## ŠIBENIK UNIVERSITY OF APPLIED SCIENCES DEPARTMENT OF BUSINESS INFORMATICS PROFESSIONAL UNDERGRADUATE STUDY OF BUSINESS INFORMATICS

Trg Andrije Hebranga 11 22000 Sibenik



Šibenik, July 2024.

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# CURRICULUM

Academic year 2024/2025

Dean Head of department PhD. Ljubo Runjić, college prof. PhD. Ivan Livaja, college prof.

Šibenik, July 2024.

### **1. REQUIREMENTS AND RESULTS OF THE STUDY PROGRAM**

Professional undergraduate study of Business Informatics program is intended for the education of students for professional work in management in middle and higher management positions in IT business systems. The study consists of six semesters through which students are offered a high degree of mobility through the choice of program content of studies according to student affinities while maintaining the range of professional knowledge provided by the program core of the study.

Upon completion of the study program the holder of this qualification is entitled to use the legally protected professional title "Professional Bachelor (baccalaureus) of Business Informatics" (bacc. inf.) and perform professional tasks within their professions.

**The general competences** that the student acquires by completing the studies is the ability to solve problems, analyze, synthesize and evaluate, develop self-learning and literature research, teamwork, planning and organizing, improve numeracy and digital skills, oral and written business communication, the ability to negotiate in the mother tongue and at least two foreign languages, the ability of creative and critical thinking, generating new ideas, the ability to manage time and fulfill tasks and plans within the deadline.

**During the studies, students acquire specific knowledge, skills and competences** related to management of departments, processes and jobs at the lower and middle level of management in the company and related to activities like management of IT projects, implementation of business information systems, database design, documenting and application integration, modeling, transformation and improvement of business processes, adaptation and implementation of information system, development of computer programs, cooperation and communication using information technology, IT services management, project development management and application of application solutions, while taking into account the human and financial resources of enterprises, the economic, legal and technological environment.

## 2. EXPECTED LEARNING OUTCOMES

- 1. To analyze the situation, identify opportunities and anticipate problems faced by organizations and individuals in the application of information technologies
- 2. Define and evaluate the processes of thinking, planning, decision-making and management in terms of electronically supported business and production
- 3. Evaluate database design according to business requirements
- 4. Evaluate different digital channels in marketing campaigns and create and implement a digital marketing plan
- 5. Interpret mechanisms of data flow control, error control and fragmentation, ways of multiplexing data transmission using routing methods in computer networks
- 6. Correctly write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entrepreneurship and correctly interpret their interdependencies
- 7. Select and apply mathematical methods, models and techniques appropriate for solving problems in the field of Business Information Systems
- 8. Select and apply basic principles of planning and career development in the profession and their own entrepreneurial ventures
- 9. Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general audiences, and critically evaluate the presented professional topics
- 10. To support and apply ethical and environmental principles as well as legislation and standards that are applicable in information technologies
- 11. To relate the activities of building and maintaining the information system with the needs of the client and the user
- 12. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of IT)
- 13. Rank security threats and select appropriate countermeasures to protect the information system
- 14. Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology including the ability to communicate about the profession in a foreign language
- 15. Compare and select appropriate development tools at expert level
- 16. Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of planning, management and accounting of business
- 17. Conclude what are the basic principles and methods of quality project management and work successfully in a team

## **3. PROGRESSION THROUGH THE STUDY PROGRAM**

Before the beginning of academic year, the student is required to enroll according to enrollment deadlines. A person who does not enter the academic year loses status and rights of a student. The deadlines are published on Polytechnic web sites and newsletters and, if necessary, in Polytechnic publications (brochures, promotional materials, etc.).

When enrolling in the study year for the first time, the student enrolls compulsory and elective cources in value of minimum 27 to a maximum of 35 ECTS per semester, i.e. a minimum of 60 ECTS per year, in accordance with the Study Regulations.

When enrolling students according to their academic achievments do satisfy conditions for enrollment in higher study year or a repetition of study year.

- I. Students are allowed to enroll in a higher study year if they have obtained at least 50 ECTS by passing courses from the currently enrolled study year and (if applicable) have passed all courses from peceeding study year, in which case they are enrolling to following courses: all currently enrolled non-passed courses and courses from enrolling study year in the value of maximum 60 ECTS.
- II. Students who didn't satisfy condition for enrollment in higher study year have the right to enroll in a repetition of the study year with or without partial enrollment of subjects from higher year of study according to following rules:
  - Students enrolling in the repetition of the study year must enroll in all not passed courses from currently enrolled year and
  - are eligible for partial entry of courses from the second (2.) study year if they have passed courses from the first (1.) study year in value at least 30 ECTS or are eligible for partial entry of courses from the third (3.) year of study if they have at least 30 ECTS in the second (2.) study year
  - If a student has completed courses from currently enrolled study year valued in sum of 29 or fewer ECTS credits, he or she does not qualify for partial enrollment of courses
- III. Students are not allowed to repeat study year more then once or to enrolle in any course more then twice

Lecturing at undergraduate professional study of Business Informatics consists of lectures, seminars, exercises, laboratory exercises, field work, practical training, projects, consultations, mentoring, colloquia, examinations and other forms of assessment and professional practice.

Prerequisites for enrollment in a higher study year are attended courses from the lower academic year (confirmed by the signature of the course lecturer). The student is obliged to attend all forms of teaching in the scope determined by the performance plan of the teaching of a particular subject.

Year of	Full-time st	udent	Part-time students			
study	First entry	Repeat	First entry	Repeat		
1.	13	3	7	1		
2.	15	2	6	2		
3.	15	0	2	2		

Figure 1. Number of enrolled students in the academic year 2021./2022.

For economics and rationality, classes for full-time and part-time students are carried out jointly whenever possible given spatial and other conditions.

Students are obliged to complete all the commitments undertaken in the course (seminar papers, exercise protocols, project work, case studies) which the lecturer certifies by signing the index at the end of the semester (usually the last teaching week of the semester). The lecturer has the right to refuse signing the index to a full-time student who is absent from more than 30% of contact hours.

Part-time student's obligations are created according to the possibilities of their attendance in courses, which must be in accordance with the approved performance plan of the lecturing of a particular subject.

Required workload of the full-time students can be 48 hours a week at most, and not less than 40 hours, of which contact hours should not exceed 24 hours a week. Exceptionally, students' workload/contact hours may be greater in the case of intensive professional praxis or project/laboratory work, but not more than two weeks in a row during the semester.

Professional Undergraduate Study of Business Informatics is evaluated with 180 ECTS credits, which are realized through passing of enrolled of the courses, performing professionall praxis and writing bachelor thesis.

Before completing the bachelor thesis, the student **must pass all enrolled courses**. The total number of credits placed including courses, professional praxis and the bachelor thesis should be **at least 180 ECTS points.** 

#### 4. LIST OF FACULTY MEMBERS WHO LECTURE ON PROFFESIONAL UNDERGRADUATE STUDY OF BUSINESS INFORMATICS

NAME AND SURNAME OF THE LECTURER	COURSE	CONTACT E-MAIL	CONSULTATION
Ivana BELJO, Master in eng.mat. ing., s. lec.	Financial Mathematics Mathematics	ibeljo@vus.hr	Room 24/II
Goran CRNICA, prof., lec.	English for Information Technology I English for Information Technology II	gcrnica@vus.hr	Room 22/II
Divna GOLEŠ, Master in econ., s.lec.	Principles of microeconomics Quality management	divna@vus.hr	Room 4
Anita GRUBIŠIĆ, Master in econ., s.lec.	Principles of accounting	anita@vus.hr	Room 8
Milan HRGA, Master in eng., lec.	Introduction to Computer Science Programming Fundamentals Introduction to Web Technologies Introduction to Computer Science	mhrga@vus.hr	Room 12
Zvonimir KLARIN, asistent.	PartnersCOURSEand ELJO, Master in mat. ing., s. lec.Financial Mathematicsan BELJO, Master in mat. ing., s. lec.Financial Mathematicsan CRNICA, prof., lec.English for Information Technology I English for Information Technology I Uli Statusan CRNICA, prof., lec.English for Information Technology I English for Information Technology I Uli Statusan CRNICA, prof., lec.Principles of microeconomics Quality managementta GRUBISIC, Master in ., slec.Principles of accountingan HRGA, Master in ., lec.Introduction to Computer Science Programming Fundamentals Introduction to Outabases Introduction to Databases Information Systems Analysis and Design Protection and Security of Information Systems Computer Networks DatabasesD Ivan LIVAIA, college prof.Introduction to Databases Introduction to Databases Professional PraxisD Jiana MEČEV, ege prof.Principles of EconomicsD Jiana MEČEV, ege prof.Information Technologies and Environmental ProtectionD Jiana MEČEV, ege prof.Information Technologies and Environmental ProtectionD Jiana MEČEV, ege prof.EntrepreneurshipD Jiana MEČEV, ege prof.EntrepreneurshipD Jiana MEČEV, ege prof.Business Information Systems Information Systems 	zklarin@vus.hr	Room 12
PhD Ivan Līvaja, college prof.	Introduction to Databases Databases Management of Information Services Protection and Security of Information Systems Professional Praxis	ilivaja@vus.hr	Room 18/II
PhD Dijana Mečev, college prof.	Principles of Economics	dijana@vus.hr	Room 3
PhD.Ana PERIŠIĆ, Master in eng., s.lec.	Mathematics Business Statistics	sisak@vus.hr	Room 24/II
MSc Tanja RADIĆ LAKOŠ, s.lec.	Information Technologies and Environmental Protection	tanja@vus.hr	Room 11
Jasmina SLADOLJEV, Master in econ., s.lec.	Management	jasmina@vus.hr	Room 5
PhD. Ana VUKIČEVIĆ, college prof.	Entrepreneurship	ana_u@vus.hr	Room 15
PhD Frane UREM, college prof.	Business Information Systems Information Systems Analysis and Design Development of Mobile Applications	frane.urem@vus.hr	Room 6
Jelena ŽAJA, Master in econ., lec.	Financial Management	jzaja@vus.hr	Room 3
PhD Dragan Zlatović, college prof.	Commercial and Copyright Law	zlatovic@vus.hr	Room 20

NAME AND SURNAME OF THE LECTURER	COURSE	CONTACT E-MAIL	CONSULTATION
MSc Danijel Mileta, s. lec.	E-business	danijel.mileta@gmail.com	Room 1
Msc. Darko JUREKOVIĆ, v.pred.	Project Management Cloud Computing	darko.jurekovic@hotmail.com	Room 1
Luca OLIVARI mag.math., asistent	Financial Mathematics Business Statistics	<u>lolivaril@vus.hr</u>	Room 1
PhD. Ivica РоLлČАК, college prof.	Business Communication	poljicak@vus.hr	Room 20

## 5. PLACE OF TEACHING OF THE UNDERGRADUATE PROFESSIONAL STUDY OF BUSINESS INFORMATICS

Conducting classes at the undergraduate professional study of Business Informatics is performed in the Polytechnic of Šibenik main building, at the address: Šibenik, Trg Andrije Hebranga 11. In the mentioned location, apart from the service offices, there are 16 lecture halls with a total area of 757 m<sup>2</sup>.

The premises in which the teaching process takes place provide optimal conditions with regard to the number of enrolled students. The aforementioned space contains spatial capacities that, in keeping with the standards of higher education, enable students to have good quality monitoring and participation in educational activities.

Classes at the Polytechnic take place from Monday to Friday (in exceptional cases on Saturdays in the morning) according to the fix schedule of the lessons published on the notice boards and on the official website of the Polytechnic. In accordance with the requirements of the *Regulation on the content of license and conditions for issuing license to perform activities of higher education, carrying out study programs and re-accreditation of higher education institutions* (Official Gazette No. 24/10) Article 5 (2), the Polytechnic has a ratio of students and the space available for the teaching  $(1.25 \text{ m}^2 / \text{student}.)$ 

## 6. LIST OF COURSES, LECTURER AND ASSOCIATES, TIMETABLE OF THE SUBJECT, STUDENT WORKLOAD OF THE

M/E	SUBJECT	COURSE	LECTURER -	LECTURER -	Lectures	Seminars	Exercises	ECTS
NI/E	HOLDER	COURSE	LECTURES	LECTURES EAERCISES / SEMINARS		hours/week	hours/week	ECIS
		I. SEMESTER						
М	Mečev D.	Principles of Economics	Mečev D.	Mečev D.	2		2	5
М	Beljo I.	Financial Mathematics	Beljo I.	Olivari L.	2		2	6
М	Goleš D.	Principles of Microeconomics	Goleš D.	Goleš D.	2	1		5
М	Hrga M.	Programming Fundamentals	Hrga M.	Hrga M.	2		3	5
М	Hrga M.	Introduction to Computer Science	Hrga M.	Hrga M.	2		2	4
М	Crnica C.	English for Information Technology I	Crnica C.	Crnica C.	2		1	3
М	Poljičak I.	Business Communications	Poljičak I.	Poljičak I.	2	1		3

MIE	SUBJECT	COURSE	LECTURER -	LECTURER -	Lectures	Seminars	Exercises	ECTE
M/E	HOLDER	COURSE	LECTURES	SEMINARS	hours/week	hours/week	hours/week	ECIS
		II. SEMESTER						
	Klarin Z.	Computer Application in Office Automation	Klarin Z.	Klarin Z.	1		2	4
М	Hrga M.	Computer Architecture	Hrga M.	Hrga M.	2		2	5
М	Hrga M.	Introduction to Web Technologies	Hrga M.	Hrga M.	2	2 2		5
М	Radić Lakoš T.	Information Technologies and Environmental Protection	Radić Lakoš T.	Radić Lakoš, T.	2	1		3
М	Beljo I.	Mathematics	Olivari L.	Olivari L.	2		2	6
М	Mileta , D.	E-Business	Mileta , D.	Mileta , D.	2	1		3
М	Crnica C.	English for Information Technology II	Crnica C.	Crnica C.	2		1	3

\*M - mandatory course E - elective course

Μ	SUBJECT	COUDSE	LECTURER -	LECTURER -	Lectures	Seminars	Exercises	ECTS
/ E	HOLDER	COURSE	LECTURES	SEMINARS	hours/week	hours/week	hours/week	ECIS
		III. SEMESTER						
М	Grubišić A.	Principles of Accounting	Grubišić A.	Grubišić A	2		2	5
М	Udovičić A.	Management with entrepreneurship	Udovičić A.	Udovičić A.	2	1		4
М	Pavelic M.	Object Oriented Programming	Pavelic M.	Pavelic M.	2		2	6
М	Klarin Z.	Introduction to Operating systems	Klarin Z.	Klarin Z.	2		2	4
М	Livaja, I.	Introduction to Databases	Livaja, I.	Klarin Z.	2		2	4
М	Zlatović, D.	Commercial and Copyright Law	Zlatović, D.	Zlatović, D.	2	1		3
М	Šišara J.	Principles of Marketing	Šišara J.	Šišara J.	2	1		3

Μ	SUBJECT	COURSE	LECTURER -	LECTURER -	Lectures	Seminars	Exercises	DODO
/ E	HOLDER	COURSE	LECTURES	EXERCISES/ SEMINARS	hours/week	hours/week	hours/week	ECIS
		IV. SEMESTER						
М	Perišić, A.	Business Statistics	Perišić, A	Perišić, A.,	2		2	6
М	Klarin Z.	Introduction to Computer Networks	Klarin Z.	Klarin Z.	2		2	4
М	Urem, F.	Business Information Systems	Urem, F.	Urem, F.	2		2	4
М	Klarin Z.	Operating Systems	Matošin J.	Matošin J.	2		2	6
М	Pavelic M.	Object Oriented Programming	Pavelic M.	Pavelic M.	2		2	6
М	Livaja, I.	Databases	Klarin Z.	Klarin Z.	2		3	6
М	Pavelic M.	Development of web applications	Pavelic M.	Pavelic M.	2		2	4

\*M - mandatory course

E - elective course

M/ N	SUBJECT HOLDER	COURSE	LECTURER - LECTURES	LECTURER - EXERCISES / SEMINARS	Lectures hours/week	Seminars hours/week	Exercises hours/week	ECTS
		V. SEMESTER						
М	Urem, F.	Information systems analysis and design	Urem, F.	Urem, F.	2		4	6
М	Livaja, I.	Management of information services	Livaja, I.	Livaja, I.	2		2	4
М	Livaja, I.	Protection and security of information Systems	security of stems Livaja, I. Klarin Z.		2		2	4
М	Klarin Z.	Computer networks	Klarin Z.	Klarin Z.	2		2	4
Е	Pavelic M.	Development of mobile applications	Pavelic M.	Pavelic M.	2		2	4
Е	Šišara J.	Digital marketing and marketing analytics	Lugović S.	Lugović S.	2	1		4
Е	Klarin Z.	Operation research	Mikulić Ž.	Mikulić Ž.	2		2	4
Е	Goleš D.	Quality management	Goleš D.	Goleš D.	2	1		4
Е	Livaja, I.	Internet of Things	Livaja, I.	Livaja, I.	2	1		4

<b>M</b> /	SUBJECT	COURSE	LECTURER -	LECTURER -	Lectures	Seminars	Exercises	ECTS
Ν	HOLDER	COURSE	LECTURES	LECTURES SEMINARS		hours/week	hours/week	ECIS
		VI. SEMESTAR						
0	Jureković D.	Project management	Jureković D.	Jureković D.	2		2	4
Ι	Urem,	Cloud computing	Urem, F./Jureković	Urem, F./Jureković	2		2	4
	F./JUREKOVIC D.		D.	D.				
0	Livaja, I.	Professional praxis	Livaja, I.	Klarin Z.				12
		Bachelor thesis						10

\*M - mandatory course E - elective course

## 7. CALENDAR FOR THE ACADEMIC YEAR 2019/2020.

The academic calendar for the academic year 2024/25 is available at the link

 $https://www.vus.hr/\_download/repository/ODLUKA\%200\%20A kademskom\%20 kalendaru\%20 za\%20 a kademsku\%20 godinu\%20 2024.2025..pdf.$ 

### 8. CALENDAR OF FINAL EXAMINATIONS FOR ACADEMIC YEAR 2021./2022.

The regular winter exam period lasts from January 27, 2024 to February 21, 2025. The regular summer exam period lasts from June 9, 2024 to July 4, 2025. The regular autumn exam period lasts from August 25, 2024 to September 19, 2025.

## 9. SYLLABUSES OF ALL COURSES INCLUDED IN STUDY PROGRAM I. SEMESTER

1. GENERAL INFORMATION	1. GENERAL INFORMATION ABOUT THE SUBJECT						
1.1. Title	Principles of economics	1.8. ISVU course code	201299				
1.2. Lecturer	Dijana Mečev, PhD, s. lec.	1.9. MOZVAG course code					
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)				
1.4. Study programme (specialist,	Professional Undergraduate Study of Business	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max,	1 <sup>st</sup> – materials available On-line,				
undergraduate, graduate)	Informatics	20%)	0%				
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	0				
1.6. Study year	1 <sup>st</sup>	1.13. Modernization	🗆 yes 🛛 no				
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %				
2. COURSE DESCRIPTION							
2.1. Course objectives	The main objectice of the course is to ensure students have the ability to	understand main economic relationships and processes from different are	eas of real economic issues.				
2.2. Terms of course entry and required competences	Four-year high school education completed; having a qualification at le	vel 4.2					
2.3. Learning outcomes on the study programme level	on the LO6: To properly write and interpret basic concepts in the field of economics of enterprises, entrepreneurs and entrepreneurship and properly interpret their interdependence. LO16: To valorize elevant factors that affect organization's and individual's business and apply basic methods and concepts of planning, management and accounting. LO14: To communicate successfully with clients, users and colleagues using appropriate terminology, including the ability to communicate professionally in a foreign						
2.4. Expected learning outcomes on the course level	<b>Learning outcomes</b> towards Bloom's taxonomy: (up to two verbs per LO)		LO Level: 1. Recapture, 2. Understanding, 3. Application, 4. Analysis, 5. Evaluation, 6. Synthesis				

	1	. To demonstrate knowledge and understanding problem of scarcity.	of course conte	nt by <b>defining</b> and <b>describing</b> basic conce	epts of economics as a science that addresses the	1,1
	2	. To <b>analyze</b> economic trends using supply and	demand analysis	5.		4
	3. To <b>analyze</b> consumer behavior regarding product demand.					
	4	. To explain how input markets work.				2
	5	. To calculate and interpret different measures	of macroeconor	mic activity, such as gross national product	, inflation and unemployment	3, 5
	6	. To analyze the business cycle by analyzing ag	gregate demand	and aggregate supply.		4
	7	. To <b>link</b> fundamental economic principles and	insights, their ov	verall nature and appearance, and similaritie	es and differences.	6
	Cons	tructive alignment				
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed
	1. Introdu I. Introdu	Introduction into the course and detailed plan.	-	Listen to lectures. By working independently on a computer, they are introduced to the course content and the documents on the e-learning page of the course.	-	2 hours
		Introduction to economics.	1	Listen to the lecture and read the literature, write homework.	In colloquium or written and oral exams they can define and describe the basic economic concepts; explain the circuit diagram and its application and the law of diminishing returns.	8 hours
	2.	Supply and demand. How do markets work?	1,2	Listen to the lecture and read the literature. Individually or in pairs solve case studies, discuss on the exposed topic. Solve exercises.	In colloquium or written and oral exams they can define supply / demand and analyze the impact of individual variables on supply and demand curves	10 hours
.5. Course content according to	3.	Elasticity and its application.	1, 2	Listen to the lecture and read the literature. Solve exercises.	In colloquium or written and oral exams they can define supply / demand elasticity and analyze its application.	8 hours
detailed curriculum schedule	4.	Demand and Consumer Behavior.	1, 2, 3	Listen to the lecture and read the literature. Individually or in pairs solve case studies. Solve exercises.	In colloquium or written and oral exams they know how to define the utility and paradox of value and explain their application.	8 hours
	5. Pro	Production and business organization.	1	Listen to the lecture and read the literature, discuss on the exposed topic.	In colloquium or written and oral exams they know how to define the term and forms of enterprise and describe the economic characteristics of large and small enterprises. They can explain the law of diminishing returns, and calculate and interpret marginal and average products.	6 hours
	6.	Cost analysis.	1	Listen to the lecture and read the literature. Solve exercises.	In colloquium or written and oral exams they can define types of costs. They know how to calculate and interpret marginal, average, fixed, variable and total costs. They know how to use cost curves in business analysis.	8 hours
	7.	Perfect competition. Market failure.	1, 2, 7	Listen to the lecture and read the literature. They use multimedia and network. Individually or in pairs solve case studies. Solve exercises.	In colloquium or written and oral exams they know how to define perfect competition, analyze the income of companies in the market of perfect competition. They know how to determine the point of enterprise closing down. They can list and explain market failures.	10 hours
	8.	Monopoly	1, 2, 3, 7	Listen to the lecture and read the literature. They discuss on the exposed topic. Solve exercises.	In colloquium or written and oral exams they know how to define a monopoly and explain causal factors driving. They know how to calculate and interpret the total, average and	8 hours

9.	Oligopoly and game theory. Monopolistic competition.	1, 2, 3, 7	Listen to the lecture and read the literature. They use multimedia and network. They discuss on the exposed topic. Individually or in pairs solve case studies.	marginal revenue of monopolists. They know how to use the demand curve to analyze monopolist profit maximization. They know how to distinguish between monopoly and perfect competition. In colloquium or written and oral exams they know how to define an oligopoly and explain causal factors driving. They know how to determine Nash Equilibrium in the oligopoly market. They can define monopolistic competition. They know how to distinguish the behavior of companies in the monopolistic competition in the short term from the behavior in the long term.	8 hours
10.	Input Markets.	1, 2, 3, 4	Listen to the lecture and read the literature. They discuss on the exposed topic. Solve exercises.	In colloquium or written and oral exams they know how to define and explain factors of production (inputs). They know how to analyze the impact of individual variables on labor market supply and demand curves. They know how to explain the impact of unions and collective bargaining on wages and employment. They can think critically about the reasons for the existence of wage differences and the justification for rent payments. They know how to calculate and interpret the present value of a capital good.	10 hours
11.	The State and the Economy.	7	Listen to the lecture and read the literature. They use multimedia and network. They discuss on the exposed topic	In colloquium or written and oral exams they can explain the reasons for state intervention, critically consider ways of state intervention in economic developments. They are able to explain public choice theory and the majority paradox.	6 hours
12.	Income distribution and poverty.	4,7	Listen to the lecture and read the literature. Student explore the content of this topic area by searching the database.	In colloquium or written and oral exams they can define poverty and its forms, explain Lorenz curve and interpret Gini coefficient. They can explain why income inequalities occur.	6 hours
13.	Basic concepts of macroeconomics.	1,5	Listen to the lecture and read the literature. They discuss on the exposed topic. Solve exercises.	In colloquium or written and oral exams they are able to define GDP, inflation and unemployment and explain their components. They know how to calculate and interpret nominal and real GDP, GDP deflator, consumer price index and inflation rate. They are capable of thinking critically about GDP as a measure of welfare and about causes of unemployment.	10 hours
14.	Aggregate supply and demand. The financial market and a money issue. Central Banking and Monetary Policy.	2, 6, 7	Listen to the lecture and read the literature. They discuss on the exposed topic. Solve exercises.	In colloquium or written and oral exams they can use the aggregate supply and aggregate demand model to analyze fluctuations in the economy. They know how to calculate and interpret the extent of an investment multiplier. They can explain the role of fiscal and monetary policy in the economy.	10 hours
15.	Concluding Considerations / Repetition and preparation for the exam.		Listen to the lecture and individual preparation for the exam.		32 hours

3. EVALUATION OF STUDEN	T WORK									
3.1. Students' obligations	In accordance with the Book of to attend at least 50% of lecture Students who have during the c • From 0 – 24,9% EC • From 25 – 49,9% EC • More than 50% ECT Students can pass the final exam b) during the course (active part	<ul> <li>a accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation 2 attend at least 50% of lectures.</li> <li>4tudents who have during the course achieved:</li> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul>								
	Attendance	0,5	Written exam	3 (by submitting all colloquiums the student is relieved of an written examination)	Project					
3.2. Monitoring student work	Experimental work		Research		Practical work					
(enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Essay		Report		Continuous examination					
	Colloquium	4 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper		Other (inscribe)					
	Class activities	0,5	Oral exam	1 (by submitting all colloquiums the student is relieved of an oral examination)	Other (inscribe)					
3.3. Student workload	The student's workload o Commitment  1. Attending classes 2. Concluding Consid	n all bases amounts to 1 Ed	CTS point for 30 hours of v	work per semester and is <i>Hours (estimate)</i> 60 90	estimated as:					
4. GRADING										
4.1. Seminar paper grading										
	P	oor	Satisf	ying	Above avera	nge				
4.2. Colloquium / exam grading	Give answer by memory, r Does not know and does r and concepts. Cannot appl of the course.	no deeper understanding. not apply the basic terms ly or explain the contents	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not					

				origin correl				ally given. There is a correlation with ative subjects.		
	Active participation	in the	70-75% of att	endance	76-86	% of attendance	87-100% of a	ittendance	Creat Solv	ed mental map. red case study.
	lessons		3 point	8	5 points		7 poin	ts		3 points
4.3. Creating a final grade			2			3	4		5	
according to evaluation	Colloquium / writte exam	n	50-64,99	%		65-79,9%	80-89,9	9%		90-100%
elements			27 point	ts		33 points	39 poi	nts		45 points
	Oral ayam		2			3	5			5
	Orai exain		27 point	ts		33 points	39 poir	nts		45 points
4.4. Creating a final grade according to absolute allocation		Per- kno compet	centage of adopted pwledge, skills and ences (teaching + final exam)Numerou ences (teaching + final $90 - 100\%$ 90 - 100%5 (excc 80 - 89,9%80 - 89,9%4 (very 65 - 79,9%65 - 79,9%3 (ge 60 - 64,9%50 - 59,9%2 (suff 50 - 59,9%)		ellent) good) ood) cient) cient)	ECTS grade A B C D F				
5. ADDITIONAL INFORMATI	ON ABOUT TH	E COU	RSE							
5.1. Compulsory literature	Title							Number of copies in the library		Availability via other media
through other media)	1. Samuelson, P. A. i Nordhaus, W. (2007). Ekonomija, 18th edition, Zagreb: Mate d.o.o.								15	
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1. Polovina 2. Mankiw	, S. i Med N.G. (200	ić Đ. Š. (2002). Osnove ( 6). Osnove ekonomije. Z	ekonomije: priruč Zagreb: Mate d.o.	énik za studij ek o. (chapters 2,3,	onomije. Zagreb: Medinek. 4, 5, 6)		5 5		
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of stude classes and provided of their work. Stude Indicators of quality and Alumni associat	nts' work informat nts will be assuranc ion.	quality and the acquisitio ion on students` progress e informed about their rig e system: Student survey	on of necessary k through short co ghts and obligation y, monitoring of a	nowledge and sl lloquiums and h ons as well as th annual data fror	cills will be ensured throug omework, information for e methods of work and the n the Croatian employmen	th interactive work. By further guidance to stu required literature. t service on the annua	keeping track of atte dents will be provide l state of student em	endance and ed in order to ployment, su	student activity during increase the efficiency urveys from employers
5.4. information on the course and contact with the teacher	It is obligatory for ev pages of the course a can be addressed du working days from t	very stude and on the ring class he receipt	nt to regularly inform ab e web pages of the Polyte es. It is possible to ask c of e-mail).	out the course, te echnic. Students of puestions by e-ma	aching and teacl can contact the t ail (from the off	ning activities. All informa eachers during the consult icial e-mail address from t	tion about teaching or a ation term (at least one he domain @ vus.hr)	any delay in teaching hour per week), wh that will be answere	g will be publ ile brief ques d in a short t	ished on the e-learning stions and explanations ime (no later than five

1. GENERAL INFORMATION										
1.1. Course lecturer	Ivana Beljo	1.8. Course code in ISVU	201310							
1.2. Course title	Financial mathematics	1.9. Course code in MOZVAG								
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%							
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2							
1.6. Year of study	1 <sup>st</sup>	1.13. Modernization	Yes							
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20%X□More than 20 %□							
2. COURSE DESCRIPTION	2. COURSE DESCRIPTION									
2.1. Course objectives	<ul> <li>The goal is to provide students with t</li> <li>To adopt knowledge and ski</li> <li>To introduce students with b</li> </ul>	heoretical knowledge: Ils of the analytical way of thinking, and the logical way of concludi asic concepts of financial mathematics with appropriate economic a	ng in further education. pplications.							
2.2. Terms of course entry and required competences	4 year secondary education complete	d; qualification level 4.2 according to the CROQF.								
2.3. Learning outcomes on the study programme level	<ul> <li>LO 1: To analyze the situation, ident information technologies.</li> <li>LO 2: To define and evaluate proce production.</li> <li>LO 6: To properly write and interpret their interdependence.</li> <li>LO 7: To select and apply mathema business systems.</li> </ul>	<ul> <li>LO 1: To analyze the situation, identify opportunities and anticipate the problems encountered by organizations and individuals in the application of information technologies.</li> <li>LO 2: To define and evaluate process of thinking, planning, decision making and management in terms of electronically supported business and production.</li> <li>LO 6: To properly write and interpret basic concepts in the field of economics of enterprises, entrepreneurs and entrepreneurship and properly interpret their interdependence.</li> <li>LO 7: To select and apply mathematical methods, models and techniques that are appropriate for solving problems in the area of information and business systems.</li> </ul>								
2.4. Expected learning outcomes on the course level	Learning outcomes accroding to th	Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO)								

	1.     7       2.     7       3.     7       4.     7       5.     7       6.     7		4, 3 4, 4 4, 4 4 3 4							
	Constructive allignement									
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time			
	16.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		2 h			
	17.	BasicEconomicAccounts.Percentage and per mille account. The triple rule. Division account.	1	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams elect the appropriate economic account a to the problem from the economic practic	s students and apply ce.	6 h			
	18.	Sequences. Arithmetic and Geometric Sequences	2	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to differentiate arithmetic and sequences. Solve exercises.	students geometric	4 h	-		
	19.	Economic Functions. Demand and Supply Function.	3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	know how to define economic functions, sketch a graph of functions, and examine the demand and supply variability		4 h			
2.5. Course content according to detailed curriculum schedule	20.	Elasticity. Equilibrium.	3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to define and calculate the eq of functions, solve the elasticity of suppl demand functions.	s students uilibrium y and	4 h			
	21.	Economic Functions. Revision for colloquium. Colloquium.	1, 2, 3	Write the colloquium.	-		40 h			
	22.	Simple Interest Account. Anticipative and Decursive Interest Calculation.	4	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to define and solve the tasks or interest account.	students of a simple	4 h			
	23.	Compound Interest Account.	4	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to define and differentiate the interest account, solve the tasks of a com interest account.	students type of pound	4 h			
	24.	Interest rates. Conformal and Relative interest rate.	4, 5	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to define and differentiate the rate, and choose the appropriate method transforming the nominal interest rate in conformal or relative one.	students interest of to a	4 h			
	25.	Prenumerando and postnumerando Present and Final Value. Perpetual annuity.	4,5	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams know how to calculate and interpret the e the examples with periodic payments.	students elements in	4 h			

	26.	Loan. Repay	ment model of the loan.	6	Listen to lecture The exercises de solve tasks. Solv	s and read literature. emonstrate how to ve exercises.	In colloquium or writt know how to calculate repayment models wit with equal repayment and make a loan repay	en and oral exams students e the loan according to the h equal annuities, models quotas and agreed annuities, ment schedule.	4 h	
	27.	Loan. The co	onversion of the loan.	6	Listen to lecture The exercises de solve tasks. Sol	es and read literature. emonstrate how to ve exercises.	In colloquium or writt know how to calculate conversion, and make	en and oral exams students e the loan after the loan a loan repayment schedule.	4 h	
	28.	Loan. Combi model.	ined loan repayment	6	Listen to lecture The exercises de solve tasks. Solv	s and read literature. emonstrate how to ve exercises.	In colloquium or writt know how to calculate and make a loan repay	In colloquium or written and oral exams students know how to calculate combined loan repayment and make a loan repayment schedule.		
	29.	Loan. Revisi	on for colloquium.	4,5,6     Write the colloquium.       Listen to lectures and read		uium.	-		40 h	
	30.	Revision				es and read literature.	-		40 h	
3 EVALUATION OF STUDENTS	WODK									
5. EVALUATION OF STUDENTS		<u> </u>								
3.1. Students` obligations	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students are required to carry calculator and formulae list.</li> <li>Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two colloquie); b) by paging the avem (written end oral part of the avem)</li> </ul>									
	Attendar	nce	0,5	Written exa	am	3,5 (without colloqu	ia) Project			
3.2. Monitoring student work (enter	Experim	ental work		Research			Practical work	k		
activity so that the total number of	Essay			Report			Continuous examination	0,5		
credit score of the course)	Colloqui	ium	3,5 (without written exam)	Seminar pa	per		Other			
	Class act	tivity	0,5	Oral exam		1	Other			
3.3. Student workload	Student 1. 2.	workload on Attending cl Preparing co	all bases for 1 ECTS cred asses and exercises 60 ho olloquia or exams through	it is 30 hours ars individual w	s in a semester vork 120 hours	and is estimated as:		· · · · ·		

4. GRADING SYSTEM								
4.1. Grading seminar papers								
	Unsatisfacto	ry		Satisfactory		Ab	oove average	
4.2. Grading colloquia/ written and oral exam	Responds by memory, with understanding. Does not kn basic terms and concepts. D how to apply or explain the course with examples.	bry, without a deeper es not know or apply ncepts. Does not know plain the contents of the les.		s the basic concepts and with imparts new knowle s the material, explains the te ts supported with examples.	knowledg Observes Ige, content of terms and were not of material.	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions tha were not originally given. Notes correlations with related material.		
	A	70-74,9% of	attendance	75-79,9% of attendance	80-89,9%	of attendance	90-100% of attendance	
	Active course allendance	2 poir	nts	5 points	10	points	20 points	
		2		3		4	5	
4.3. Final grade according to	Colloquia/ Written exam	50-64,9%		65-79,9%	80-	89,9%	90-100%	
evaluation elements		25 poi	ints	30 points	35	points	40 points	
	Oral array	2		3		5	5	
	Oral exam	25 poi	ints	30 points	35	points	40 points	
4.3. Final grade according to absolute division	Percent knowle competence 8 6 6 6 5	age of acquired         edge, skills and         es (teaching + final         exam) $0 - 100\%$ $0 - 89,9\%$ $5 - 79,9\%$ $0 - 64,9\%$ $0 - 59,9\%$	Nume 5 (¢ 4 (v 3 2 (sa 2 (sa	erical grade EC excellent) ery good) (good) tisfactory) tisfactory)	TS grade A B C D E			

5. ADDITIONAL COURSE INFORMATION										
5.1. Commulation literature	Title	Number of copies in the library	Availability via other media							
(available in the library and via other media)	Šorić K., Zbirka zadataka iz matematike s primjenom u ekonomiji, Element, Zagreb, 2011. (selected chapters)	7								
	Šego B., Lukač Z., Financijska matematika, Udžbenici Sveučilišta u Zagrebu, Zagreb, 2011(selected chapters)	5								
5.2. Additional literature (at the moment of changes and/or amended of study programme)	eaching material and exercises abić Z., Tomić Plazibat N., Poslovna matematika, Ekonomski fakultet Split, 2003 (selected chapters) abić Z., Tomić N., Aljinović Z., Matematika za ekonomiste, Ekonomski fakultet Split, 2004 (selected chapters) Iarshbarger R.J., Reynolds J.J., Mathematical Applications for the Management, Life and Social Sciences, Houghton Mifflin Company, Boston, 004. (selected chapters)									
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured of attendance and student activity during classes and provided information on students` progress through s for further guidance to students will be provided in order to increase the efficiency of their work. Students as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian emple employment, surveys from employers and Alumni association.	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature.								
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the possible adjournment will be published in a timely manner on the e-learning site of the course and on contact teachers during the consultation period (at least one hour per week), while for short questions and class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which we than five working days after receiving the e-mail).	classroom activities. All the website of the Polyte d explanations they can b will be answered as soon	notices of classes or chnic. Students can e contacted during as possible (no later							

1. GENERAL COURSE IN	FORMATION								
1.1. Course title	Computer application in office automation	1.8. Course code in ISVU	201301						
1.2. Course lecturer	Zvonimir Klarin	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%						
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.						
1.6. Year of study	2 <sup>nd</sup>	1.14. Modernization	Yes						
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X□ More than 20 % □						
2. COURSE DESCRIPTION		·							
2.1. Course objectives	Gain basic knowledge of computers, electronic communication, operating and application software. Students will apply the acquired knowledge during and after their studies.								
2.2. Terms of course entry and required competences	Completed a four-year high school education; possession of a qualification at level 4.2 according to the CROQF. The condition for access to the exam is passing the course Introduction to Computer Networks.								

