, A., Rozga, A. (2015): *Pre-adjustment Process of Real Retail Trade Series in Croatia*, The Business and Management Review, Vol. 6, No. 2, pp. 104-112, ISSN 2047-2854. 5. Poklepović, T., Aljinović, Z and Rozga, A (2016): *Moments Extraction from Implied Probability Distribution: Nonstructural Approach*. Proceedings of the 02nd International Conference on Business Management and Economics: 02nd ICBME 2016.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	

Professional, science and artistic	1. Project: *Building of Macro econometric Model of Croatian*

projects in the field of the course carried out in the last five years (5 at most)	*Economy*, (code of the project: 055-0551147-1146). 2. Project *Quality Assurance in Higher Education.* UNESCO.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Damir Sedlar, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	Ruđera Boškovića 32, 21000 Split
Telephone number	021/305-967
E-mail address	dsedlar@fesb.hr
Personal web page	http://marjan.fesb.hr/~dsedlar/
Year of birth	1976.
Scientist ID	248913
Research or art rank, and date of last rank appointment	Research scientist, March, 2013.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, September, 2012.
Area and field of election into research or art rank	Technical Sciences, field fundamentals technical sciences
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	2001
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Dynamics, finite element method, noise and vibration, optimization
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	2009
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	
Authorship of university/faculty	

textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	- Sedlar, Damir; Lozina, Željan; Vučina, Damir. An implementation of structural change detection procedure based on experimental and numerical model correlation. // Journal of sound and vibration. 331 (2012) - Sedlar, Damir; Pavlinović, Anamarija; Marin, Ante Mihovil. Comparing basic variable neighborhood search and its extensions // Quaesti 2014 / Mokrys, Michal ; Badura, Stefan (ur.). Zilina : EDIS - Publishing Institution of the University of Zilina, 2014.
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Marjan Sikora, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Object Oriented Programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	Gajeva 17, 21000 Split
Telephone number	0914305859
E-mail address	sikora@fesb.hr
Personal web page	www.fesb.hr/~sikora /
Year of birth	1972.
Scientist ID	238690
Research or art rank, and date of last rank appointment	Research Scientist, 3/2015.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant Professor, 3/2013.
Area and field of election into research or art rank	Technical Sciences, Computer Sciences, Information Systems
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	3/2006.
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Computer Science
Function	Assistant Professor
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	University of Zagreb
Place	Zagreb
Date	2010.
INFORMATION ON ADDITIONAL TRAINING	
Year	2015.-2016.
Place	Online
Institution	Stanford University
Field of training	Automata, Compilers
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (4)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	French (2)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Programming, Object oriented programming Geographic Information Systems

Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	- M. Sikora, H. Mihanović, I. Vilibić Paleo-coastline of the Central Eastern Adriatic Sea, and paleo-channels of the Cetina and Neretva rivers during the last glacial maximum, Acta Adriatica, Vol. 55, pp. 3-18, 2014. - M.Sikora, I. Mateljan, A Method for Speeding up Beam-tracing Simulation Using Thread-level Parallelization, Engineering with Computers, (DOI) 10.1007/s00366-013-0316-z, Vol., pp. 679-688, 2013. - M.Sikora, I. Mateljan, N. Bogunović, Beam Tracing with Refraction, Archives of Acoustics, Vol. 37, No. 3, pp. 301-316, 2012. - M. Sikora, I. Mateljan, Multithreaded beam tracing, Proceedings of 5rd Congress of Alps Adria Acoustics Association (AAAA 2012), Petrčane (Hrvatska), 12-14. rujan 2012., CD Proceedings - M.Sikora, I. Mateljan, N. Bogunović, Beam Division in Acoustic Simulation of Non-Homogenous Environments, Automatika, Vol. 52, No. 4, pp. 339-352, 2011.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	- Visualization of wind-power plant, cooperation with PhD Antonio Šarolić - Study on use of GIS in Split city management, City of Split, 2012. - TGM - TIN & Grid Maker – Software for Digital Elevation Models, OBALA d.o.o. Split, 2011.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4,7/5; 5/5