2.3. Learning outcomes on the study programme level	LO1: inform LO2: LO13 LO14 to con	LO1: Analyze the situation, identify opportunities and anticipate the problems encountered by organizations and individuals in the application of information technologies LO2: Define and evaluate process of thinking, planning, decision making and management in terms of electronically supported business and production LO13: Rank security threats and select appropriate countermeasures to protect the information system LO14: Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology including the ability to communicate about the profession in a foreign language										
2.4. Expected learning outcomes	Lear	<b>ning outcomes</b> accroding to the Bloom`s	taxonomy: (	(up to two verbs per LO)		Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis						
on the course level	7. E	Explain the concepts of informatics and computing.				2						
	8. F	Apply and differentiate the basics of operating system	ns			4.4						
	10. U	Use basic office and business software.				4						
	11. E	valuate the use of different data storages.				5						
	12. A	pply tools for regular maintenance of computer reso	ources.			4						
	Cons	Constructive allignement										
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time						
	31.	Introduction to the course and detailed curriculum	1	Listen to lectures. During the exercises, get acquainted with the content of the course and documents on the e-learning platform of the course.	-	4 h						
	32.	Informatics and computing. Business information systems.	1	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain the business information system in general	. 4 hi						
detailed curriculum schedule	33.	Hardware support of business information systems.	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain machine configuration.	4 h						
	34.	Software support of business information systems.	3,4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the purpose of application software.	4 h						
	35.	Word Processors I	4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the functions of a word processor.	4 h						
	36.	Word Processors II	4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the functions of a word processor.	4 h						
	37.	Mail clients	4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Usage of mail clients.	4 h						

	38.	Spreadsheets I		4	Listen to lectures. Duri exercises, through inde get acquainted with the	ing the ependent work thematic unit.	Know and appl	y a spreadsheet calculator.	4 h
	39.	Spreadsheets II		4	Listen to lectures. Dur exercises, through inde get acquainted with the	ing the ependent work e thematic unit.	Know and appl	y a spreadsheet calculator.	4 h
	40.	Presentations		5	Listen to lectures. Dur exercises, through inde get acquainted with the	ing the ependent work e thematic unit.	Know how to r	nake presentations.	4 h
	41.	Browsing the Inter	net	2	Listen to lectures. Duri exercises, through inde get acquainted with the	ing the ependent work e thematic unit.	Use search too	s purposefully.	4 h
	42. Data storage			4,5	Listen to lectures. Duri exercises, through inde get acquainted with the	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		tore and share data.	4 h
43. Co		Computer network	S	6	Listen to lectures. Dur exercises, through inde get acquainted with the	ing the ependent work e thematic unit.	Know the basics of computer networks.		4 h
	44. Cybersecurity			4,5	Listen to lectures, read prepare individually fo colloquium.	Listen to lectures, read literature, and prepare individually for the colloquium.		Know how to set up computer protection.	
	45. Concluding remarks and preparation for the exam		4, 5	Listen to lectures and p exam individually.	prepare for the	-		60 h	
3. EVALUATION OF STUDEN	TS` W	ORK							
3.1. Students' obligations	In acco least 7 • • Studer exam (	ordance with the Regulati 0%. Part-time students ar from 0 - 24,9% ECT, from 25 - 49,9% - ar more than 50% - stud tts can take the final exan (written and oral part of th	ons on Studying and the R e required to attend classe S credits- are rated F (unsu e assessed by FX (insuffici lents have the right to take n from the course in two w he exam).	egulations s at least 5 accessful) a ient) and m the final e ays: a) dur	on Student Assessment and E 0%. Students who have during and cannot obtain ECTS credit uust pass the written exam (tes exam. ring the course of teaching three	Evaluation: for all g the course achie s, and must re-en t). Written exam ough continuous	full-time student eved: roll in the next ac (test) can be held monitoring of stu	s attendance of at ademic year; in a regular or extraordinary exam dents (active participation in classe	period; es); b) by passing the
3.2 Monitoring student work	Attend	ance	0,5	V	Written exam	2		Project	
(enter the share of ECTS credits	Experi	mental work		F	Research			Practical work	
for each activity so that the total number of ECTS points	Essay			F	Report			Continuous examination	1
corresponds to the credit score	Colloq	uium		S	Seminar paper			Other	
of the course))	Class a	activity	0,5	0	Dral exam	1		Other	
3.3 Student workload	Stude 1. 2.	ent workload on all b Attending classe Preparing colloq	ases for 1 ECTS creates s and exercises 60 ho uia or exams through	lit is 30 l purs i individu	nours in a semester and i ual work 60 hours	is estimated as			

4. FORMIRANJE OCJENE											
4.1. Grading seminar papers	-										
		Unsa	tisfactory			Satisfactory			Ab	ove average	
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.			erms imp exp es. exa	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.				vledge is at the level of analysis, synthesis and lation. Observes the principles, accurately and ughly explains the content of the material, and ally connects and explains the terms and epts supported with examples. Finds solutions were not originally given. Notes correlations related material.		
	Active course		70-74,9% of at	tendance	75-79,9	% of attendance	80-89,	,9% of at	tendance	90-100	% of attendance
	attendance		2 point	s		5 points		10 poin	ts		20 points
4.3. Final grade according to evaluation elements			2			3		4		5	
	Colloquia/ Writte	n exam	50-64,99	%	65-79,9%			80-89,9	%		90-100%
			25 poin	ts		30 points		35 poin	ts		40 points
	Oral exam		2			3		5			5
		•	25 points			30 points		35 poin	ts		40 points
4.4 Final grade according to		Pero kno compet	centage of acquired owledge, skills and tences (teaching + final exam)		ical grade	ECTS grade					
absolute division			90 - 100% 80 - 89,9%	5 (ex 4 (ver	cellent) y good)	A B					
			65 – 79,9% 60 – 64.9%	3 (j 2 (sati	good) sfactory)	C D					
			50 - 59,9%	2 (sati	sfactory)	Ē					
5. ADDITIONAL COURSE IN	FORMATION										
5.1. Compulsory literature (available in the library and via other media)		×		Title					Number of the lib	copies in rary	Availability via other media
	1. Pania	n, Zeljko;	Strugar, Ivan: Primjena r	ačunala u poslo	vnoj praksi, 2. izd	anje, Zagreb: Sinergija, 2	004				Avaiable on the e-
5.2. Additional literature (at the moment of changes and/or	<ol> <li>Acalin Jerk</li> <li>Acalin Jerk</li> </ol>	o: Inform o: Inform	atika – skripta Tekst proc atika – skripta Tablični k	esor alkulator							learning page of the course

amended of study programme)			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By l classes and provided information on students' progress through short colloquiums and homework, information for further guidance to stud of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual stat Alumni association.	eeping track of attendance and ents will be provided in order to e of student employment, surve	student activity during increase the efficiency sys from employers and
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices o timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultat questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail add possible (no later than five working days after receiving the e-mail).	f classes or possible adjournmen ion period (at least one hour per lress at @ vus.hr), which will b	It will be published in a t week), while for short be answered as soon as

1. GENERAL INFORMATION ABOUT THE SUBJECT								
1.1. Title	Programming fundamentals	1.8. ISVU course code	201302					
1.2. Lecturer	Milan Hrga, M.Eng., lecturer	1.9. MOZVAG course code						
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+45+0+0)					
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	<ul> <li>1.11. Level of e- learning application (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup></li> <li>level), percentage of on line course performance (max. 20%)</li> </ul>	1 <sup>st</sup> – materials available On-line, use of on-line tools 10%					
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	1					
1.6. Study year	1 <sup>st</sup>	1.13. Modernization	□ yes no					
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %					
2. COURSE DESCRIPTIO	N							
2.1. Course objectives	2.1. Course objectives This single semester course in programming requires no prior programming experience. Introduces students to the basics of C++ programming language. Goal of this course is to familiarise students with computer and algorithmic thinking, introduce them to the data abstractions and train for problem solving. Students will be able to develop program solutions for problems of basic to medium complexity using C++ programming language. Students rise capability of abstract thinking, are able to select and apply algorithm for solving of typical known problem and define data abstraction for complex data sets.							
2.2. Terms of course entry and required competences	Student has attended Introduction to Computer Science Course							
2.3. Learning outcomes on the study programme level	LO 09. To relate the activities of building and maintaining the information system with the needs of the client and the user LO 12. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of IT) LO 15. Compare and select appropriate development tools at expert level							
2.4. Expected learning outcomes on the course level	Student understands and applies basic programming constructs of C/C++ programming language. Is capable to select and define data structure for specific problem, manipulate different basic and user defined data types, as well as complex data structures like arrays, structures and use pointers where applicable. Students are able to read and test C++ code and locate and correct typical programming errors. Students are able to model given simple problem, find solution and transform it to C++ code using above mentioned skills. (basic outcomes for passing grade) Student can analyse problem and is able to apply object oriented approach in data modelling using standard classes (grade C). Student is able to define and apply complex abstract data types using inheritance. (grade B)							

	Then solving complex tasks student applies procedures for dynamic memory allocation and deallocation. (grade A)									
	LECTURES						EXERCISES/LABS			
	Week	Hour		Theme	Week	Hour	Theme			
	1	2	Algorithms.		1	3	Scratch. Working in MS Visual Studio			
	2	2	Programming languages, expressions, dana types.	, commands, operators,	2	3	Expressions, default data types, implicit transformation			
	3	2	Variables, algebraic and logical expressions			3	Variables, constants (literal and declared). Expressions (operator precedence, evaluation)			
	4	2	Program sequence control: conditional execution and loops			3	Sequence control: conditional execution and loops.			
	5	2	Programming functions		5	3	Programming functions			
2.5. Course content	6	2	Arguments passing and r	recursion	6	3	Argument passing (by value/reference), recursion			
according to detailed curriculum schedule	7	2	Array, strings and user d	efined data	7	3	Arrays: declaration, use (in expression and as arguments)			
	8	2	Pointers and references	ters and references			Use of pointers and references, advantages and pitfalls			
	9	2	Introduction to object ori Encapsulation, "private"	ction to object oriented programming. alation, "private" and "public" access.			Repetition			
	10	2	Class, object, members (	attributes and methods).	10	3	Defining and using of classes			
	11	2	Polymorphism and overloading. Constructor and operator overloading.			3	Polymorphism and operator overloading			
	12	2	Inheritance, friends (functions and operators).			3	Inheritance			
	13	2	Template classes			3	Template classes			
	14	2	Structuring of programm	amming project and team work.		3	Project			
	15	2	Dynamic memory contro	ol, exceptions handling etc	15	3	Project			
	■ lectures ■ independent tasks				·	2.7. Comments:				
2.6. Teaching methods	<ul> <li>seminars and workshops</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> </ul>		kercises     lucation     arning	<ul> <li>Infinite da and network</li> <li>laboratory</li> <li>mentoring</li> <li>other</li> </ul>			Course starts in the second half of winter semester after introduction in Computer Science finishes			
2.8. Students` obligations	Minimal attendance for full-time students is 70% of all lectures and exercises. Students who do not satisfy minimal attendance condition will not be allowed the exam. Part time students can supplement attendance with regular consultations with lecturer on the be-weekly basis. It is strongly recommended that students take active part during lectures (in discussions, readings, rising questions, problem solving etc.) Part time students v will not be able to attend lectures regularly should contact lecturer in advance during consultation hours or via e-mail (zelimir.mikulic@vus.hr). It is duty or student to inform itself about lectures on the daily basis. Lecture's weekly schedule is available on the web site of Polytechnic of Šibé									

	( <u>http://www.vus.hr/?stranice=raspored-predavanja-preddiplomski-informaticki-menadzment&amp;id=129</u> ). Notifications about possible changes will be sent to students via e-mail and posted on the web page of course e-learning site, together with all information about course, learning materials, assignments etc.								
2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points	Attendance	2.5	Written exam	2	Project				
	Experimental work		Research		Practical work				
	Essay		Report		Continuous examination				
corresponds to the credit	Colloquium		Seminar paper		Other				
score of the course;	Class activity		Oral exam	0.5	Other				
2.10. Grading and evaluating students` work during classes and on the exam	Student's attendance is regularly registered as is activity in class during lectures and exercises. Three colloquiums are organized during semester (not mandatory for students) and student who scores over 50% points on each of them can go directly to oral exam. Total score from all three colloquiums is then used instead of written exam score. If student passes only two out of three colloquiums, he can repeat one he has missed at the end of semester. Students who do not pass all three colloquiums have to approach to the written exam. On the written exam student has to score minimum of 50% points to be allowed to the oral exam. Final grade is based on the following criteria: 10% based on attendance , 15% on activity during lectures and exercises, 25% based on results of written exam and 50% based on results of oral exam.								
2.11. Compulsory									
2.11. Compulsory		Т	<b>`itle</b>		Number of copies i the library	n Availability via other media			
2.11. Compulsory literature (available in the library and via other media)	Julijan Šribar, Boris Mot Želimir Mikulić: Osnova Dawson M.: Beginning ( Downey A.: How to thin	T tik: Demistificirani C++, Ele e programiranja, Veleučilišt C++ Through Game Progran tk like a computer scientist,	C <b>itle</b> ement, Zagreb 2001. 2. izd e u Šibeniku, 2018 nming, 3ed, Course Techn C++ Edition	anje (ili novije izdanje) ology 2011	Number of copies i the library 10 - - -	h Availability via other media - pdf pdf pdf pdf			
<ul> <li>2.11. Compulsory literature (available in the library and via other media)</li> <li>2.12. Additional literature (at the moment of changes and/or amended of study programme)</li> </ul>	Julijan Šribar, Boris Mot Želimir Mikulić: Osnove Dawson M.: Beginning O Downey A.: How to thin Frank Friedman, Elliot H Wesley, 5th ed.	T tik: Demistificirani C++, Ele e programiranja, Veleučilišt C++ Through Game Progran k like a computer scientist, Koffman: Problem Solving,	<b>Litle</b> ement, Zagreb 2001. 2. izd e u Šibeniku, 2018 nming, 3ed, Course Techn C++ Edition Abstraction and Design Us	lanje (ili novije izdanje) ology 2011 sing C++, Pierson/Addiso	Number of copies i       10       -       -       -       -       -       10	h Availability via other media - pdf pdf pdf pdf			

1. GENERAL INFORMATION								
1.1. Course lecturer	Milan Hrga	1.7. Credit score (ECTS)	4					
1.2. Course title	Introduction to computer science	1.8. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30 + 30 + 00 + 0)					
1.3. Assistants and/or associates	Milan Hrga	1.9. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	Materials available on-line, use of on-line tools (LMC – simulator) 15%					
1.4. Study programme (specialist, undergraduate, graduate)	undergraduate professional	a. Number of course revisions	1					
1.5. Course status (mandatory, elective)	Mandatory	b. Modernization	New					
1.6. Year of study	I.	1.12. Percentage estimate of course changes and/or supplements	Less than 20% ■ More than 20 % □					
2. COURSE DESCRIPTION								
2.1. Course objectives	Students are acquainted with: functioning principles of digital computers, role, complexity and representation of algorithms and with the basics of computational/algorithmic thinking. Understanding abstraction and its role in problem definition and solution finding. Establishing capability for problem solving algorithms selection/accommodation. Understanding interactions between algorithm complexity and its efficiency. Rising knowledge about use of computers and its influence on problem solving, based on the way how computers are functioning, their limitations and the way how information is represented in digital computers.							
2.2. Terms of course entry and required competences	none							
2.3. Learning outcomes on the study programme level	<ul> <li>LO01. To analyze the situation, identify opportunities and anticipate problems faced by organizations and individuals in the application of information technologies</li> <li>LO 02. Define and evaluate the processes of thinking, planning, decision-making and management in terms of electronically supported business and production</li> <li>LO 04. Interpret mechanisms of data flow control, error control and fragmentation, ways of multiplexing data transmission using routing methods in computer networks</li> <li>LO 05 Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general audiences, and critically evaluate the presented professional topics</li> <li>LO 09. To relate the activities of building and maintaining the information system with the needs of the client and the user</li> <li>LO 12. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of IT) LO 15. Compare and select appropriate development tools at expert level</li> </ul>							

	Student understands how to transform different types of information (numerical, textual, visual, audio) into data suitable for recording and manipulating in computers. He is able to categorise data and select suitable coding which is best adopted for the given problem.									
2.4. Expected learning outcomes on	Student understands how computer functions and is able to distinguish different building parts according to von Neumann model.									
the course level	Student understands role of algorithms and how are they defined in different categories of programming languages.									
	Student understands how computers exercise algorithms and is able to evaluate their efficiency.									
	Student applies basic	control str	uctures in algo	rithms as are: condition	onal	execution, pr	ogram brancl	nes program loops etc.		
	LECTURES								oblem.	<u> </u>
	Introduction to com	nuter scien			2	Binary num	bors	EALICISES		2
	Number representation in computers			2	Binary arith	metic			$\frac{2}{2}$	
	Bool's logic logic fi	inctions/ga	puters,		2	Non numbe	nneue r data represe	entation in computers		$\frac{2}{2}$
	Combinatorial and s	equential o	levices		2	Bool's func	tions logical	gates		$\frac{2}{2}$
	Computer architectu	re principl	les von Neuma	nn model	2	Optimizatio	on of logical f	of logical functions, minimization		
	LMC functioning ar	alvsis. ISA	A. Assembler		2	Von Neum	ann model I MC			2
2.5. Course content according to	Algorithms, definition, examples				2	Programing	Programing LMC-a			2
detailed curriculum schedule	Sorting algorithms			2	Sort algorit	hm			2	
	Algorithm complexity, O-notation			2	Algorithm	Im programming, LMC Assembler			2	
	Formal languages – Programming language				2	Algorithm	thm programming, LMC Assembler			2
	Programming				2	Programmi	Programming in Phyton			2
	Computer types and architecture				2	Computer a	Computer architecture basics			2
	Communication networks and protocols			2	Operating s	Operating system Windows			2	
	Operation systems			2	Operating s	system Linux			2	
	Future development and applications of information technologies			2	Internet, e-mail, Web applications 2			2		
	■ lectures	hong	■ independer	ıt tasks			2.7. Comm	ents:		
	<ul> <li>seminars and works</li> <li>practical exercises</li> </ul>	ninars and workshops								
2.6. Teaching methods	$\square$ distance education		laboratory			This course prepares students for Programming E			gramming Basics and	
	$\square$ mixed e-learning	$\Box$ mixed e-learning $\Box$ mentoring					Computer Architecture and Operating Systems courses			
	$\Box$ field teaching $\Box$ other									
	Minimal attendance f	or full-tim	e students is 7	0% of all lectures and	l exe	rcises. Stude	ents who do r	ot satisfy minimal attenda	ance condition will no	ot be
	allowed to the exam. Part time students can supplement attendance with regular consultations with lecturer on the be-weekly basis.									
	It is strongly recommended that students take active part during lectures (in discussions, readings, rising questions, problem solving etc.) Part time									
2.8 Students' obligations	students who will	not be ab	ble to attend	lectures regularly sl	houl	d contact le	ecturer in a	dvance during consultati	on hours or via e-	mail
2.0. Students congutons	(zelimir.mikulic@vu	s.hr). It is o	duty of a stude	nt to inform itself abo	out l	ectures on th	e daily basis.	Lecture's weekly schedul	e is available on the	web
	site of Polytechnic of	of Sibenik	( <u>http://www.v</u>	us.hr/?stranice=raspo	red-	<u>predavanja-p</u>	<u>preddiplomsk</u>	<u>i-informaticki-menadzmer</u>	<u>nt&amp;id=129</u> ). Notificat	tions
	about possible chang	es will be	sent to student	s via e-mail and post	ed of	n the web pa	ge of course	e-learning site, together v	with all information a	.bout
2.0 Monitoring student work (enter	course, learning mate	rials, assig	innents etc.							
the share of ECTS credits for each	Attendance	2		Written exam		0.5		Project		

activity so that the total number of ECTS points corresponds to the	Experimental work		Research		Practical work					
credit score of the course)	Essay		Report		Continuous examination					
	Colloquium		Seminar paper		Other					
	Class activity		Oral exam	0.5	Other					
2.10. Grading and evaluating students` work during classes and on the exam	Attendance 10% Activity in the Class Writen Exam 25% Oral Exam 50%	15%								
2.11. Compulsory literature			Title		Number of copies the library	s in Availability via other media				
(available in the library and via other media)	Brookshear G. : Com I.Englander: The Arc Wiley & Sons, 2010	puter Science an Overvie hitecture of Computer Ha	hn 1 5	pdf pdf						
2.12. Additional litearature (at the moment of changes and/or amended of study programme)	Evans D. : Introduction to Computing, Creative Commons, 2011					pdf				
2.13. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, inform for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their right obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of students, surveys from employers and Alumni association.					ve work. By keeping track nd homework, information ned about their rights and the annual state of student				
1. GENERAL INFORMATION										
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1.1. Course title	English for Information Technology I	1.8. Course code in ISVU	201304							
1.2. Course lecturer	Goran Crnica, prof., pred. (lecturer)	1.9. Course code in MOZVAG								
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+15+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Business Informatics	1.11. Level of e-learning application (1st, 2nd, 3rd level), percentage of online course performance (max. 20%)	1st, course materials are on-line, %							
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2							
1.6. Year of study	1st	1.13. Modernization	yes 🗆 no							
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 % □							
2. COURSE DESCRIPTION										
2.1. Course objectives	The aim of the course is to develop language structures, Special attention is given to perfecting the techniques of intermediate and higher level. The objectives also include related to the language of information technologies, as w	lexis and grammar from the business English language at t Flistening, reading, speaking and writing. Professional voc le the repetition and determination of basic tenses, the adop ell as international and intercultural economic issues.	he intermediate and higher level. abulary should be mastered at an otion of professional vocabulary							
2.2. Terms of course entry and required competences	Four-year secondary education completed; possessing a Level 4.2 quali	fication according to the CROQF. Proficiency in English at minimum B1	level.							
	LO 6: Correctly write and interpret basic concepts in the field of econor	nics and economics of enterprises, entrepreneurs and entrepreneurship and	d correctly interpret their interdependencies							
2.3. Learning outcomes on the study programme level	LO 9: Select appropriate professional literature in Croatian and foreign audiences, and critically evaluate the presented professional topics	language, prepare and independently present presentations in Croatian and	d foreign language to expert and general							
study programme lever	LO 14: Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology including the ability to communicate about the profession									
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Learning outcomes according to Bloom's taxonomy:		LO level: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5- evaluation,							

	6 - synthesis
13. To define and explain business English keywords	1,2
14. To <b>explain</b> and <b>apply</b> correctly grammatical structures and vocabulary in the field of Business English	2,3
15. To create independently and present content in the field of Business English	3
16. To <b>analyse</b> medium-sized professional texts and <b>solve</b> language tasks	4
17. To <b>argue critically</b> the views expressed and express your own views on the topic of Business English	5
18. To use part of the Common European Framework of Reference for Languages (CEF) level B1-B1-B2 language competences to generate new ideas	6

	Constructive alignment											
	r.br.	Thematic topic of the lecture	Thematic topic of the language exercises	LO of the course	Content / teaching method	Evaluation	Hours needed					
2.5. Course content according to detailed curriculum schedule	46.	Introduction into the course	Students introduce themselves to each other in English	3,5,6	Students listen to the lectures. They work independently on the computer, inform themselves about the course content and eLearning documents. Students get to know each other in small groups, discuss the reasons for choosing their studies and explain what they expect from the studies. Group representatives present to their colleagues the similarities and differences in the reasons for choosing their studies. Students are introduced to the Polytechnic's Code of Ethics.	In the oral part of the final exam, you introduce yourself or your colleagues. They express their opinion about their own linguistic progress and point out the shortcomings and strengths.	3					
	47.	Companies; A matter of choice	Company structure	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3					
	48.	Grammar notes (present tenses)	Language check (present tenses)	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3					
	49.	Leadership; when to terrorize talent	Reading, vocabulary, collocations	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures,	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve	3					

				students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	
50.	Past tenses	Language check (past tenses)	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
51.	Strategy; The big picture	Reading, vocabulary exercises	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
52.	Grammar notes (future forms)	Career skills; Talking about your job	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
53.	Articles	Case study	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
54.	Pay; the rewards of failure Review 1	Vocabulary; multi- part words	1,2,4,5,6	The students listen to the lecture and prepare individually for the exam. Before the colloquium, students are asked to ask questions about content or grammar.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	25

	55.	Grammar notes (present perfect)	Career skills; Getting things done	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
	56.	Development; Prosperity or preservation	Vocabulary exercises; understanding	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
	57.	Language check; Modal verbs of likelihood	Career skills; Giving short presentations	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
	58.	Marketing; Seducing the masses	Writing	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B1-B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
	59.	Comparatives and superlatives	Skills; Considering alternatives	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
	60.	Review 2	Final discussion and signatures	1,2,4,5,6	The students listen to the lecture and prepare individually for the exam. Before the colloquium, students are asked to ask questions about content or grammar.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	26
3. EVALUATION OF STUDEN	TWO	RK					

3.1. Student obligations	<ul> <li>required to attend classes and tach at least 50%; they are also required to write homework. Students are required to bring materials (paper and pen/ballpoint pen) to the exercises. The student's acquired knowledge is tested during the course content. Students are evaluated during the teaching process, with particular attention being paid to the student's active participation in teaching and their presentation of homework. Of particular importance for the final grade are the two written tests that the student takes during the semester. If the student passes both exams, he/she is exempted from the written part of the final exam and is obliged to take the oral final exam.</li> <li>Student achievements: <ul> <li>Students with 0 - 24.9% of ECTS credits - are graded with an F (unsuccessful) and cannot earn ECTS credits and must re-enrol the course in the next academic year;</li> <li>Students with 25 - 49.9% of ECTS credits - are graded FX (insufficient) and must pass the written exam (test). The written exam can be held in a regular or extraordinary exam period;</li> <li>Students with more than 50% of ECTS credits - students have the right to take the final exam.</li> </ul> </li> </ul>									
2.2 Monitoring student work	Attendance	0,5	Written exam	1 (without c	colloquia)	Project				
(enter the share of ECTS credits	Experimental work		Research			Practical work				
for each activity so that the total number of ECTS points corresponds to the credit ecore of the course)	Essay		Report			Continuous evaluati	on			
	Colloquium	1 (without written exam)	Seminar paper			(Homework for part students)	-time	0,5		
the creant score of the course)	Active participation	0,5	Oral exam	1		(Other)				
3.3. Student workload	The workload of students of <b>Obligation</b> 3. Attending classes and 4. Preparing colloquia of the students of the student	n all bases is 1 ECTS cre d language exercises or exams through individual wo	edit point (30 semester ho	r hours) and is estimated as: Hours (estimated) 45 45						
4. GRADING SYSTEM										
4.1. Grading seminar papers	-									
	Unsatisf	actory	Satisf	actory		At	ove avera	nge		
4.2. Grading colloquia/ written and oral exam	Responds by memory, withounderstanding. Does not know and concepts. Does not know the contents of the course with	but a deeper ow or apply basic terms v how to apply or explain ith examples.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material				
4.3. Final grade according to	Active participation of lectures and language	70-74,9% of attendance	ce 75-79,9% of at	endance	80-89,9% of attendance 90-100% of attendance			00% of attendance		
evaluation elements	exercises	2 points	5 points	5		10 points 20 po		20 points		

			2			3	4		5	
	Colloquia/Written	exam	50-64,9	9%	65-79,9%		80-89,9	%		90-100%
			25 poir	nts		30 points	35 poin	ts		40 points
	01		2			3	5			5
	Orar exam		25 poir	nts	-	30 points	35 poin	ts		40 points
4.4 Final grade according to		Percenta knowle competence	age of acquired dge, skills and es (teaching + final exam)	Numerica	al grade	ECTS grade				
absolute division		80	0 – 100% 0 – 89,9%	5 (exce 4 (very	good)	A B				
		65	5 - 79,9%	3 (go	od)	С				
		60 50	) – 64,9% ) – 59,9%	9%     2 (satisfactory)       9%     2 (satisfactory)		D E				
5. ADDITIONAL COURSE INFORMATION										
5.1. Compulsory literature (available in the library and	Title     Number of copies in the library     Availabit other in							Availability via other media		
via other media)	1. "Intelligent Business", Coursebook, Intermediate Business English, Tonya Trappe, Graham Tullis, Pearson Longman									
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>"Intelligent</li> <li>"Intelligent</li> </ol>	Business", Sl Business", W	cills Book, Intermedia Torkbook, Intermediat	te Business Engl e Business Englis	ish, Tonya Trap sh, Tonya Trapp	pe, Graham Tullis, Pearso e, Graham Tullis, Pearson	n Longman I Longman			Availability via e- learning platform
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences										
5.4. Informing about the course and contacting the teacher	It is the responsibility of on the e-learning site of explanations they can than five working days	of each studer of the course be contacted after receivir	t to be regularly infor and the website of the during class. It is also ng the e-mail).	med about the co e Polytechnic. S possible to ask	ourse, the course tudents can con questions by e-⊧	ework, and classroom acti tact teachers during the c nail (from the official e-r	vities. All notices of cla onsultation period (at le nail address at @vus.hr)	sses or possible a ast one hour per , which will be a	djournment wi week), while a nswered as so	ll be published on time for short questions and on as possible (no later

· GENERAL INFORMATIO	ON							
1.1. Course lecturer	Ivica Poljičak, PhD	1.8. Course code in ISVU	140748					
1.2. Course title	Business Communication	1.9. Course code in MOZVAG						
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)					
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%					
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	4					
1.6. Year of study	1 <sup>st</sup>	1.15. Modernization	Yes					
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20%X□More than 20 %□					
2. COURSE DESCRIPTION								
2.1. Course objectives	Getting familiar with basic communi purpose of effective application in bu	cation terms, forms and processes. Recognition and understanding outsiness communication	f communication models and styles, with a					
2.2. Terms of course entry and required competences	4 year secondary education completed	d						
2.3. Learning outcomes on the study programme levelLO 9: Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian foreign language to expert and general audiences, and critically evaluate the presented professional topics LO 14: Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology includi ability to communicate about the profession in a foreign language.								
	LO 17: Conclude what are the basic	ression in a foreign language. principles and methods of quality project management and work suc	ccessfully in a team					

2.4. Expected learning outcomes on the course level	Lear	Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6 2,3,4,5.6						
	Cons	tructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time	
	1	Introduction into the course and detailed plan.	1	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		5 h	
2.5. Course content according to detailed curriculum schedule	2.	Forms and processes of communication	1,2	Listen to lectures and read literature. Independently and in a team, analyze individual examples of different forms and processes of communication.	At the colloquium or written / oral exam, they know how to identify and evaluate the model of the communication process and the participants in the communication process.		10 h	
detailed curriculum schedule	3. Interpersonal communication		2,3,4	Listen to lectures and read literature. In the seminar classes, individually research examples of interpersonal communication, explain and present them.	At the colloquium or written / oral exam, they know how to identify and evaluate interpersonal communication and principles of successful communication.		10 h	
	4.	Business communication – structure of communication	2,3,4	Listen to lectures and read literature. In the seminar classes, individually research the content of this thematic field and present it individually.	At the colloquium or written / ora they know how to identify verba nonverbal, written and electronic communication.	al exam, l,	10 h	

	5.	Effective communication	2,3,4	Listen to lectures and read literature. In the seminar classes, individually research the content of effective communication and present it individually.	At the colloquium or written / oral exam, they can analyze and explain the key elements of effective communication: concise presentation, active listening, asking questions, a positive atmosphere and avoiding meta-languages.	10 h	
	6.	Nonverbal communication – body language	1,2,3,4	Listen to lectures and read literature. In the seminar classes, individually research nonverbal communication.	At the colloquium or written / oral exam, they can distinguish and explain different aspects of the impact of nonverbal communication on interpersonal communication.	10 h	
	7.	3, Communication styles – assertive communication style		Listen to lectures and read literature. In the seminar classes, individually research communication styles, especially assertive communication style.	They know how to define and interpret an assertive communication style in a colloquium or written / oral exam.	10 h	
	8.	Communication styles – aggressive and submissive	3,4,6	Listen to lectures and read literature. In the seminar classes, individually research communication styles, especially aggressive and submissive communication style.	They know how to define and interpret aggressive and submissive communication style at a colloquium or written / oral exam.	10 h	
	9.	Communication and cultural differences	2,3,4,6	Listen to lectures and read literature. In the seminar classes, individually research the influence of cultural differences on communication process.	At the colloquium or written / oral exam, they can identify certain types of cultural differences and explain how they affect communication.	10 h	
	10.	Business correspondence	2,3,4.6	Listen to lectures and read literature. In the seminar classes, individually research business correspondence.	At the colloquium or written / oral exam, they can explain, analyse and apply various forms of business correspondence.	10 h	
	11.	Electronic communication	5.6	Listen to lectures and read literature. In the seminar	At the colloquium or written / oral exam, they can describe electronic	10 h	

				classes, individually research electronic correspondence.	communication and analyse various forms of electronic communication.			
	12.	Public relations	4,6,7	Listen to lectures and read literature. In the seminar classes, individually research the infuence of public relations in modern organizations.	At the colloquium or written / oral exam, they know how to define public relations and describe the components of the public relations function.	10 h		
	13. Public speaking and meeting management		6,7	Listen to lectures and read literature. In the seminar classes, individually research the content of public speaking and meeting management.	At the colloquium or written / oral exam, they can explain and analyse public speaking and describe the key elements of meeting management.	10 h		
	14.       Preparation of presentations and presenting       4         15.       Negotiating as a communication skill       2		4,6,7	Listen to lectures and read literature. In the seminar classes, individually research how to prepare and make presentations.	At the colloquium or written / oral exam, they know how to identify the main parts of the presentation preparation and make a quality ppt.	10 h		
			2,3,4,5.6	Listen to lectures and read literature. In the seminar classes, individually research negotiating as a communication skill.	At the colloquium or written / oral exam, they can define negotiation and describe the basic types of negotiation.	10 h		
3. EVALUATION OF STUDENTS	WORK	ζ						
3.1. Students' obligations       In accordance with the Regulations on Studying and the Regulations on Students are required to prepare, present and positively pass the seminar paper.         3.1. Students' obligations       Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> Students can pass the final exam from the course in two ways: a) during classes through continuous monitoring of students (active participation in classes and preparation and presentation of seminar paper and two colloquia); b) during classes (active participation in classes and preparation and presentation of seminar work) and taking exams (written and oral exam).								

	Attendance	0,5	Writte	n exam	2 (without	colloquia)	Project		
3.2. Monitoring student work (enter	Experimental work		Resear	ch			Practical work		
activity so that the total number of	Essay		Report	t			Continuous examination		
credit score of the course)	Colloquium	4,5 (without written and oral exam)	Semin	ar paper			Other		
	Class activity (	0,5	Oral ex	xam	2,5		Other		
3.3. Student workload	Student workload on al 1. Attending clas 2. Preparing coll	Il bases for 1 ECTS of sses and exercises 60 loquia or exams thro	credit is 30 l ) hours ugh individu	nours in a semeste ual work 90 hours	r and is estin	nated as:			
4. GRADING SYSTEM			-						
4.1. Grading seminar papers									
	Unsatisfactory			Satisfactory			Above avera	ge	
4.2. Grading colloquia/ written and oral exam	Responds by memory, we understanding. Does not basic terms and concept how to apply or explain course with examples.	without a deeper t know or apply s. Does not know the contents of the	Reproduces difficulty understands and concep	Reproduces the basic concepts and without lifficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.		
		70-74,9% of a	ttendance	75-79,9% of atte	endance	80-89,9% of	attendance	0-100% of attendance	
	Active course attendanc	e 2 poir	its	5 points		10 po	ints	20 points	
		2		3		4		5	
4.3. Final grade according to evaluation elements	Colloquia/ Written exan	n 50-64,	9%	65-79,9%	ó	80-89	9%	90-100%	
		25 poi	nts	30 points	s	35 po	ints	40 points	
	Oral exam	2		3		5		5	
		25 poi	nts	30 points	s	35 po	ints	40 points	

4.3 Final grade according to	Percentage of acquired knowledge, skills and competences (teaching + final exam)	Numerical grade	ECTS grade	
4.5. Thiai grade according to	90 - 100%	5 (excellent)	А	
absolute division	80 - 89,9%	4 (very good)	В	
	65 - 79,9%	3 (good)	С	
	60 - 64,9%	2 (satisfactory)	D	
	50-59,9%	2 (satisfactory)	Е	

## 5. ADDITIONAL COURSE INFORMATION

5.1. Compulsory literature (available in the library and via	Title	Number of copies in the library	Availability via other media
other media)	Lamza-Maronić, M. i Glavaš, J. (2008.), Poslovno komuniciranje, Osijek, Studio HS Internet i EFOS.	5	
5.2. Additional literature (at the moment of changes and/or amended	Fox, R. (2006.), Poslovna komunikacija, Zagreb, Hrvatska sveučilišna naklada i Pučko otvoreno učilište – Zagreb.	5	
of study programme)	Reardon, K., K. (1988.), Interpersonalna komunikacija, Zagreb, Alineja.	5	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensure of attendance and student activity during classes and provided information on students' progress through sl for further guidance to students will be provided in order to increase the efficiency of their work. Stud obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian empl employment, surveys from employers and Alumni association.	d through interactive wor hort colloquiums and hon ents will be informed al oyment service on the an	rk. By keeping track nework, information bout their rights and nual state of student
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the possible adjournment will be published in a timely manner on the e-learning site of the course and on a contact teachers during the consultation period (at least one hour per week), while for short questions and class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which we than five working days after receiving the e-mail).	classroom activities. All the website of the Polyte and explanations they can vill be answered as soon a	notices of classes or echnic. Students can be contacted during as possible (no later

## II. SEMESTAR

1. GENERAL INFORMATION A	BOUT THE SUBJECT		
1.1. Title	PRINCIPLES OF MICROECONOMICS	1.8. ISVU course code	201305
1.2. Lecturer	Divna Goleš, Master of Economics, Senior lecturer	1.9. MOZVAG course code	
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+00+15+0)
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, 0%
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.
1.6. Study year	lst	1.13. Modernization	▪ yes □ no
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %
2. COURSE DESCRIPTION			
2.1. Course objectives	The aim of the course is to familiarize students with the purpose of realizing the business for which they have been trepreneurship and their interdependence. Furthermore business assets, types of costs and their movements dependences performance on the market.	market conditions in which businesses operate, the assumption of basic concepts related end the understanding of basic concepts related end the aim of the course is to enable students to acquire the ording on the degree of utilization of the capacity and the ca	tions that need to be fulfilled for the l to the business, entrepreneur, oretical and practical knowledge of alculation of prices and indicators of

2.2. Terms of course entry and required competences	Four-	our-year secondary education completed; Possession of qualification at level 4.2. according to the CROQF.								
	LO6: correc LO9: foreig LO16 plann	<ul> <li>D6: Correctly write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entrepreneurship and rrectly interpret their interdependencies.</li> <li>D9: Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and reign language to expert and general audiences, and critically evaluate the presented professional topics.</li> <li>D16: Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of anning, management and accounting of business</li> </ul>								
	Lear (up to	<b>ning outcomes</b> towards Bloom's taxonom o two verbs per LO)	ıy:			LO Level: 1. Recapture, 2. Understanding, 3. Application, 4. Analysis, 5. Evaluation, 6. Synthesis				
2.4. Expected learning outcomes	1.To	analyse the basics of business economic.	entrepreneur 18	and entrepreneurship and explain	their interdependence and prerequisite	4,2				
on the course level	2.To servic	ing value to new products and on.	4,5							
	3.Ana and	4,5								
	4.Inte	4. Interpret the performance and benchmarks of business performance in the company and analyze the business policies and economics of business functions in the company.								
	5. To present a seminar paper in which a company's business was elaborated									
	Cons	tructive alignment								
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed				
2.5. Course content according to detailed curriculum schedule	1.	Introduction to the course and a detailed performance plan.	-	Listen to the lecture. On seminary teaching, by independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	3 hours				
	2.	Introduction to business economics, concept and division of economics.	1	They listen to a lecture. They read the literature.	At the colloquium or the written and oral exam, they define the basic knowledge about the economics of enterprises and the division of economics.	5 hours				
	3.	Concept and type of business, management and business principles of a company.	1	They listen to a lecture. They read the literature.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit.	6 hours				

4.	Business policy, business planning	1.5	They listen to a lecture, they read the literature, present a seminar paper.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this	6 hours
	and financing.	-,-	followed by a discussion.	thematic unit.	
5.	Reproductions of business, long-term assets, maintenance and investment in core assets.	1,2	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	10 hours
6.	Amortization of core assets: concept, basic functions and depreciation calculation systems, examples.	1,2,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	10 hours
7.	Capacity to work: concept, type and calculation of degree of utilization capacities, examples.	1,2,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example	10 hours
8.	Short-term assets: concept, distribution and appearance forms, calculation of the need for turnover, ration coefficient and number of bonding days, liquidity and solvency, examples I. colloquium	1,2,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	15 hours
9.	Cost theory: concept and types of costs, places and cost bearers. Planning and cost analysis.	2,3,5	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit	10 hours
10.	Cost dependency on capacity change rate changes, examples.	2,3,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	10 hours
11.	Point covers costs, relationship between cost and revenue, examples.	2,3,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example-	10 hours
12.	Formation and price policy, concept, types and methods of calculation, examples.	2,3,5	They listen to a lecture, they read the literature, solve examples ,present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	10 hours
13.	Successfulness and benchmarks of business performance: productivity, economy and profitability of business, accumulation and reproduction ability of businesses.	3,4,5	They listen to a lecture, they read the literature, ,present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit,.	10 hours
14.	Business results, monitoring business operations. Economics of business functions.	1,2,3,4,5	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit,.	10 hours

	15.	Final lecture, cours colloquium	se signatures, II.	2,3,4,5	They listen to a lecture independently for the e	and prepare exam.			25 hours
3. EVALUATION OF STUDEN	T WOR	К							
3.1. Students` obligations	In accord to attend Students • • Students passing t	<ul> <li>ccordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation ttend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.</li> <li>dents who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits - is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul> </li> <li>dents can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, making and presenting the seminar paper, sing two colloquia); b) during the course (active participation in the lessons, creating and presenting the seminar) and passing the exam (written and oral exam).</li> </ul>							
	Attendan	ice	0,5	Writte	en exam	2 (by submittir colloquiums th relieved of an v examination)	ng both e student is written	Project	
3.2. Monitoring student work	Experim	ental work		Resea	urch			Practical work	
for each activity so that the total	Essay			Repor	rt			Continuous examination	
number of ECTS points corresponds to the credit score of the course)	Colloqui	um	3 (by submitting both colloquiums the student relieved of a written and examination)	is oral Semin	nar paper	1		Other (inscribe)	
	Class act	ivities	0,5	Oral	exam	1,5 (by submitted colloquiums the relieved of an of examination)	ting both e student is oral	Other (inscribe)	
3.3. Student workload	The stu 1. 2. 3.	Examination       examination         The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:       Image: Commitment of the content of the co							
4. GRADING									

	Valuation Eleme	ent		Poor		Satis	fying			Above average		
	Organization		The paper is not order and its strue	organized in cture is lac	n a logical king.	The paper is well stru distinction between th main part of the text a	ctured with a le introductio nd the conclu	clear n, the sion.	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another			
4.1. Seminar paper grading	eminar paper grading Terminology, writing style				Words and phrases are low harmonized with official terminology. Writing style is not appropriate, sentences are too long, modest vocabulary, and frequent and repeated grammatical mistakes.			official is clear, as little	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors			
	Quoting and refer	rencing	Sources are not s references do not a superficial appr	pecified at match the oach to the	all. The topic and show e research topic.	Sources are listed, but errors. The references the subject and show a attitude.	incomplete a are appropria satisfactory	and with ate for research	Sources are consistent. T their list is " shows a rob	accurate, complete and The references are appropriate, rich" and comprehensive and ust research approach.		
		Po	or			Satisfying			Ab	oove average		
4.2. Colloquium / exam grading	Give answer by n Does not know an and concepts. Can of the course.	nemory, no nd does no nnot apply	Dedeeper understanding. At apply the basic terms or explain the contents Reproduces basic terms, without difficulty transfer new knowledge, understands subject matter, explain the terms and the notions that substantiate examples.				lty transfers ter, explains stantiate by	Knowled evaluation thorough logically that it en originally correlation	Above average vledge is at the level of analysis, synthesis and ation. It observes legitimacy, accurately and ughly explains the content of the subject, and ally links and explains the terms and concepts t encapsulates. Find solutions that are not nally given. There is a correlation with lative subjects			
	Active participation is	n the	70-75% of atte	endance	76-86% of attendance		87-100% of attend		ndance Solved case study and pro			
	lessons		2 points	8	4 points		7 points			3 points		
	Sominor popor		2			3		4		5		
4.3. Creating a final grade	Seminar paper		5 points	8		7 points		8 points		10 points		
according to evaluation			2			3		4		5		
elements	Colloquium / writter exam	n	50-64,99	%		65-79,9%		80-89,9%		90-100%		
			25 point	S		30 points		35 points		40 points		
	Oral exam		2			3		5		5		
			25 point	S		30 points	<u> </u>	35 points		40 points		
4.4. Creating a final grade according to absolute allocation		Percen knowl	ntage of adopted edge, skills and	Nun	nerous grade	ECTS grade						

		competences (teaching + final exam)           90 - 100%           80 - 89,9%           65 - 79,9%           60 - 64,9%           50 - 59,9%	5 (excellent) 4 (very good) 3 (good) 2 (sufficient) 2 (sufficient)	A B C D E					
5. ADDITIONAL INFORMAT	TION ABOUT TH	E COURSE							
5.1. Compulsory literature			Title			Number of copies in the library	Availability via other media		
(available in the library and	1.Goleš D. (2016)	.*Upravljanje kvalitetom*,		e- learaning					
through other media)	2.Karić M.(2009).	*Ekonomika poduzeća*, El	konomski fakultet Osijek, G	Grafika d.o.o., Osijek					
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1. Grubišić D.(200 2. Škrtić M.(2006)	17).* Poslovna ekonomija* .*Poduzetništvo* Sinergija	, (second supplement edit -nakladništvo d.o.o., Zagre	ion), Ekonomski fakultet Sj b	plit, Split	2 2			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment service on the annual state of student survey from employees and Alumni association.								
5.4. information on the course and contact with the teacher	It is obligatory for will be published term (at least one) official e-mail add	every student to regularly in on the e-learning pages of hour per week), while brief lress from the domain @ vu	nform about the course, tea the course and on the web questions and explanation us.hr) that will be answered	ching and teaching activities pages of the Polytechnic. So s can be addressed during cl in a short time (no later tha	. All inform tudents can asses. It is p n five work	ation about teaching or an contact the teachers durin possible to ask questions l ing days from the receipt	by delay in teaching ing the consultation by e-mail (from the of e-mail).		

1. GENERAL INFORMATION AB	OUT THE SUBJECT				
1.1. Title	Computer architecture	1.8. ISVU course code	201307, 202203 (PINF-9, PINF-9I)		
1.2. Lecturer	Želimir Mikulić, senior lecturer	1.9. MOZVAG course code			
1.3. Assistants and/or associates	Milan Hrga, lecturer	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)		
1.4. Study programme (specialist, undergraduate, graduate)	Professional undergraduate study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, (lectures recorded) 20%		
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	0.		
1.6. Study year	1	1.13. Modernization	□ yes no		
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %		
2. COURSE DESCRIPTION					
2.1. Course objectives	<ul> <li>single semester course introduces students to the following:</li> <li>Basics of digital technology,</li> <li>Main computer building blocks according to von Neumann Arc</li> <li>Way how main computer components are built from combinati</li> <li>Influence of computer hardware architecture on the performanc</li> <li>Hardware/Software interface</li> <li>How to applicate acquired knowledge in business praxis.</li> </ul>	chitecture onal and sequential logical devices e.			

2.2. Terms of course entry and required competences	Four-	year high school education completed; having a quali	fication at level	4.2. Required courses: Introduction to	Computer Science					
	L01.	Analyze conditions, identify opportunities and forese	e problems which	ch organizations and individuals meet	then using information technologies.					
	LO2.	LO2. Evaluate and define steps in planning, decision making, operations and control then applying computer aided business and manufacturing.								
2.3. Learning outcomes on the study program level	LO9. critica	To individually and responsibly search and select rel lly evaluate presented professional topics.	levant literature	in Croatian and foreign languages, pre	pare papers and presentations for general and profession	al audience and				
	LO13. Rank security threats and select appropriate countermeasures to protect the information system.									
	in a team									
	Lean (up t	rning outcomes towards Bloom's taxonom o two verbs per LO)	ıy:			LO Level: 7. Recapture, 8. Understanding, 9. Application, 10. Analysis, 11. Evaluation, 12. Synthesis				
2.4 Expected learning	1.	1. Demonstrate knowledge and understanding of course content by defining and describing basic topics in computer architecture								
outcomes on the course level	2.	<b>Present</b> working principles of digital computers and	how are they co	onstructed from basic logic gates.	1	4,5				
outcomes on the course level	3.	Liassify basic building blocks of modern computers	according to vo	in Neuman's model and analyze their re	Die	4,5				
	4.	<b>Example of operating system in computer functioning</b> , establish conditions for its installation								
	6.	6 <b>Identify</b> and <b>argument</b> potential causes of lack of performance or deadlock in computer functioning								
	7.	7. <b>Critically</b> asses influence of processor type and frequency, ISA, memory subsystem (complete hierarchy) on configurations performance for specific task.								
	8.	8. <b>Design</b> configuration out of standard components and <b>estimate</b> its performance								
	9.									
	10.									
	Cons	structive alignment								
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed (hours)				
2.5. Course content according to detailed curriculum schedule	1.	Introduction to digital logic – phisical characteristics	1,2,3	Listen to the lecture and read the literature.	Checked by written test and oral exam: student can estimate influence of technology development on capabilities and performance of computers.	10				
	2.	Classes of Computers	1,8	Listen to the lecture and read the literature.	-"- : student can classify computers according to their architecture and role they are expected to play	4				
	3.	Performance, definition, measurements	1,7,8	Listen to the lecture, read the literature and solving exercises.	-"- : student can critically asses performance of computers.	12				
	4.	Instruction Set Architecture (ISA), RISC- CISC	1,2,4,7,8	Listen to the lecture, read the literature and solving exercises.	-"- : student can critically asses influence of each component on hardware/software performance	10				

	5.	MIPS ISA, structure and form study	hats, case	1,2,4,7,8	Listen to the lecture + so exercises. Working on si	olving imulator.		_"_		14
	6.	Instructions and Addressing: o branches	data and	1,4,6,7,8	Listen to the lecture + so exercises. Working on si	olving imulator.		_"_		10
	7.	Processor		1,4,6,7,8	Listen to the lecture + so exercises. Working on si	olving imulator.		_"_		10
	8.	Pipeline architecture	:	1,4,6,7,8	Listen to the lecture, rea literature and solving ex-	d the ercises.		_"_		10
	9.	Riscs		1,4,6,7,8	Listen to the lecture, rea literature and solving ex-	d the ercises.		_"_		10
	10.	Memory hierarchy		1,2,3,5,6,7,8	Listen to the lecture, rea literature and solving exe	d the ercises.		_"_		8
	11.	Cache, performance		1,2,4,6,7,8	Listen to the lecture, rea literature and solving exe	d the ercises.		_"_		8
	12.	Virtual memmory		1,2,4,6,7,8	Listen to the lecture, rea literature and solving exe	d the ercises.	_"-			8
	13.	Storage units, RAID, SAN, N	IAS	1,2,4,5,6,7,8	Listen to the lecture, read the literature and solving exercises.		-"-			10
	14.	I/O Devices, Networks, Clust	ering	1, 2, 3, 5, 6, 7	Listen to the lecture, read the literature and solving exercises.		-"-			6
	15.	Role of Operation Systems, F Development	uture	1,5,6,7,8	Listen to the lecture. Per installation on VM	Listen to the lecture. Performing installation on VM		Checked during exercises and oral exam: student can select install operating system on configuration.		20
3. EVALUATION OF STUDE	NT W	ORK								
3.1. Students` obligations	In acc obliga Stude	<ul> <li>ordance with the Book of Rules an ation to attend at least 50% of lecturents who have during the course:</li> <li>satisfied minimal attendance of the satisfied minim</li></ul>	d the Rulebook on S res through physical condition, may appro	Student Asse al presence or coach colloqu	ssment and Evaluation: for via on-line attendance. ium or written exam.	all regular st	udents attend at leas	t 70% attendance. Part-time stude	nts have t	the
		<ul> <li>past 50% score from all colloo past both written and oral exa</li> </ul>	quium or from writte ms receive grade an	ten exam (exa nd all ECTS c	am can be held in a regular or credits for that course	or extraordin	ary exam period) ma	y approach final oral exam		
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that	Atten	dance 0.5		Writ	Written exam Written exam 2 (by subn colloquiun relieved of examinatic		itting both as the student is an written n)	Project		
the total number of ECTS	Expe	rimental work		Rese	earch			Practical work		

points corresponds to the credit	Essay		Repor	t			Continuous examin	ation	
score of the course)	Colloquium	2 (by submitting both colloquiums the student is relieved of a written exam)	Semin	ar paper			Other (inscribe)		
	Class activities	0.5	Oral e	xam	2 (by submice colloquium relieved of a examination	itting both s the student is an oral n)	<sup>S</sup> Other (inscribe)		
3.3. Student workload	The student's workload Commitment	on all bases amounts to 1 E	CTS poir	nt for 30 hours of	f work per sem Hours (estim	nester and is nate)	s estimated as:		
	4. Attending classe 5. Preparation for t 6. Preparation for t	es the lectures and exercises the exam through self-study			60 30 60				
4. GRADING									
4.1. 0									
4.1. Seminar paper grading									
4.1. Seminar paper grading		Poor		Satis	fying		Abo	ove averag	je
4.1. Seminar paper grading 4.2. Colloquium / exam grading	Give answer by memory Does not know and does and concepts. Cannot ap of the course.	<b>Poor</b> 7, no deeper understanding. 8 not apply the basic terms 9 ply or explain the contents	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan ns and the notic s.	<b>fying</b> vithout difficult ds subject matte ons that substa	y transfers er, explains antiate by	Abo Knowledge is at the level evaluation. It observes thoroughly explains the logically links and exp that it encapsulates. Fit originally given. There correlative subjects.	ove average vel of analy legitimacy e content o plains the te nd solution e is a corre	ysis, synthesis and y, accurately and of the subject, and erms and concepts as that are not lation with
4.1. Seminar paper grading 4.2. Colloquium / exam grading	Give answer by memory Does not know and does and concepts. Cannot ap of the course. Attendance and active	Poor 7, no deeper understanding. s not apply the basic terms ply or explain the contents 70-75% of attendance	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan ns and the notic s. 76-86% of	fying without difficult ds subject matte ons that substa attendance	y transfers r, explains antiate by 87-1	Abo Knowledge is at the leve evaluation. It observes thoroughly explains th logically links and exp that it encapsulates. Fi originally given. There correlative subjects. 00% of attendance	ove average vel of analy legitimaci e content o plains the te nd solution e is a corre	ye ysis, synthesis and y, accurately and of the subject, and erms and concepts as that are not lation with Activity in class
4.1. Seminar paper grading 4.2. Colloquium / exam grading	Give answer by memory Does not know and does and concepts. Cannot ap of the course. Attendance and active participation in the lessons	Poor 7, no deeper understanding. s not apply the basic terms ply or explain the contents 70-75% of attendance 2 points	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan ns and the notic s. 76-86% of 5 po	fying without difficult ds subject matte ons that substa attendance ints	y transfers er, explains antiate by 87-1	Abo Knowledge is at the leve evaluation. It observes thoroughly explains th logically links and exp that it encapsulates. Fi originally given. There correlative subjects. 00% of attendance 10 points	ove average vel of analy legitimace e content of lains the te nd solution e is a corre	ysis, synthesis and y, accurately and of the subject, and erms and concepts as that are not lation with Activity in class +10 points
<ul> <li>4.1. Seminar paper grading</li> <li>4.2. Colloquium / exam grading</li> <li>4.3. Creating a final grade according to evaluation</li> </ul>	Give answer by memory Does not know and does and concepts. Cannot ap of the course. Attendance and active participation in the lessons	Poor y, no deeper understanding. s not apply the basic terms upply or explain the contents 70-75% of attendance 2 points 2	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan as and the notic s. 76-86% of 5 po 3	fying vithout difficult ds subject matte ons that substa attendance ints	y transfers er, explains antiate by 87-1	Abo Knowledge is at the leve evaluation. It observes thoroughly explains th logically links and exp that it encapsulates. Fi originally given. There correlative subjects. 00% of attendance 10 points 4	ove averag vel of analy legitimac e content o lains the te nd solutior e is a corre	ysis, synthesis and y, accurately and of the subject, and erms and concepts as that are not lation with Activity in class +10 points 5
<ul> <li>4.1. Seminar paper grading</li> <li>4.2. Colloquium / exam grading</li> <li>4.3. Creating a final grade according to evaluation elements</li> </ul>	Give answer by memory Does not know and does and concepts. Cannot ap of the course. Attendance and active participation in the lessons Colloquium / written exam	Poor         y, no deeper understanding.         s not apply the basic terms         pply or explain the contents         70-75% of attendance         2         50-64,9%	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan ns and the notic s. 76-86% of 5 po 3 65-79	fying without difficult ds subject matte ons that substa attendance ints	y transfers r, explains antiate by 87-1	Abo Knowledge is at the leve evaluation. It observess thoroughly explains the logically links and exp that it encapsulates. Fit originally given. There correlative subjects. 00% of attendance 10 points 4 80-89,9%	ove average vel of analy legitimacy e content of plains the te nd solution e is a corre	ysis, synthesis and y, accurately and of the subject, and erms and concepts ns that are not lation with Activity in class +10 points 5 90-100%
<ul> <li>4.1. Seminar paper grading</li> <li>4.2. Colloquium / exam grading</li> <li>4.3. Creating a final grade according to evaluation elements</li> </ul>	Give answer by memory Does not know and does and concepts. Cannot ap of the course. Attendance and active participation in the lessons Colloquium / written exam	Poor         7, no deeper understanding.         s not apply the basic terms         pply or explain the contents         70-75% of attendance         2 points         2         50-64,9%         25 points	Reprodu new kno the tern examples	Satist ces basic terms, v wledge, understan ns and the notio s. 76-86% of 5 po 3 65-79 30 pc	fying without difficult ds subject matter ons that substa attendance ints 0,9% pints	y transfers er, explains antiate by 87-1	AbcKnowledge is at the levelevaluation. It observesthoroughly explains thelogically links and expthat it encapsulates. Filloriginally given. Therecorrelative subjects.00% of attendance10 points480-89,9%35 points	ove average vel of analy legitimace e content of olains the te nd solution e is a corre	ye ysis, synthesis and y, accurately and of the subject, and erms and concepts as that are not lation with Activity in class +10 points 5 90-100% 40 points

			25 point	ts	30 points 35		35 points	35 points		40 points
44 Creative a Carl and		Percentage or knowledge, s competences (tea exam	of adopted skills and aching + final n)	Numerous g	rade	ECTS grade				
4.4. Creating a final grade		88 - 10	00%	5 (excellent)		A				
according to absolute anocation		78-87	7.9%	4 (very goo	od)	B				
		62 - 77	9%	2 (good)	nt)					
		0 - 49.	.9%	1 (unsufficie	ent)	F				
5. ADDITIONAL INFORMATION ABOUT THE COURSE										
5.1. Compulsory literature	Title								of copies ibrary	Availability via other media
(available in the library and through other media)	2. S.Ribarić: C	Građa računala - arh	078-953-322-074-1	5	5	-				
	3. D. Petterson	n, J.Hennessy: Com	nputer Organisati	on and Deign, 4rd e	ed., Morgan	Kaufmann, 2011.		1	l	Available On-line
5.2. Additional literature (at the moment of changes and/or amended of study programme)	5. I.Englander: The Architecture of Computer Hardware, Systems Software & Networking, 4th ed., John Wiley & Sons, 2010								1	e-learning - pdf
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	y assurance iat ensure the of knowledge, competences The control of students work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.									
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).									

1. GENERAL INFORMATION ABOUT THE SUBJECT										
1.1. Title	Introduction to web technologies	1.8. ISVU course code	146371							
1.2. Lecturer	Milan Hrga mag.ing.comp.,lec.	1.9. MOZVAG course code								
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	3. razīna – materijali dostupni On- line, polaganje kolokvija i pismenog ispita na računalu 0%							
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	0							
1.6. Study year	1 <sup>st</sup>	1.13. Modernization	Yes 🗆 No							
1.7. Credit Score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %							
2. COURSE DESCRIPTION										
2.1. Course objectives T	The aim is that students acquire basic knowledge about C	Dbject Oriented Programming								
2.2. Terms of course entry and required competences	inished high school, qualification of level 4.2. based HKO									

2.3. Learning outcomes on the study programme level	LO4.1 LO5.1 LO9.3 audier LO12. LO15.3	.04. Evaluate different digital channels in marketing campaigns and create and implement a digital marketing plan .05. Interpret mechanisms of data flow control, error control and fragmentation, ways of multiplexing data transmission using routing methods in computer networks .09. Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general udiences, and critically evaluate the presented professional topics .012. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of information technology) .015. Compare and select appropriate development tools at expert level									
	Lear (up t	<b>Learning outcomes</b> towards Bloom's taxonomy: (up to two verbs per LO)									
2.4. Expected learning outcomes		<ol> <li>Distinguish between web page formatting languages (HTML 4 and 5, XHTML, CSS 2 and 3, JavaScript) and introduce them through their theoretical and practical dimensions and in the wider context of markup languages</li> <li>Create a web site tailored to the needs of different viewing widths in the Internet browser or according to different media</li> </ol>									
on the course level		3. Write the code in (X) HTML, JavaScript and CSS and design a website that will meet the requirements of W3C validation, modern coding of characters displaying, basic design and functionality, and standards of the semantic web									
	4	4. Design a web page and arrange building elements on it in different technologies using: tables, frames, edges, positioning, floats and grids									
	5. Compare criteria for determining the quality of web pages (evaluation and validation tests)										
	(	5. Evaluate the direction in which web-based data	a display technol	ogy is evolving through HTML5 and CSS	3	2,3,4,5,6					
		/. Integrate multiple web pages into a network hu	ib and link them	with absolute and relative links		2,3,4,5,6					
		<ol> <li>Prepare and optimize images and photos for th</li> <li>Formulate keywords and set up web page meta</li> </ol>	e web site and ci	loose the appropriate format		2,3,4,5,0					
		10. Design a horizontal or vertical menu, adjust it t	to content. and k	now how to decode it		2,3,4,5,6					
	Cons	structive alignment									
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed					
		Introduction to the course and a detailed teaching plan.	-	Listen to the lecture	-	2 hours					
2.5. Course content according to detailed curriculum schedule	]	Web History and Standards and Languages for the Web	1	Listen to the lecture, work on the computer, reading litearature.	Describe the essential standards of the web in the context of historical development Understand the basics of essential web technologies Explain the impact of the web on social change	11 hours					
	2.	Basics of web pages building. Website design technologies	1,2,3,4	Listen to the lecture, work on the computer, reading litearature.	Explain HTTP protocol and client communication with the server Explain the organization of domain space Identify the domain registration process Identify site prerequisites.	13 hours					
	3.	Marketing Aspects in Website Design	1,2,3	Listen to the lecture, work on the computer, reading litearature.	Explain the primary goals of the site. Explain the secondary goals of the site. Identify site categories and their structure. Determine the importance and role of the elements of a website by a given goal.	13 hours					

	4.	Basic syntax. Absolute and relative links.	1,2,3,4	Listen to the lecture, work on the computer, reading litearature.	Identify the structure (elements) of the HTML document.	13 hours
	5.	Introduction to HTML5	1,2,3,4,5,6	Listen to the lecture, work on the computer, reading litearature.	Format a simple HTML document and display it in an Internet browser.	13 hours
	6.	Introduction to CSS3	1,2,3,4,5,6	Listen to the lecture, work on the computer, reading litearature.	Create a simple CSS declaration and embed it in an HTML document. Create simple CSS rules and embed them in an HTML document.	13 hours
	7.	Website layout and basic design	3,4,5,6	Listen to the lecture, work on the computer, reading litearature.	Develop a basic design and layout of elements on a web page by default. Arrange page elements using relative and absolute positioning. Position the elements of the page using float.	13 hours
	8.	Creating horizontal and vertical menus	3,4,5,6	Listen to the lecture, work on the computer, reading litearature.	Create vertical and horizontal navigation bars.	13 hours
	9.	Introduction to JavaScript	1,2,3,4,5,6,7	Listen to the lecture, work on the computer, reading litearature.	Apply a way to write JavaScript commands. Include written JavaScript code in an HTML document. Correct errors in written code.	13 hours
	10.	Introduction to JavaScript	1,2,3,4,5,6,7	Listen to the lecture, work on the computer, reading litearature.	Apply basic JavaScript language syntax (function operators, flow control). Create a simple web form in JavaScript.	13 hours
	11.	Responsive Website Design Technology (RWD)	5,6,7,8,9,10	Listen to the lecture, work on the computer, reading litearature.	Differentiate responsive from static design. Explain the use of relative dimensions in web design. Identify differences in display across devices and be familiar with good practices in responsive web design. Apply document preview types and different display tools when creating responsive websites.	13 hours
	12.	Image navigation and image manipulation	5,6,7,8,9,10	Listen to the lecture, work on the computer, reading litearature.	Create image navigation. Create a code to display the image. Customize image content to display on the default page.	13 hours
	13.	Multimedia content	5,6,7,8,9,10	Listen to the lecture, work on the computer, reading litearature.	Import additional content (video elements, audio elements, geolocation content) using HTML5 language commands. Convert Flash content to HTML5.	13 hours
	14.	Web browser development tools	5,6,7,8,9,10	Listen to the lecture, work on the computer, reading litearature.	Use web development tools with functionality to control, analyze and debug html, css and / or java scripts (Mozilla Firebug, Chrome Inspect Elements)	13 hours
	15.	Future-learning technologies	5,6,7,8,9,10	Listen to the lecture, work on the computer, reading litearature., individual preparation for colloquium	Optimize and evaluate your site. Conduct activities aimed at raising search engine page traffic.	13 hours

3. EVALUATION OF STUDENT WORK										
3.1. Student's obligations	In accordance with the <b>Book of</b> to attend at least 50% of lectures Students who have during the co • From 0 – 24,9% ECT • From 25 – 49,9% ECT • More than 50% ECT	<ul> <li>attend at least 50% of <i>Kates and the Katebook on Statem Assessment and Evaluation</i>. for an regular students attend at least 70% attendance. Fait-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.</li> <li>Students who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits - is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul> </li> </ul>								
	Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, solving case studies, making and presenting the seminar paper and passing two colloquia); b) during the course (active participation in the lessons, solving case studies, creating and presenting the seminar paper) and passing the exam (written and oral exam).									
2.2. Monitoring student work	Attending classes	2	Written exam	2 (no midterm)	Project					
(enter the share of ECTS credits	Experimental work		Research		Practical work	2				
for each activity so that the total number of ECTS points corresponds to the credit score	Essay		Report		Continuous checking					
	Colloquium	2 (without writing or oral exam)	Seminar paper		Other (inscribe)					
of the course)	Class activities		Oral exam	1 (without midterm)	Other (inscribe)					
	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:									
3.3. Student workload	7. Attending classes			30						
	8. Creating and Preser 9. Preparation for the	nting seminar paper Colloquium / exam through self-s	tudy	60 95						
		· · ·	•							
4. GRADING										
	Valuation Element	Poor		Satisfiying	Above a	verage				
4.1. Seminar paper grading	Organization									
	style									
	Quoting and referencing									

			Poor			Satisfying			Above average		
4.2. Colloquium / exam grading	Gives answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.			ding. Repr ms new ents of the exan	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.			Knowle evaluat thoroug logical that it e origina correla	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.		
	Active participation	Active participation in the		dance	76-86% attendance 87-10		00% atte	00% attendance			
	lessons		4 points			7 points		10 point	ts		
4.3. Creating a final grade according to evaluation elements	Practice		2			3		4			5
	Tractice		5 bodov	a		7 bodova		8 bodov	'a	-	10 bodova
	Colloquium / written exam		2		3			4		5	
			50-64,9%		65-79,9%			80-89,9%			90-100%
			25 points			30 points		35 poin	ts		40 points
	Oral exam		2			3		5			5
			25 points		30 points		35 points		ts		40 points
4.4. Creating a final grade		Per kn compe	centage of adopted owledge, skills and tences (teaching + final exam)	of adopted skills and eaching + final m)		ECTS grade					
according to absolute allocation			90 - 100% 80 - 89,9%	5 (exc 4 (very	ellent) good)	A B					
			65 – 79,9% 60 – 64,9%	3 (goo 2 (suff	d) icient)	C					
			50 - 59,9%	2 (suff 2 (suff	icient)	E E					
5. ADDITIONAL INFORMAT	TION ABOUT TH	IE COU	IRSE								
5.1. Compulsory literature	Title						Number of co libra	opies in the rry	Availability via other media		
(available in the library and through other media)	1. Reviewed script	from the o	course, available on the e-	learning system							Available on-line
unough outer mouta)	2. W3Schools e-tu	torials on l	HTML, XHTML, and CSS	S (available at: h	ttp://www.w3scł	ools.com).					Available on-line

5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>M. MacDonald, HTML5 - The Missing Manual, O'Reilly, 2014.</li> <li>D.S.McFarland, CSS3 - The Missing Manual, O'Reilly, 2013.</li> </ol>		Available on-line				
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keep classroom and information obtained about student progress through the midterm will provide the information needed for further guidance Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of annual data from the CES at the annual employment status of students, er	idents' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the iation obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. in their rights and obligations as well as working methods and required literature. tem indicators: Student survey, monitoring of annual data from the CES at the annual employment status of students, employer surveys and Alumni Association.					
5.4. information on the course and contact with the teacher	the course the course is the timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for sh questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon possible (no later than five working days after receiving the e-mail).						

1. GENERAL INFORMATION ABOUT THE SUBJECT										
1.1. Title	Information technologies and environmental protection	1.8. ISVU course code	202205							
1.2. Lecturer	Tanja Radić Lakoš, MSc, s.lec.	1.9. MOZVAG course code								
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, 0%							
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4.							
1.6. Study year	1 <sup>zt</sup>	1.13. Modernization	yes 🗆 no							
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %							
2. COURSE DESCRIPTION										
<ul> <li>2.1. Course objectives</li> <li>The aim is that student, based on theoretical knowledge and case studies, be able to:         <ul> <li>Define basic ecological and environmental concepts;</li> <li>Understand the principles of natural resource management and the principles of sustainable development;</li> <li>Learn to Identify the damage that business systems can cause to natural ecosystems thus giving priority to the integrated development of business systems and society as a whole through the application of sustainable development policy</li> <li>Apply the learned content of this course in business practice</li> </ul> </li> </ul>										

2.2. Terms of course entry and required competences	Four-y	<sup>3</sup> our-year high school education completed; having a qualification at level 4.2											
2.3. Learning outcomes on the study programme level	LO1: techno LO9: foreig LO10	To analyze the situation, identify opportuologies Select appropriate professional literature in language to expert and general audience to support and apply ethical and enviro	inities and a in Croatian ces, and crition nmental prir	nticipate problems faced by organ and foreign language, prepare and cally evaluate the presented profes nciples as well as legislation and st	izations and individuals in the application of independently present presentations in Crossional topics andards that are applicable in information t	f information atian and echnologies							
	Lear (up to	ning outcomes towards Bloom's taxonom o two verbs per LO)	ıy:			O Level: 3. Recapture, 4. Understanding, 5. Application, 6. Analysis, 7. Evaluation, 8. Synthesis							
2.4. Expected learning outcomes	1. to d	1. to demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts in environmental protection											
on the course level	2. to a	2. to analyze and compare the relationship between man and his environment in the historical and contemporary context,											
	3. It was sector	the environment (especially the energy	3, 2										
	4. Giv		3										
	5. Discuss and critically evaluate the performance of managers in accordance with the principles of sustainability and accountability,												
	6. reco	5											
	7. Use materials and tools to search scientific and professional literature in the mother tongue and in English,												
	8. Pres	sent adopted knowledge, ideas, problems and	solutions inde	ependently and in the team.		6							
	Cons	tructive alignment											
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed							
2.5. Course content according to detailed curriculum schedule		Introduction to the course and a detailed performance plan	-	Listen to the lecture. On seminary teaching, by independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	2 hours							
	16.	Nature and environment protection. Contemporary environmental problems.	1, 2, 3	Listen to the lecture and read the literature. They use multimedia and networking.	At the colloquium or the written and oral exam they can define the terms nature / environment; nature protection / environmental protection; conservationism and sustainable development and explain the approach to environmental protection in traditional and modern societies. They can give an example of contemporary environmental problems.	4 hours							

17.	Environmental pollution and degradation. Natural and anthropogenic environmental degradation	1, 2, 3, 4, 5, 6, 7, 8	Listen to the lecture and read the literature. They use multimedia and networking. In seminary classes, individually, in pairs or in Socratic triplets, they create a mental map and solve case studies, showing the acquisition of previously acquired knowledge and presenting acquired knowledge and ideas, discussing problems.	At the colloquium or the written and oral exam they can define what environmental degradation is and how it occurs, give an example of environmental degradation to individual parts of the environment, analyze and conclude how environmental degradation occurs and compare how the IT sector causes environmental degradation A mental map created. Solved case study.	4 hours
18.	Anthropogenic causes of environmental degradation and performance reduction measures.	1, 3, 4, 5, 6, 7, 8	Listen to the lecture and read the literature At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam they can explain anthropogenic causes of environmental degradation, they can predict and give an example of anthropogenic impacts on different natural ecosystems and parts of the environment, know how to set measures to reduce negative environmental impacts and recommend measures for the sustainable management of natural resources.	4 hours
19.	Development of environmental policies (path to sustainability)	1, 2	Listen to the lecture and read the literature.	At the colloquium or the written and oral exam they can explain the historical and contemporary context of environmental protection and different approaches to the problem of environmental protection (technocentric / ecocentric)	6 hours
20.	Sustainable development. Elements of sustainable development. Environmental education	1, 2, 5, 6	Listen to the lecture and read the literature.	At the colloquium or the written and oral exam, they can explain the elements of the magic triangle of sustainable development and propose a change in the principles of sustainability in their environment (family, business, social), following the principles of Agenda 21, the Millennium Goals and Agenda 2020 and 2030	6 hours
21.	Sectoral environmental pressures. Environmental toxins.	1, 3, 4, 5, 6, 7, 8	Listen to the lecture and read the literature At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the types of toxins in the environment, the expansions and give an example of measures to reduce the negative effects of intoxication. Explain the impact of EMF and noise on human health and the environment	4 hours

22.	Spatial planning. Intervention in the environment. Environmental Impact Assessment. Environmental impact studies.	1, 2, 5, 6	Guest lecture. They listen to a lecture and participate in a discussion.		2 hours
23.	Urbanization and demographic expansion as an environmental problem.	1, 2, 3, 4, 5, 6, 7, 8	Listen to the lecture and read the literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied	At the colloquium or the written and oral exam they can explain the concept and consequences of urbanization and give an example of reducing the negative effects of urbanization on the environment; explain the concept and consequences of demographic expansion and give an example of reducing the negative effects of demographic expansion on the environment	4 hours
24.	Air pollution and degradation. Anthropogenically caused climate change.	1, 5, 6, 7, 8	Listen to the lecture and read the literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied	At the colloquium or the written and oral exam they can define and describe the basic concepts of air pollution, enumerate and distinguish between natural and anthropogenic sources of air pollution, anticipate the effects of polluted air and the consequences of phenomena such as: greenhouse effect, global warming, climate change, acid rain, ozone depletion, , to analyze the impact of air pollution on the atmosphere, human health, wildlife and material heritage. Seminar paper created and presented (using computer programs independently).	10 hours
25.	Conventional energy sources. RES.	1, 4, 5, 6, 7, 8	At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied	At the colloquium or the written and oral exam they can define and describe the types of fossil fuels and RES and choose and comment on the most environmentally friendly solution and recommend measures of environmental and energy efficiency. Seminar paper created and presented (using computer programs independently).	10 hours
26.	Waste management.	1, 4, 5, 6, 7, 8	Listen to the lecture and read the literature. They use multimedia and networking At the seminar teaching, they individually explore the content of	At the colloquium or the written and oral exam they can define and describe the types and origins of waste and choose and comment on the most environmentally friendly solution for waste management.	10 hours

					this topic area by search database, and on the ba reading the literature, cr paper that presents the a knowledge and present ideas, and ways to solv the group work on sem the brainstorming meth discussion method on the applied	hing the sis of it and reate a seminar acquired s their own e problems. In inar teaching, od and the he topic are	Seminar paper computer progr	created and presented (using ams independently).	
	27.	Development of lo technologies.	w-waste	1, 4, 5, 6	Listen to the lecture and literature	I read the	At the colloqui they can explai technologies in purification tec beginning of th the acquired kn responsibly.	um or the written and oral exam, n the application of low-tech modern business, compare hnologies at the end and at the e production process, and discuss owledge critically and socially	4 hours
	28.	Development Man EMS, ISO 14000,	agement Tools: Eco-labeling.	1, 4, 5, 6	Listen to the lecture and literature	l read the	At the midterm or the written and oral exam, they can explain the use of resource management tools.		4 hours
	29.	Concluding Consid Repetition and Exa	lerations / m Preparation.		Listen to a lecture and p individually for the exa	repare m.			16 hours
	30.						-		
3. EVALUATION OF STUDEN	T WO	RK							
3.1. Students' obligations	In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper. Students who have during the course achieved: • From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year; • From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period; • More than 50% ECTS credits - students have the right to access the final exam of the subject. Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, creating mental map, solving case studies, making and presenting the seminar paper and passing two colloquia); b) during the course (active participation in the lessons, creating mental map, solving case studies, creating and								
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score	Attenda	ance		Wr	itten exam	1 (by submittin colloquiums th relieved of an v examination)	ng both e student is vritten	Project	
	Experi	mental work		Res	earch			Practical work	
of the course)	Essay			Rep	port			Continuous examination	

	Colloquium	2 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper		0,5		Other (inscribe)					
	Class activities	0,5	Oral exam		1 (by submitting both colloquiums the student is relieved of an oral examination) Oth		Other	Other (inscribe)				
	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:											
3.3. Student workload	10 Attending classes				Hours (estimate)							
	10. Attending classes											
	12. Preparation for the Colloquium / exam through self-study				35							
4. GRADING	4. GRADING											
4.1. Seminar paper grading	Valuation Element	Poor		Satisfying				Above average				
	Organization	The paper is not organize order and its structure is	The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.			clear n, the sion.	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another					
	Terminology, writing style	Words and phrases are lo with official terminology not appropriate, sentence modest vocabulary, and f repeated grammatical mis	Words and phrases are aligned with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and has little grammatical errors.			official s clear, as little	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.					
	Quoting and referencing	Sources are not specified references do not match t a superficial approach to	Sources are listed, but incomplete and wi errors. The references are appropriate for the subject and show a satisfactory researc attitude.			nd with te for research	<ul> <li>Sources are accurate, complete and consistent. The references are appropriate,</li> <li>their list is "rich" and comprehensive and shows a robust research approach.</li> </ul>					
4.2. Colloquium / exam grading	P	Satisfying				Above average			ge			
	Give answer by memory, Does not know and does and concepts. Cannot app of the course.	Reproduces basic new knowledge, t the terms and examples.	vithout difficulty transfers ls subject matter, explains ons that substantiate by ft or cc		Knowledg evaluation thoroughl logically l that it enc originally correlative	Knowledge is at the level of analysis, synthesis and valuation. It observes legitimacy, accurately and horoughly explains the content of the subject, and ogically links and explains the terms and concepts hat it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.						
	Active participation in the lessons	70-75% of attendance 76-8		5% of attendance 87-10		0% of attendance		Cı	reated mental map. olved case study.			