First and last name and title of teacher	**Ivan Slapničar, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Mathematics 1, Mathematics 2
GENERAL INFORMATION ON COURSE TEACHER	
Address	FESB, R. Boškovića 32, B803
Telephone number	021 305893
E-mail address	ivan.slapnicar@fesb.hr
Personal web page	http://www.fesb.hr/~slap
Year of birth	1961
Scientist ID	30650
Research or art rank, and date of last rank appointment	scientific counselor
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full Professor, permanent position, since 2008
Area and field of election into research or art rank	Area od Natural Sciences, Field of Mathematics
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	FESB, Split
Date of employment	1985
Name of position (professor, researcher, associate teacher, etc.)	Full Professor
Field of research	Mathematics
Function	Head of the Chair of Mathematics
INFORMATION ON EDUCATION – Highest degree earned	
Degree	dr. sc. (dr. rer. Nat.)
Institution	Fernuniversität Hagen
Place	Hagen, Germany
Date	October 1992
INFORMATION ON ADDITIONAL TRAINING	
Year	2014
Place	Cambridge, MA, USA
Institution	Massachusetts Institute of Technology
Field of training	Fulbright-Schuman International Educator/Lecturer Grant
Year	2009/2010
Place	Berlin, Germany
Institution	Technische Universität Berlin
Field of training	FP7 People "Marie Curie" Intra European Fellowship
Year	2001/2002
Place	Logan, UT, SAD
Institution	Utah State University
Field of training	Visiting Professor of Mathematics
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Lecturer of various courses since 1992.
Authorship of university/faculty textbooks in the field of the course	Ivan Slapničar, Matematika 1, FESB, Split, 2002. (Manualia Universitatis studiorum Spalatensis) Ivan Slapničar, Josipa Barić i Marina Ninčević, Matematika 2 – zbirka zadataka, FESB, Split, 2010. (Manualia Universitatis studiorum Spalatensis)
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Jakovčević Stor, Nevena; Slapničar, Ivan; Barlow, Jesse L. **Forward stable eigenvalue decomposition of rank-one modifications of diagonal matrices,** *Linear Algebra and its Applications*. **487** (2015) 301-315. 2. Jakovčević Stor, Nevena; Slapničar, Ivan. **Forward Stable Computation of Roots of Real Polynomials with Real Simple Roots**, *Applied Mathematics and Information Sciences*. **11** (2017) 33-41. 3. Jakovčević Stor, Nevena; Slapničar, Ivan; Barlow, Jesse L. **Accurate eigenvalue decomposition of real symmetric arrowhead matrices and applications,** *Linear algebra and its applications*. **464** (2015) 62-89. 4. Slapničar, Ivan. **Symmetric matrix eigenvalue techniques,** Handbook of Linear Algebra, Hogben, Leslie (ed.). Chapman & Hall / CRC, Boca Raton, 2013, pp. 55-1-55-23. 5. Slapničar, Ivan. **On the spectra of generalized Fibonacci and Fibonacci-like operators**., *Operators and Matrices. **6*** (2012) 49-62.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	1. Accurate and fast matriox algorithms and applications, project MZOS No. 372783-1289, 2007- 2013, principal investigator. 2. Optimization of parameter dependent mechanical systems, HRZZ research project No. 9540, 2015-2019, collaborator.
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	Prize of the Fernunivesität Hagenu for the best disseration, 1992. Prize of the Croatian Mathematical Society Nagrada for the young scientist, 1996.
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	Evaluations organized by the Quality Enhancement Centre of the University of Split each semester. Average grade is 4.5 on the 1-5 scale.

First and last name and title of teacher	**Matko Šarić, Ph.D., Assistant Professor**
The course he/she teaches in the proposed study programme	Algorithms Communication protocols and architectures
GENERAL INFORMATION ON COURSE TEACHER	
Address	Pojišanska 25, 21000 Split
Telephone number	0914305633
E-mail address	msaric@fesb.hr
Personal web page	
Year of birth	1980
Scientist ID	272954
Research or art rank, and date of last rank appointment	Assistant research scientist, 16.6.2011.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, September 2014.
Area and field of election into research or art rank	Computer science, information processing
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split (FESB Split)
Date of employment	1.6.2004.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Computer vision
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D. in Electrical Engineering and Information Technology, FESB (Split)
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split (FESB Split)
Place	Split
Date	13.10.2010.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English - 4
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German - 2
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	• Multimedia systems, graduate study of electrical engineering • Signals and systems, undergraduate study of electrical engineering and information technology • Algorithms, , undergraduate study of compter science
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Šarić, Matko; Dujmić, Hrvoje; Russo, Mladen. Scene Text Extraction in IHLS Color Space Using Support Vector Machine. // Information Technology And Control. 44 (2015) , 1; 20-29 2. Šarić, Matko; Dujmić, Hrvoje; Russo, Mladen. Scene Text Extraction in HSI Color Space using K-means Algorithm and Modified Cylindrical Distance. // Przegląd elektrotechniczny. 5 (2013) ; 117-121 3. Šarić, Matko; Stella, Maja; Šolić, Petar. Scene Text Extraction using K-means Clustering in HSI Color Space: Influence of Color Distance Measure. // INTERNATIONAL JOURNAL OF CIRCUITS, SYSTEMS AND SIGNAL PROCESSING. 7 (2013) , 5; 294-301 4. Šarić, Matko; Stella, Maja; Šolić, Petar. Extraction of Scene Text in HSI Color Space using K-means Clustering with Chromatic and Intensity Distance // Recent advances in information sciences - Proceeedings of the 5th European conference of compute science (ECCS'13). 2013. 136-141 5. Dujmić, Hrvoje; Šarić, Matko; Radić, Joško. Scene text extraction using modified cylindrical distance // Recent Researches in Neural Networks, Fuzzy Systems, Evolutionary Computing and Automation (Proceedings of 12th WSEAS conference on Automation & Information). Brasov, 2011. 213-218
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	• MZOŠ project „ICT systems and services based on information integration“ (2007.-2012.) • HRZZ project „ELISE: Easy Living in Smart Environments“ (2015.-)
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of	**Ljiljana Šerić, Ph.D., Assistant Professor**

teacher	
The course he/she teaches in the proposed study programme	Introduction to Distributed Information Systems
GENERAL INFORMATION ON COURSE TEACHER	
Address	FESB, Ruđera Boškovića 32, 21000 Split
Telephone number	+385 (0)21 305 651
E-mail address	ljiljana.seric@fesb.hr
Personal web page	http://www.fesb.hr/~ljiljana
Year of birth	1979.
Scientist ID	272906
Research or art rank, and date of last rank appointment	Senior Research Associate, 14.02.2013.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Assistant professor, 02.12.2013.
Area and field of election into research or art rank	Technical sciencies, Computer Science
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	02.12.2013.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Science and education
Function	Assistant professor
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	06.10.2010.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	1. Course name: Artificial Intelligence Name of the study programme in which the course is offered: Automation and Systems, Electrical Engineering, Computer Engineering, Telecommunications and Computer Science, Computer Science The level of the study programme: Graduate study 2. Course name: Intelligent Systems Name of the study programme in which the subject is taught: Electrical Engineering and Information Technology The level of the study programme: Postgraduate study 3. Course name: Web intelligence and large data sets Name of the study programme in which the subject is taught: Electrical Engineering and Information Technology The level of the study programme: Postgraduate study
Authorship of university/faculty textbooks in the field of the course	1) Stipaničev Darko, Šerić Ljiljana. Artificial intelligence. Split, FESB - Internal script, 2012. 2) Bodrožić Ljiljana. Programming languages of artificial intelligence. Split, FESB - Internal script, 2007.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1) Doko Alen, Štula Maja, Šerić Ljiljana. Improved sentence retrieval using local context and sentence length. Information processing & management, 49 (2013), 6, 1301-1312. 2) Šerić Ljiljana, Stipaničev Darko, Štula Maja. Engineering of holonic multi agent intelligent forest fire monitoring system. AI communications, 26 (2013), 3; 303-316. 3) Šerić Ljiljana, Krstinić Damir, Braović Maja, Milatić Ivan; Mirčevski Aljoša, Stipaničev Darko. Holonic Multi Agent System for Data Fusion in Vehicle Classification. Proceedings of 10th International KES Conference on Agents and Multi-Agent Systems: Technologies and Applications (KES-AMSTA-16). 2016. 4) Stipaničev Darko, Šerić Ljiljana, Krstinić Damir, Bugarić Marin. Wildfire video observers network with physical and virtual sensors. Proceeding of 10th EARSeL Forest Fire Special Interest Group Workshop - Sensors, Multi-Sensor Integration, large Volumes: New opportunities and Challanges in Forest Fire Research, Themistocleous, Kyriacos ; Hadjimitsis, Diofantos; Gitas, Ioannios ; Boschetti, Luigi (ur.). Limassol, Cyprus, 2015. 5) Ukić Nenad, Maras Josip, Šerić Ljiljana. The influence of cyclomatic complexity distribution on the understandability of xtUML models, Software quality journal, PP (2016)
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	AgiSeco – Agent Oriented Intelligent Systems for Environement Monitoring and Control, MZOS, 2007-2012 HOLISTIC – Adriatic Holistic Forest Fire Protection , IPA, 2014- in progres Wind Risk Prevention Projekt – ECHO, Civil Protection Automatic vehicle classification based on computer vision and data fusion