4.3. Creating a final grade according to evaluation elements			2 points		4 points		7 points		3 points	
	Seminar paper		2		3		4		5	
			5 points		7 points		8 points		10 points	
	Colloquium / written exam		2		3		4		5	
			50-64,9%		65-79,9%		80-89,9%		90-100%	
			25 points		30 points		35 points		40 points	
	Oral exam		2		3		5		5	
			25 points		30 points		35 points		40 points	
4.4. Creating a final grade according to absolute allocation		Percentage of adopted knowledge, skills and competences (teaching + final exam) 90 - 100%		Numerous grade		ECTS grade				
		80-89,9%		4 (very	good)	B				
			65 - 79,9%	3 (go	od)	C				
			50 - 59,9%	2 (suffi	cient)	E	<u>E</u>			
5. ADDITIONAL INFORMATION ABOUT THE COURSE										
5.1. Compulsory literature (available in the library and through other media)	Title								pies in the ry	Availability via other media
	1. Radić Lakoš, T., Upravljanje okolišem, VUŠ, Šibenik, 2018. (selected chapters) Avail-								Available On-line	
	2.									
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1.       Glavač, V., Uvod u globalnu ekologiju, Hrvatska sveučilišna naklada, Zagreb, 2001.       5         2.       Udovičić, B., Čovjek i okoliš, Kigen, Zagreb, 2009.       5         3.       Tišma, S., Maleković, S., Zaštita okoliša i regionalni razvoj, iskustva i perspektive, Institut za međunarodne odnose, Zagreb, 2010.       5         4.       Strategija održivog razvitka RH, NN 30/2009.       Available On-									Available On-line
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students classes and provided in of their work. Students Indicators of quality as Alumni association.	s' work qua formation will be in ssurance sy	ality and the acquisition o n students` progress th formed about their rights ystem: Student survey, m	of necessary kno rough short collo and obligations onitoring of ann	wledge and skil oquiums and hor as well as the m ual data from th	ls will be ensured throug nework, information for ethods of work and the r e Croatian employment s	th interactive work. By h further guidance to stude equired literature. ervice on the annual stat	ceeping track of a ents will be provident empl	ttendance and ded in order to oyment, surve	student activity during increase the efficiency ys from employers and
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).									
1. GENERAL INFORMATION										
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1.1. Course lecturer	Ana Perišić	1.8. Course code in ISVU	146563							
1.2. Course title	Mathematics	1.9. Course code in MOZVAG								
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials a	re on-line, 0%						
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	1							
1.6. Year of study	1 <sup>st</sup>	1.16. Modernization	Yes							
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %							
2. COURSE DESCRIPTION										
2.1. Course objectives	Introducing students to the fundament courses. Adopting analytical skills, lo	tal concepts of linear algebra and functions of single variable, which ogical and critical thinking skills.	n they can apply in diffe	rent economics						
2.2. Terms of course entry and required competences	4 year secondary education completed	d; qualification level 4.2 according to the CROQF.								
2.3. Learning outcomes on the study programme level	<ul> <li>LO6. Correctly write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entrepreneurship and correctly interpret their interdependencies</li> <li>LO7: select and apply mathematical methods, models and techniques that are appropriate for solving problems in the area of information and business systems</li> <li>LO16: valorize elevant factors that affect organization's and individual's business and apply basic methods and concepts of planning, management and accounting of business</li> </ul>									
2.4. Expected learning outcomes on the course level	Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)       Level of LO: <ul> <li>1- remembering,</li> <li>2- understanding,</li> <li>3- application,</li> <li>4-analysis,</li> <li>5-evaluation,</li> <li>6-synthesis</li> </ul> 4     4									
	20. Carry out fundamental operations on ma	atrices		4						

	21. P	ropose a method and solve systems of linear equation	ons;				5,4	
	22. C	Conduct basic analysis of functions of one variable	in economic n	roblems solving			4	_
	Cons	tructive alignment		obcins solving			J, <del>T</del>	
	no	Thematic unit LO of the course Content/teaching methods Evaluation		Evaluation		Time		
	1.	Introduction into the course and detailed plan. Introduction to set theory.	1	Attending lectures. Familiarize with course content, e-learning documents, literature and students' obligations.	Students perform fundamental operations through colloquia or written/oral exams.	s on sets	1 h 3h 8h	
	2.	Matrices: definitions, properties and calculus.	2	Attending lectures. Actively involving students through problem solving and discussion.	Students carry out fundamental operation matrices through colloquia or written/ora	ns on l exams.	4h 8h	
	3.	Determinants: definition and calculus	2	Attending lectures. Actively involving students through problem solving and discussion.	Students carry out fundamental operations on matrices through colloquia or written/oral exams.		4h 8h	
	4.	Inverse matrix. Matrix equations.	2	Attending lectures. Actively involving students through problem solving and discussion.	Students carry out fundamental operations on matrices through colloquia or written/oral exams.		4h 8h	
2.5. Course content according to detailed curriculum schedule	5.	Systems of linear equations. Cramer rule. Matrix equations.	3,5	Attending lectures. Actively involving students through problem solving and discussion.	Students will propose a method and solve of linear equations; they will apply linear methods in economic problems solving t colloquia or written/oral exams.	e systems r algebra hrough	4h 8h	
	6.	Systems of linear equations. Gaussian elimination.	3,5	Attending lectures. Actively involving students through problem solving and discussion.	Students will propose a method and solve of linear equations; they will apply linear methods in economic problems solving t colloquia or written/oral exams.	e systems r algebra hrough	4h 8h	
	7.	Matrix calculus. Application in economics. Exam preparation	2, 3,5	Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion.	Students will carry out fundamental oper- matrices, propose a method and solve sy- linear equations; they will apply linear al methods in economic problems solving t colloquia or written/oral exams.	ations on stems of gebra hrough	4h 8h	
	8.	Functions. Definition, properties.	4	Attending lectures. Actively involving students through problem solving and discussion.	Students will conduct basic analysis of fu one variable through colloquia or written exams.	inctions of /oral	4h 8h	
	9.	Elementary functions. Domain.	4	Attending lectures. Actively involving students through problem solving and discussion.	Students will conduct basic analysis of fu one variable through colloquia or written exams.	nctions of /oral	4h 8h	

	10.	Elementary functions.	4	Attending lec students throu discussion.	tures. Actively involving 1gh problem solving and	Students will conduct basic analysis one variable through colloquia or w exams.	s of functions of vritten/oral	4h 8h	
	11.	Limit of a function. Asymptote.	4	Attending lec students throu discussion.	tures. Actively involving 1gh problem solving and	Students will conduct basic analysis one variable through colloquia or w exams.	s of functions of vritten/oral	4h 8h	
	12.	The derivative of a function	4, 5	Attending lec students throu discussion.	tures. Actively involving 1gh problem solving and	Students will conduct basic analysis one variable, they will apply function methods in economic problems solve colloquia or written/oral exams.	s of functions of onal analysis ving through	4h 8h	
	13.	Monotonicity and local extrema.	4,5	Attending lec students throu discussion.	tures. Actively involving 1gh problem solving and	Students will conduct basic analysis one variable, they will apply function methods in economic problems solv colloquia or written/oral exams.	s of functions of onal analysis ving through	4h 8h	
	14.	Function graphs	4, 5	Attending lec students throu discussion.	tures. Actively involving 1gh problem solving and	Students will conduct basic analysis one variable, they will apply function methods in economic problems solv colloquia or written/oral exams.	s of functions of onal analysis ving through	4h 8h	
	15.	An application of functional analysis in economics. Exam preparation	4, 5	Attending lect students throu discussion. Gr and discussion	tures. Actively involving agh problem solving and roup problem solving n.	Students will conduct basic analysis one variable, they will apply function methods in economic problems solv colloquia or written/oral exams.	s of functions of onal analysis ving through	4h 8h	
3. EVALUATION OF STUDENTS	WORF	Σ.							
3.1. Students` obligations	In acco least 7 Studen Studen partici	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students are required to carry calculator and formulae list.</li> <li>Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active reation is placeas and through two actions) b) hypersections the aver (written and and part of the merce)</li> </ul>							
3.2. Monitoring student work (enter the share of ECTS credits for each	Attend	ance 0,5	Written exa	m	3,5 (without colloqu	ia) Project			

activity so that the total number of ECTS points corresponds to the	Experimental work		Research			Practical work	
credit score of the course)	Essay		Report			Continuous examination	0,5
	Colloquium	3,5 (without written exam)	Seminar paper			Other	
	Class activity	0,5	Oral exam	1		Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: Attending classes and exercises 60 hours Preparing colloquia or exams through individual work 120 hours						
4. GRADING SYSTEM							
4.1. Grading seminar papers							
	Unsati	isfactory	Satisfactory			Above average	
4.2. Grading colloquia/ written and oral exam	Responds by memory understanding. Does basic terms and conce how to apply or expla course with examples	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts.		Knowledge Observes th content of th terms and co were not ori material.	is at the level of analysis, syn e principles, accurately and t ne material, and logically con oncepts supported with exam ginally given. Notes correlati	nthesis and evaluation. horoughly explains the nects and explains the ples. Finds solutions that ons with related	
4.3. Final grade according to evaluation elements	During the semester, to the oral exam, stud did not pass at least students need to ach In the written exam/o	students have the poss dents need to achieve a one colloquia (or retal ieve at least 50% on w colloquia, oral exam ar	sibility to partially take writt at least 50% on each colloqu cen colloquia) need to take ritten exam. The final grade ad during classes.	en exams throu ium. Also, stuc part in the writ is formed afte	igh colloquia lents have a ten exam. In r the oral exa	a (twice during the semester possibility to retake one co this case, in order to hav un by aggregating scores a	er). In order to have access olloquium. Students who re access to the oral exam, achieved
4.2 Final grade according to	cor	Percentage of acquired knowledge, skills and npetences (teaching + final exam)	Numerical grade	ECTS g	rade		
4.5. Final grade according to		90 - 100%	5 (excellent)	А			
		80 - 89,9%	4 (very good)	B			
		65 - 79,9%	3 (good)	<u> </u>			
		<u>60 - 64,9%</u> 50 - 59.0%	2 (satisfactory)	D E			
5. ADDITIONAL COURSE INFO	RMATION	50 - 57,770	2 (Satisfactory)	E			

	Title	Number of copies in the library	Availability via other media			
5.1. Compulsory literature (available in the library and via other media)	Perišić, A. i Devčić, K. (2016) Matematika s primjenom u ekonomiji. Veleučilište u Šibeniku, Šibenik. Babić, Z., Tomić Plazibat, N. (2003) Poslovna matematika. Ekonomski fakultet Split, Split. (selected chapters) Šorić, K. (2011) Zbirka zadataka iz matematike s primjenom u ekonomiji. Element, Zagreb. (selected chapters)	2 7 7	Yes Yes yes			
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Lukač, Z (2014) Matematika za ekonomske analize, Udžbenici Sveučilišta u Zagrebu, Element, Zagreb. Babić Z., Tomić N., Aljinović Z. (2004) Matematika za ekonomiste, Ekonomski fakultet Split Harshbarger R.J., Reynolds J.J.(2004) Mathematical Applications for the management, life and social sciences, 7th edition, Boston New York, Houghton Company. Feaching materials					
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student approximate surveys from employees and Alumni association.					
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the possible adjournment will be published in a timely manner on the e-learning site of the course and on contact teachers during the consultation period (at least one hour per week), while for short questions and class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which we than five working days after receiving the e-mail).	classroom activities. All the website of the Polyte d explanations they can be will be answered as soon	notices of classes or chnic. Students can e contacted during as possible (no later			

1. GENERAL INFORMATIO	N				
1.1. Course lecturer	M.Sc. Danijel Mileta	1.8. Course code in ISVU			
1.2. Course title	E-Business	1.9. Course code in MOZVAG			
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+0+15+ 0)		
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%		
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	1		
1.6. Year of study	1 <sup>st</sup> .	1.13. Modernization	Yes		
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %		
2. COURSE DESCRIPTION	·		•		
2.1. Course objectives	The basic goal of the teaching process is to introduce students with opportunities and aspects of electronic business and the benefits it provides. Furthermore, the purpose of the teaching process is to stimulate entrepreneurial competences for students in the domains that provide ICT technology.				
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification level 4	2 according to the CROQF.			
2.3. Learning outcomes on the study programme level	LO1. To analyze the situation, identify opportunities and an LO2. Define and evaluate the processes of thinking, plannin LO9. Select appropriate professional literature in Croatian a and general audiences, and critically evaluate the presented LO13. Rank security threats and select appropriate countern LO17. Conclude what are the basic principles and methods	ticipate problems faced by organizations and individuals in the application of information to ag, decision-making and management in terms of electronically supported business and pro- und foreign language, prepare and independently present presentations in Croatian and foreign professional topics heasures to protect the information system of quality project management and work successfully in a team	echnologies duction ign language to expert		
	Learning outcomes by Bloom: (maximum 2 w	erbs for LO)	Level of LO:		
2.4. Expected learning outcomes			1 - memory,		
on the course level (4-10 learning			2 - understanding,		
outcomes)			5 - application, 4 - analysis		
			5 - evaluation,		
			6 – synthesis.		
	1. Categorize wireless data systems and analyze their benefi	is.	4		
	2. Plan with a project approach.		6		
	3. Break down the Internet, intranet and extranet and the ma	licious programs and dangers on them	4		
	4. Propose e-business models		6		

	5. Criti	cally evaluate the quality of ERP and CRM s	systems			5	
	6. To p	ropose and properly present e-business system	ms			6	
	7. Use		3				
2.5. Course content according to	Cons	tructive allignement					
detailed curriculum schedule							
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluatio	n	Time
	1.	Introduction to the course and detailed curriculum. An introduction to e-Business	4	Students listen to a lecture. On the computer, they are introduced to the course content and documents on the e-learning course page.	In colloquium, written and o define, describe and cate concepts of e-business.	ral exam they can gorize the basic	4h
	2.	Internet and Intranet	3	Students listen to a lecture and read literature.	erature.       At the colloquium, written and oral exam can define, enumerate and differentiate betwist the Internet, intranet and extranet and technologies used in them.         erature.       At the midterm, written and oral exam, they define, describe, list and categorize wir data systems and critically evaluate evaluate the best technology to use.         erature.       At the colloquium, written and oral exam can define and describe the information sy in business and the concepts related to it.		4h
	3.	Wireless data transfer	1	Students listen to a lecture and read literature.			4h
	4.	Business information system	5	Students listen to a lecture and read literature.			4h
	5.	Customer relationship management	5	Students listen to a lecture and read literature.	In the midterm, written and o define and describe the CRM	ral exam they can system.	4h
	6.	Strategy and models of e- Business	4	Students listen to a lecture and read literature.	They can define, describe business models at the midt written and oral exam.	and identify e- erm exam or the	4h
	7.	Repetition / 1. Colloquium	1, 3, 4, 5		Thematic units 1-6 knowledg	e	2h
	8.	Project management	2	Students listen to a lecture and read literature.	terature. At the midterm, written and oral er define and describe project man- plan with a project approach.		4h
	9.	Web portals and sites /e- Marketing	3,4	Students listen to a lecture and read literature.	In colloquium, written and on define and describe the featu web sites and categorize ther and describe the basic element and categorize and describe in	al exam they can res of portals and m, and can define nts of e-marketing ts measures.	4h
	10.	e-Banking / e-Money	7	Students listen to a lecture and read literature.	In colloquium, written and or define, describe and use e-ba the technologies and system describe and categorize the me of e-money.	cal exam they can inking, as well as is used in it, and ost common types	5h

	11.	Security of e-E	Business	3, 7	Students listen to a lecture and read	l literature.	At the n define, o systems security	nidterm, written and oral exam describe and use security progr and identify, define and o threats.	they can cams and describe	6h
	12.	e-Croatia		4, 6	Students listen to a lecture and read	l literature.	At the n define a and give	hidterm, written and oral examt nd describe terms related to e e examples for the same.	they can -Croatia	2h
	13.	Seminar creation	ons	1-7	Students listen to a lecture and reac They use multimedia and networki At the seminar teaching, they indiv the content of this topic area by database, and on the basis of it a literature, create a seminar paper the acquired knowledge and presents t and ways to solve problems. In the seminar teaching, the brainstormin the discussion method on the topic	d literature. ng. vidually explore v searching the hat presents the heir own ideas, group work on ng method and are applied.	In defer define a of semi similar critically the tech	nse of seminar paper, they are nd describe basic concepts in nar paper, to distinguish and technologies, to give an exa y judge, evaluate and propose th nology or business model in qu	e able to the topic compare mple, to he use of testion.	6h
	14.	Seminar preser	ntations	1-7	Students listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.		In defense of seminar paper, they are able to define and describe basic concepts in the topic of seminar paper, to distinguish and compare similar technologies, to give an example, to critically judge, evaluate and propose the use of the technology or business model in question.		e able to the topic compare mple, to he use of testion.	5h
	15.	Repetition / 2.	Colloquium	2, 3, 4, 6, 7			Themati	ic units 8-15 knowledge		2h
4. EVALUATION OF STU	DENT	WORK								
3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy sempapers. Students who have achieved during the course: from $0 - 24,9\%$ ECTS credits- are rated F (unsuccessful) and cannot earn E credits, and must re-enroll in the next academic year; from $25 - 49,9\%$ - are assessed by FX (insufficient) and must pass and pass the wr exam (test). Written exam (test) can be held in a regular or extraordinary exam period; more than 50% - students have the right to take final exam. Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitorin students (active participation in classes and through two exams): b) passing the exam (written and oral part of the exam)					ce of inar CTS itten e the g of				
3.2. Student work monitoring (enter the share of ECTS credits	Atte	ending classes	1.5		Written exam	1 (witho colloquiu	out ms)	Project		
for each activity so that the total	Expe	rimental work			Research	-	·	Practical work		
number of ECTS credits corresponds to the course credit		Esaay			Report			Continuous check		
value)	C	olloquiums	1 (without writt exam)	en part of	Seminar paper	1,5		(other)	1	

	Teaching activities		The oral part of exam	1	(other)	
3.3. Student work-load			····	·		
4 FORMATION OF STUDENT	GRADE					
4.1. Evaluation of seminar paper	Elements of	Bad	Satisfying		Above aver	age
	evaluation		• 5			0
	Organization	The paper is not	The paper is well structured with	h a clear distinction	The paper is well str	uctured with
		organized in a logical	between the introduction, the main	h body of the text and	a clear distinction	between the body of the
		structure.	the conclusion.		text and the conclusion	on, which are
					logically interconnec	ted.
	Terminolog, writing	Words and expressions	Words and expressions are in	line with official	Words and expre	essions are
	style	official terminology.	sentence structure is clear.	the vocabulary is	and show an under	rstanding of
		The writing style is not	appropriate and there are few gran	mmatical errors.	their meaning. The w	riting style is
		appropriate, the			excellent, the senten	ces are clear
		of a modest vocabulary			rich and there are no	ocabulary 18 orammatical
		and with frequent and			errors.	grammatical
		repeated grammatical				
	Citing and	errors.	The sources are listed but income	late and with among	The courses one	o comotoly.
	referencing	listed at all. The	The references are relevant to the	topic and show a	completely and	consistently
	references	references do not fit the	satisfactory research attitude.		listed. The refer	rences are
		topic and show a			appropriate, their list	is "rich" and
		cursory approach to			comprehensive and detailed research app	l shows a
4.2. Grading of the		Bad	Satisfying		Above aver	age
colloquium/written and oral exam			• 5			0
	It responds by mer	nory, without a deeper	It reproduces the basic concepts a	nd without difficulty	Knowledge is at t	he level of
	understanding. It does	s not know or apply basic	imparts new knowledge, unders	stands the material,	analysis, synthe	sis, and
	apply or explain the c	ontents of the course with	examples.	ulat it supports with	legality. accurat	telv and
	examples.				thoroughly explains t	he content of
					the material, and	d logically
					and concepts that it s	ns the terms

					examples. Finds s were not originally correlations with rel	olutions that given. It notes ated material.	
4.3. Forming the final grade according to the evaluation	Active attendance on class	0-69,9% attendance	70-79,9% attendance	80-89,9%	attendance	90-100% attendance	
elements		0 points	5 points	7 g	points	10 points	
	Sominor popor	2	3		4	5	
	Seminar paper	15 points	20 points	25	points	30 points	
	Colloquiums/	2	3		4	5	
	Written part of	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%	
	exam	15 points	20 points	25	points	30 points	
	Oral part of exam	2	3		4		
		15 points	20 points	25	points	30 points	
4.4. Formation of the final grade based on the absolute distribution	Percentage of acquire competencies (ter	ed knowledge, skills and aching + final exam)	Numerical grade		ECTS grad		
	90 -	- 100%	5 (excellent)		А		
	80 -	- 89,9%	4 (very good)		В		
	65 -	- 79,9%	3 (good)		C		
	60 -	- 64,9%	2 (sufficient)		D		
	50 -	- 59,9%	2 (sufficient)		E		
5. ADDITIONAL INFORMATIO	N ABOUT COURSE				·		
5.1. Compulsory literature (available in the library and via other media)		Tit	Numt	per of copies in the library	Availabilit y via other media		
	1. Mileta, D. "Elektro	ničko poslovanje", VUŠ (sl	kripta)			on-line	
	2. Panian, Ž. : "Elektro	oničko trgovanje", Sinergij	a, Zagreb		1		
	3. Panian, Ž. : "Odnos	i s klijentima u e-poslovan	ju", Sinergija, Zagreb		2		
	4. Spremić, M. : "Menadžment i elektroničko poslovanje", Narodne novine, Zagreb       1						

5.2. Additional literature (at the	1. May, P. : "Mobile Commerce", Cambridge University Press, Cambridge					
moment of changes and/or	2. Raina, K., Harsh, A. : "mCommerce security: a beginner's guide", McGrawHill/Osborne					
amended of study programme)	3. Chaffey, D. : "E-Business and e-Commerce Management", Financial Times/Prentice Hall					
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By					
that ensure the acquisition of	keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums					
knowledge, skills and	and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will					
competences	be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance					
	system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys					
	from employers and Alumni association.					
5.4. Informing about the course	It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of					
and contacting the course lecturer	classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic.					
	Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can					
	be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be					
	answered as soon as possible (no later than five working days after receiving the e-mail).					

2. GENERAL INFORMA	TION					
1.1. Course title	English for Information Technology II	1.8. Course code in ISVU	202201			
1.2. Course lecturer	Goran Crnica, prof., pred. (lecturer)	1.9. Course code in MOZVAG				
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+15+0+0)			
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study Business Informatics	1.11. Level of e-learning application (1st, 2nd, 3rd level), percentage of online course performance (max. 20%)	1st, course materials are on-line, %			
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2			
1.6. Year of study	1st	1.13. Modernization	yes 🗆 no			
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %			
2. COURSE DESCRIPTION						
2.1. Course objectives The aim of the course is to develop language structures, lexis and grammar from the business English language at the intermediate and higher level. Special attention is given to perfecting the techniques of listening, reading, speaking and writing. Professional vocabulary should be mastered at an intermediate and higher level. The objectives also include the repetition and determination of basic tenses, the adoption of professional vocabulary related to the language of information technologies, as well as international and intercultural economic issues.						
2.2. Terms of course entry and required competences	Four-year secondary education completed; possessing a Level 4.2 qualification according to the CROQF. Proficiency in English at minimum B1 level.					

	LO 1: 7 Croatia	Γο apply and link economic in and foreign language	c terms in more complex	written and ora	l communication in		
2.3. Learning outcomes on the	LO 3: 1	Fo individually and respons	sibly search relevant liter	ature for reachi	ng solutions and conclusions in Croatian a	nd foreign languages	
study programme level	LO 10: and pre using a	Develop team and interper esentation skills for assigned dvanced software tools for	rsonal teamwork skills, r ed topics and tasks (case document creation, pres	naster communi studies, project entation and bu	ication skills s, seminars) dget implementation		
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	<b>Lear</b> 24. T 25. T	ning outcomes accor o define and explain busin o explain and apply correc	ding to Bloom's ta: ess English keywords	<b>xonomy:</b>	rv in the field of Business English and IT		LO level: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis 1,2 2,3
	26. T	o create independently and	present content in the fi	eld of Business	English for IT		3
	27. T	o analyse medium-sized pr	ofessional texts and solv	ve language task			4
	28. 1 29. T	o argue critically the view o use part of the Common 1	s expressed and express European Framework of	Reference for L	s on the topic of Business English anguages (CEF) level B2 language compe	tences to generate new ideas	5
	Cons	tructive alignment		Γ			
	r.br.	Thematic topic of the lecture	Thematic topic of the language exercises	LO of the course	Content / teaching method	Evaluation	Hours needed
2.5. Course content according to detailed curriculum schedule	16.	Outdourcing: "The great job migration"	ng: Collocations t job * Making and * 3,5,6 3,5,6 3,5,6 3,5,6 5,5,5,6 5,5,6 5,			In the oral part of the final exam, you introduce yourself or your colleagues. They express their opinion about their own linguistic progress and point out the shortcomings and strengths.	3
	17.Modal verbsSentence completition and translation1,4,5,6				Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at	3

				(listening, speaking, reading and writing) is recommended.	level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	
18.	Conditionals; Type 1	The conditional sentences, practice	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
19.	Conditional sentence; Type 2 and Type 3	Speaking, vocabulary practicing	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
20.	Finance; The bottom line, The profit and loss	Adjetives and adverbs	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
21.	Passive voice	Passive sentence practicing	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
22.	Recruitment; Hiring for the future A full house	Relative pronouns; Word-building; Small-talk	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
23.	Relative pronouns	Career skills, attitudes to personal space	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam.	3

				structures by formulating their own examples.	In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	
24.	Review 1	Review 1 – Self Evaluation	1,2,4,5,6	The students listen to the lecture and prepare individually for the exam. Before the colloquium, students are asked to ask questions about content or grammar.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	25
25.	Counterfeiting Imitating property is theft	Prefixes Career skills; Giving reasons	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
26.	Markets "Going, going, gone"	Compound nouns Making and responding to offers	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3
27.	Lobbies	Vocabulary and language check	2,3,4,6	Students listen to a lecture on grammar and spelling. The students exchange their own experiences on a certain topic and practice language structures by formulating their own examples.	Students apply grammar structures and solve grammar and spelling problems at the colloquium or in the written part of the final exam. In the oral part of the final exam, students use everyday examples to explain how to use certain grammatical structures.	3
28.	Reported speech	Reported sentence formation	1,4,5,6	Students listen to the lecture and take an active part by asking questions and answering questions. In the lectures, students are encouraged to engage in dialogue and discussion, as well as to express opinions and points of view. The use of all language skills (listening, speaking, reading and writing) is recommended.	At the colloquium or in the written part of the final exam, the pupils define and explain the most important terms of the learning units. They solve language exercises that demonstrate an understanding of the meaning of key terms. In the oral part of the final exam, the students critically discuss their views on the unit topics and texts and use part of the general language skills at level B2 of the Common European Framework of Reference for Languages by presenting their ideas and findings.	3

	29.	Communication: "Coping with infoglut"	Information overload 2,3,4,6		Students listen to a le grammar and spelling exchange their own e certain topic and prac structures by formula examples.	cture on g. The students xperiences on a ctice language ting their own	Students apply grammar and sp or in the writte. In the oral part everyday exam grammatical stu	grammar structures and solve pelling problems at the colloquium n part of the final exam. of the final exam, students use ples to explain how to use certain uctures.	3				
	30.	30.     Review 2     Self     Self		Students apply grammar and sp or in the writter In the oral part everyday exam grammatical stu	grammar structures and solve pelling problems at the colloquium n part of the final exam. of the final exam, students use ples to explain how to use certain uctures.	26							
3. EVALUATION OF STUDEN	TWOI	WORK											
3.1. Student obligations	Follow require The str partici passes Studer a) by p b) by p	ving the Rulebook on Stud- ed to attend classes and tea- udent's acquired knowledg pation in teaching and their both exams, he/she is exer- at achievements: • Students with 0 - 24.9 • Students with 25 - 49. • period; • Students with more th tts can pass the final exam passing two colloquia and a passing the final exam cons	ying and the Rulebook on ch at least 50%; they are e is tested during the cour r presentation of homewore mpted from the written pro- % of ECTS credits - are g 9% of ECTS credits - are an 50% of ECTS credits - are in two ways: n oral exam during the re- isting of a written and an	idents, the require bring writing ma occess, with partic o written tests that xam. edits and must re-( i (test). The writte	d attendance is at least 70%. Part-t terials (paper and pen/ballpoint per ular attention being paid to the stu- at the student takes during the seme enrol the course in the next academ in exam can be held in a regular or	ime students are n) to the exercises. dent's active ester. If the student ic year; extraordinary exam							
3.2 Monitoring student work	Attend	ance	0,5	Writte	en exam	1 (without coll	loquia)	Project					
(enter the share of ECTS credits	Experi	mental work		Resea	ırch			Practical work					
for each activity so that the total number	Essay			Repor	rt			Continuous evaluation					
of ECTS points corresponds to the credit score of the course)	Colloq	uium	1 (without written example)	n) Semin	nar paper			(Homework for part-time students)	0,5				
the creat score of the course)	Active	participation	0,5	Oral	exam	1		(Other)					
3.3. Student workload	The v	workload of students of <b>Obligation</b>	on all bases is 1 ECT	<b>FS</b> credit poi	int (30 semester ho	ars) and is estin <i>Hours (estime</i>	nated as: ated)						
		<ol> <li>Attending classes an</li> <li>Preparing colloquia</li> </ol>	d language exercises or exams through individ	ual work		45 45							

4. GRADING SYSTEM											
4.1. Grading seminar papers	-										
	Unsatisfactory					Satisfactory			Above average		
4.2. Grading colloquia/ written and oral exam	Responds by me understanding. I and concepts. Do the contents of t	emory, with Does not known oes not known he course w	but a deeper ow or apply basic te w how to apply or e ith examples.	Rep erms imp xplain expl exar	roduces the bas arts new know ains the term nples.	ic concepts and witho ledge, understands tl s and concepts supp	out difficulty he material, ported with	Know evalua thorou logical concep that we with re	Juation. Observes the principles, accurately and roughly explains the content of the material, and ically connects and explains the terms and icepts supported with examples. Finds solutions t were not originally given. Notes correlations th related material.		is, synthesis and s, accurately and the material, and terms and Finds solutions es correlations
	Active participation	on of	70-74,9% of a	ttendance	75-79,9	% of attendance	80-89,	9% of at	tendance	90-100	% of attendance
	exercises	lage	2 poin	its		5 points		10 poin	ts		20 points
	Colloquia/Written exam Oral exam		2			3	4			5	
4.3. Final grade according to evaluation elements			50-64,9	9%	6	5-79,9%		80-89,9	%		90-100%
			25 poir	nts	3	30 points		35 poin	ts		40 points
			2			3		5			5
			25 points		30 points			35 poin	ts		40 points
		Percent knowle competenc	age of acquired edge, skills and es (teaching + final exam)	Numeri	cal grade	ECTS grade					
4.4. Final grade according to absolute division		9	0 - 100%	5 (exc	ellent)	A					
		65	0 – 89,9% 5 – 79.9%	4 (very 3 (g	v good) ood)	C					
		60	0 - 64,9%	2 (satis	factory)	D					
		50	) – 59,9%	2 (satis	factory)	E					
5. ADDITIONAL COURSE IN	FORMATION										
5.1. Compulsory literature (available in the library and				Title					Number of the lib	copies in rary	Availability via other media
via other media)	4. Trappe, T Pearson I	., & Tulli Longman.	s, G. (2005). Int	elligent Busi	ness Courseb	ook, Intermediate I	Business En	glish:	10		

5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>Trappe, T., &amp; Tullis, G. (2005). Intelligent Business Skills Book, Intermediate Business English: Pearson Longman.</li> <li>Trappe, T., &amp; Tullis, G. (2005). Intelligent Business Workbookbook, Intermediate Business English: Pearson Longman.</li> </ol>	A vailability via e- learning platform
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of student work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and classes and provided information on student progress through short colloquiums and homework, information for further guidance to students will be provided to increase work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surve Alumni association.	I student activity during the efficiency of their eys from employers and
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment work on the e-learning site of the course and the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as s than five working days after receiving the e-mail).	vill be published on time for short questions and bon as possible (no later

## **III. SEMESTER**

· GENERAL I	NFORMATION		
1.1. Course lecturer	Anita Grubišić	1.8. Course code in ISVU	
1.2. Course title	Principles of accounting	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	30 + 30 +00+0
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	c. 1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%
1.5. Course status	Mandatory	d. 1.12. Number of course revisions	3
1.6. Year of study	2 <sup>nd</sup>	1.13. Modernization	Yes
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20%X□More than 20 %□
2. COURSE DESCRI	PTION		
2.1. Course objectives	Accounting, content and concept, accounting process accounting plan, asset accounting and amortization, a accounting of business results, inventory of assets a financial statements, management accounting, inflati through examples of business events entries in the or	is and policies, international accounting standards and the environ accounting for liabilities and equity, cost accounting, income account nd liabilities, acquisitions and consolidated reports, financial states on accounting, accounting ethics. Exercises include solving charac der of the RRIF Accounting Plan for Entrepreneurs.	ment in which it is developed and operates, ting, ments, financial indicators, understanding of teristic task groups as part of a written exam
2.2. Terms of course entry and required competences	No conditions		
2.3. Learning outcomes on the study programme level	LO6. Correctly write and interpret basic concepts in their interdependencies LO7. Select and apply mathematical methods, models LO9. Select appropriate professional literature in Cro expert and general audiences, and critically evaluate LO14. Communicate successfully with clients, users a about the profession in a foreign language	the field of economics and economics of enterprises, entrepreneurs a s and techniques appropriate for solving problems in the field of Busi- batian and foreign language, prepare and independently present prese- the presented professional topics and colleagues in a verbal and written manner using appropriate termi	and entrepreneurship and correctly interpret iness Information Systems entations in Croatian and foreign language to nology including the ability to communicate

2.4. Expected	Learni	ing outcomes accroding to the Bloom`s taxono	Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis					
the course level	To expla To analy To classi To comp To under	in, link and analyse the features of accounting for entrepren rese the effects of key business transactions on financial state ify business events. bute and record business events in basic and auxiliary accou- rstand, link and analyse financial statements.		4,5 4,5 3,4 5,6				
	Numb er	Thematic unit	LO of the course	Content/teaching method	Evaluation		Duration	1
	1.	Introductory lecture, Accounting concepts and content,	1,2,3	They listen to a lecture and read literature. They work on their own and in team workouts.	e. in the written and oral exam they define the basic concepts of accounting. Analyze the types and users of accounting information.		12	
	2.	2. Types of accounting, Accounting information users, Basic models of balance sheet and income statement, 1,2,3 They listen to a lecture and read literature. They work on their own and in team workouts. In the wide statement, In		In the written and distinguish between example, with an ur underlying financial law.	d oral exam they know how to accounting categories and set an inderstanding of the positions of the statements and the application of the	12		
2.5. Course content according to detailed	3.	Accounting harmonization, Accounting documents and controls, Accounting types and accounts.	1,2,3	They listen to a lecture and read literature. They work on their own and in team workouts.	In the written and or and evaluate the cha accounts, and apply entry bookkeeping r	al exam they know how to analyze rt of accounts and the chart of them correctly with the double ules.	12	
curriculum schedule	4.	Basic accounting categories, Accounting accounts, Chart of accounts for entrepreneurs, Rules in double-entry bookkeeping system	1,2,3	They listen to a lecture and read literature. They work on their own and in team workouts.	On the written and o the Legal Framewor Croatian Tax Systen books and basic fina	oral exam they know how to apply k for Financial Accounting and the n for the preparation of business ncial statements.	12	
	Legal accounting framework for financial accounting in Croatia, Fundamental financial statements, Accounting records, Tax system in the Republic of Croatia,1,2,3They listen to a lecture and read literature. They work on their own and in team workouts.		They listen to a lecture and read literature. They work on their own and in team workouts.	On the written and c the Legal Framewor Croatian Tax Systen books and basic fina	oral exam they know how to apply k for Financial Accounting and the n for the preparation of business ncial statements.	12		
	6.	Recording of business changes following the chart of accounts, Preparation of annual	They listen to a lecture and read literature.1,2,3They work on their own and in team workouts.On the written the Legal France		On the written and o the Legal Framewor	written and oral exam they know how to apply al Framework for Financial Accounting and the		

						_
	accounts, Repetition for exam, allocation of signatures.			Croatian Tax System for the preparation of business books and basic financial statements.		
7.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 1	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	_
8.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 2	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	
9.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 3	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	
10.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 4	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	
11.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for 4Entrepreneurs. 5	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	
12.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 6	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	
13.	Exercises include solving characteristic task groups as part of a written part of exams through recording business events entries using RRIF Accounting Plan for Entrepreneurs. 7	4	They listen to a lecture and read literature. They work on their own and in team workouts.	They can evaluate and synthesize business changes in both the written and oral exam	12	