The name of the programme and the volume in which the main	

teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences.	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	20 best junior reasearchers, 2013
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Maja Štula, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Internet programming System analysis and design Windows programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	R. Boškovića 32, Split
Telephone number	021305852
E-mail address	maja.stula@fesb.hr
Personal web page	http://marjan.fesb.hr/~kiki/moja_stranica.htm
Year of birth	1971
Scientist ID	248946
Research or art rank, and date of last rank appointment	
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Full professor
Area and field of election into research or art rank	Technical Sciences, Computer engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	15.06.1998.
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	06.05.2005.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	Italian, 2
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Internet programming 1, Graduate study in Computing (before Bologna process) Internet programming 2, Graduate study in Computing (before Bologna process)

Authorship of university/faculty textbooks in the field of the course	Programiranje korisničkih sučelja na Windows platformama, FESB, 2010.
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Maras, Josip; Štula, Maja; Carlson, Jan; Crnković, Ivica. Identifying Code of Individual Features in Client- side Web Applications. // IEEE transaction on software engineering. 39 (2013) , 12; 1680-1697 2. Maras, Josip; Štula, Maja; Carlson, Jan.Firecrow - A tool for Web Application Analysis and Reuse // Automated Software Engineering - ASE 2014. 2014. 847-850 3. Maras, Josip; Štula, Maja; Carlson, Jan. Generating Feature Usage Scenarios in Client-side Web Applications // International Conference on Web Engineering 2013 / Florian Daniel, Peter Dolog, Qing Li (ur.). 2013. 186-200 4. Doko, Alen; Štula, Maja. A general framework for mining relations for the semantic web // IIWeb '12 Proceedings of the Ninth International Workshop on Information Integration on the Web / Ullas Nambiar ; Zaiqing Nie (ur.). New York, NY, USA : ACM, 2012. 1-5
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	1. Golčić, Hrvoje; Skelić, Ivana; Štula, Maja. Razvoj, implementacija i korištenje dodataka za osobe s oštećenjem vida u Moodle sustavu, 2015. (brošura). 2. Golčić, Hrvoje; Skelić, Ivana; Štula, Maja. Accessibility Issues Faced By Blind and Visually Impaired Persons in the Field of Studying and Education // Proceedings of CIET 2014 / Plazibat, Bože ; Kosanović, Silvana (ur.).Split : University of Split, 2014. S-187-S-198
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	IPNAS (Inteligentni Protupožarni NAdzorni Sustav) sustav, stručni DICES – Distributed Component-based Embedded Software Systems, UKF Agentski orijentirani inteligentni sustavi nadzora i zaštite okoliša, MZOŠ Let's Study Together, IPA
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

First and last name and title of teacher	**Linda Vicković, Ph.D., Associate Professor**
The course he/she teaches in the proposed study programme	Data structures Software engineering
GENERAL INFORMATION ON COURSE TEACHER	
Address	Put sv. Lovre 55d
Telephone number	+385 21 305 849
E-mail address	Linda.Vickovic@fesb.hr
Personal web page	http://marjan.fesb.hr/~linda/
Year of birth	1973.
Scientist ID	242565
Research or art rank, and date of last rank appointment	Scientific associate, 31/3/2011
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Associate Professor, 22/9/2017
Area and field of election into research or art rank	Technical Sciences, Computing
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	FESB
Date of employment	1.5.1997.
Name of position (professor, researcher, associate teacher, etc.)	Assistant professor
Field of research	Scientific research and teaching
Function	
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	FESB
Place	Split
Date	18. 7. 2007.
INFORMATION ON ADDITIONAL TRAINING	
Year	
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English 5
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	

COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Algorithms and Data Structures, Professional study programme, Software engineering, Professional study programme,
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. L. Vicković, S. Gotovac, S. Čelar, Simulation-Based Performance Analysis of the ALICE Mass Storage System, International journal of simulation modelling. 15 (2016), 1; 70-82 2. A. Pinjuh, L. Vickovic, D. Cavar, MapReduce-based face detection in images, Proceedings of the 27th DAAAM International Symposium , DAAAM International, 2016. 658-663. 3. S. Čelar, L. Vicković, E. Mudnić, Evolutionary measurement-estimation method for micro, small and medium-sized enterprises based on estimation objects, Advances in production engineering & management (APEM). 7 (2012), 2; 81-92. 4. S. Čelar, M. Turić, L. Vicković, Method for personal capability assessment in agile teams using personal points, 22nd Telecommunications Forum, IEEE, 2014. 1134-1137
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	4.5/5 4.5/5

First and last name and title of teacher	**Damir Vučina, Ph.D., Full Professor**
The course he/she teaches in the proposed study programme	Programming
GENERAL INFORMATION ON COURSE TEACHER	
Address	FESB, R. Boškovića 32, 21000 Split
Telephone number	021 305 969
E-mail address	vucina@fesb.hr
Personal web page	
Year of birth	1962
Scientist ID	129716
Research or art rank, and date of last rank appointment	Scientific Adviser, 2005
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor, 2005
Area and field of election into research or art rank	Technical Sciences, Fundamental Technical Sciences
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	1985
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Numerical methods in engineering and optimization
Function	Head of group for modeling and computer-aided analysis
INFORMATION ON EDUCATION – Highest degree earned	
Degree	PhD
Institution	Fakultet strojarstva i brodogradnje
Place	Zagreb
Date	1993
INFORMATION ON ADDITIONAL TRAINING	
Year	Fulbright grant, Columbia University New York Several courses at CISM Italy
Place	
Institution	
Field of training	
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)	Computer.aided analysis Optimization methods Programming Graduate courses
Authorship of university/faculty textbooks in the field of the course	D. Vučina, 'Metode inženjerske numeričke optimizacije', Sveučilište u Splitu, FESB 2005

	Damir Vučina, 'Primjena računala u inženjerskoj analizi', FESB, 2007
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	**p1.** Ćurković, M.; Vučina, D. 3D Shape acquisition and integral compact representation using optical scanning and enhanced shape parameterization. Advanced engineering informatics. 28 (2014) , 2; 111-126, IF 2.086. **p2.** Vučina, D.; Ćurković, M.; Novković, T. CLASSIFICATION OF 3D SHAPE DEVIATION USING FEATURE RECOGNITION OPERATING ON PARAMETERIZATION CONTROL POINTS. // Computers in industry. 65 (2014) , 6; 1018-1031. IF 1.457. **p3.** Milas, Zoran; Vučina, Damir; Marinić-Kragić, Ivo. MULTI-REGIME SHAPE OPTIMIZATION OF FAN VANES FOR ENERGY CONVERSION EFFICIENCY USING CFD, 3D OPTICAL SCANNING AND PARAMETERIZATION. // Engineering Applications of Computational Fluid Mechanics. 8 (2014), 3; 407-421. IF 0.921. **p6.** Vučina, D.; Lozina, Ž.; Pehnec, I. Ad-Hoc Cluster and Workflow for Parallel Implementation of Initial-Stage Evolutionary Optimum Design. Structural and multidisciplinary optimization. 45 (2012) , 2; 197-222. IF 1.488. **p5.** Vučina, D.; Lozina, Ž.; Pehnec, I. Computational procedure for optimum shape design based on chained Bezier surfaces parameterization. Engineering applications of artificial intelligence. 25 (2012) , 3; 648-667. IF 1.665.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	s.a.
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	s.a..
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?	continuously
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	1. Columbia University, New York, USA, 1986- 1987, dobitnik US Fulbright stipendije 2. Sveučilište u Splitu, za tehničke znanosti, 2014
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	excellent