	14.       Exercises include solving task groups as part of a w exams through recording entries using RRIF Accord Entrepreneurs. 8		aracteristic en part of siness events ing Plan for	4	They listen to a le They work on the workouts.	ecture and read literature. eir own and in team	They can evaluate and synthesize b both the written and oral exam	usiness changes in	12
	15.	<ul> <li>Exercises include solving characteri task groups as part of a written part of exams through recording business eventries using RRIF Accounting Plan Entrepreneurs. 9</li> </ul>		4 They listen to a le 4 Work on the workouts.		ecture and read literature. eir own and in team	They can evaluate and synthesize b both the written and oral exam	usiness changes in	12
3. EVALUATION OF	STUDE	NTS` WORK							
3.1. Students` obligations	Attenda	nce (in accordance with the Ru	lebook on Studyir	ng) and the pr	reparation of home	ework assignments are r	equired for signature.		
3.2. Monitoring student work (enter	Attendar	nce	1	Written exam (theory + practical)		2 +2	Project		
the share of ECTS credits for each	Experim	ental work		Rese			Practical work		
activity so that the total number of	Essay			Report			Continuous examination	0,5	
ECTS points corresponds to the	Colloqui	um		Semi	nar paper		Other		
credit score of the course)	Class ac	tivity	0,5	Oral exam			Other		
3.3. Student workload	Student 3. 4.	workload on all bases for 1 EC Attending classes and exercise Preparing colloquia or exams	CTS credit is 30 ho es 60 hours through individua	ours in a seme al work 120 h	ester and is estimation	ted as:			
4. GRADING SYSTE	М								
4.1. Grading seminar papers	-								
A 2 Grading		Unsatisfactory		Satisfactory	ÿ	Ē	Above average		
colloquia/ written and oral exam	Respon underst basic te	ds by memory, without a deeper anding. Does not know or apply rms and concepts. Does not know	Reproduces t difficulty understands t and concepts	Reproduces the basic concepts and wi difficulty imparts new knowl understands the material, explains the and concepts supported with examples.		without Without Knowledge is at the level of analysis, synthesis and evalue Observes the principles, accurately and thoroughly explained there is and concepts supported with examples. Finds solution terms and concepts supported with examples.		ation. as the s the ons that	

	how to apply or course with example.	explain the cont mples.	ents of the		were not originally given. Notes correlations with related material.							
	Active course at	tondonoo	70-75% c	of attendance	7	6-86% of attendan	ice	87-100% of attendance	Max. Points			
	Active course at	tendance	4 points		7 points			210points	20 points			
	Seminar paper											
4.3. Final grade	Seminar paper											
according to				2	3			4	5			
evaluation elements	Colloquia/ Writt	ten exam	50-	50-64,9%		65-79,9%		80-89,9%	90-100%			
			241	241points		53 points		65 points	72 points			
	Oral exam		2			3		4	5			
	Orarexam		9 j	points	12 points			15 points	18 points			
4.3. Final grade		Percentage knowledge, competences (to exa	of acquired , skills and eaching + final m)	Numerical	grade	ECTS gra	ade					
according to absolute		90 - 1 80 - 8	00%	5 (excelle	ent)	AB						
aivision		65 - 7	9,9%	3 (good	d)	C C						
		60-6 50-5	4,9% 9,9%	2 (satisfact 2 (satisfact	tory) tory)	D E						

5. ADDITIONAL	COURSE INFORMATION		
5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and via other media)	1. Grubišić, A.; Osnove računovodstva, Veleučilište u Šibeniku, 2016.		YES
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1.grupa autora: Računovodstvo poduzetnika s primjerima knjiženja, X naklada, 2014, RRIF Plus, Zagreb	2	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interact student activity during classes and provided information on students' progress through short colloquiums and homework, in be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations a literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service surveys from employers and Alumni association.	ctive work. By keeping tra nformation for further guid s well as the methods of w ce on the annual state of s	ck of attendance and ance to students will ork and the required tudent employment,
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the	All notices of classes or p contact teachers during the ble to ask questions by e-m e e-mail).	ossible adjournment e consultation period ail (from the official

1. GENERAL INFORMATION ABOUT THE SUBJECT									
1.1. Title	MANAGEMENT	1.8. ISVU course code	201314						
1.2. Lecturer	Jasmina Sladoljev , univ.spec. oec.	1.9. MOZVAG course code							
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30 + 0 + 30)						
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	Level 1 - Materials Available Online, 0%						
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.						
1.6. Study year	2 <sup>nd</sup>	1.13. Modernization	□yes <b>□</b> no						
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20% □						
2. COURSE DESCH	RIPTION								
2.1. Course objectives	The aim of the course is to acquaint students with to direct students to design a project based on all n	the specifics of the manager's work, his responsibilities through management functions, and it is necessary to make a financial c	all management functions, and onstruction						
2.2. Terms of course entry and	Terms of the pis pass the exams with the second y	ear of study							

required competences								
2.3. Learning outcomes on the study programme level	LOO. Concerns write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entrepreneurship and correctly interpret their interdependencies LO8. Select and apply basic principles of planning and career development in the profession and their own entrepreneurial ventures LO9. Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general audiences, and critically evaluate the presented professional topics LO14. Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology including the ability to communicate about the profession in a foreign language LO16. Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of planning, management and accounting of business LO17. Conclude what are the basic principles and methods of quality project management and work successfully in a team							
	<b>Learning outcomes</b> towards Bloom's ta (up to two verbs per LO)		LO Level: Recapture, Understanding, Application, Analysis, Evaluation, Synthesis					
2.4. Expected	1. Define, explain and rel	2, 5						
learning outcomes on the course level	2. Analyze the impact of systems, and the appropriate ado	4, 6						
	3. Apply appropriate plan and motivation techniques, and c	4						
	4. Assess the importance		6					
	5. Design a business deve projections, identify competitors operating income and expenses	, sales and cost onstruction of	5.6					
2.5. Course content	Constructive alignment							
according to detailed curriculum	Thematic unit	IU course	Content / teaching method	Valuation		It takes time		
schedule	Introductory lecture;	1	They listen to a lecture. In the course of the seminar they are	-		6 hours		

Tourism - classification functions of		introduced to the course content and documents on the e-learning page of the course by working independently on a computer.	At the midterm or the written and oral	
tourism; Tourism as a system; Basic factors of tourism	1, 2,34	They listen to a lecture, present seminar papers	exam they define and explain the basic concepts that occur in this whole; then they need to show and analyze the same on a concrete example	6 hours
T uristic destination and destination system; Tourism trends ;	1, 2,3 4;8,	They listen to lectures, solve case studies, present seminar papers	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	8 hours
Planning as a function of managing a tourist destination; principles and characteristics of planning; subjective to you in the process of development planning tour with t Icke destination;	1, 2, 3, 4, 8	They listen to lectures, solve case studies, present seminar papers	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	10 hours
Planning as a function of managing a tourist destination; local planning procedures; planning of tourist sites;	1, 2, 3, 6, 7, 8, 10, 12	They listen to lectures, solve case studies, present seminar papers	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	10 hours
Analysis of the macro environment and the tourist destination market; SWOT analysis, 1 colloquium	1, 2, 3, 5, 6,7, 10, 12	They listen to lectures , present seminar papers	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	10 hours

Study trip	11.12	They analyze the elements of the tourist destination and the role of the organizations and make concrete conclusions and suggestions	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	12 hours
Strategic destination management, Planning models and techniques for minimizing the negative effects of tourism	1, 2, 3, 5 , 7,9, 10, 11, 12,	They listen to a lecture, solve case studies, present projects	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	12 hours
Strategic marketing planning as part of the overall development planning process	1, 2, 5 , 7,9, 10, 11, 12	They listen to a lecture, solve case studies, present projects	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	12 hours
Organization of economic agents of tourist intermediation.	1, 2, 3, 5 , 7,9, 10, 11, 12,	They listen to a lecture, solve case studies, present projects	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	16 hours
Managing the destination mix marketing tools	1, 2, 3, 5 , 7,9, 10, 11, 12,	They listen to a lecture, solve case studies, present projects	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge based on the presented problem and propose a solution to the same problem.	16 hours
Destination organization and management structure	1, 2, 3, 5 , 7,9, 10, 11, 12,	They listen to a lecture, solve case studies, present projects	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they	16 hours

					should present concrete exam the presented p solution to the	and analyze the same on a ple, critically judge based on problem and propose a same problem.		
	Prac learning and monitoring implementation plans	9	1, 2, 5 , 7,9, 10, 11, 12,	They listen to a lecture, solv case studies, present projects	At the colloqui exam they defi that occur in th should present concrete exam the presented p solution to the	um or the written and oral ne and explain the concepts is thematic unit, then they and analyze the same on a ple, critically judge based on roblem and propose a same problem.	16 hours	
	Global Tourism Trends ; Gu lecture; Preparation for the c	iest olloquium	1, 2, 5 , 7,9, 10, 11, 12	They listen to a lecture, present projects	At the colloqui exam they defi that occur in the should present concrete exam the presented p solution to the	tum or the written and oral ne and explain the concepts his thematic unit, then they and analyze the same on a ple, critically judge based on problem and propose a same problem.	16 hours	
	Concluding Considerations, Signatures, 2nd Colloquium		11.12	present projects	At the colloqui exam they defi that occur in the should present concrete exam the presented p solution to the	tum or the written and oral ne and explain the concepts his thematic unit, then they and analyze the same on a ple, critically judge based on problem and propose a same problem.	4	
3. EVALUATION O	F STUDENT WORK							
3.1. Students` obligations	<ul> <li>In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.</li> <li>Students who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul> </li> <li>Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia); b) during the course (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia); b) during the course (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia); b) during the course (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia); b) during the course (active participation in the lessons, solving case studies, making and presenting the seminar paper and project participation in the lessons, solving case studies, creating and presenting the seminar paper and project.</li> </ul>							
	Attending classes	0.5		Written exam	2 (no midterm)	Project	2	

3.2. Monitoring	Experimental work		Research			Practical work	
the share of ECTS	Essay		Report			Continuous checking	
credits for each activity so that the	kolokviji	3 (without written and or exam)	al Seminar paper			(other type)	
ECTS points corresponds to the credit score of the course)	Teaching activities	0.5	Oral exam		1 (no midterm)	(other type)	
3.3. Student	Student Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:						
workload	Commit	ment		Hours (e	timated)		
	1.	Attending classes	oioct assignment	60 15			
	and preser	ntation	oject assignment	15			
	3.	Preparation for the midterm / exa	am through self-	105			
	study						
4. GRADING							
4.1. Seminar paper	Valuation	Poor	Satisfying		Above average		
grading	Element						
		The manual is not an an india	The paper is well str	uctured wi	ith a The paper i	s well structured with a clear	
	Organization	a logical order and lacks	clear distinction bet	ween the	distinction	between the introduction, the m	ain
	organization	structure.	introduction, the ma text and the conclus	ntroduction, the main body of the body of the		text and the conclusion, which terconnected.	are
	Terminology, writing style	Words and expressions low in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	Words and expressions are in lin with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and the are few grammatical errors.		line Words and official tern e understand style is exc here concise, the no gramma	Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.	

	Citing and referencing references	The sources are r all. The reference the topic and sho approach to explo topic.	not listed at es do not fit w a cursory oring the	The sources are listed but incomplete with errors. The references are relevant to the topic and show a satisfactory research attitude.		t T he co the topic ap esearch co ap	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.			
4.2. Colloquium /	Poor		Satisfy	ing		Above average	ge			
exam grading	Give answer by understanding. not apply the b Cannot apply o the course.	y memory, no deeper Does not know and do asic terms and concep r explain the contents	Reproduces basic terms, with difficulty transfers new ts. knowledge, understands subj of matter, explains the terms and the notions that substantiate to examples.			outKnowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.				
4.3. Creating a final grade according to evaluation elements	Active attendance		70-75	70-75% attendance		76-86% attendance		87-100% presence	Project asig Solved c studie	nment ase s
				2 points		4 points		7 points	3 point	ts
	Sominor popor			2		3		4	5	
	Seminar paper			5 points		7 points		8 points	10 poin	its
				2		3		4	5	
	Examination / W	ritten examination	50	) to 64.9%		65 to 79.9%		80 to 89.9%	90-100	%
			,	25 points		30 points		35 points	40 poin	its
	Oral part of the	wom		2		3		5	5	
	Oral part of the e	zxaiii		25 points		30 points		35 points	40 poin	its
4.4. Creating a final grade according to absolute allocation	inal to Percentage of acquir knowledge, skills a competences (teachi + final exam)		red und ng Nu	d d g Number rating		CTS grade				
ussonite unocution		90 - 100%	5	(excellent)		AND B				
		00 - 09,9%	4 (	(very good)		a				

		65 - 79,9% 60 - 64,9% 50 - 59.9%	3 (good) 2 (sufficient) 2 (sufficient)	C D E	-				
5. ADDITIONAL INFORMATION ABOUT THE COURSE									
5.1. Compulsory literature (available in the library and through			Title			Number of copies in the library	Availability through other media		
other media)	1. M. Buble	e, Menadžment, Ekonom	ski fakultet u Splitu, Spli	t, 2006.		5			
	2. Nastavni	materijali sa e-learninga		da					
5.2. Additional literature (at the moment of changes	1. S em	Sikavica, P., Bahtijarevic-Ši pirijsko istraživanje u Hrva		3					
and/or amended of study programme)	2. I 3. V	Drucker, P.:Najvažnije o me Weihrich, H., Koontz, H.: M	madžmentu, M.E.P.Consult Ienedžment, Mate, Zagreb,	, Zagreb 2005. 1993.		1 3			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality cont of students' information obligations a Quality assu survey and a	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of annual data with CES - on the annual student employment status, employer survey and Alumni Association							
5.4. information on the course and contact with the teacher	It is the obli or possible a can contact during class possible (no	gation of each student to be adjournment will be publish teachers during the consulta . It is also possible to ask later than five working day	e regularly informed about ed in a timely manner on th tion period (at least one ho questions by e-mail (from a safter receiving the e-mai	the course, the coursework ne e-learning site of the cou ur per week), while for sho the official e-mail address l).	and the arse and ort questi s at @ v	classroom activities. Al on the website of the Po ons and explanations the us.hr), which will be ar	Il notices of classes lytechnic. Students ey can be contacted 1swered as soon as		

1. GENERAL INFORMATION ABOUT THE SUBJECT									
1.1. Title	Object oriented programming	1.8. ISVU course code	142638						
1.2. Lecturer	Marko Pavelic	1.9. MOZVAG course code							
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+45+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	<ul> <li><sup>3rd</sup> – materials available On-line,</li> <li>0%</li> </ul>						
1.5. Course status	Mandatory	1.12. Number of course revisions	1.						
1.6. Study year	2 <sup>nd</sup>	1.13. Modernization	yes 🗆 no						
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 % □						
2. COURSE DESCRIPTION									
2.1. Course objectives	Introduce the student to the concepts of object-orier	nted programming							
2.2. Terms of course entry and required competences	Four-year high school education completed; having	a qualification at level 4.2							
2.3. Learning outcomes on the study programme level	LO7. Select and apply mathematical methods, models and techniques appropriate for solving problems in the field of Business Information Systems LO9 Select appropriate professional literature in Croatian and foreign languages, prepare and independently deliver presentations in Croatian and foreign languages to expert and general audiences, and critically evaluate the presented professional topics LO12. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of information technology) LO15. Compare and select appropriate development tools at expert level								
2.4. Expected learning outcomes on the course level	<b>Learning outcomes</b> towards Bloom's taxonomy: (up to two verbs per LO)		LO Level: 19. Recapture, 20. Understanding, 21. Application, 22. Analysis, 23. Evaluation, 24. Synthesis						

	1. Write a simple program based on object-oriented principles and UML paradigms								
	2. Sel	ect the option of developing applications	in object-ori	ented or procedural programming	language	3,4,6			
	3. Or	ganize application parts into classes, inter	faces, and pa	ckages in accordance with object-	oriented programming principles	3,4,6			
	4. Cre	eate an object-oriented model of the class	hierarchy on	which the implementation of the	application will be based	4,5,6			
	5. Sel	f-assess whether more complex classes n	eed to be stru	ictured into simpler ones for better	r modularity	4,6			
	6. Or	ganize the classes so that they use the oth	er application	n components over other classes		4,6			
	7. Ma	inage tools that generate program code w	ith a basic str	fucture based on the graphical mod	lel of the classes	3			
	Cons	tructive alignment							
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed			
		Introduction to the course and detailed curriculum.	-			2 hours			
2.5. Course content according to detailed curriculum schedule	1.	Introduction to object-oriented design	2, 3, 4, 5, 6	Listening to lectures, working on a computer, reading literature.	At the midterm or the written and oral exam they define the basic concepts in object oriented programming. They describe the role of the object- oriented approach in programming.	8 hours			
	2.	Objects and classes, parts of classes and objects, inheritance with examples	2, 3, 4, 5, 6	Listening to lectures, working on a computer, reading literature.	They can enumerate parts of the class at the colloquium or the written and oral exam. They create an object-oriented model of the class hierarchy on which the implementation of the application will be based	10 hours			
	3.	Defining links between objects, polymorphism, encapsulation of objects	2, 3, 4, 5, 6	Listening to lectures, working on a computer, reading literature.	At the midterm or the written and oral exam they know: To model different behaviors of an object according to the interactions that it must have towards the environment. They use a private access modifier on parts of the class. They analyze the effect of different access modifiers. Recognize software development stages and their order They recognize the basic properties of an object and a class.	10 hours			
	4.	UML - Introduction, Class Diagrams	2, 3, 4, 5, 6	Listening to lectures, working on a computer, reading literature.	At the midterm or the written and oral exam they can define what UML notation is for and list the major UML notations. At the colloquium or the written and oral exam they can make a class diagram according to the set use case.	10 hours			
	5.	UML-Interaction diagrams, Activity diagrams, use of patterns in object- oriented design	2, 3, 4, 5, 6	Listening to lectures, working on a computer, reading literature.	At the midterm or the written and oral exam they can make appropriate interaction and activity diagrams according to the set use case.	10 hours			

6.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Identify the main types of variables (boolean, int, double, String). Declare a variable and assign a corresponding value to it. Use variable naming conventions. Differentiate the representation of integers (byte, short, int, long). Differentiate the representation of decimal numbers (float, double). Perform arithmetic operations on different numerical data types. Declare char and String variables. Perform String variables merge. Perform console printing. Take advantage of automatic promotion of data types. Identify situations where an error may occur. Convert data types. Identify situations where an error may occur. Convert String variable to numeric value	10 hours
7.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Design a simple class containing variables and a method for printing the contents of variables. Instance an object from a formatted class. Invoke method from instated object. Design a method that contains input parameters. Pass input arguments to method. Design the method so that it can return the result of the computation. Print the result of the method call.	10 hours
8.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Access the class by specifying the full package name and class. Perform the package import procedure using the import command. Determine which packages do not need to be imported separately. Using the (*) operator when importing packages. Find and view online String class documentation. Invoke the most important methods of the String class. Compare two String objects by content. Retrieve parts of the String object. Explain the need to use random numbers in programming. Invoke Random-class methods that generate random numbers while controlling the range of values obtained. Use different methods from the Random class for different mathematical calculations. Access the values of mathematical constants from the Math class. Comment on method calls relative to the Random class.	15 hours
9.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Declare and initialize the boolean type of the variable. Perform a comparison of the two expressions using relational operators. Use the if and if / else command. Analyze the problem of comparing String objects using relational operators. Use the compare method to compare two String objects.	15 hours

				Describe logical operators. Associate multiple logical expressions using logical operators. Use ternary operators to execute if / else block. Use else if command. Create nested block if commands. Create switch block logical branching. Compare switch block with if / else command block. Analyze the use of break commands in the switch block of commands.		
10.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Analyze the elements of standard for loop. Make for loop. Analyze the reach of a variable used within a loop. Use a debugger tool for loop analysis. Analyze cases where an infinite loop occurs. Create a while loop. Create a do-while loop. Analyze cases where the advantage of using a particular type of loop is observed. Use the break loop to exit the loop. Use the continue command to skip a specific block of commands within a loop. Identify the need to make comments within a loop.	15 hours	
11.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Analyze the problem posed and describe it with the classes. Analyze cases of variable reach in different parts of the class. Model class variables and methods by default. Analyze the organization of virtual machine memory when instantiating a new object Access the contents of an object by using an object reference Analyze different ways of instantiating a String object Demonstrate the importance of initializing variables within a class. Analyze problems that arise with null values of variables. Construct a constructor that initializes the initial values of the variables. Use the keyword this as a reference to an object. Model multiple class constructor versions. Create multiple versions of one method. Define what is the signature of a method. Analyze cases where method overload is not possible. Model the various behaviors of an object according to the interactions it must exert toward the environment. Use the private access modifier on parts of the class. Analyze the effect of different access modifiers.	15 hours	
					Model "getter" and "setter" methods for the given class. Define the purpose of static variables and show an example of usage. Define the purpose of static methods and show an example of use Demonstrate the purpose of using the final keyword on static variables	
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	12.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Create and initialize a one-dimensional field. Access and change individual field values. Cross all the elements of the array using for loops.	15 hours
	13.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Create an ArrayList object and manage its contents. Cross all list items using the for-each loop. Analyze ways to add simple data types to the list, using wrapper classes Explain the purpose of using exceptions in program code. Manage exceptions using try-catch block Identify common exceptions (attempt to access an object that is not instantiated or a non-existent file) Test an example code that contains errors. Describe three sets of bugs. Identify a bug using a print technique. Identify a bug using the debugger tool.	15 hours
	14.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Instance a StringBuilder object. Manage the StringBuilder object. Describe the differences between String and StringBuilder objects. Search for a String object using regular expressions Describe linear recursion. Develop a simple software solution that uses a linear recursion algorithm. Describe nonlinear recursion. Develop a simple software solution that uses nonlinear recursions.	15 hours
	15.	Programming in Object Oriented Languages - C # Basics - Syntax and Language Architecture	1,2,3,4,5,6,7	Listening to lectures, working on a computer, reading literature.	Develop a software solution that manages files using finished classes from the .NET directory. Program access rights on folders and files. Perform serialization and deserialization of the facility. Create your own class package and name it correctly. Distribute the application.	15 hours
3. EVALUATION OF STUDEN	T WO	RK				
3.1. Students` obligations	In acco to atter Studer	ordance with the Book of Rules and the Rulebook o nd at least 50% of lectures. All students must create ts who have during the course achieved:	n Student Assess e, present and po	sment and Evaluation: for all regular stude sitively colloquy seminar paper.	ents attend at least 70% attendance. Part-time students h	ave the obligation

	<ul> <li>From 0 – 24,9% EC</li> <li>From 25 – 49,9% E</li> <li>More than 50% EC</li> </ul>	<ul> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul>									
	Students can take the final example (active state); b) during class (active	m in the course in two ways: a) du participation in classes and exerc	ring the course of tead rises) and passing examples	ching through continuous m ns (written and oral examin	onitoring of students (ad ations).	ctive participation in class	es and exercises and two				
	Attendance	2	Written exam	2 (by submit colloquiums relieved of a examination	tting both the student is n written )	oject					
3.2. Monitoring student work	Experimental work		Research		Pra	actical work	1				
(enter the share of ECTS credits for each activity so that the total	Essay		Report		Co	ntinuous examination					
number of ECTS points corresponds to the credit score of the course)	Colloquium	3 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper		Ot	her (inscribe)					
	Class activities		Oral exam	1 (by submit colloquiums relieved of a examination	tting both the student is n oral	her (inscribe)					
	The student's workload of	on all bases amounts to 1 E	CTS point for 301	nours of work per sem	ester and is estimate	ed as:					
3.3 Student workload	Commitment			Hours (estin	nate)						
5.5. Student workloud	15. Attending classes			60							
	17. Preparation for the	e Colloquium / exam through self	-study	90	90						
4. GRADING											
4.1. Seminar paper grading	Valuation Element	Poor		Satisf	ying	Abov	e average				
	P	oor		Satisfying		Above ave	erage				
4.2. Colloquium / exam grading	Give answer by memory, Does not know and does n and concepts. Cannot app of the course.	no deeper understanding. not apply the basic terms ly or explain the contents	Reproduces basic new knowledge, t the terms and examples.	terms, without difficul inderstands subject matt the notions that subs	ty transfers er, explains tantiate by correla	to analysis, synthesis and tion. It observes legitimacy, accurately and ghly explains the content of the subject, and lly links and explains the terms and concepts encapsulates. Find solutions that are not ally given. There is a correlation with ative subjects.					
	Active participation in the lessons	70-75% of attendance	76-8	6% of attendance	attendance         87-100% of attendance         Created mental map Solved case study.						

			4 point	S	7 points		10 poin	nts		3 points
	Cominences		2			3	4			5
	Seminar paper		5 point	S		7 points	8 poin	ts		10 points
4.3. Creating a final grade			2		3		4		5	
elements	Colloquium / written exam		50-64,99	%		65-79,9%	80-89,9	9%		90-100%
			25 point	ts		30 points	35 poin	nts		40 points
	Oral array		2			3	5			5
	Oral exam		25 point	ts		30 points	35 poin	nts		40 points
4.4. Creating a final grade		Per kno compet	centage of adopted owledge, skills and ences (teaching + final exam) 90 – 100%	Numerou	s grade	ECTS grade				
according to absolute allocation			80 - 89,9%	4 (very	good)	A B				
				3 (go 2 (suffi	od) cient)	C D				
			50 - 59,9%	2 (suffi	cient)	Е				
<b>5. ADDITIONAL INFORMAT</b>	TION ABOUT TH	E COU	RSE							
5.1. Compulsory literature (available in the library and				Title				Number of co libra	pies in the ry	Availability via other media
through other media)	F.Urem "Uvod u o 978-953-7566-20-3	bjektno 3.	orijentirano progra	miranje s prim	jenama", Ve	eleučilište u Šibeniku,	2016., ISBN:			Available online at e-learning system
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Booch, Grady, Obj P. Eeles, O. Sims,	ject-Ori Buildin	ented Analysis and l g Business Objects.	Design with A John Wiley &	pplications, Sons, 1998	Addison-Wesley, 199	97.	3		Available online at e-learning system
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students classes and provided in of their work. Students Indicators of quality as Alumni association.	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during lasses and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency f their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and shumni association.								
5.4. information on the course and contact with the teacher	It is obligatory for ever pages of the course and be addressed during cla days from the receipt o	abligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning es of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five working rs from the receipt of e-mail).								

2. GENERAL COURSE IN	NFORMATION						
1.1. Course title	Introduction to Operating Systems	1.8. Course code in ISVU	201316				
1.2. Course lecturer	Zvonimir Klarin	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)				
1.4. Study programme (undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	<ul> <li>1.11. Level of e- learning application (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup></li> <li>level), percentage of on line course performance (max. 20%)</li> </ul>	1 <sup>st</sup> , course materials are on-	-line, 0%			
1.5. Course status	Mandatory	1.12. Number of course revisions	1.				
1.6. Year of study	2nd1.17. ModernizationYes						
1.7. Credit score (ECTS)	.7. Credit score (ECTS) 4 1.14. Percentage estimate of course changes and/or Less than 20% More than 20 %						
2. COURSE DESCRIPTION							
2.1. Course objectives	The objective is for students to: - Gain basic knowledge of operating systems - Install the system independently, adjust functions and trouble	leshoot system errors.					
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification leve	el 4.2 according to the CROQF.					
2.3 Learning outcomes on the study programme level	LO1: To analyze the situation, identify opportunities and information technologies LO11: To relate the activities of building and maintainin LO12: Apply key aspects of information technology (pro LO13: Rank security threats and select appropriate coun	I anticipate the problems encountered by organizations and g the information system with the needs of the client and th ogramming, algorithms, data structures, databases and proje- termeasures to protect the information system	individuals in the application e user ect management in the field of	of IT)			
2.4. Expected learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)       Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)         2.4. Expected learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)       Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)         1       Define and interpret the basic concents of operating systems							
	<ol> <li>Define and interpret the basic concepts of operating systems</li> <li>Apply and connect the basics of operating systems</li> </ol>		3,4	,5 ,4			
	3. Evaluate the use of older OS		5	5			

	4. I	dentify and customize computers on older OS				4,3					
	5. In	ndependently install the current Windows OS				6					
	Cons	tructive allignement									
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time					
	1	Introduction to the course and a detailed syllabus.	1	They are listening to a lecture. During the exercises, they get acquainted with the content of the course and the documents on the e-learning page of the course.	-	4 h					
	2.	OS development and structure	1	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work		4 hi					
	3. Management of memory, input / output, file systems, processor.			Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work In written and oral exam they know the basic OS processes		4 h					
	4.	Distributed systems.		Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know the system purpose	4 h					
2.5. Course content according to	5.	Main features and comparisons of the most common operating systems	2	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know the most common OS	8 h					
detailed curriculum schedule	6.	DOS I	3,4	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know how to apply DOS with basic orders	4 h					
	7.	DOS II	3,4	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they apply DOS with basic orders	4 h					
	8.	Windows through history I		Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know the Windows xp configuration	4 h					
	9.	Windows through history II	5,6	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know Windows 7 configuration	4 h					
	10.	Windows current OS I	5,6	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know how to configure Windows OS	4 h					
	11.	Windows current OS II	5,6	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know how to configure Windows OS	8 h					
	12.	Windows current OS III	5,6	Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work	In written and oral exam they know to configure Windows OS	4 h					

	13.	Backup OS		6	Listen to lectures. During get acquainted with the the independent work	the exercises, they matic unit through	In written copy of O	and oral exam they kno S, data and applications	w vto make a	4 h
	14.	OS on virtual mad	chines	3,4,5,6	,5,6 Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work		In written of a virtua	and oral exam they kno machine	w to set OS	4 h
	15.	15. Concluding remarks / Repetition and preparation for the exam			Listen to lectures. During the exercises, they get acquainted with the thematic unit through independent work					64 h
3. EVALUATION OF STUDEN	NTS` WORK									
3.1. Students` obligations	In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. Students who have during the course achieved: • from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year; • from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period; • more than 50% - students have the right to take the final exam. Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes); b) by passing the exam (written and oral part of the exam).									riod; ; b) by passing the
3.2. Monitoring student work	Attend	ance	0,5	Wı	Written exam 2			Project		
(enter the share of ECTS credits	Experi	rimental work		Re	search		Practical work			
number of FCTS points	Essay			Re	port			Continuous examina	tion 1	
corresponds to the credit score	Colloq	uium		Sei	ninar paper			Other		
of the course))	Class a	activity	0,5	Or	al exam	1		Other		
3.3 Student workload	Stude 1. 2.	ent workload on all Attending class Preparing collo	bases for 1 ECTS creates and exercises 60 ho quia or exams through	lit is 30 ho ours individua	ours in a semester and is 1 work 60 hours	s estimated as:				
4. FORMIRANJE OCJENE										
4.1. Grading seminar papers	-									
		Unsat	isfactory		Satisfact	tory		Ab	ove average	
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Rep imp exp exa	roduces the basic concept arts new knowledge, un lains the terms and co nples.	ts and without d iderstands the r incepts supporte	fficulty naterial, d with w	nowledge is at the le aluation. Observes t oroughly explains th gically connects and ncepts supported wi at were not originall ith related material.	vel of analys he principles e content of t explains the th examples. y given. Note	is, synthesis and , accurately and he material, and terms and Finds solutions es correlations	
4.3 Final grade according to	Active	e course	70-74,9% of attend	dance	75-79,9% of atten	dance	80-89,9%	of attendance	90-100	% of attendance
evaluation elements	attend	ance	2 points		5 points		10	points		20 points
	Collo	quia/ Written exam	2		3			4		5

		80-89,9	%		90-100%				
		25 points		3	0 points	35 poin	ts		40 points
		2			3	5			5
	25 points			30 points 35 g			ts		40 points
4.4 Final grade according to	con	Percentage of acquired knowledge, skills and petences (teaching + final exam)	Numerica	al grade	ECTS grade				
absolute division		90 - 100%	5 (exce	llent)	А				
		80 - 89,9%	4 (very	good)	B				
		60 - 64 9%	2 (satisf:	ou)	D				
		50 - 59,9%	2 (satisfa	actory)	Ē				
5. ADDITIONAL COURSE IN	FORMATION	RMATION							
5.1. Compulsory literature			Title				Number of copi the library	es in	Availability via other media
via other media)	<ol> <li>Jim Cooper:</li> <li>Microsoft: W</li> </ol>	Using DOS 6.22 /ndows 10							Avaialble on the e- learning page of the course
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>Microsoft: Windo</li> <li>Microsoft: Windo</li> </ol>	ws XP ws 7							Avaialble on the e- learning page of the course
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	he control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during lasses and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency f their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and slumni association.								
5.4. Informing about the course and contacting the teacher	It is the responsibility of each timely manner on the e-learn questions and explanations t possible (no later than five w	is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a nely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short estions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as ssible (no later than five working days after receiving the e-mail).							

1. GENERAL INFORMATION									
1.1. Course lecturer	Ivan Livaja	1.8. Course code in ISVU	140755						
1.2. Course title	Introduction to databases	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%						
1.5. Course status	Mandatory	1.12. Number of course revisions	1						
1.6. Year of study	2 <sup>st</sup>	1.18.Modernization Yes							
1.7. Credit score (ECTS)	4       1.14. Percentage estimate of course changes and/or supplements       Less than 20%       X□         More than 20 %       □								
2. COURSE DESCRIPTION									
<ul> <li>Understanding database development in business process shaping</li> <li>Adopting and expanding knowledge in the field:</li> <li>Adopting knowledge, techniques for working with databases         <ul> <li>Relational Database Design</li> <li>Database Managment</li> <li>Create an Entity Relationship Diagram</li> <li>Adopt the basics of sql language</li> </ul> </li> <li>Adopting knowledge, techniques for working with databases</li> <li>The aim of the course is to train students to understand database development in business process design so that they can independently participate in creating applications</li> </ul>									
2.2. Terms of course entry and required competences       4 year secondary education completed; qualification level 4.2 according to the CROQF.									

2.3. Learning outcomes on the study programme level	LO1: techn LO3: LO9: foreig LO12 LO15	To analyze the situation, identify opportuologies Evaluate database design according to bu Select appropriate professional literature in language to expert and general audience Apply key aspects of information techn Compare and select appropriate develop	inities and an isiness require in Croatian ces, and criti ology (progr pment tools	nticipate problems faced by organi rements and foreign language, prepare and cally evaluate the presented profe- camming, algorithms, data structur at expert level	zations and individuals in the appl d independently present presentations ssional topics res, databases and project managen	ication of i ons in Cro nent in the	nformation atian and field of IT)							
2.4 Europeted logming outcomes on	Lear	Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO)       I- remembering,         2- understanding,       3- application,         4- analysis,       5- evaluation,         5- evaluation,       6-synthesis												
the course level	30. C	ommunication technologies, and database	e structures and	and organizations	relevant information and		2,4							
	31. I		3											
	32. L		1,4											
	34. P		6											
	35. U	Jse materials and tools to search scientific	to search scientific and professional literature in native and English languages											
	Cons	tructive allignement												
	no Thematic unit		LO of the course	Content/teaching methods	Evaluation		Time							
	31.	Introduction (history, DBMS solution overview)	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		9 h							
2.5. Course content according to detailed curriculum schedule	32.	Introduction to SQL Language	2, 3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam basic concepts of databases.	define the	6 h							
	33.	33.     Introduction to SQL Language     15     Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.     At the midterm or the basic concepts of data		At the midterm or the written / oral exambasic concepts of databases.	n define the	6 h								
	34.	Relational model and data normalization	16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exambasic concepts of databases. They are and databases.	alyze	9 h							
	35.	Relational model and data normalization	3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral examples basic concepts of databases. Analyze and data normalization and relational model.	n define the l apply	9h							

	36.	Data Modeling Model	Using Entity Relationship	3, 15, 16, 19	Write the coll	loquium.	-		8 h	
	37.	Data Modeling Model	Using Entity Relationship	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ures and read literature. demonstrate how to colve exercises.	At the midterm or the written / oral basic concepts of databases. They r by using E-R models.	exam define the nodel the data	9 h	
	38.	SQL commands database	s for creating and editing a	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ures and read literature. demonstrate how to solve exercises.	At the midterm or the written / oral basic concepts of databases. They need to by using E-R models.	exam define the nodel the data	9 h	
	39.	SQL Data Obje	cts	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ures and read literature. demonstrate how to solve exercises.	At the midterm or the written / oral basic concepts of databases. They and make changes to the data with	exam define the create a database in it.	7 h	
	40.	Relational data	base management system	3, 15, 16, 19	Listen to lector The exercises solve tasks. S	ares and read literature. s demonstrate how to olve exercises.	At the midterm or the written / oral define and use development enviroworking with databases.	exam, they can onments for	7 h	
	41.	CASE tools and working in data	l development environments for bases - Visual Studio	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ures and read literature. demonstrate how to solve exercises.	At the midterm or the written / oral define and use development enviro working with databases.	exam, they can nments for	7 h	
	42.	CASE tools and working in data	l development environments for bases - Visual Studio	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ures and read literature. s demonstrate how to olve exercises.	At the midterm or the written / oral define and use development enviro working with databases.	exam, they can onments for	8 h	
	43.	CASE tools and working in data	l development environments for bases - Visual Studio	3, 15, 16, 19	Listen to lect The exercises solve tasks. S	ares and read literature. s demonstrate how to olve exercises.	At the midterm or the written / oral define and use development enviro working with databases.	exam, they can onments for	8 h	
	44.	Introduction to	XML	3, 15, 16, 19	Write the col	oquium.	-		9 h	
	45.	Defense and pro recurrence of co	esentation of the seminar, olloquia		Listen to lect	ures and read literature.	-		9 h	
3. EVALUATION OF STUDENTS	WORK	Z								
3.1. Students` obligations	In acco least 7 Studen Studen partici	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least50%. All students are required to carry calculator and formulae list.</li> <li>Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two colloquie); b) by passing the avem (written end cred part of the avem)</li> </ul>								
3.2. Monitoring student work (enter the share of ECTS credits for each	Attend	ance	nce 1,0 Written exam 2,0 (without colloquia) Project							

activity so that the total number of ECTS points corresponds to the	Experimental wo	rk		Researc	ch			Practical wor	rk		
credit score of the course)	Essay			Report				Continuous examination		0,5	
	Colloquium	2,0 ( exan	without written n)	Semina	Seminar paper						
	Class activity	ass activity			am	0,5		Other			
3.3. Student workload	Student workload 5. Attendin 6. Preparir	d on all ba ng classes ng colloqu	ses for 1 ECTS of and exercises 45 ia or exams through	credit is 30 h 5 hours ugh individu	ours in a semest	er and is estin	nated as:				
4. GRADING SYSTEM											
4.1. Grading seminar papers											
	Ur	nsatisfactor	ry		Satisfactory			Above average			
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.			Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Knowledge Observes th content of tl terms and co were not ori material.	is at the level of e principles, accu ne material, and l oncepts supporte ginally given. No	analysis, syn urately and t logically con d with exampotes correlati	nthesis and evaluation. horoughly explains the nects and explains the ples. Finds solutions that ons with related	
	A ativa aguras atta	andanca	70-74,9% of a	ittendance	dance 75-79,9% of attendance		80-89,9% of attendance		90-	100% of attendance	
		enualice	2 poin	its	5 poin	ts	10 points		20 points		
			2		3		4		5		
4.3. Final grade according to evaluation elements	Colloquia/ Writte	en exam	50-64,9	9%	65-79,9	9%	80-89	,9%		90-100%	
			25 poir	nts	30 poir	nts	35 pc	oints		40 points	
	Oral exam 2			3		5			5		
	Grur exuit	25 poin		nts	30 poir	nts	35 pc	oints		40 points	
4.3. Final grade according to absolute division	-	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade		ECTS	grade				
	-	80	0 – 100% 0 – 89,9%	3 (e) 4 (ve	ery good)	E					

		65 – 79,9%	3 (good)	С						
		60-64,9%	2 (satisfactory)	D						
		50 - 59,9%	2 (satisfactory)	E						
5. ADDITIONAL COURSE INFOR	RMATION									
5.1. Compulsory literature	Ν	lumber of copies in the library	Availability via other media							
(available in the library and via	An Introduction to I	Database Systems, 8th Edition; C.	J. Date; Addison Wesley			7				
other media)				5						
	Teaching materi	al and exercises								
5.2. Additional literature (at the moment of changes and/or amended of study programme)	A First Course in I Database Systems	Database Systems; J. D. Ullman, J s: A Practical Approach to Design	. Widom; Prentice-Hall; 2007; IS , Implementation, and Manageme	BN: 9780136006374 ent; T. M. Connolly, C. E. Begg; Ad	dison					
	Wesley; 2004									
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of st of attendance an for further guida obligations as w Indicators of qua employment, su	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.								
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes of possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted durin class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).									

1. GENERAL INFORMATION			
1.1. Course lecturer	Dragan Zlatović	1.8. Course code in ISVU	201319
1.2. Course title	Commercial and Copyright Law	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Year of study	2nd	1.13.Modernization	Yes
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20%X□More than 20 %□
2. COURSE DESCRIPTION			
2.1. Course objectives	General and specific knowledge of t interpretation, modification of contra understanding and identification of knowledge to solving various practica define basic copyright institutes, desc	he system of commercial law in the Republic of Croatia, including actual provisions and termination of contractual relationship. Gene companies, analysis and synthesis of information on companies, al problems related to companies. Present and explain basic criteria for tribe and explain the course of copyright protection.	g important elements such as contracting, its eral and specific knowledge that enables the the developed ability to apply the acquired or distinguishing copyright and related rights,
2.2. Terms of course entry and required competences	4 year secondary education completed	d; qualification level 4.2 according to the CROQF.	
2.3. Learning outcomes on the study programme level	LO1: to analyze the situation, identify information technologies; LO9: to apply relevant professional lin language for professional and genera LO10: to support and apply ethical information technologies; LO16: o valorize elevant factors that and accounting; LO17: to conclude what the basic prin	y opportunities and anticipate the problems encountered by organizate terature in Croatian and foreign language, prepare and independently l public, and critically evaluate presented professional topics; principles and principles of environmental protection, as well as least affect organization`s and individual`s business and apply basic methods nciples and methods of good project management are and work succ	ations and individuals in the application of present presentations in Croatian and foreign egal regulations and standards applicable in hods and concepts of planning, management essfully in a team

	Learni	ing outcomes accroding to the Bloom`s taxonomy:		Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis				
2.4. Expected learning outcomes on	1. d	istinguish and argue the general concepts of compa- nembers for the obligations of the company:	liability of the company and its		4,5			
the course level	2. ic	lentify and analyze the most common occurrence for or the obligations of the company	nization, management and responsibility		4,5	Γ		
	3. c	reate and develop a plan for the founding of compan	ies of individua	als, joint stock companies and limited liabi	lity companies		3,6	
	4. to	choose optimal contractual solutions of commercia	al law;	· · ·	• •		5	
	5. a	nalyze and select the legal sources and legal rules go	overning intelle	ctual property rights, ie copyright and relat	ed rights,		4,5	
	6. d	istinguish and argue forms of intellectual property r	ights or copyrig	th works by type and content of copyright,			4,5	
	7. to in	o draft and argue individual contracts for the use of i information society	ntellectual prop	perty rights, ie copyright and related rights,	in particular those applicable to the		6	
	Constr	ructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time	
	46.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		4	
2.5. Course content according to	47.	COMMERCIAL LAW, COMPANY LAW AND LABOR LAW IN TOURISM - Commercial Law, Company Law, Labor Law, Legal Sources, Corporate Governance, Tourism Law Development	1,3,5	They listen to a lecture, browse databases and read literature	The colloquium or written / oral exam define basic concepts of law firms and management companies, as well as the basics and principles of labor law. They analyze the principles in this area of law. Establish and interpret the legal framework for the organization of companies		4	
detailed curriculum schedule	48.	GENERAL CHARACTERISTICS OF COMPANY - trader, trade association, the difference compared to other forms of enterprises (crafts, etc.), Preddruštvo, branches, business activity, company, address, entry into the register, conditions for the start of operations;	1-7	They listen to a lecture, browse databases and read literature. They listen to a lecture and read literature. At the exercises, independently and in a team, they analyze case studies and draw conclusions on the application of legal regulations to a specific factual situation, and draw up acts related to the registration of companies in the court register, or registration of trades. In group work on exercises, the brainstorming method is used and the method of discussing particular forms	They can enumerate, differentiate and gi example of the basic common characteric companies in the colloquium or the writt exam, especially in relation to the protect company and representation of the compa the distinction in relation to the craft. Practical work created and presented (usi computer programs independently).	4		

				of company representation and trade name protection modalities.			
	49.	CRAFTS - content, method and conditions for performing crafts, types of crafts, rights and obligations of craftsmen, education and training for performing related crafts, institute of domestic craft and secondary profession, legal entity that performs crafts, organization of crafts FAMILY FARMING (OPG) - conditions for performing the agricultural economic activity and related supplementary activities carried out on the family agricultural holding as an organizational form, manner and conditions for entry in the register	1-7	They listen to a lecture and read literature. At the exercises, they independently and in a team analyze practical examples and draw conclusions on the application of legal regulations to a specific factual situation, and draw up acts relating to the establishment and registration of crafts and family farms.	At the colloquium or written / oral exam, they can define crafts and family farms, indicate their common and different characteristics in relation to companies, or analyze and explain the modalities of managing these entrepreneurial forms. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	4	
	50.	PERSONAL SOCIETIES - the concept of company of persons, partnership, public company PERSONAL SOCIETIES - limited partnership, secret society, economic interest association	1-6	They listen to a lecture and read literature. At the exercises, independently and in a team, they analyze case studies and draw conclusions on the application of legal regulations to a specific factual situation, and draw up acts relating to the establishment of certain types of companies of persons	At the colloquium or the written / oral exam, they can define the societies of persons, indicate their common and distinctive characteristics, or analyze and explain the modalities of managing these societies. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	4	
	51.	LIMITED LIABILITY COMPANY - term, incorporation, legal relations between members, bodies, simple limited liability company;	1-7	They listen to a lecture and read literature. They exercise case studies independently and in a team and draw conclusions on the application of legal regulations to a specific factual situation, and draw up acts relating to the establishment of joint stock companies.	At the colloquium or the written / oral exam they can define the companies of the capital, state their common and different characteristics, that is, analyze and explain the modalities of management of the limited liability companies. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	
	52. JOII capi	JOINT STOCK COMPANY - term, share capital, shares, incorporation;	1-7	They listen to a lecture and read literature. They exercise case studies independently and in a team and draw conclusions on the application of legal regulations to a specific factual situation, and draw up acts relating to the establishment of joint stock companies.	At the colloquium or the written / oral examination, they can define the companies of the capital, state their common and different characteristics, that is, analyze and explain the modalities of founding joint stock companies and explain the term shareholding. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	
	53.	JOINT STOCK COMPANY - monistic and dualistic structure of corporate governance, termination of joint stock companies;	1-7	They listen to a lecture and read literature. They exercise case studies independently and in a team and draw conclusions on the application of legal regulations to a specific factual situation, and draft acts related to corporate governance modalities.	At the colloquium or the written / oral exam they can define the companies of the capital, state their common and different characteristics, that is, analyze and explain the modalities of management and termination of the joint stock companies. Practical work drafted and presented (using	6	

					computer programs and sources of case law and other legal practice independently).		
	54.	EUROPEAN COMPANY LAW - Legal Wells, European Society (SE), European Economic Interest Association, European Cooperative Society; STATUS CHANGE AND TERMINATION OF TRADING COMPANIES - Status changes, transformation, bankruptcy, ways of termination of companies;	1-7	They listen to a lecture and read literature. They use multimedia and networking. The types and peculiarities of European society (SE) and EGIU, the status changes of companies are presented and acts related to the implementation of status changes are elaborated. Modalities for termination of companies are analyzed, including bankruptcy proceedings and the impact of bankruptcy on corporate governance. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written / oral exam, they can define and interpret the specificities of European societies and the status changes and transformation of societies. Suggest a specific status change depending on specific business and other indicators. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	
	55.	COMMERCIAL CONTRACT LAW - term, legal sources, general part of compulsory law, principles of compulsory law, contracting, types of commercial contracts	4	They listen to a lecture and read literature. They use multimedia and networking. In group work on exercises, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written / oral exam they can determine and interpret the specifics of general and special contract law. Practical work (using computer programs and sources of case law and other legal practice) developed and presented on the example of a commercial contract.	6	
	56.	INTELLECTUAL PROPERTY LAW - legal sources, development, forms - patent, trademark, industrial design, topography of semiconductor products, protection	5,6	They listen to a lecture and read literature. They use multimedia and networking. In group work on exercises, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written / oral exam they can define the legal framework and forms of intellectual property rights, the procedure for their acquisition and protection. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	
	57.	COPYRIGHT LAW - concept of copyright, historical development, place in the legal system, legal nature, sources of copyright. Impact of EU law on Croatian copyright The Impact of Globalization on the Copyright Order. Copyright in a digital environment	5,6	They listen to a lecture and read literature. They use multimedia and networking. In group work on exercises, the brainstorming method and the discussion method on the topic are applied.	In the colloquium or the written / oral exam, they can define the legal framework and sources and the nature of copyright and related rights in the digital environment. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	
	58.	COPYRIGHT - copyright object, author and other copyright holders, copyright content RELATED RIGHTS - Artist Artist Law, Phonogram Producer Right, Film Producer Right (Videogram Producer) Right, Broadcasting Organization Right, Database Producer Right, Publisher Right.	5,6	They listen to a lecture and read literature. They use multimedia and networking. In group work on exercises, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written / oral exam they can define the types of copyright works, the copyright holders, the content of copyright, and the basic determinants of related rights. Practical work drafted and presented (using computer programs and sources of case law and other legal practice independently).	6	

	60.       EXERCISE AND PROTECTION OF COPYRIGHT AND RELATED RIGHTS - Legal protection of copyright and related rights, exercise of copyright and related rights; individual and collective exercise, substantive and temporal restrictions on copyright and related rights, EU acquis communautaire, conventional copyright, unification of copyright, copyright protection in the digital single market.         ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS (inter vivos and mortis causa) - cession agreement, license agreement, special software licenses, distribution agreement, franchising agreement, copyright agreements Concluding Considerations / Repetition and Exam Preparation.		ND PROTECTION OF AND RELATED RIGHTS - n of copyright and related of copyright and related rights; collective exercise, substantive estrictions on copyright and EU acquis communautaire, opyright, unification of right protection in the digital	<ul> <li>PROTECTION OF</li> <li>ND RELATED RIGHTS -</li> <li>of copyright and related</li> <li>copyright and related rights;</li> <li>llective exercise, substantive</li> <li>rictions on copyright and</li> <li>J acquis communautaire,</li> <li>yright, unification of</li> <li>ght protection in the digital</li> </ul>		o a lecture and read ltimedia and networking. k on exercises, the g method and the ethod on the topic are	The colloquium or writte define individual and col copyright, and civil, crim aspects of copyright and protection of copyright a level. Practical work drafted ar computer programs and s other legal practice indep	6		
			4,7	They listen to literature. They use mu In group wor brainstormin discussion m applied.	o a lecture and read ltimedia and networking. k on exercises, the g method and the ethod on the topic are			16		
3. EVALUATION OF STUDENTS	WORK									
3.1. Students` obligations	In accorda least 70%. Students w Students ca colloquia);	nce with the Re Part-time stude /ho have during from 0 - 24,9% from 25 - 49,99 more than 50% an take the final s b) by passing t	gulations on Studying and the Re ents are required to attend classes the course achieved: • ECTS credits- are rated F (unsuc % - are assessed by FX (insufficie • - students have the right to take • exam from the course in two wa he exam (written and oral part of	gulations on Stu at least 50%. A eccessful) and car ent) and must pa the final exam. ys: a) during the the exam).	ident Assessme Il students are i mot obtain EC' ss the written e e course of teac	nt and Evaluation: for all fu equired to carry calculator a FS credits, and must re-enro xam (test). Written exam (te hing through continuous mo	ll-time students attendance nd formulae list. l in the next academic yea st) can be held in a regular nitoring of students (activ	e of at r; or extraordinary exam period e participation in classes and	l; through three	
	Attendar	nce	1	Written exa	m	1 (without colloquia	) Project			
3.2. Monitoring student work (enter	Experim	ental work		Research			Practical work	0,5		
the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the	Essay			Report			Continuous examination			
credit score of the course)	Colloqui	um	1,5 (without written exam)	Seminar pap	per	0,5	Other			
	Class act	tivity		Oral exam		0,5 (without colloqu	ia) Other			
3.3. Student workload	Student wo 1. 2. 3.	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:         1.       Attending classes 360 hours         2.       Creation of practical work, seminar paper and presentation 15 hours         3.       Preparing colloquia or exams through individual work 45 hours								
4. GRADING SYSTEM										

4.1. Grading seminar papers										
4.2. Grading colloquia/ written and oral exam	Unsatisfactory Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Reproduces difficulty im the material, supported wit	Satisfactory Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Above average Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.			
	Active course atter	dance	70-74,9% of attendance		75-79,9% of attendance 5 points		80-89,9% of attendance		90-100%	of attendance
4.3. Final grade according to evaluation elements			2		3		4			5
	Colloquia/ Written	exam	50-64,9	9% hts	65-79,9 30 poi	9%	80-89,9	0%	90-	100%
	Oral exam		23 point		3		5		5	
			25 points		30 poi	nts	35 points		40	points
4.3. Final grade according to absolute division	Final grade according to		tage of acquired ledge, skills and ces (teaching + final exam)Nume $90 - 100\%$ $5$ (e $30 - 89.9\%$ $4$ (v $55 - 79.9\%$ $3$ $60 - 64.9\%$ $2$ (sa $70 - 50$ (sa) $20$ (sa		erical grade ECTS gr excellent) A very good) B 3 (good) C atisfactory) D		grade			
5. ADDITIONAL COURSE INFOR	RMATION									
5.1. Compulsory literature				Title				N	umber of copies in the library	Availability via other media
(available in the library and via other media)	D. Zlatović, Upravlja	anje trgovačk	im društvima, Libert	in naklada, Rije	eka, 2014. (izabran	a poglavlja)	ovei folgultat v Cel	:4.2	10	YES
other media)	Split, 2016. (izabrai	a poglavlja)	, nove tennologije, i		ismistvo i miormaci	ijska sigumosi, Pr	avin lakunet u Spi	iiu,	10	
5.2. Additional literature (at the moment of changes and/or amended of study programme)	I. Henneberg; Autor I. Gliha; Copyright i D. Zlatović, Upravlj Zakon o trgovačkim Zakon o sudskom re	sko pravo; Inf n Croatia; Th anje intelektu društvima gistru	formator, Zagreb, 20 omson Reuters/West aalnim vlasništvom i	01. , 2010. marketing, Lib	ertin naklada, Rijek	a, 2018.				

	Zakon o obveznim odnosima Zakon o autorskom pravu i srodnim pravima Zakon o patentu Zakon o žigu Zakon o industrijskom dizajnu
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).

1. GENERAL INFORMATION ABOUT THE SUBJECT										
1.1. Title	Principles of Marketing	1.8. ISVU course code	201320							
1.2. Lecturer	Jelena Šišara, univ.spec.oec.	1.9. MOZVAG course code								
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, 0%							
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1.							
1.6. Study year	2 <sup>st</sup>	1.13. Modernization	• yes 🗆 no							
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %							
2. COURSE DESCRIPTION										
2.1. Course objectives T	The aim of the course is to acquaint students with the specifics of apply	ing the marketing concept in order to apply the acquired knowledge and sl	kills in a real business environment.							
2.2. Terms of course entry and required competences	Admission requirements for the 2nd year of study									
2.3. Learning outcomes on the	O1: To evaluate various digital channels in marketing campaigns and	create and implement a digital marketing plan								
study programme level	.09: To select appropriate professional literature in Croatian and foreig general audiences, and critically evaluate the presented professional top	n languages, prepare and independently hold presentations in Croatian and ics	d foreign languages to professional and							

	LO14: foreign	To successfully communicate with clients, users and language	nd colleagues ve	erbally and in writing using appropriate ter	minology including the ability to communicate about	the profession in a				
	LO15:	To compare and select appropriate development too	ols at the profess	sional level						
	LO17:	To conclude what are the basic principles and meth	ods of quality p	roject management and work successfully	in a team					
2.4. Expected learning outcomes on the course level	Lear (up to 2. To a 3. To a 4. To d 5. To c 6. Base 11. 12. 13.	rning outcomes towards Bloom's taxonomy: o two verbs per LO) explain and critically evaluate the basic concepts and characteristics of marketing: analyze marketing strategies and to make them on concrete examples; analyze the marketing environment on a concrete example; design specific marketing activities that create value in accordance with the needs and desires of customers / clients. develop a marketing plan for a company. sed on the example provided, to critically evaluate marketing mix of a company and to propose tools for e-marketing.								
	Cons	tructive alignment			I					
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed				
2.5. Course content according to	61.	Introduction to the course and a detailed performance plan	-	Listen to the lecture. On seminary teaching, by independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	6 hours				
detailed curriculum schedule	62.	Understanding of marketing processes	g processes 1, 4 They listen to a lecture, solve case studies. At the colloquium or the written and oral exam, they define the basic marketing concepts, explain the basic marketing concepts and marketing processes.		6 hours					
	63.	Features of services	1, 4	4     They listen to a lecture, solve case studies, present a seminar paper, followed by a discussion     At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem		8 hours				

64.	The role of marketing in strategic planning	1, 2, 4	They listen to a lecture, solve case studies, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	10 hours
65.	Development of marketing opportunities and strategies	1, 2, 4	They listen to a lecture, solve case studies, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	10 hours
66.	Marketing environment	1, 3, 4	They listen to a lecture, solve case studies, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	10 hours
67.	Marketing plan	1, 4, 5	They listen to a lecture, solve case studies, develop a marketing plan for a tourism company	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	12 hours
68.	Marketing Information System and Marketing Research, I. Colloquium	1, 4, 5	They listen to a lecture, solve case studies, develop a marketing plan for a tourism company	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	12 hours
69.	Markets of final consumption and consumer behavior	1, 4, 5	They listen to a lecture, solve case studies, develop a marketing plan for a tourism company	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	12 hours
70.	Market segmentation and market positioning	1, 2, 3, 4, 5	They listen to a lecture, solve case studies, develop a marketing plan for a tourism company	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	15 hours
71.	Development of marketing mix: production and product management	1, 2, 3, 4, 5, 6	They listen to a lecture, solve case studies, develop a marketing plan for a tourism company	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.	8 hours

	72.	72. Development of marketing mix: price and placement			They listen to a lecture, studies, develop a marke a tourism company	solve case eting plan for	At the colloqui define and exp thematic unit, t the same on a c the basis of the solution to the	um or the written and oral exam th lain the concepts that occur in this hen they should present and analy concrete example, critically judge - presented problem and propose a same problem.	29 20 n 8 hours
	73.	. Development of the marketing mix: promotion			They listen to a lecture, studies, develop a marke a tourism company	solve case eting plan for	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.		ze 8 hours
	74.     Marketing management       75.     Final lecture, course signatures, II. colloquium		Marketing management 1, 2		They listen to a lecture, marketing plan	present a	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.		ze 15 hours
			gnatures, II. colloquium		They listen to a lecture, present a the marketing plan the sector of the		At the conception of the written and orar exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example, critically judge on the basis of the presented problem and propose a solution to the same problem.		20 4 hours
3. EVALUATION OF STUDEN	T WO	RK							
3.1. Students` obligations	Students` obligations       In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.         Students` obligations       Students who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul> Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia); b) during the course (active participation in the lessons, solving case studies, creating and presenting the seminar paper and project) and								
3.2. Monitoring student work (enter the share of ECTS credits	Attend	ance		Writte	en exam	1 (by submittin colloquiums the relieved of an w examination)	g both e student is vritten	Project	0,5
for each activity so that the total number of ECTS points	Experi	mental work		Resea	rch			Practical work	
corresponds to the credit score of the course)	Essay			Repor	t			Continuous examination	
of the course)	Colloq	uium	2 (by submitting both colloquiums the student	is Semir	nar paper	0,5		Other (inscribe)	

	Class activities	relieved of a written and oral examination)	Oral exam	1 (by subr colloquiu relieved o examinatio	nitting both ns the student is c an oral n)	Othe	er (inscribe)		
3.3. Student workload	The student's workload of <i>Commitment</i> 18. Attending classes 19. Creating and Pres 20. Preparation for th	on all bases amounts to 1 E senting seminar paper e Colloquium / exam through self	CTS point for 30	hours of work per semester and is estimated as:          Hours (estimate)         45         25         20					
4. GRADING				Γ					
	Valuation Element	Poor		Sat	Satisfying			Above average	
	Organization	The paper is not organize order and its structure is l	d in a logical lacking.	The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.			distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another		ured with a clear introduction, the d the conclusions lly linked to one
4.1. Seminar paper grading	Terminology, writing style	Words and phrases are lo with official terminology not appropriate, sentence modest vocabulary, and f repeated grammatical mis	w harmonized Writing style is s are too long, requent and stakes.	Words and phrases are aligned with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and has little grammatical errors.			Words and p terminology their meanin excellent, th concise, the are no gram	bhrases are a r and show a ng. The writ le sentences vocabulary matical erro	ligned with official in understanding of ing style is are clear and is rich and there ors.
	Quoting and referencing	Sources are not specified references do not match t a superficial approach to	at all. The he topic and show the research topic.	Sources are listed, b errors. The reference the subject and show attitude.	at incomplete a s are appropri a satisfactory	and with ate for research their list is "rich" and comprehensive and shows a robust research approach.			omplete and es are appropriate, omprehensive and approach.
	H	Poor		Satisfying			Ab	ove averag	,e
4.2. Colloquium / exam grading	Give answer by memory, Does not know and does and concepts. Cannot app of the course.	no deeper understanding. not apply the basic terms ly or explain the contents	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.			Knowlee evaluation thorough logically that it er originally correlation	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.		
		70-75% of attendance	76-8	36% of attendance 87-100% of		00% of atte	% of attendance Solved case study and proje		ase study and project

	Active participation lessons	in the	2 points		4 points 7 poi			points 3 points		3 points	
	C		2			3	4			5	
	Seminar paper		5 points			7 points	8 poi	8 points		10 points	
4.3. Creating a final grade			2			3	4		5		
elements	Colloquium / writte	n	50-64,9%	ó		65-79,9%	80-89	9%		90-100%	
			25 points	s		30 points	35 po	ints		40 points	
	Oral ayam		2			3	5			5	
	Orar exam		25 points	s		30 points	35 po	ints		40 points	
4.4. Creating a final grade	Per kno compe		centage of adopted owledge, skills and tences (teaching + final exam)	Numerou	is grade	ECTS grade					
according to absolute allocation			90 - 100% 80 - 89 9%	5 (exce	llent)	AB					
			65 – 79,9%		od)	C					
			60 - 64,9%         2 (suffic           50 - 59,9%         2 (suffic		cient) cient)	E D					
5. ADDITIONAL INFORMAT	ION ABOUT TH	E COU	RSE					-			
5.1. Compulsory literature				Title				Number of co libra	pies in the ry	Availability via other media	
(available in the library and through other media)	1. Kotler, P., Armstrong, G. (2013). *Principles of Marketing*, Prentice Hall, Boston										
unough outer media)	2. Kotler, P. (2001). *Upravljanje Marketingom, Analiza, Planiranje, Primjena i Kontrola*. Informator, Zagreb       3										
5.2. Additional literature (at the moment of changes and/or amended of study programme)											
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.										

5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).
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## **IV. SEMESTER**

2. GENERAL INFORMATION							
1.1. Course lecturer	Ana Perišić	1.8. Course code in ISVU	201321 202221				
1.2. Course title	<b>Business statistics</b>	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)(30+30+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional study Business Informatics1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)1 <sup>st</sup> , course materials are						
1.5. Course status	Mandatory     1.12. Number of course revisions     2						
1.6. Year of study	2 <sup>nd</sup>	1.14. Modernization	Yes				
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %				
2. COURSE DESCRIPTION							
2.1. Course objectives	Train students to be able to comprehe Provide theoretical and practical know	Train students to be able to comprehend, effectively understand and recognize fundamental statistical procedures and methods; Provide theoretical and practical knowledge which enables students to develop and apply acquired knowledge, independently and/or within a team.					
2.2. Terms of course entry and required competences	4 year secondary education complete	d; qualification level 4.2 according to the CROQF.					
2.3. Learning outcomes on the study programme level	<ul> <li>LO6: Correctly write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entrepreneurship and correctly interpret their interdependencies</li> <li>LO7: Select and apply mathematical methods, models and techniques appropriate for solving problems in the field of Business Information Systems</li> <li>LO16: Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of planning, management and accounting of business</li> </ul>						
2.4. Expected learning outcomes on the course level	Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)       I. remembering, 2. understanding, 3. application, 4-analysis, 5-evaluation, 6-synthesis         1       To define and explain fundamental concepts of descriptive statistics       1.2						
1	1. 10 define und explain fundame	nui concepto or descriptive suusies		-,-			

	2. 7	To prepare tabular and graphical data repr	esentation of	f statistical data			3,4	
	З. Т	To calculate and to interpret measures of	central tende	ncy and measures of dispersion			3,4	
	4. ] b	To perform correlation and regression ana between variables	lysis, to com	ament the results and to draw a cor	clusion about the relationship		3,4,5	
	5. 7	To identify time series type					4	$\square$
	б. Т	To calculate and to interpret values of dyn	namics indica	ators			3,2	
	7. 1	To estimate the linear trend equation and	to apply it fo	r forecasting future values of the t	ime series		3,4,6	
	8. 7	To set the statistical hypothesis and to cor	iduct the chi	square test.			6,3	
	Cons	tructive allignement						
2.5. Course content according to detailed curriculum schedule	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time	
	1	Introduction into the course and detailed plan.	1	Attending lectures. Familiarize with	Students define and explain fundamental of descriptive statistics through colloqui.	concepts a or	1 h	
	1.	Fundamental statistical terms	1	literature and students' obligations.	written/oral exams.		8h 16 h	
	2.	2. Grouping data and graphical data representation		Attending lectures. Actively involving students through problem solving and discussion.	Students will prepare tabular and graphi- representation of statistical data through or written/oral exams.	4h 8h		
	3.	Measures of central tendency	1,3	Attending lectures. Actively involving students through problem solving and discussion.	Students will define and explain fundam concepts of descriptive statistics and calc to interpret measures of central tendency measures of dispersion through colloqui. written/oral exams.	ental culate and 7 and a or	4h 8h	
	4.	Measures of central tendency	1,3	Attending lectures. Actively involving students through problem solving and discussion.	Students will define and explain fundam concepts of descriptive statistics, calcula interpret measures of central tendency ar measures of dispersion through colloqui written/oral exams.	ental te and nd a or	4h 8h	
	5.	Measures of dispersion	1,3	Attending lectures. Actively involving students through problem solving and discussion.	Students will define and explain fundam concepts of descriptive statistics and calc interpret measures of central tendency ar measures of dispersion through colloqui written/oral exams.	iental culate and nd a or	4h 8h	
	6.	Standardized value. Outlies. Data distribution rules. Exam preparation	1,3	Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion. Exam preparation.	Students will define and explain fundam concepts of descriptive statistics and calc interpret measures of central tendency and	ental culate and nd	6h 12h	

						measures of dispersion through co written/oral exams.	olloquia or		
	7. Time series		5	Attending lect students throu discussion.	ures. Actively involving gh problem solving and	Students will identify time se through colloquia or written/oral	ries type exams.	4h 8h	
	8. Index numb	bers	6	Attending lect students throu discussion.	ures. Actively involving gh problem solving and	Students will calculate and interp dynamics indicators through collo written/oral exams.	ret the values of oquia or	5h 10h	
	9. Trend		7	Attending lect students throu discussion.	ures. Actively involving gh problem solving and	Students will estimate the linear t apply it for forecasting future val series through colloquia or writte	rend equation and ues of the time n/oral exams.	6h 12h	
	10. Correlation	and regression	4	Attending lect students throu discussion.	tures. Actively involving ugh problem solving and	Students will perform correlation analysis, comment the results and conclusion about the relationship through colloquia or written/oral	and regression d draw a between variables exams.	6h 12h	
	11. Chi-square	test	8	Attending lect students throu discussion.	ures. Actively involving gh problem solving and	Students will set the statistical hy conduct the chi square test throug written/oral exams.	pothesis and h colloquia or	6h 12h	
	12. Final conclu	usions. Exam preparation		Attending lect students throu discussion. Gr and discussion	ures. Actively involving gh problem solving and oup problem solving n. Exam preparation.			2h 6h	
3. EVALUATION OF STUDENTS	WORK								
3.1. Students` obligations	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students are required to carry calculator and formulae list.</li> <li>Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active</li> </ul>								
	Attendance	0,5	Written exa	ım	3,5 (without colloqu	ia) Project			
3.2. Monitoring student work (enter the share of ECTS credits for each	Experimental work		Research			Practical work			1
ECTS points corresponds to the	Essay		Report			Continuous examination	0,5		]
credit score of the course)	Colloquium	3,5 (without written exam)	Seminar pa	per		Other			]

	Class activity	0,5	Oral exam	1		Other			
3.3. Student workload       Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:         Attending classes and exercises 60 hours       Preparing colloquia or exams through individual work 120 hours									
4. GRADING SYSTEM									
4.1. Grading seminar papers									
	Unsa	tisfactory	Satisfactory			Above average	:		
4.2. Grading colloquia/ written and oral exam	Responds by memo understanding. Doe basic terms and con how to apply or exp course with example	ry, without a deeper s not know or apply cepts. Does not know lain the contents of the es.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms an and concepts supported with examples.Knowled content of terms an were not material.			dge is at the level of analysis, synthesis and evaluation. es the principles, accurately and thoroughly explains the of the material, and logically connects and explains the nd concepts supported with examples. Finds solutions that ot originally given. Notes correlations with related l.			
4.3. Final grade according to evaluation elements	During the semester, students have the possibility to partially take written exams through colloquia (twice during the semester). In order to have access to the oral exam, students need to achieve at least 50% on each colloquium. Also, students have a possibility to retake one colloquium. Students who did not pass at least one colloquia (or retaken colloquia) need to take part in the written exam. In this case, in order to have access to the oral exam, students need to achieve at least 50% on written exam. The final grade is formed after the oral exam by aggregating scores achieved through the written exam/colloquia, oral exam and during classes.								
4.3 Final grade according to	с	Percentage of acquired knowledge, skills and ompetences (teaching + final exam)	Numerical grade	ECTS gr	ade				
4.5. Final grade according to		90 - 100%	5 (excellent)	А					
		80 - 89,9%	4 (very good)	B					
		60 64 0%	3 (good)	<u> </u>					
		50 - 59.9%	2 (satisfactory)	<u>D</u>					
5. ADDITIONAL COURSE INFOR	RMATION								
5.1. Compulsory literature			Title			Number of copie the library	es in	Availability via other media	
other media)	Dumičić, K. i surad Šošić I., Primijenje	nici (2011) Poslovna sta na statistika, Školska kn	atistika. Zagreb: Element (oda jiga, Zagreb, 2004.	abrana poglavl	ja)	5 12			
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Šošić I., Serdar V., Azcel A. Sounderp Čižmešija M., Kurr	Šošić I., Serdar V., Uvod u statistiku, Školska knjiga, Zagreb, 2002. Azcel A. Sounderpandian J., Complete Business Statistics, McGraw Hill, 2009. Čižmešija M., Kurnoga Živadinović N., Zbirka riješenih zadataka iz osnova statistike, Mirorad d.o.o., Zagreb,2006							

	Patrick R. McMullen, Poslovna statistika za stručne studije [prijevod Devčić,K., Perišić,A.], Veleučilište u Šibeniku, 2017
	Teaching materials
	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track
5.3 Quality assurance methods that	of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information
ensure the acquisition of	for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and
	obligations as well as the methods of work and the required literature.
knowledge, skins and competences	Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student
	employment, surveys from employers and Alumni association.
	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or
5.4 Informing about the course and	possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can
contacting the teacher	contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during
contacting the teacher	class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later
	than five working days after receiving the e-mail).

1. GENERAL COURSE INFORMATION							
1.1. Course title	Introduction to Computer Networks	1.8. Course code in ISVU	201324				
1.2. Course lecturer	Zvonimir Klarin	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	Zvonimir Klarin, mag.ing.comp, teaching assistant	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)				
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%				
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.				
1.6. Year of study	2 <sup>nd</sup>	1.15. Modernization	Yes				
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X□ More than 20 % □				
2. COURSE DESCRIPTION							
2.1. Course objectives	Gain basic knowledge of networking technologies, transf Students will apply the acquired knowledge in a small lo	mission media, network devices and standards. ccal network.					
2.2. Terms of course entry and required competences	Completed a four-year high school education; possession of a qualification at level 4.2 according to the CROQF.						
2.3Learning outcomes on the study programme level	LO1: Analyze the situation, identify opportunities and anticipate the problems encountered by organizations and individuals in the application of information technologies. LO5: Interpret mechanisms of data flow control, error control and fragmentation, ways of multiplexing data transmission using routing methods in computer networks LO10: To support and apply ethical and environmental principles as well as legislation and standards that are applicable in information technologies LO11: Link the activities of building and maintaining information system with the needs of clients and users. LO13: Range security threats and choose appropriate countermeasures to protect the information system.						

2.4. Expected learning outcomes on the course level	Lear           8.         1           9.         1           10.         E           11.         E           12.         S           13.         D	Learning outcomes accroding to the Bloom`s taxonomy: (up to two verbs per LO)       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         8. Define and distinguish the basic concepts of networking technologies.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         9. Describe and distinguish data transmission standards.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         10. Evaluate the use of different media in data transmission.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         11. Explain and evaluate the network address space.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         12. Solve the basic addressing of simple networks.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)         13. Distinguish between mobile and wireless networks.       Image: Comparison of the Bloom`s taxonomy: (up to two verbs per LO)								
	Cons	onstructive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time				
	76.	Introduction to the course and detailed curriculum	-	Listen to lectures. During the exercises, get acquainted with the content of the course and documents on the e-learning platform of the course.	-	4 h				
	77.	History of communication networks	1	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain the development of communication technologies throughout history.	4 hi				
	78. OSI reference model and Ethernet standard		1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Distinguish and explain different standards.	4 h				
2.5. Course content according to detailed curriculum schedule	79.	Transmission media in computer networks	3	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Distinguish different types of transmission media in relation to application.	4 h				
	80.	Ethernet technologies	2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Distinguish and explain various data transmission technologies	4 h				
	81.	Ethernet switching	1, 2, 3	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain the function and application of the switch in local area network.	4 h				
	82.	TCP/IP protocol suite	4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain the TCP/IP protocol suite.	4 h				
	83.	83. LAN and WAN structured cabling 3 Listen to exercises get acqui		Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Distinguish and explain different types of cabling	4 h				
	84.	IP addresses	4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain address spaces and subnetting.	4 h				

	85. Routing basics			4,5	Listen to lectures. Du exercises, through ind get acquainted with th	ing the ependent work e thematic unit.	Explain the basics of Internet routing.		4 h
	86.	Network and broa	dcast addresses	4, 5	Listen to lectures. Du exercises, through ind get acquainted with th	ing the ependent work e thematic unit.	Calculate basic	c network addresses.	8 h
	87.	7. Transport and application layer 4, 5 Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Explain the functions of OSI layers.		4 h			
	88.	Internet Protocol	version 6	4,5	Listen to lectures. Dur exercises, through ind get acquainted with th	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Describe the IPv6 protocol.	
	89.	Wireless and mob	nd mobile networks 4, 5, 6 Listen to lectures, read literature, and prepare individually for the colloquium.		Describe the bandworks.	asic functions of wireless and mobil	e 4 h		
	90.Concluding remarks and preparation for the exam6Listen to lectures and prepare for the exam individually.		-		64 h				
3. EVALUATION OF STUDENTS` WORK									
3.1. Students` obligations	least 7 • • Studer the exa	0%. Part-time students au from 0 - 24,9% ECT from 25 - 49,9% - ar more than 50% - stu ats can take the final exam am (written and oral part	re required to attend classe S credits- are rated F (unsi e assessed by FX (insuffic dents have the right to take n from the course in two w of the exam).	es at least 50 accessful) an ient) and mu the final ex ays: a) durin	%. Students who have durin d cannot obtain ECTS cred st pass the written exam (te am. g the course of teaching the	ng the course achivits, and must re-er st). Written exam rough continuous	eved: nroll in the next au (test) can be held monitoring of stu	cademic year; l in a regular or extraordinary exam Idents (active participation in classe	period; s); b) by passing
3.2 Monitoring student work	Attend	ance	0,5	Wi	itten exam	2		Project	
(enter the share of ECTS credits	Experi	mental work		Re	search	rch		Practical work	
for each activity so that the total number of ECTS points	Essay			Re	port			Continuous examination	1
corresponds to the credit score	Colloq	uium		Se	ninar paper			Other	
of the course))	Class a	activity	0,5	Or	al exam	1		Other	
3.3 Student workload	Stude 1. 2.	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:         1.       Attending classes and exercises 60 hours         2.       Preparing colloquia or exams through individual work 60 hours							
4. FORMIRANJE OCJENE									
4.1. Grading seminar papers	-								

		Unsati	isfactory		Satisfactory			Above average			
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Repro ms impa expla s. exam	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.		synthesis and accurately and e material, and erms and inds solutions correlations		
	Active course		70-74,9% of atte	ndance	75-79,99	% of attendance	80-	89,9% of att	tendance	90-100%	of attendance
	attendance		2 points			5 points		10 point	s	20	) points
			2			3		4			5
4.3. Final grade according to	Colloquia/ Writte	n exam	50-64,9%		6	5-79,9%		80-89,99	-89,9% 90		0-100%
evaluation cicilients			25 points	25 points		0 points		35 point	ts	40 points	
	Oral arom		2		3		5			5	
	Oral exam		25 points		3	0 points		35 point	ts	40	) points
		Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numer	rical grade ECTS grade						
4.4. Final grade according to			90 - 100%		5 (excellent) A						
			80 - 89,9% 65 - 79,9%	4 (ver 3 (	(very good) B 3 (good) C						
			60 - 64,9%	2 (sati	satisfactory) D						
			50 - 59,9%	2 (sati	sfactory)	E					
5. ADDITIONAL COURSE IN	FORMATION										
5.1. Compulsory literature	Title							Number of the lib	copies in rary	Availability via other media	
(available in the library and via other media)	<ol> <li>Cisco Certified Network Associate (CCNA), CISCO, 2012.</li> <li>Computer Networks (5th edition),Tanenbaum,Wetherall,2011</li> </ol>										Avaialble on the e-learning page of the course
5.2. Additional literature (at the moment of changes and/or amended of study	Introduction to Compu	iter Netwo	rks								Avaialble on the e-learning page of the

course

programme)

5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.									
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).									
1. GENERAL INFORMATION ABOUT THE SUBJECT										
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1.1. Title	Business Information Systems	1.8. ISVU course code	201315							
1.2. Lecturer	Frane Urem PhD prof	1.9. MOZVAG course code								
1.3. Assistants and/or associates	Želimir Mikulić, s.lec.	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	undergraduate	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	<sup>3rd</sup> – materials available On-line, 0%							
1.5. Course status (mandatory, elective)	mandatory	1.12. Number of course revisions	1.							
1.6. Study year	2	1.13. Modernization	yes 🗆 no							
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20%							
2. COURSE DESCRIPTION										
2.1. Course objectives In	ntroduce the student to the concepts of business inf	formation systems								
2.2. Terms of course entry and required competences	Four-year high school education completed; having a qualification at level 4.2									
2.3. Learning outcomes on the study programme level	U9 Select appropriate professional literature in Cro Croatian and foreign languages to expert and genera	batian and foreign languages, prepare and independent al audiences, and critically evaluate the presented prof	ly deliver presentations in Sessional topics							