First and last name and title of teacher	**Slavko Vujević, Ph.D., Full Proffesor**
The course he/she teaches in the proposed study programme	Electrical engineering
GENERAL INFORMATION ON COURSE TEACHER	
Address	Vijugasta 18, Hr-21000 Split, Croatia
Telephone number	+385 21 305-613
E-mail address	vujevic@fesb.hr
Personal web page	
Year of birth	1958
Scientist ID	122731
Research or art rank, and date of last rank appointment	Scientific Adviser; January 20, 2005
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment	Senior Full Professor, September 24, 2009
Area and field of election into research or art rank	Technical Sciences, Electrical Engineering
INFORMATION ON CURRENT EMPLOYMENT	
Institution where employed	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment	February 26, 1982
Name of position (professor, researcher, associate teacher, etc.)	Professor
Field of research	Electrical Measurement, Power Quality
Function	Head of the Subdepartment of Electromagnetics and Engineering Modeling
INFORMATION ON EDUCATION – Highest degree earned	
Degree	Ph.D.
Institution	Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Place	Split
Date	July 14, 1994
INFORMATION ON ADDITIONAL TRAINING	
Year	2003
Place	Neumarkt, Germany
Institution	DEHN + Söhne
Field of training	Certificate in Red/Line-Seminar and Yellow/Line-Seminar on "Lightning and Surge Protection in Power Networks"
MOTHER TONGUE AND FOREIGN LANGUAGES	
Mother tongue	Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	English (4)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	German (2)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)	
COMPETENCES FOR THE COURSE	
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of	• Electric Machinery Fundamentals, university undergraduate study of Electrical Engineering, University of Split, FESB • Fundamentals of Electric Power Engineering, the university undergraduate study of Electrical Engineering,

study programme)	specialisation Electronics, University of Split, FESB • Marine Electrical Engineering, the university undergraduate study of Naval Architecture, University of Split, FESB
Authorship of university/faculty textbooks in the field of the course	
Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)	1. Vujević, Slavko; Lovrić, Dino, On Continuous Numerical Fourier Transform for Transient Analysis of Lightning Current Related Phenomena, Electric Power Systems Research, Vol. 119, pp. 364-369, 2015. 2. Vujević, Slavko; Lovrić, Dino; Balaž, Zdenko, Self and Mutual Ground Impedances of Cylindrical Metal Plates Buried In Homogeneous Earth, International Journal of Numerical Modelling - Electronic Networks Devices and Fields; Vol. 28. No. 1, pp. 33-49, 2015. 3. Vujević, Slavko; Lovrić, Dino; Boras, Vedran, High-Accurate Numerical Computation of Internal Impedance of Cylindrical Conductors for Complex Arguments of Arbitrary Magnitude, IEEE Transactions on Electromagnetic Compatibility, Vol. 56, No. 6, pp. 1431-1438, 2014. 4. Lovrić, Dino; Vujević, Slavko; Modrić, Tonći, On the Estimation of Heidler Function Parameters for Reproduction of Various Standardized and Recorded Lightning Current Waveshapes, International Transactions on Electrical Energy Systems; Vol. 23, No. 2, pp. 290-300, 2013. 5. Vujević, Slavko; Sarajčev, Petar; Lovrić, Dino, Time-Harmonic Analysis of Grounding System in Horizontally Stratified Multilayer Medium, Electric Power Systems Research, Vol. 83, No. 1, pp. 28-34, 2012.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)	
Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)	Project of MZOS of Republic of Croatia no. 023-0000000-3271 - Development of Advanced Algorithms for Modelling of Electromagnetic Phenomena, 2008 - 2013 (project leader Professor Slavko Vujević)
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences	
PRIZES AND AWARDS, STUDENT EVALUATION	
Prizes and awards for teaching and scholarly/artistic work	
Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)	

3.4. Optimal number of students

The admission quote for the first year of studies is 100.

3.5. Estimate of costs per student

Annual costs of studies per student amount to HRK 25,000.00.