	IU12. Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of information technology)									
	IU15. Compare and select appropriate development tools at expert level									
	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	LO Level: 31. Recapture, 32. Understanding, 33. Application, 34. Analysis, 35. Evaluation, 36. Synthesis								
	1. Understand the concept of systems and the importance of a systematic approach to analysis and a business information system.	1,2								
2.4. Expected learning outcomes on the course level	2. Identify system boundaries, external and internal stakeholders and relationships among them and understand the risks that arise.	2,3,4,5,6								
	3. Understand the role of key system components and is able to identify processes and define procedures within an information system to support them.	2,3,4,5,6								
	4. Identify security threats in the system and propose techniques for their removal.	2,3,4,5,6								
	5. Use the software tools available within the MS Office suite to collect and analyze data.	2,3,4,5,6								
	6. Implement and deploy the appropriate ready-made business applications.									
	7. Understand the concept of systems and the importance of a systematic approach to analysis and a business information system.	1,2								

	Cons	Constructive alignment										
	No:	Thematic ensemble / Lecture Topic	Course LO Content / Teaching Method		Evaluation	Time needed						
	1	Introduction to the course and detailed curriculum.	-			2 hours						
2.5. Course content according to	1.	Basic terms	1,2,3	Listening to lectures, working on a computer, reading literature.	Understand the term business information system. Identify major groups of information systems.	8 hours						
	2.	Types of information systems and 1,2,3 components		Listening to lectures, working on a computer, reading literature.	Define the archive system. Identify archiving media. Identify the pros and cons of an individual archive medium. Explain the procedures for authenticating and authorizing access to business documentation. Protect digital content by encryption. Apply digital signature technology.	10 hours						
	3.	Archiving and data protection	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Define the levels of business automation. Identify prerequisites for business automation. Identify the role of business policy and organizational	10 hours						

				procedures in business automation. Explain the importance of working conditions and ergonomics in business automation.	
4.	Business Automation	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Identify information resources in the business. Identify the types and value of information. Interpret ways of classifying, evaluating, processing, storing, exchanging and distributing data and information	10 hours
5.	Information resource management	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Define the term telecommunications and telecommunication system. Identify elements of the telecommunications system.	10 hours
6.	Business Information Systems Communication Infrastructure	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Development trends of telecommunication systems. To interpret the division of telecommunications according to the type of information, the division of telecommunication processes, the division according to forms of communication.	10 hours
7.	Key business applications	1,2,3,4,5	Listening to lectures, working on a computer, reading literature.	Advanced use of MS Office suite of office applications.	10 hours
8.	Electronic business and trends	1,2,3,4,5	Listening to lectures, working on a computer, reading literature.	Define the essential terms of e-commerce. Identify emerging trends in e-commerce. Use cloud services.	15 hours
9.	Information system development	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Explain stakeholder roles in information system development. Analyze the architecture of an existing information system. Identify the stages of information system development. Explain the methodology of waterfall development Explain the methodology of rapid application development Explain the methodology of information engineering Explain the methodology of the unified development process Expose the most famous agile methodologies and explain their features	15 hours
10.	Business information system and business management	3,4,5,6	Listening to lectures, working on a computer, reading literature.	Identify layers of business information system. Model the business process as a transaction.	15 hours
11.	Business information system support for key business functions	3,4,5,6	Listening to lectures, working on a computer, reading literature.	Identify key business functions. Use the business intelligence analysis and planning subsystem. Use the permanent business asset management information subsystem.	15 hours
12.	Business information system and business process management	3,4,5,6	Listening to lectures, working on a computer, reading literature.	Use the human resources management information subsystem. Use the Accounting and Financial Management Information Subsystem.	15 hours

	13.	Business information system and business process management       3, 13.         I3.       Strategic management of business information system       3, 14.         I4.       Business information systems and electronic commerce       3, 14.		3,4,5,6 Listening to lectures, wor computer, reading literation		working on a erature.	vorking on a vorki		1 15 hours	
	14.			3,4,5,6	3,4,5,6 Listening to lectures, working computer, reading literature.		Identify information systems as drivers of operational efficiency and business innovation. Formulate goals for building an information system. Analyze the risks of implementing business information systems. Apply the concepts, measurements and evaluation (audit) of the quality of business information systems		15 hours y	
	15.			3,4,5,6	Listening to lectures, computer, reading lite	working on a erature.	Define a company environment in e-commerce. Analyze the connectivity of the business information system with e-commerce activities.		15 hours	
3. EVALUATION OF STUDEN	3. EVALUATION OF STUDENT WORK									
3.1. Students` obligations	In acco to atter Studer Studer exams	<ul> <li>accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation o attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.</li> <li>tudents who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - is two the right to access the final exam of the subject.</li> </ul> </li> </ul>							nts have the obligation hary exam period; nd exercises and two	
	Attend	ance	2	Writte	Written exam		ng both ne student is written	Project		
3.2. Monitoring student work	Experi	mental work		Resea	arch			Practical work	1	
(enter the share of ECTS credits for each activity so that the total	Essay			Repor	rt			Continuous examination		
number of ECTS points corresponds to the credit score of the course)	Colloq	uium	3 (by submitting both colloquiums the stude: relieved of a written a oral examination)	nt is nd Semin	nar paper			Other (inscribe)		
	Class a	activities		Oral o	exam	1 (by submittin colloquiums th relieved of an examination)	ng both ne student is oral	Other (inscribe)		
	The s	tudent's workload o	n all bases amounts to	0 1 ECTS po	int for 30 hours of v	vork per semes	ter and is esti	mated as:		
3.3. Student workload		Commitment				Hours (estimate)				

	21. Attend22. Practic23. Prepara	ing classes al work ation for the	Colloquium / exam thro	ough self-study		60 30 90	60 30 90			
4. GRADING										
4.1. Seminar paper grading	Valuation Elen	Valuation Element Poor					fying			Above average
4.2. Colloquium / exam grading	Poor Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.				Satisfying         Knowle           Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.         Knowle				Above average edge is at the level of analysis, synthesis and ion. It observes legitimacy, accurately and ghly explains the content of the subject, and ly links and explains the terms and concepts incapsulates. Find solutions that are not lly given. There is a correlation with	
	Active participation	in the	70-75% of attendance		76-8	6% of attendance	87-1	87-100% of attendance		Created mental map. Solved case study.
	lessons	_	4 points	5		7 points		10 points		3 points
	a :		2			3		4		5
4.3. Creating a final grade	Seminar paper		5 points		7 points		8 points			10 points
according to evaluation			2		3		4			5
elements	Colloquium / writte exam	en	n 50-64,9%		65-79,9%		80-89,9%		)	90-100%
			25 point	S		30 points		35 points		40 points
	Oral exam		2			3		5		5
			25 point	S		30 points		35 points		40 points
4.4. Creating a final grade according to absolute allocation		Percentage of adopted knowledge, skills and competences (teaching + final exam) 90 - 100% 80 - 89,9% 65 - 79,9%		Numer 5 (ex 4 (ver 3 ( 2 (su)	ous grade cellent) y good) good) fficient)	ECTS grade				
		<u> </u>	50 - 59,9%	2 (su	fficient)	Ē				

5. ADDITIONAL INFORMATION ABOUT THE COURSE									
5.1. Compulsory literature (available in the library and	Title	Number of copies in the library	Availability via other media						
through other media)	Ž.Panian, K.Čurko et al.: Poslovni informacijski sustavi, Element, 2010.	5							
5.2. Additional literature (at the moment of changes and/or amended of study programme)	3	Available online at e-learning system							
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.								
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or an pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be days from the receipt of e-mail).	y delay in teaching will be publ r per week), while brief question be answered in a short time (no	ished on the e-learning as and explanations can later than five working						

3. GENERAL COURSE INFORMATION										
1.1. Course title	Operating Systems	1.8. Course code in ISVU	201327							
1.2. Course lecturer	Zvonimir Klarin	1.9. Course code in MOZVAG								
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study program (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%							
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.							
1.6. Year of study	2 <sup>nd</sup>	1.16. Modernization	Yes							
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X□ More than 20 % □							
2. COURSE DESCRIPTION										
2.1. Course objectives	Gain knowledge of server operating systems. Introduction to mobile operating systems.									
2.2. Terms of course entry and required competences	Completed a four-year high school education; possession of a qualification at level 4.2 according to the CROQF. The condition for access to the exam is passing the course Introduction to Operating Systems.									

2.3 Learning outcomes on the study program level	LO1: inform LO11 LO12 LO13	LO1: Analyze the situation, identify opportunities and anticipate the problems encountered by organizations and individuals in the application of information technologies LO11: Link the activities of building and maintaining information system with the needs of clients and users LO12: Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of IT) LO13: Rank security threats and select appropriate countermeasures to protect the information system											
2.4. Expected learning outcomes on the course level	Lear 14. D 15. A 16. Ii 17. U 18. C 19. A	earning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)       I- remember 2- understant 3- application 4-analysis, 5- evaluation 6-synthesis         4. Define and interpret basic concepts of operating systems.       1.4         5. Apply the basic functions of operating systems.       2.4         6. Install and configure the server OS individually.       4, 6         7. Use and evaluate basic software.       4, 5         8. Connect security parameters and evaluate server protections.       3, 5         9. Apply and recommend tools for regular maintenance of server resources.       3, 5											
	Cons	Constructive allignament											
	no	no Thematic unit LO of the course Content/teaching methods Evaluation		Evaluation	Time								
	91.	91. Introduction to the course and detailed curriculum		Listen to lectures. During the exercises, get acquainted with the content of the course and documents on the e-learning platform of the course.	-	4 h							
	92.	Linux I	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the basics of the Linux operating system.	4 h							
2.5. Course content according to detailed curriculum schedule	93.	Linux II	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the basics of the Linux operating system.	4 h							
	94.	Linux III	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the basics of the Linux operating system.	4 h							
	95.	Linux server installation and configuration	3	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the capabilities of Linux server software.	8 h							
	96.	96.     Configuration of Linux server services     4,5,6     Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.			Know the basic configuration of Linux server software.	4 h							
	97.	Windows server I	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the basics of the Windows operating system	8 h							

	98.	Windows server II		1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Know the basics of the Windows operating system.		4 h	
	99.	Windows server II	I	1,2	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Know the basic	s of the Windows operating system	4 h	
	100. Windows server installation and configuration		stallation and	3	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Know the capa	pilities of Windows server software	4 h	
	101.	101. Configuration of Windows server services		4,5,6	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Know the basic software.	configuration of Windows server	8 h	
	102.Comparison of servers103.iOS, OSX		ndows and Linux	1,2	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Know the differ systems.	Know the differences between server operating systems.		
				1,2	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Know the basic systems.	s of iOS and OSX operating	8 h	
104. Android		Android		1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Know the basics of the Android operating system.		8 h	
	105. Concluding remarks an for the exam		ks and preparation	1,2	Listen to lectures and prepare for the exam individually.				100 h	
3. EVALUATION OF STUDEN	TS` W	ORK								
3.1. Students` obligations	3.1. Students` obligations       In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. Students who have during the course achieved:         3.1. Students` obligations       In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. Students who have during the course achieved:         •       from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;         •       from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;         •       more than 50% - students have the right to take the final exam.         Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes); b) by passing the exam (written and oral part of the exam).									
3.2. Monitoring student work	Attend	ance	1	Writte	en exam	2		Project		
(enter the share of ECTS credits	Experi	mental work		Resea	rch			Practical work		
for each activity so that the total	Essay			Repor	rt			Continuous examination	1	
number of ECTS points	Colloq	uium		Semin	nar paper			Other		
corresponds to the credit score	Class		1					Other		
of the course))	Class a	activity	I	Oral e	exam	2		Other		
	Stude	ent workload on all b	ases for 1 FCTS cred	dit is 30 hour	rs in a semester and i	s estimated as	•			
3.3 Student workload	1	Attending classe	s and exercises 60 hc			s connated as	•			
5.5 Student workload	2	Preparing collog	uia or exams through	individual v	work 120 hours					
	Δ.	2. Preparing colloquia or exams through individual work 120 hours								

4. FORMIRANJE OCJENE											
4.1. Grading seminar papers	-										
		Unsa	tisfactory			Satisfactory			Above average		
4.2. Grading colloquia/ written and oral exam	Responds by m understanding. and concepts. I explain the con	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.				Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.				The deginal set of the level of analysis, synthesis and ation. Observes the principles, accurately and ughly explains the content of the material, and ally connects and explains the terms and explains the t	
	Active course		70-74,9% of atte	endance	75-79,9	% of attendance	80-89,	9% of at	tendance	90-100	% of attendance
4.3. Final grade according to evaluation elements	attendance		2 points			5 points		10 poin	ts		20 points
			2			3		4		5	
	Colloquia/ Writte	en exam	50-64,9%		65-79,9%		80-89,9%		%		90-100%
			25 points		30 points		35 points			40 points	
	Oral exam	Oral exam			3			5			5
	orur exuiti		25 points		30 points		35 points		40 points		
4.4 Final and a coordina to		Perc kno compet	Percentage of acquired knowledge, skills and competences (teaching + final exam)		merical grade ECTS grade						
absolute division			90 - 100% 80 - 89 9%	5 (exc 4 (very	ellent)	A					
			65 – 79,9%	3 (g	ood)	C D					
			<u>60 - 64,9%</u> <u>50 - 59,9%</u>	2 (satisf	factory)	E D					
5. ADDITIONAL COURSE INFORMATION											
5.1. Compulsory literature				Title					Number of the lib	copies in rary	Availability via other media
(available in the library and via other media)	6. Cvita 7. Micr	ıšić, Goran odsoft: Wii	: Osnove korištenja operac ndows Server 2019	cijskog sustava	Linux						Available on the e- learning page of the course

5.2. Additional literature (at the moment of changes and/or amended of study program)	<ol> <li>Android Developer Guide</li> <li>IOS for iPhone</li> <li>OSX inside</li> </ol>		Available on the e- learning page of the course
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By classes and provided information on students` progress through short colloquiums and homework, information for further guidance to stude of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state Alumni association.	keeping track of attendance and lents will be provided in order to te of student employment, surve	student activity during increase the efficiency ys from employers and
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consulta questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail ad possible (no later than five working days after receiving the e-mail).	of classes or possible adjournmention period (at least one hour per dress at @ vus.hr), which will b	it will be published in a week), while for short answered as soon as

· GENERAL INFORMATION									
1.1. Course lecturer	Ivan Livaja	1.8. Course code in ISVU	201328						
1.2. Course title	Databases	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	Zvonimir Klarin	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+45+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	cofessional Undergraduate Study1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)1 <sup>st</sup> , course materials are on-line							
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2						
1.6. Year of study	2 <sup>nd</sup>	1.17.Modernization	Yes						
1.7. Credit score (ECTS)	6	Less than 20%X□More than 20 %□							
2. COURSE DESCRIPTION									
2.1. Course objectives	<ul> <li>Understanding database development in business process shaping</li> <li>Adopting and expanding knowledge in the field through:         <ul> <li>Relational Database Design</li> <li>Database Management</li> <li>Logical and physical formatting of databases</li> <li>Conceptual model and normalization</li> <li>Creating applications</li> </ul> </li> </ul>								
2.2. Terms of course entry and required competences	4 year secondary education completed; o	qualification level 4.2 according to the CROQF.							
2.3. Learning outcomes on the study programme level	LO1: To analyze the situation, identify opportunities and anticipate problems faced by organizations and individuals in the application of information technologies LO3: Evaluate database design according to business requirements LO9: Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general audiences, and critically evaluate the presented professional topics LO11: To relate the activities of building and maintaining the information system with the needs of the client and the user LO12: Apply key aspects of information technology (programming, algorithms, data structures, databases and project management in the field of IT)								

	LO17: Conclude what are the basic principles and methods of quality project management and work successfully in a team										
	Lear	Level of 1- reme 2- unde 3- appl 4-analy 5-evalu 6-synth	<b>LO:</b> embering, erstanding, ication, esis, tation, esis								
2.4. Expected learning outcomes on	1. C		1,4								
the course level	2. I	mplement database implementation proce	edures	6			2,4				
	3. I	Describe and make a diagram of the relation	onal scheme	of simpler databases			3				
	4. F	Propose and argue proposals for the applic	cation of data	abases			1,4				
	5. F	5. Present the acquired knowledge, ideas, problems and solutions independently and in a team.									
	6. S	6. Successfully implement and develop a logical, relational and physical database model. Design and describe a 3,5 3,5									
	Constructive allignement										
	no	Thematic unit	LO of the course	Content/teaching methods Evaluation			Time				
	1	1       Relational database management system (DMBS)       -       Listen to lectures. Work independently on computer, get to know course content and elearning documents.		-		10 h					
	2.	Relational database, Object relational database, Temporal database, Object oriented database.	2, 3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exambasic concepts of databases.	define the	8 h				
2.5. Course content according to detailed curriculum schedule	3.	Relational database, Object relational database, Temporal database, Object oriented database.	15	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exambasic concepts of databases.	define the	14 h				
	4.	Reational model and data normalization	16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam- basic concepts of databases. They are and databases.	alyze	14 h				
	5. Reational model and data normalization		3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam- basic concepts of databases. Analyze and data normalization and relational model.	n define the l apply	14 h				
	6.	Functional dependencies in databases     3, 15, 16, 19     Write the colloquium.     -					14 h				
	7.	Referential integrity, Entity integrity, Foreign key	3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exambasic concepts of databases. They model by using E-R models.	the data	12 h				

	8.	8. Referential integrity, Entity integrity, Foreign key		Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam define the basic concepts of databases. They model the data by using E-R models.	14 h		
	9.	Construction of E-R diagrams based on specification requirements	3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam define the basic concepts of databases. They create a database and make changes to the data within it.	10 h		
	10.	Relational database management system	3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define and use development environments for working with databases.	10 h		
	11.	Implementation of the database based on the diagram.	3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define and use development environments for working with databases.	10 h		
	12.	12. Implementation of the database based on the diagram. 3, 19		Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define and use development environments for working with databases.	12 h		
	Building Forms (WEB Interfaces) to Work with an Implemented Database		3, 15, 16, 19	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define and use development environments for working with databases.	14 h		
	Building Forms (WEB Interfaces) to Work with an Implemented Database         A		3, 15, 16, 19	Write the colloquium.	-	15 h		
	15.	Defense and presentation project, recurrence of colloquia		Listen to lectures and read literature.	-	15 h		
3. EVALUATION OF STUDENTS`	WORK	X						
3.1. Students' obligations	<ul> <li>In accordance with the Regulations on Studying and the Regulations onStudentAssessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least50%. All students are required to carry calculator and formulae list. Students who have during the course achieved:         <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students cantake the final exam from the course in two ways: a) during the course ofteaching through continuous monitoring of students (active participationin classes and through two colloquia); b) by passing the exam (writtenand oralpart of the exam).</li> </ul>							

	Attendance 2	2,0	Writte	en exam	3,0 (without colloquia)		Project		
3.2. Monitoring student work (enter	Experimental work		Resear	rch			Practical work		0,5
activity so that the total number of	Essay		Report	t			Continuous examination		
credit score of the course)	Colloquium	3,0 (without written exam)	Semin	ar paper			Other		
	Class activity		Oral e	xam	0,5		Other		
3.3. Student workload	Student workload on al 4. Attending clas 5. Preparing coll	ll bases for 1 ECTS sses and exercises 7 oquia or exams thro	credit is 301 5 hours ough individ	hours in a semeste ual work 105 hour	r and is esti	mated as:			
4. GRADING SYSTEM	4. GRADING SYSTEM								
4.1. Grading seminar papers									
	Unsatisfactory			Satisfactory			Above a	average	
4.2. Grading colloquia/ written and oral exam	Responds by memory, we understanding. Does no basic terms and concept how to apply or explain course with examples.	Reproduces difficulty understands and concep	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			<ul> <li>Knowledge is at the level of analysis, synthesis and evaluation.</li> <li>t Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.</li> </ul>			
		70-74,9% of	attendance	75-79,9% of atte	75-79.9% of attendance		attendance	90-1	100% of attendance
	Active course attendanc	e 2 poir	nts	5 points	,	10 po	ints		20 points
		2		3		4			5
4.3. Final grade according to evaluation elements	Colloquia/ Written exan	n 50-64,	9%	65-79,9%	ó	80-89	,9%		90-100%
		25 poi	ints	30 points	s	35 ро	ints		40 points
	Oral exam	2		3		5		5	
		25 poi	ints	30 points	s	35 po	ints	40 points	

4.3. Final grade according to absolute division	Percentage of knowledge, s competences (tea exam 90 – 10 80 – 89, 65 – 79, 60 – 64, 50 – 59,	f acquired skills and aching + final a) 00% 9% 9% 9% 9%	Numerical grade 5 (excellent) 4 (very good) 3 (good) 2 (satisfactory) 2 (satisfactory)	ECTS grade A B C D E				
5. ADDITIONAL COURSE INFO	RMATION			· ·				
5.1. Compulsory literature			Title			Number of copies in the library	Availability via other media	
(available in the library and via other media)	An Introduction to Database Systems, 8		7					
			5					
5.2. Additional literature (at the moment of changes and/or amended of study programme)	A First Course in Database Systems; J. D. Ullman, J. Widom; Prentice-Hall; 2007; ISBN: 9780136006374           Database Systems: A Practical Approach to Design, Implementation, and Management; T. M. Connolly, C. E. Begg; Addison           Wesley; 2004							
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment services and Alumpi association.							
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).							

## **V. SEMESTER**

1. GENERAL INFORMATION ABOUT THE SUBJECT								
1.1. Title	Information Systems Analysis and Design	1.8. ISVU course code	146379					
1.2. Lecturer	Frane Urem PhD prof	1.9. MOZVAG course code						
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)					
1.4. Study programme (specialist, undergraduate, graduate)	undergraduate	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	<sup>3rd</sup> – materials available On-line, 0%					
1.5. Course status (mandatory, elective)	mandatory	1.12. Number of course revisions	1.					
1.6. Study year	3 <sup>rd</sup>	1.13. Modernization	yes 🗆 no					
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %					
2. COURSE DESCRIPTION								
2.1. Course objectives Acquiring knowledge in logical design and analysis of information systems (IS). To equip students for independent and team work in the application, methodology, methods and techniques of designing information systems for business organizational systems. By acquiring and using course knowledge, students will understand that there is no realization of a real and complex information system without a detailed analysis and preparation of a documented project of the information system on the basis of which the development (physical realization) of the IS is carried out.								

2.2. Terms of course entry and required competences	Four	Four-year high school education completed; having a qualification at level 4.2									
2.3. Learning outcomes on the study programme level	IU9 S Croa IU12 field IU15 IU17	Select appropriate professional litera tian and foreign languages to expert . Apply key aspects of information technology) . Compare and select appropriate dev . Conclude what are the basic princip	ture in Croat and general a echnology (pro- velopment to ples and meth	ian and foreign languages, pre audiences, and critically evalu- rogramming, algorithms, data ols at expert level nods of quality project manage	pare and independently deliver presenta ate the presented professional topics structures, databases and project manag ement and work successfully in a team	tions in ement in the					
2.4. Expected learning outcomes on the course level	Lear (up to 2. Bro 3. De 4. De 5. Cro 6. Tra 7. De 8. Sel 9. Est	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)LO Level: 37. Recapture, 38. Understanding, 39. Application, 40. Analysis, 41. Evaluation, 42. Synthesis1. Conduct business analysis in a real system in order to obtain the necessary information about the current state of IS3, 4, 5, 62. Break down business functions into elemental processes - perform functional decomposition of a real system2, 3, 4, 63. Demonstrate business processes2, 3, 4, 64. Describe data flows and data repositories2, 3, 4, 65. Create a conceptual data model2, 3, 4, 66. Translate the conceptual data model into a relational data model.2, 3, 4, 67. Develop algorithms for obtaining the most important information from the set relational data model2, 3, 4, 68. Select IT technology resources according to the IS project created2, 3, 4, 69. Estimate the cost of a new (engineered) IS2, 3, 4, 6									
	Const	tructive alignment									
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed					
2.5. Course content according	1.	Introduction to the course and detailed curriculum.	-			2 hours					
to detailed curriculum schedule	1.	Basic terms	1,2,3	Listening to lectures, working on a computer, reading literature.	Basic terms	8 hours					
	2.       Information system       1,2,3       Listening to lectures, working on a computer, reading literature.       Describe key stakeholders in building and using a information system         2.       Information system       1,2,3       Listening to lectures, working on a computer, reading literature.       Describe key stakeholders in building and using a information system         1       Information system       Information system       Information system         1       Information system       Information system         1				Describe key stakeholders in building and using an information system Analyze business needs in building and using an information system Identify the impact of technological development on the construction and use of information systems	10 hours					

3.	Information system	1,2,3	Listening to lectures, working on a computer, reading literature.	Interpret a simplified description of information system development Expose different views of stakeholders on parts of the information system	10 hours
4.	Basics of information systems development methodologies	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Explain Capability Maturity Model for evaluating development quality Identify basic principles in the development of information systems Interpret more important methodologies for developing information systems	10 hours
5.	Basics of information systems development methodologies	1,2,3,4	Listening to lectures, working on a computer, reading literature.	Explain the methodology of waterfall development Explain the methodology of rapid application development Explain the methodology of information engineering Explain the methodology of the unified development process Expose the most famous agile methodologies and explain their features	10 hours
6.	Project management	1,2,3,4,5,9	Listening to lectures, working on a computer, reading literature.	Analyze project success Identify competencies of project managers	10 hours
7.	Project management	1,2,3,4,5,9	Listening to lectures, working on a computer, reading literature.	Identify core project management functions Apply project management methods	10 hours
8.	System Analysis	1,2,3,4,5,6,9	Listening to lectures, working on a computer, reading literature.	Collect information from stakeholders of the information system and identify project requirements Apply requirements determination processes to the system and fact-finding techniques Review existing documentation, forms and database Perform a work environment observation Design questionnaires Interviewing Analyze and model data Identify entities, attributes, keys, connections, foreign keys Apply ERD tagging Use logical matrices in modeling the connections between entities	15 hours
9.	System Analysis	1,2,3,4,5,6,9	Listening to lectures, working on a computer, reading literature.	Identify special forms of connections: non-specific links, redundant links, recursive links Perform data normalization Use CASE tools in data modeling Model processes Perform system decomposition Develop a data flow model	15 hours

	10.	System Analysis	1,2,3,4,5,6,9	Listening to lectures, working on a computer, reading literature.	Interpret the basic settings of object-oriented analysis Design classes and objects Design methods and messages between objects Apply encapsulation and hide information Analyze inheritance Apply polymorphism Develop class and object diagrams Develop component and layout diagrams Make use cases Develop activity diagrams Develop interaction diagrams Develop state diagrams Analyze the feasibility and cost-benefits of system enhancements (operational feasibility, technical and technological feasibility, time feasibility, economic feasibility)	15 hours		
	11.	System Design	5,6,7,8,9	Listening to lectures, working on a computer, reading literature.	Develop your own simple information system solution Analyze procurement of ready-made solutions Identify business management systems To substantiate the decision to procure the finished solution Select the appropriate system architecture	15 hours		
	12.	System Design	5,6,7,8,9,10	Listening to lectures, working on a computer, reading literature.	Describe distributed systems Explain architectures with clients and servers Explain network architectures Explain web architecture	15 hours		
	13.	System Design	5,6,7,8,9,10	Listening to lectures, working on a computer, reading literature.	Explain service oriented architectures Design information system security architecture Design a database Design a user interface	15 hours		
	14.	System design, implementation and maintenance	5,6,7,8,9,10	Listening to lectures, working on a computer, reading literature.	Apply standards and recommendations in programming Generate part of the code according to the default specification	15 hours		
	15.	System design, implementation and maintenance	5,6,7,8,9,10	Listening to lectures, working on a computer, reading literature.	Check the correctness of the created program code Provide user documentation and documentation for system maintenance	15 hours		
3. EVALUATION OF STUDEN	T WO	RK						
3.1. Students' obligations	In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper. Students who have during the course achieved: • From 0 – 24,9% ECTS credits - is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year; • From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;							

	• More than 50% ECTS credits - students have the right to access the final exam of the subject.							
	Students can take the final exan exams); b) during class (active	n in the course in two ways: a) duparticipation in classes and exerc	uring the course of teac cises) and passing exar	hing through ns (written a	n continuous monitoring of st nd oral examinations).	udents (act	ive participation in classes a	nd exercises and two
	Attendance	2	Written exam		2 (by submitting both colloquiums the student is relieved of an written examination)	Pro	ject	
3.2. Monitoring student work	Experimental work		Research			Pra	ctical work	1
(enter the share of ECTS credits for each activity so that the total	Essay		Report			Cor	ntinuous examination	
number of ECTS points corresponds to the credit score of the course)	Colloquium	3 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper			Oth	ner (inscribe)	
	Class activities		Oral exam		1 (by submitting both colloquiums the student is relieved of an oral examination)	Oth	ner (inscribe)	
	The student's workload or	n all bases amounts to 1 E	CTS point for 30 h	ours of w	ork per semester and is	estimate	d as:	
3.3. Student workload	Commitment	1	Hours (estimate)					
5.5. Student workload	24. Attending classes	6	50					
	25. Practical work 26. Preparation for the	3 9	90					
4. GRADING								
4.1. Seminar paper grading	Valuation Element	Poor			Satisfying		Above av	verage
	Po	or		Satisfyi	ng		Above average	ge
4.2. Colloquium / exam grading	Give answer by memory, n Does not know and does n	o deeper understanding. ot apply the basic terms	Reproduces basic terms, without difficulty tran new knowledge, understands subject matter, exp		hout difficulty transfers subject matter, explains	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and		ysis, synthesis and y, accurately and of the subject, and

	and concepts. Cannot apply or explain the contents of the course.			the exam	the terms and the notions that substantiate by examples. logica that it origin correlations of the terms of the terms and the notions that substantiate by the terms of terms of the terms of terms o					y links and explains the terms and concepts encapsulates. Find solutions that are not lly given. There is a correlation with tive subjects.	
	Active participation in the lessons		70-75% of attendar	nce	76-86	5% of attendance	87-1	00% of at	endance Created mental m Solved case stud		ed mental map. ved case study.
			4 points		7 points			10 point	ts		3 points
	Seminar paper		2			3		4			5
4.3. Creating a final grade	Seminar paper		5 points			7 points		8 point	5		10 points
according to evaluation			2			3		4			5
elements	Colloquium / writte	en	50-64,9%			65-79,9%		80-89,99	%		90-100%
			25 points			30 points		35 point	ts	40 points	
	Oral exam		2		3		5			5	
	orar exam	25				30 points		35 point	ts		40 points
4.4. Creating a final grade		Per- kno compet	Percentage of adopted knowledge, skills and competences (teaching + final exam)		nerous grade ECTS grade						
according to absolute allocation			80 - 89,9%	4 (very	good)	good) B					
			<u>65 - 79,9%</u> <u>60 - 64,9%</u>	2 (suff	icient)	D					
			50 - 59,9%	2 (suff	icient)	E					
5. ADDITIONAL INFORMAT	FION ABOUT TH	E COU	RSE								
5.1. Compulsory literature (available in the library and	Title							Number of cop librar	oies in the Y	Availability via other media	
through other media)	F. Urem, Projektir	anje i a	naliza IS-a, Veleučilište	u Šibenik	u, 2016., ISB	N: 978-953-7566-30-	2				Available online at e-learning system
5.2. Additional literature (at the moment of changes and/or amended of study programme)	J. A. Hoffer, J. F. George, J. S. Valacich: Modern Systems Analysis and Design, 3/e, Prentice Hall College Div, 2001. Eeles, P.; O. Sims, Building Business Objects. John Wiley & Sons, 1998.							3		Available online at e-learning system	

5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).

· GENERAL INFORMATION	ON						
1.1. Course lecturer	Ivan Livaja	1.8. Course code in ISVU	146372				
1.2. Course title	Management of Information Services	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	Zvonimir Klarin	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)				
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%				
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2				
1.6. Year of study	3 <sup>st</sup>	1.18.Modernization	Yes				
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20%X□More than 20 %□				
2. COURSE DESCRIPTION	•	•	•				
2.1. Course objectives	• Getting to know the area of information services and trends         • Adopting and expanding knowledge for the area through:         Professional Provision of Services         Development of service development strategy         Forming a service         Management of services         Supervising delivery and quality of service         • The aim of the course is to introduce students to the information services strategy in order to shape and deliver new services so they can						
2.2. Terms of course entry and required competences	4 year secondary education complete	d; qualification level 4.2 according to the CROQF.					
2.3. Learning outcomes on the study programme level	LO1: To analyze the situation, identi information technologies LO3: Evaluate database design act LO8: Select and apply basic principle LO9: Select appropriate professional foreign language to expert and gener	fy opportunities and anticipate the problems encountered by organiz cording to business requirements es of planning and career development in the profession and their ow literature in Croatian and foreign language, prepare and independ al audiences, and critically evaluate the presented professional topic	rations and individuals in the application of m entrepreneurial ventures ently present presentations in Croatian and				

	LO16: manag LO17:	<ul> <li>D16: Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of planning, anagement and accounting of business</li> <li>D17: Conclude what are the basic principles and methods of quality project management and work successfully in a team</li> </ul>									
2.4. Expected learning outcomes on	Lear	<b>ning outcomes</b> accroding to the Bloom`s	taxonomy: (	(up to two verbs per LO)		Level of 1- reme 2- unde 3- appl 4-analy 5-evalu 6-synth	<b>LO:</b> embering, erstanding, ication, esis, eation, esis				
the course level	1. A	Apply standards / methods / recommendat	ions for mar	naging information services.			3, 1				
	2. h	Explain the basic concepts used in manage	ing informat	ion services.			1	_			
	3. I	Describe both the state and trends of the d	evelopment	of modern information and comm	unication technologies		4				
	4. 5 I	Present the acquired knowledge ideas pr	blems and s	solutions independently and in a te	standards.		5				
	6. <i>A</i>	Apply ethical principles, regulations and s	standards apt	plicable to the profession			3				
	Cons	I	Γ								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time				
	1	Definition of a service; Role of services in the society	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		10 h				
	2.	Areas of providing services and service customers	1, 2, 3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they define the basic concepts of services.		6 h				
2.5. Course content according to	3.	Market of informatics services history, trends	1, 13	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam define the basic concepts of service deliv	, they very	7 h				
detailed curriculum schedule	4.	Growth and globalization of services; Service strategies, price markets	1, 3, 13	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In the midterm or the written / oral exam define the markets for IT services	, they	7 h				
	5.	Services Provided by Technology, E-Services	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the colloquium or the written / oral ex can define professional ethics and standa Practical work created and presented (u computer programs and sources of inforr communication technologies independen	am they ards. using nation and ntly).	7 h				
	6.	Development of new service. Quality service planning	1, 2, 3, 13, 14	Write the colloquium.	-		8 h				
	7.	Planning and management of projects and	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the colloquium or the written / oral ex can define professional ethics and standa Practical work created and presented (u	am they urds. sing	8 h				

					computer programs and sources of information and communication technologies independently).		
	8.	Professional ethics; Licensing, certifying and accrediting; Norms;	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the colloquium or the written / oral exam they can define professional ethics and standards. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	8 h	
	9.	Investment proposal and feasibility study	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define the investment eleaborate and the feasibility study. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	8 h	
	10.	Service management; Market management supply and demand	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define the investment eleaborate and the feasibility study. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	8 h	
	11.	Service quality supervision and control; Support functions	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define the investment eleaborate and the feasibility study. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	9 h	
	12.	Offer requirement and competition documentation; Calculation and service offering; Forms of contract relationship; Service contract s and fulfilment of service obligations; Supervision, reporting and communication	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define the investment eleaborate and the feasibility study. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	9 h	
	13.	IT finance management	1, 2, 3, 13, 14	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam, they can define the investment eleaborate and the feasibility study. Practical work created and presented (using computer programs and sources of information and communication technologies independently).	9 h	
	14.	Defense and presentation of the seminar	1, 2, 3, 13, 14	Write the colloquium.	-	9 h	
	15.	Defense and presentation of the seminar, recurrence of colloquia		Listen to lectures and read literature.	-	9 h	

3. EVALUATION OF STUDENTS` WORK										
3.1. Students` obligations	In accordance with the least 70%. Part-time Students who have du from 0 - 24, from 25 - 44 extraordinate more than 5 Students cantake the participationin classe	<ul> <li>accordance with the Regulations on Studying and the Regulations on StudentAssessment and Evaluation: for all full-time students attendance of at east 70%. Part-time students are required to attend classes at least50%. All students are required to carry calculator and formulae list.</li> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> <li>Students cantake the final exam from the course in two ways: a) during the course ofteaching through continuous monitoring of students (active participationin classes and through two colloquia); b) by passing the exam (writtenand oralpart of the exam).</li> </ul>								
	Attendance	1,0	Written exam	1,5 (without	colloquia)	Project				
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Experimental work		Research			Practical work				
	Essay		Report			Continuous examination				
	Colloquium	1,5 (without written exam)	Seminar paper	1,0		Other				
	Class activity		Oral exam	0,5		Other				
3.3. Student workload	Student workload on 1. Attending c 2. Preparing co	all bases for 1 ECTS of lasses and exercises 60 olloquia or exams through	credit is 30 hours in a semeste ) hours ugh individual work 60 hours	r and is estima	ated as:					
4. GRADING SYSTEM										
4.1. Grading seminar papers										
	Unsati	sfactory	Satisfactory			Above average				
4.2. Grading colloquia/ written and oral exam	Responds by memory understanding. Does a basic terms and conce how to apply or expla course with examples	without a deeper not know or apply epts. Does not know in the contents of the	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.					

	A ativa aguras at	tandanaa	70-74,9% of a	ttendance	75-79,9% of a	attendance	80-89,9% o	f attendan	ice	90-100% c	of attendance
	Active course at	tentiance	2 point	ts	5 poir	nts	10 p	oints		20 ]	points
			2	2		3		4		5	
4.3. Final grade according to evaluation elements	Colloquia/ Writt	en exam	50-64,9	9%	65-79,	9%	80-8	9,9%		90-	100%
				nts	30 poi	nts	35 p	oints		40 ]	points
	Oral ayam		2		3		-	5			5
	Orai exain		25 poir	nts	30 poi	nts	35 p	oints		40 j	points
4.3. Final grade according to		Percenta knowle competence	age of acquired dge, skills and es (teaching + final exam) D = 100%	Numer	rical grade	ECT	ΓS grade				
absolute division		80	0 - 89,9%	4 (ve	ry good)		B				
		60	60 - 64,9%		(good) isfactory)	factory) D					
		50	0 – 59,9%	2 (sati	istactory)		E	ļ			
5. ADDITIONAL COURSE INFOR	MATION								<u>.</u>		
5.1. Compulsory literature (available in	Title							Num	ber of copies in the library	Availability via other media	
the library and via other media)	Fitzsimmons, J.A.; Fitzsimmons, M.J. Service Management: Operations, Strategy, and Information Technology. 5th Ed., Irwin/McGraw-Hill, Homewood, IL, 2006.										
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Teaching materi .IT Infrastructure Li 2. SFIA – The Skills	al and exer brary, Office Framework f	cises of Government Com for the Information A	nerce and IT Se ge, http://www	ervice Managemen .sfia.org.uk/	t Forum http://v	www.itil.co.uk				
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, remember and Alexani employment.										
5.4. Informing about the course and contacting the teacher	It is the responsil adjournment will consultation perio mail (from the off	bility of eac be published d (at least of icial e-mail	h student to be re d in a timely mann ne hour per week), address at @ vus.h	gularly inform er on the e-le while for sho nr), which wil	med about the c earning site of the ort questions and Il be answered as	ourse, the co e course and explanations soon as poss	ursework, and the on the website of they can be control to the they can be control to the	ne classro f the Poly acted dur n five wo	oom acti technic. ing clas rking da	vities. All notices of Students can conta s. It is also possible by after receiving the	of classes or possible ict teachers during the to ask questions by e- ne e-mail).