3.6. Plan of procedures of study programme quality assurance

<table>
<tr><td colspan="2">In keeping with the European standards and guidelines for internal quality assurance in higher education institutions (according to “Standards and Guidelines of Quality Assurance in the European Higher Education Area”) on the basis of which the University of Split defines procedures for quality assurance, the proposer of the study programme is obliged to draw up a plan of procedures of study programme quality assurance.</td></tr>
<tr><td colspan="2">Documentation on which the quality assurance system of the constituent part of the University is based:</td></tr>
<tr><td colspan="2">• Regulations on the quality enhancement system of FESB
• Quality Assurance Handbook of the constituent part</td></tr>
<tr><td colspan="2">Description of procedures for evaluation of the quality of study programme implementation:
• For each procedure the method needs to be described (most often questionnaires for students or teachers, and self-evaluation questionnaire), name the body conducting evaluation (constituent part, university office), method of processing results and making information available, and timeframe for carrying out evaluation
• If procedure is described in an attached document, name the document and the article.</td></tr>
<tr><td>Evaluation of the work of teachers and part-time teachers</td><td>• Student evaluation of quality of instruction and teaching activities conducted through student survey (printed questionnaires)
• Survey is organised and conducted by the Quality Enhancement Committee of the Faculty (Committee)
• Survey results are processed automatically at the University
• Survey is conducted each semester
• The Committee presents cumulative results of the survey at the sessions of the Faculty Council. The report is published at the Faculty web site.
All procedures are conducted in accordance with the Regulations on organisation and role of the quality assurance system of the University of Split, Regulations on procedure of student evaluation of the quality of teachers and teaching of the University of Split and Regulations on the quality enhancement system of FESB.</td></tr>
<tr><td>Monitoring of grading and harmonization of grading with anticipated learning outcomes</td><td>Committee for study programmes in Undergraduate university study programme in Computing is monitoring the harmonisation of grading and learning outcomes.
All the procedures are conducted in accordance with the Rules of procedure of the Faculty Council and the Rules of procedure of the Department, since the Committees for study programmes are bodies of the Faculty Council and</td></tr>
</table>

	are accountable to the Faculty Council.
Evaluation of availability of resources (spatial, human, IT) in the process of learning and instruction	• Student evaluation of work performance of administrative and supporting services, learning infrastructure and student life is conducted through e-survey • Evaluation is conducted using an on-line questionnaire which the students complete in each year of study, except the final year • Survey is organised by the Quality Enhancement Centre of the University of Split, and is implemented by the Quality Enhancement Committee of the Faculty (Committee) • Survey results are processed automatically at the University • Survey is conducted every year • Survey results are presented at the Faculty Council sessions and published at the Faculty web site.
Availability and evaluation of student support (mentorship, tutorship, advising)	• Administrative and supporting services are available to students to provide support in their study activities • Supervisors/ mentors are appointed for students' final papers and diploma thesis
Monitoring of student pass/fail rate by course and study programme as a whole	• Analysis of student pass rate by courses and study programmes is carried out once a year • Analysis of pass rate by study programmes is carried out by the University in cooperation with the Committee • Analysis by courses and study programmes is carried out by the Faculty Management Board • Results of both analyses are presented at the Faculty Council sessions and published at the Faculty web site.
Student satisfaction with the programme as a whole	• Student evaluation of work performance of administrative and supporting services, learning infrastructure and student life is conducted through e-survey • Evaluation is conducted using an on-line questionnaire which the students complete following the completion of studies • Survey is organised by the Quality Enhancement Centre of the University of Split, and is implemented by the Quality Enhancement Committee of the Faculty (Committee) • Survey results are processed automatically at the University • Survey results are presented at the Faculty Council sessions and published at the Faculty web site.
Procedures for obtaining feedback from external parties (alums, employers, labour market and other relevant organizations)	• Once every month, the Faculty Management Board meets with the alumni representatives • Once a year, during the annual FESB anniversary event, round tables and workshops are organised with representatives of employers and other stakeholders
Evaluation of student practical education (where this applies)	Professional training is an elective course of the study programme. Head of the professional training from the receiving institution and the head of professional training from the Faculty are appointed to students who enrol professional training course. During the training student writes Professional training report which describes working tasks covered by the professional training. Students are obliged to complete professional training in accordance with the Regulation on professional training. Professional

	training report is validated by the head of professional training from the receiving institution and the head of professional training from the Faculty. Professional training is not evaluated. In addition to the Professional training report student completes a Questionnaire on professional training that evaluates student's satisfaction with organization and performance of the professional training.
Other evaluation procedures carried out by the proposer	• Internal audit of the quality assurance system is conducted once every year • Self-evaluation is carried out every 5 years All the procedures are conducted in line with the Quality Assurance Handbook of FESB.
Description of procedures for informing external parties on the study programme (students, employers, alums)	• All information are available through the Faculty web site: https://www.fesb.hr • Visits to the faculty are organised for high-school students from Split and the wider region • Participation at University fairs • Public media presentations