1. GENERAL INFORMATION									
1.1. Course lecturer	Ivan Livaja	1.8. Course code in ISVU	187581						
1.2. Course title	Protection and Security of Information Systems	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials a	re on-line, 0%					
1.5. Course status (mandatory, elective)	Elective	tive 1.12. Number of course revisions 2							
1.6. Year of study	3 <sup>rd</sup>	1.19.Modernization Yes							
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplementsLess than 20% More than 20%X□□							
2. COURSE DESCRIPTION									
	To individually and responsibly sear	ch relevant literature for reaching solutions and conclusions in Croat	tian and foreign langua	ges					
2.1. Course objectives	To recognize and rank security threats, as well as to select and apply appropriate countermeasures to protect the information system								
	To interpret mechanisms for the control of: data flow, errors and fragmentation, data transfer multiplexing methods using routing methods in computer networks; as well as to configure and maintain active network devices								
2.2. Terms of course entry and required competences	4 year secondary education complete	d; qualification level 4.2 according to the CROQF.							
	LO2: to define and evaluate process	of thinking, planning, decision making and management in terms of	f electronically supported	ed business and product	ion				
2.3. Learning outcomes on the	LO3: to define and evaluate process	of thinking, planning, decision making and management in terms of	f electronically supported	ed business and product	io				
study programme level	LO16: to valorize elevant factors th	at affect organization's and individual's business and apply basic me	ethods and concepts of J	olanning, management	and a				
	LO17: to conclude what the basic pa	rinciples and methods of good project management are and work suc	ccessfully in a team						
2.4. Expected learning outcomes on the course level	Learning outcomes accroding to the	ne Bloom`s taxonomy: (up to two verbs per LO)		Level of LO: 1- remembering, 2- understanding, 3- application,					

						4- anal 5- evali 6-synth	ysis, 1ation, resis	
	]	1. Assess information security risks					2,4	
	2	2. Apply information system security pr	ocedures				3	
	3		1,4					
	4	4. Propose and argue proposals for the p	protection of	the information system			5,6	
	-	5. Present the acquired knowledge, idea	s, problems a	and solutions independently and in	n a team.		6	
	6	5. Use materials and tools to search scie	ntific and pr	ofessional literature in native and	English languages		3	_
	7	7. Identify and rank security threats and	to protect the information system		3			
	Cons	structive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time	
	1.	Defining security issues, objectives, principles and security policy	1, 2, 5	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	18 h		
	2.	Defining security issues, objectives, principles and security policy	1, 2, 3, 5	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or written / oral exam, the foundations of analysis and risk	10 h		
	3.	Access control and flow control; Mathematical models of security	2, 3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exan define the basic concepts of access contro flows.	n, they ols and	10 h	
2.5. Course content according to detailed curriculum schedule	4.	Basics of cryptography; The protocols, techniques and algorithms	7	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exam define the basic concepts of cryptograph	n, they ly.	10 h	
	5.	The architecture of the security system – basic modules	3, 4, 5, 6, 7	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the midterm or the written / oral exan define the basic concepts of security arch	n, they itectures	10 h	
	6.	Methods of digital identification and authentification	3, 4, 5, 6, 7	Write the colloquium.	-		10 h	
	7.	Security and protection of programs and operating systems	3, 4, 5, 6, 7	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the colloquium or the written / oral ex security and protection of programs and or systems	am define	10 h	
	8. Standards and criteria for evaluation of security and thrustworthiness of systems 7, bit is the constraint of the exercises demonstrate how to solve tasks. Solve exercises. At the colloquium or the written / oral exact standards and criteria for evaluation of security and thrustworthiness of systems bit is the exercises demonstrate how to solve tasks. Solve exercises. At the colloquium or the written / oral exact standards and criteria for evaluation of security and thrustworthiness of systems bit is the exercises demonstrate how to solve tasks. Solve exercises.				am define ecurity and	10 h		
	9.	Investment proposal and feasibility study	3, 4, 5, 6, 7	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	At the colloquium or the written / oral ex Investment proposal and feasibility study	am define y	10 h	

	10. Security of consystems	nputer networks and distributed	3, 4, 5, 6, 7	Listen to lectures and read literat The exercises demonstrate how solve tasks. Solve exercises.	to Sec syst	the colloquium or the written / ora urity of computer networks and ottems	al exam define distributed	10 h		
	11. Systems for the (IDS)	e detection of security breach	3, 4, 5, 6, 7	Listen to lectures and read literat The exercises demonstrate how t solve tasks. Solve exercises.	ure. At t o Sys	the colloquium or the written / ora tems for the detection of security	al exam define / breach (IDS)	11 h		
	12. Managing and (ISMS); Legal	monitoring the security system and Ethical Aspects of Security	3, 4, 5, 6, 7	Listen to lectures and read literat The exercises demonstrate how t solve tasks. Solve exercises.	ure. At t o anag (ISN	the colloquium or the written / ora ging and monitoring the security MS); Legal and Ethical Aspects o	al exam define system of Security	11 h		
	13. Managing secure continuity	rity incidents and business	3, 4, 5, 6, 7	Listen to lectures and read literat The exercises demonstrate how t solve tasks. Solve exercises.	ure. At t ana	the colloquium or the written / ora ging security incidents and busin	al exam define less continuity	10 h		
	14. Defense and pr recurrence of c	esentation of the seminar, olloquia	1, 2, 3, 4, 5, 6, 7	Write the colloquium				10 h		
	15. Defense and pr recurrence of c	esentation of the seminar, olloquia		Listen to lectures and read literat	ure.			10 h		
3. EVALUATION OF STUDENTS` WORK										
3.1. Students` obligations	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least50%. All students are required to carry calculator and formulae list.</li> <li>Students who have during the course achieved: <ul> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> </ul> </li> <li>Students cantake the final exam from the course in two ways: a) during the course ofteaching through continuous monitoring of students (active retrivious inclusion in the next of the prov) by brows in the provise of t</li></ul>									
	Attendance	0,5	Written example	m 2,0 (without c	olloquia)	Project				
3.2. Monitoring student work (enter	Experimental work		Research			Practical work				
activity so that the total number of	Essay		Report			Continuous examination				
credit score of the course)	Colloquium	2,0 (without written exam)	Seminar pap	per 0,5		Other				
	Class activity		Oral exam	1,0		Other				
3.3. Student workload	Student workload or Attending class Preparing collo	all bases for 1 ECTS cred es and exercises 60 hours quia or exams through indiv	it is 30 hours vidual work 6	in a semester and is estimat 0 hours	ed as:					

4. GRADING SYSTEM											
4.1. Grading seminar papers											
	Unsatisfactory				Satisfactory				Above average		
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.			Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.			and evaluation. hly explains the nd explains the nds solutions that th related		
			70-74,9% of a	attendance	75-79,9% of a	attendance	80-89,9% of	attendan	ce 90-100%	of attendance	
	Active course at	endance	2 poir	nts	5 poir	its	10 pc	oints	20	20 points	
4.3. Final grade according to evaluation elements	Colloquia/ Written exam		2		3		4		5		
			50-64,	9%	65-79,	9%	80-89	9,9%	90	-100%	
			25 poi	nts	30 poi	nts	35 pc	oints	40	points	
	Oral ayam		2		3		5	i		5	
	Orar exam		25 poi	nts	30 points		35 points		40	points	
		Percent knowle competenc	ntage of acquired /ledge, skills and nces (teaching + final avam)		umerical grade ECTS g		rade				
absolute division		9	0 - 100%	5 (e	xcellent)	A					
		65	5 – 79,9%	3	(good)	C B					
		<u> </u>	0 – 64,9% 0 – 59,9%	2 (sat 2 (sat	isfactory) isfactory)	D E					
5. ADDITIONAL COURSE INFOR	MATION										
5.1. Compulsory literature				Title					Number of copies in the library	Availability via other media	
(available in the library and via other media)	Bruce Schneier Sons, Inc	(1996.), A	pplied Cryptogr	aphy B. Sch	neier John Wile	y & Sons 1996	, John Wiley	&	•		

BS ISO/IEC 17799:2005, BS 7799-1:2005 norma: information technology, security techniques, code of		
practice for information security management. BSI, UK.		
Charles P. Pfleger (1997.), Security in Computing, Prentice Hall		
Teaching material and exercises		
Harold F. Tipton, Micki Krause (2000.), Information Security Management Handbook, CRC Press LLC		
The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured of attendance and student activity during classes and provided information on students` progress through sho for further guidance to students will be provided in order to increase the efficiency of their work. Student obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employ	through interactive wor ort colloquiums and hon nts will be informed at wment service on the an	k. By keeping track nework, information out their rights and nual state of student
employment, surveys from employers and Alumni association.	,	
It is the responsibility of each student to be regularly informed about the course, the coursework, and the cla	assroom activities. All	notices of classes or
possible adjournment will be published in a timely manner on the e-learning site of the course and on the	e website of the Polyte	chnic. Students can
contact teachers during the consultation period (at least one hour per week), while for short questions and e	explanations they can be	e contacted during
than five working days after receiving the e-mail)	n de answered as soon	as possible (no later
	BS ISO/IEC 17799:2005, BS 7799-1:2005 norma: information technology, security techniques, code of practice for information security management. BSI, UK. Charles P. Pfleger (1997.), Security in Computing, Prentice Hall Teaching material and exercises Harold F. Tipton, Micki Krause (2000.), Information Security Management Handbook, CRC Press LLC The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured of attendance and student activity during classes and provided information on students' progress through sho for further guidance to students will be provided in order to increase the efficiency of their work. Studen obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employ employment, surveys from employers and Alumni association. It is the responsibility of each student to be regularly informed about the course, the coursework, and the cl possible adjournment will be published in a timely manner on the e-learning site of the course and on th contact teachers during the consultation period (at least one hour per week), while for short questions and c class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which wi than five working days after receiving the e-mail).	BS ISO/IEC 17799:2005, BS 7799-1:2005 norma: information technology, security techniques, code of practice for information security management. BSI, UK.         Charles P. Pfleger (1997.), Security in Computing, Prentice Hall         Teaching material and exercises         Harold F. Tipton, Micki Krause (2000.), Information Security Management Handbook, CRC Press LLC         The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive wor of attendance and student activity during classes and provided information on students' progress through short colloquiums and hon for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed at obligations as well as the methods of work and the required literature.         Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the an employment, surveys from employers and Alumni association.         It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polyte contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon than five working days after receiving the e-mail).

4. GENERAL COURSE INFORMATION									
1.1. Course title	Computer Networks	1.8. Course code in ISVU							
1.2. Course lecturer	Zvonimir Klarin	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	Zvonimir Klarin, mag.ing.comp, teaching assistant	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)						
1.4. Study program (specialist, undergraduate, graduate)	Undergraduate Professional Study Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> , course materials are on-line, 0%						
1.5. Course status (mandatory, elective)	Mandatory	1.12. Number of course revisions	2.						
1.6. Year of study	2 <sup>nd</sup>	1.20. Modernization	Yes						
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X□ More than 20 % □						
2. COURSE DESCRIPTION									
2.1. Course objectives	Gain higher level knowledge of networking technologies, transmission media, network devices and standards. Students will apply the acquired knowledge in a simulated network environment.								
2.2. Terms of course entry and required competences	ompleted a four-year high school education; possession of a qualification at level 4.2 according to the CROQF. he condition for access to the exam is passing the course Introduction to Computer Networks.								

2.3 Learning outcomes on the study program level	LO1: inform LO5: comp LO11 LO13	JO1: Analyze the situation, identify opportunities and anticipate the problems encountered by organizations and individuals in the application of nformation technologies         JO5: Interpret mechanisms of data flow control, error control and fragmentation, ways of multiplexing data transmission using routing methods in computer networks         JO1: Link the activities of building and maintaining information system with the needs of clients and users         LO13: Rank security threats and select appropriate countermeasures to protect the information system									
2.4. Expected learning outcomes	Lear	ning outcomes according to the Bloom`s	taxonomy: (	(up to two verbs per LO)		Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis					
on the course level	20. L 21. D	escribe and distinguish the basic concepts of network	ang technologie	8.		2					
	22. E	valuate and distinguish different network devices w	hen configuring	g a network.		4, 5					
	23. C	onfigure network access.				4					
	24. L 25. A	24. Define virtual networks. 25. Assess the security of computer network elements									
	Constructive allignament										
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time					
	106.	Introduction to the course and detailed curriculum	1	Listen to lectures. During the exercises, get acquainted with the content of the course and documents on the e-learning platform of the course.	-	4 h					
2.5. Course content according to detailed curriculum schedule	107.	Internet, WAN and routers	1	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Explain the Internet globally.	4 hi					
detance currentin schedule	108.	Router configuration	1,2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Configure a simple router.	4 h					
	109.	Discovering and connecting new network devices	3	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Connect different network devices	4 h					
	110.	Router operating system	2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Know the basics of router operating system.	4 h					
	111.	Routed and routing protocols	1, 2, 3	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.	Distinguish and explain various communication protocols.	4 h					

	112.	2. TCP/IP control messages		2	Listen to lectures. Duri exercises, through inde get acquainted with the	ng the pendent work thematic unit.	Explain the purpose of acknowledgement messages.		4 h			
	113.	TCP and UDP operations		2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Distinguish different data traffic.		4 h			
	114.	Access to network resources – Access-control lists		4	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Define access-control lists.		4 h			
	115.	OSPF and EIGRP protocols		2	Listen to lectures. Duri exercises, through inde get acquainted with the	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Explain routing protocols.				
	116.	Managed network switch		4,5	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Configure a managed network switch.		8 h			
	117.	Virtual LAN		4,5	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Configure a virtual network.		4 h			
	118.	WAN technologies	S	2	Listen to lectures. During the exercises, through independent work get acquainted with the thematic unit.		Distinguish technologies for transferring large amounts of data.		4 h			
	119.	Network management		1,2	Listen to lectures, read literature, and prepare individually for the colloquium.		Manage and monitor network elements.		4 h			
	120.	Concluding remarks and preparation for the exam		6	Listen to lectures and prepare for the exam individually.		-		60 h			
3. EVALUATION OF STUDENTS` WORK												
3.1. Students` obligations	<ul> <li>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. Students who have during the course achieved:</li> <li>from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year;</li> <li>from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period;</li> <li>more than 50% - students have the right to take the final exam.</li> <li>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes); b) by passing the exam (written and oral part of the exam).</li> </ul>											
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course))	Attendance		0,5		tten exam	2		Project				
	Experimental work			Research				Practical work				
	Essay			Report				Continuous examination				
	Colloquium			Seminar paper				Other				
	Class activity		0,5	Ora	l exam	1		Other				
3.3 Student workload	Student workload on a1.Attending clar2.Preparing coll	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:         1.       Attending classes and exercises 60 hours         2.       Preparing colloquia or exams through individual work 60 hours										
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4. FORMIRANJE OCJENE												
4.1. Grading seminar papers	-											
	Uns	atisfactory			Satisfactory		Al	bove average				
4.2. Grading colloquia/ written and oral exam	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.			es the bas new know the terms	ic concepts and without redge, understands t s and concepts sup	out difficulty he material, ported with	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.					
	Active course	70-74,9% of attendance		75-79,9%	% of attendance	80-89,9	9% of attendance	90-100% of attendance				
	attendance	2 points		5	5 points		10 points	20 points				
		2			3		4	5				
4.3. Final grade according to evaluation elements	Colloquia/ Written exam	50-64,9%		6.	5-79,9%		80-89,9%	90-100%				
		25 points		30 points		35 points		40 points				
	Oral exam	2		3		5		5				
		25 points		30 points		35 points		40 points				
4.4. Final grade according to absolute division	Pe kr compo		umerical grad 5 (excellent) 4 (very good) 3 (good) 2 (satisfactory 2 (satisfactory	de	ECTS grade A B C D E							

5. ADDITIONAL COURSE INFORMATION										
5.1. Compulsory literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media							
	<ol> <li>Cisco Certified Network Associate (CCNA), CISCO, 2012.</li> <li>Computer Networks (5th edition), Tanenbaum, Wetherall, 2011</li> </ol>		Available on the e- learning page of the course							
5.2. Additional literature (at the moment of changes and/or amended of study program)										
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.									
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices o timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultat questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail add possible (no later than five working days after receiving the e-mail).	f classes or possible adjournmen ion period (at least one hour per lress at @ vus.hr), which will b	It will be published in a week), while for short be answered as soon as							

1. GENERAL INFORMATION ABOUT THE SUBJECT									
1.1. Title	Digital Marketing and Marketing Analytics	1.8. ISVU course code							
1.2. Lecturer	Jelena Šišara	1.9. MOZVAG course code							
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	3 <sup>rd</sup> level - materials available on- line, taking a colloquium and a written exam on a computer						
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	2.						
1.6. Study year	3 <sup>rd</sup>	1.13. Modernization	yes no						
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %						
2. COURSE DESCRIPTION									
2.1. Course objectives	Master the basics of marketing and the specifics of digital marketin analyze data, learn to choose the right tactics of digital marketing, o	ng, get acquainted with digital marketing activities, learn about the rol evaluate different channels used in campaigns and to create and imple	le of data in digital marketing, learn to ement digital marketing plan.						
2.2. Terms of course entry and required competences	Completed four-year high school education; possession of a qualification at level 4.2 according to the CROQF.								
	IU4 Evaluate various digital channels in marketing campaigns and	create and implement a digital marketing plan							

2.3. Learning outcomes on the	IU9 S and ge	IU9 Select appropriate professional literature in Croatian and foreign languages, prepare and independently hold presentations in Croatian and foreign language to professional and general audiences, and critically evaluate presented professional topics										
study programme level	IU15.	Compare and select appropriate development to	ools at the profes	sional level								
2.4 Expected learning	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)											
outcomes on the course level	1. Ma	ster the basics and specifics of digital marketing					1,2,3,4,5,6					
	2. Get	acquainted with digital marketing activities					2,3,4,5,6					
	3. Get	to know the role of data in digital marketing					2,3,4,5,6					
	4. Lea	rn to analyze data					2,3,4,5,6					
	5. Lea	rn to choose the right digital marketing factics	ne				2,3,4,5,6					
	0. Eva 7 Cre	ate and implement a digital marketing plan	115				2,3,4,5,0					
	Cons	7. Create and implement a digital marketing plan Constructive alignment										
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation		Time needed					
	121.	Introduction to the course and detailed performance plan of teaching.	-	Listen to lectures.	-		2 hours					
		Marketing yesterday, today and tomorrow	1	Listen to lectures, work on computers, read literature.	Describe essential digital marketing standar in the context of historical development Interpret the basics of digital marketing		8 hours					
	122.	Overview of basic marketing activities	1,2,3,4	Listen to lectures, work on computers, read literature.	Explain basic marketing activities		5 hours					
2.5. Course content according to detailed curriculum	123.	Digital marketing specifics	1,2,3	Listen to lectures, work on computers, read literature.	Evaluate the specifics of digital marketing		5 hours					
schedule	124.	Digital marketing activities management	1,2,3,4	Listen to lectures, work on computers, read literature.	Manage digital marketing activities		5 hours					
	125.	Digital marketing activities management	1,2,3,4,5,6	Listen to lectures, work on computers, read literature.	Manage digital marketing activities		5 hours					
	126.	Data as the basis of digital marketing	1,2,3,4,5,6	Listen to lectures, work on computers, read literature.	Analyze a data set on a computer for application purposes in digital marketing activities		5 hours					
	127.	Data as the basis of digital marketing 3,4,5,6 Listen to lectures, work on computers, read literature. Analyze a data set on a computer for application purposes in digital marketing activities		Analyze a data set on a computer for application purposes in digital marketing activities		5 hours						
	128.	Segmentation and targeting of customers	3,4,5,6	Listen to lectures, work on computers, read literature.	Create customer segmentation. Specify target groups of customers		10 hours					

	129.	Segmentation and tar	geting of customers	1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	vork on erature.	Create custom groups of cus	er segmentation. Specify target	10 hours
	130.	Creating and evaluati funnel	ng a digital sales	1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	vork on erature.	Create a digita	al sales funnel.	10 hours
	131.	131. Creating and evaluating a digital sales funnel		1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	vork on erature.	Rate the digita	al sales funnel.	10 hours
	132.	Omnichannel and its	measurement	1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	vork on erature.	Explain Omn	channel approach to the customer	10 hours
	133.	Omnichannel and its	measurement	1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	vork on erature.	Measure Omr	ichannel activities	10 hours
	134.	Differences between digital marketing	digital sales and	1,2,3,4	1,5,6,7	Listen to lectures, w computers, read lite	ures, work on Identify key and literature.		ifferences between digital sales ırketing	10 hours
	135.	Project Presentation		1,2,3,4	1,5,6,7	Listen to lectures, v computers, read lite individual preparin	vork on erature, g for exam.	Presentation	of the project	10 hours
3. EVALUATION OF STUDENT WORK										
	In acc obliga	In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.								
3.1. Students` obligations	Stude	<ul> <li>Students who have during the course achieved:</li> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul>							extraordinary exam	
	Stude	Students can take the final exam in the course in two ways: a) during teaching through continuous monitoring of students (active participation in classes and exercises and two exams); b) during class (active participation in classes and exercises) and passing exams (written and oral examinations).								
3.2 Monitoring student work	Atten	dance	1		Writte	en exam	1 (no colloqui	ums)	Project	
(enter the share of ECTS	Exper	imental work			Resear	rch			Practical work	
credits for each activity so that the total number of ECTS	Essay				Repor	t			Continuous examination	
points corresponds to the	Collo	quium	2 (no written and oral	exam)	Semin	nar paper	1		Other (inscribe)	
credit score of the course)	Class	activities			Oral e	xam	1 (no colloqui	iums)	Other (inscribe)	
	The st	udent's workload on all	bases amounts to 1 ECT	'S point f	for 30 ho	ours of work per seme	ester and is estimation	ted as:		
3.3. Student workload		Commitment					Hours (estimate)			
		27. Attending classe	s				40			

	28. Practi 29. Prepar	<ol> <li>Practical work</li> <li>Preparation for the Colloquium / exam through self-study</li> </ol>						40 40			
4. GRADING											
4.1. Seminar paper grading											
	Poor					Satisfying			Above average		
4.2. Colloquium / exam grading	Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.			g. Re and kn the ter	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.			el of analysis, synthesis and egitimacy, accurately and content of the subject, and ains the terms and concepts that lutions that are not originally tion with correlative subjects.			
	Active participation	n in	70-75% of atte	70-75% of attendance		76-86% of attendance		87-100% of attendance		Created mental map. Solved case study.	
	the lessons		4 points	s		7 points			10 points		
	Seminar paper		2			3			4	5	
4.3. Creating a final grade	Seminar paper		5 points	S		7 points			8 points	10 points	
according to evaluation			2		3				4	5	
elements	Colloquium / writte	en	50-64,99	%	65-79,9%			80-89,9%		90-100%	
			25 point	30 points			35 points		40 points		
	Oral exam		2			3		5		5	
			25 point	ts		30 points		35 points		40 points	
4.4. Creating a final grade		Pero kno comp	centage of adopted owledge, skills and petences (teaching + final exam)	Nume	rous grade	ECTS	grade				
according to absolute			90 - 100%	5 (e	xcellent)	A A A A A A A A A A A A A A A A A A A	A				
allocation			80 – 89,9% 65 – 79,9%	4 (Ve	(good)	1 (	в С				
			60 - 64,9%	2 (sı	ufficient)	I	D				
			50 - 59,9%	2 (sı	ufficient)	I	E				
5. ADDITIONAL INFORMA	TION ABOUT	THE C	COURSE								

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media				
(available in the library and through other media)	1. Peer-reviewed teaching materials in the subject, available on the e-learning system		Available online				
	2. J.Pavičić , N. Drašković , V. Gnjidić, Osnove strateškog marketinga, Školska knjiga, 2014.	5					
5.2. Additional literature (at the moment of changes and/or amended of study programme)	3. Penović, A., Cetinić, M., Rašeta, I., Ličina, B., Pobijedite internet ili će internet pobijediti vas, Jasno & Glasno, 2014	5					
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.						
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation terr and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the time (no later than five working days from the receipt of e-mail).	ng or any delay in teaching wi n (at least one hour per week), e domain @ vus.hr) that will b	ll be published on the while brief questions e answered in a short				

1. GENERAL INFORMATION ABOUT THE SUBJECT										
1.1. Title	Operations Research	1.8. ISVU course code	214382							
1.2. Lecturer	Ivana Beljo	1.9. MOZVAG course code								
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, (lectures recorded) 20%							
1.5. Course status (mandatory, elective)	e status (mandatory, Mandatory 1.12. Number of course revision		0.							
1.6. Study year	3	1.13. Modernization	□ yes <b>n</b> o							
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %							
2. COURSE DESCRIPTION										
2.1. Course objectives	.The aim of this course is to train students in use of quantitative methods for decision making:         • Creating mathematical models of various business problems;         • Finding best method for getting optimal solution based on model;         • Evaluate solution and perform sensitivity analysis;         • Apply the learned content of this course in business practice.									
2.2. Terms of course entry and required competences	Four-year high school education completed; having a qualification at level 4.2 Finished courses: Mathematics, Business Statistics									

2.3. Learning outcomes on the study programme level	LO7. Select and use quantitative/mathematical methods, models and techniques appropriate for solving problems from informatics and business domain. LO9. To individually and responsibly search and select relevant literature in Croatian and foreign languages, prepare papers and presentations for general and professional audience and critically evaluate presented professional topics. LO14. Successfully communicates with clients, users and colleagues, both verbal and in writing, using suitable terminology, what also includes ability to communicate in foreign language about professional topics. LO15. Compare and select suitable development tools from professional viewpoint. LO16. Evaluate deciding factors that have impact on businesses and individual and apply basic methods and concepts of planning, managing and auditing business.								
	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	LO Level: 49. Recapture, 50. Understanding, 51. Application, 52. Analysis, 53. Evaluation, 54. Synthesis							
	1. Recognize and analyze problems from the business domain which can be solved by linear programming.								
2.4 Expected learning outcomes	2. Design linear programming model for recognized problems.								
on the course level	3. Apply Simplex method for solving common problems in business.	3,4							
	4. Present advantages and limitations of methods and techniques for linear programming on given problem.	4,5							
	5. Apply streamlined Simplex method on specific business problems (transport, assignment, stock control, scheduling, network etc.	3,4							
	6. Understand and apply different approach in decision making based on problem characteristics.								
	7. Use software tools (Excel add-ins) for creating and solving linear, non-linear and integer problems.								
	8. Recognize biases and fallacies that impact rationality of decision maker and avoid them.								
	9. Evaluate and interpret results of model solving and perform sensitivity analysis for common problems met in the business.								

2.5. Course content according to detailed curriculum schedule	Constructive alignment										
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed					
	136.	Introduction to Operations Research.	1,2	Listen to the lecture and read the literature.	Checked by written test and oral exam: student can estimate influence of technology development on capabilities and performance of computers.	2 hours					
	137.	Linear problems, mathematical model and geometric visualization.	1,2,3	Listen to the lecture, read the literature and solving exercises.	-"-: student can create mathematical model of common linear problem	6 hours					

	138.	Simplex method	1,2,3		Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	139.	Solving linear problems in Excel	2,3,4	,7	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 10 hours
	140.	Post-optimal analysis, sensitivity and shadow price	2,3,4	,7,9	Listen to the lecture + s exercises using compute	olving er tools.	-"-: student eva	aluate results of model solution	8 hours
	141.	Special cases of linear problems, transport problems	1,2,4	,5,6,7	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 10 hours
	142.	Problem of assignation, modelling in Excel	1,2,4	,5,6,7	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	143.	Network models: Minimum Price Maximal Flow Problem	1,2,4	,5,6,7	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 10 hours
	144.	Network models for project management.	1,2,4	,5,6,7	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	145.	Dynamic programming	4,5,6		Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	146.	Integer programming in Excel	4,5,6	,7,8	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	147.	Decision-making theory: Decisions tree.	4,5,6	,7,8	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 10 hours
	148.	Methods for solving nonlinear problems in Excel	6,7,8	,9	Listen to the lecture + s exercises using compute	olving er tools.	-"- : student des problem	signs and solves model of the give	<sup>1</sup> 8 hours
	149.	Selecting best methods for solving common business problems	4,5,6	,7,9	Listen to the lecture + s exercises using compute	olving er tools.	Checked by oral exam: Student can select optimal method for modelling given business problem and understand it's advantages and limitations		l 8 hours
	150.	Common fallacies in decision makin	g 8,9		Listen to the lecture and preparation for the exam	l individual n.	Checked by ora fallacies and bi	ll exam: Student recognises comm ases in decision making	on 8 hours
	In acco to atter	ordance with the Book of Rules and the Ruleboo and at least 50% of lectures through physical pres	c on Stude ence or via	nt Asses a on-line	ssment and Evaluation: for eattendance.	r all regular stude	ents attend at leas	tt 70% attendance. Part-time stude	nts have the obligation
3.1. Students` obligations	Studen • •	ts who have during the course: satisfied minimal attendance condition, may past 50% score from all colloquium or from past both written and oral exams receive gra	approach written ex de and all	colloqui am (exa ECTS c	ium or written exam. Im can be held in a regular redits for that course	or extraordinary	exam period) ma	y approach final oral exam	
	Attend	ance 0.4		Writte	en exam	1.6 (by submitt colloquiums the	ing both e student is	Project	

				relieved of an written examination)			
	Experimental work		Research		Practical work		
3.2. Monitoring student work (enter the share of ECTS credits	Essay		Report		Continuous examination		
for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Colloquium	3 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper		Other (inscribe)		
	Class activities	0.4	Oral exam	1.6 (by submitting both colloquiums the student is relieved of an oral examination)	Other (inscribe)		
	The student's workload of	n all bases amounts to 1 EC	CTS point for 30 hours of	work per semester and is e	stimated as:		
3.3. Student workload	Commitment			Hours (estimate)			
	30. Attending classes 31. Creating and Prese	nting seminar paper		45 10			
	32. Preparation for the	Colloquium / exam through self-	study	65			
4. GRADING							
4.1. Seminar paper grading							
	Pe	bor	Satisf	ying	Above avera	ge	
4.2. Colloquium / exam grading	Give answer by memory, r Does not know and does n and concepts. Cannot appl of the course.	to deeper understanding. ot apply the basic terms y or explain the contents	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.		

	Active participation	in the	70-75% of att	endance	76-86	% of attendance	87-100% of a	ttendance	Act	ivity in class
	lessons		2 points		5 points		10 poin	ts	+	10 points
4.3. Creating a final grade	Colloquium / written exam		2		3		4			5
according to evaluation			50-64,99	%		55-79,9%	80-89,9	%	9	90-100%
elements			25 point	ts		30 points	35 poin	ts	2	40 points
	Oral exam		2			3	5			5
	Oral exam		25 point	ts		30 points	35 poin	ts	2	40 points
4.4. Constinues front and b		Pero kno compet	centage of adopted owledge, skills and ences (teaching + final exam)	Numerou	ıs grade	ECTS grade				
4.4. Creating a final grade			88-100%	5 (exce	ellent)	А				
according to absolute anocation			78 - 87.9% 4 (very gr 62 - 77.9% 3 (geo		good) ood)	B				
		50-61,9%		2 (sufficient)		D				
			0-49.9%	1 (unsuf	ficient)	F				
5. ADDITIONAL INFORMAT	TION ABOUT TH	E COU	RSE							
5.1. Compulsory literature	Title							Number of copies library	s in the	Availability via other media
through other media)	<ol> <li>Kalpić D., I</li> <li>Hillier F., L</li> <li>Ragsdale C</li> </ol>	Mornar V. Jieberman ., Spreads	, Operacijska istraživanja G. : Introduction to oper heet Modeling & Decisio	a, DRIP, Zagreb 1 rations Research, 1 on Making, Thom	996. McGraw Hill 8t pson South-We	n ed. 2005, stern, 5 <sup>th</sup> ed., 2008		5 1 1		- On-line, pdf On-line, pdf
5.2. Additional literature (at the moment of changes and/or amended of study programme)	10. Swift L., Pi 11. Bradley, Ha	wift L., Piff S.: Quantitative Methods for Business, Menagement and Finance, Palgrave, 3rd Ed. Bradley, Hax, and Magnanti : Applied Mathematical Programming, Addisson-Wesley, 1977					1 1		- On-line, pdf	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of student classes and provided in of their work. Students Indicators of quality as Alumni association.	s' work qu formation will be in ssurance s	ality and the acquisition n on students` progress the formed about their right ystem: Student survey, n	of necessary kno hrough short colle s and obligations nonitoring of ann	owledge and ski oquiums and ho as well as the n ual data from th	ls will be ensured throug nework, information for ethods of work and the re e Croatian employment so	h interactive work. By h further guidance to stud- equired literature. ervice on the annual stat	ceeping track of atter ents will be provided e of student employn	ndance and in order to nent, survey	student activity during increase the efficiency vs from employers and

1. GENERAL INFORMATION ABOUT THE SUBJECT								
1.1. Title	Quality Management	1.8. ISVU course code	142639					
1.2. Lecturer	Divna Goleš, Master of Economics, Senior lecturer	1.9. MOZVAG course code						
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)					
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Studies of Management, Department of IT Management	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, 0%					
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	2.					
1.6. Study year	3 <sup>rd</sup>	1.13. Modernization	• yes 🗆 no					
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %					
2. COURSE DESCRIPTION								
2.1. Course objectives Thap eli	ne aim of the collegium is to familiarize students with in pplied to quality management. Furthermore, collegium a iminate non-conformities in the Quality Management S	mportant terms in the area of Quality Management System aims to familiarize, analyse and apply methods and tools the System.	and understanding the systems nat can be used to identify and					
2.2. Terms of course entry and required competences	dmission requirements for the 3nd year of study							

2.3. Learning outcomes on the study programme level	LO9: foreig LO16 mana LO17	LO9: Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in Croatian and foreign language to expert and general audiences, and critically evaluate the presented professional topics LO16: Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and concepts of planning, management and accounting of business LO17: Conclude what are the basic principles and methods of quality project management and work successfully in a team								
2.4 Expected learning outcomes	Lear (up to	ning outcomes towards Bloom's taxonon o two verbs per LO)	ıy:			LO Level: 1. Recapture, 2. Understanding, 3. Application, 4. Analysis, 5. Evaluation, 6. Synthesis				
on the course level	1. Exp	plain and critically evaluate key concepts	and processe	es that are important in the Quality	Management System	2,5				
	2. All 3. To	analyze the importance of the Quality Ma	anagement S	ve a concrete example.	2	4,0 4				
	4. To connect the reasons for improving the quality domain, the role of quality cost and quality-based system development.									
	5. Choose and critically evaluate the appropriateness of selected methods and tools to solve problems in the Quality Management Systems									
	6. Pre	sent seminar paper and critically judge th	e topic cover	red		6,5				
	Cons	tructive alignment		-						
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed				
2.5. Course content according to	1	Introduction to the course and a detailed performance plan.	-	Listen to the lecture. On seminary teaching, by independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	4 hours				
detailed curriculum schedule	2.     The basis of the theory of quality.     1,2,6     They listen to a lecture. They read the literature.     At the colloquium or the written and oral examples into quality theory.		At the colloquium or the written and oral exam, they define fundamental insights into quality theory.	6 hours						
	3.	Interested partners and their integration into the Quality Management System.	1,2,3,6	They listen to a lecture. They read the literature.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit.	8 hours				
	4.	Application of quality management principles.	1,2,3,6	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit.	8 hours				

5.	Strategy, policy, mission, vision and quality goals. Business Systems and Quality Management Systems.	1,2,3,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
6.	Business Systems and Quality Management Systems.	1,2,3,6	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
7.	Documentation in the Quality Management System.	1,2,3,4,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
8.	Construction and modelling of business processes.	1,2,3,4,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
9.	Standards, guidelines and laws in the Quality Management System, I. colloquium.	2,3,4,6	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	16 hours
10.	Concept of continuous improvement of quality.	3,4,5,6	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
11.	Implementation of auditing and certification process.	3,4,5,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example-	12 hours
12.	Troubleshooting Techniques in the Quality Management System.	3,4,5,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
13.	Norm 9000 ff. TQM Models (Business Excellence Awards).	3,4,5,6	They listen to a lecture, work in a team on case work, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
14.	Quality Costs.	4,5,6	They listen to a lecture, they read the literature, present a seminar paper, followed by a discussion	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit, then they should present and analyze the same on a concrete example.	12 hours
15.	Final lecture, course signatures, II. colloquium	1,2,3,4,5,6	They listen to a lecture and prepare independently for the exam.	At the colloquium or the written and oral exam they define and explain the concepts that occur in this thematic unit.	30 hours

3. EVALUATION OF STUDEN	T WORK							
	In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.							
3.1. Students` obligations	<ul> <li>Students who have during the course achieved:</li> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul>							
	Students can pass the final exar passing two colloquia); b) durin	n in two ways: a) during the cours ng the course (active participation	se through continuous student at in the lessons, creating and pre-	tendance (active participation in the senting the seminar) and passing the	lessons, making and presenting the seminar paper, exam (written and oral exam).			
	Attendance	1	Written exam	2 (by submitting both colloquiums the student is relieved of an written examination)	Project			
3.2. Monitoring student work	Experimental work		Research		Practical work			
for each activity so that the total	Essay		Report		Continuous examination			
number of ECTS points corresponds to the credit score of the course)	Colloquium	3,5 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper	1	Other (inscribe)			
	Class activities	0,5	Oral exam	1,5 (by submitting both colloquiums the student is relieved of an oral examination)	Other (inscribe)			
	The student's workload o	n all bases amounts to 1 E0	CTS point for 30 hours of	work per semester and is esti	mated as:			
	Commitment			Hours (estimate)				
3.3. Student workload	33. Attending classes			60				
	34. Creating and Prese 35. Preparation for the	Colloquium / exam through self-	study	105				

4. GRADING										
4.1. Seminar paper grading	Valuation Element	Poor		Satisfying				Above average		
	Organization	The paper is not organized in a logical order and its structure is lacking.		The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.		The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another				
	Terminology, writing style Words and phrases are low with official terminology. In not appropriate, sentences modest vocabulary, and fre repeated grammatical mist		w harmonized Writing style is s are too long, requent and stakes. Words and phrases are a terminology. The writin appropriate, the sentence the vocabulary is appro grammatical errors.		e aligned with official ting style is nce structure is clear, ropriate and has little ar		Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.			
	Quoting and referencing	Sources are not specified references do not match t a superficial approach to	at all. The he topic and show he research topic. Sources are listed, but incom- errors. The references are a the subject and show a satis attitude.		t incomplete a are appropria a satisfactory i	ncomplete and with re appropriate for satisfactory research shows a robust research		accurate, complete and The references are appropriate, rich" and comprehensive and ust research approach.		
	Po	oor	Satisfying			Above average				
4.2. Colloquium / exam grading	Give answer by memory, n Does not know and does n and concepts. Cannot apply of the course.	o deeper understanding. ot apply the basic terms y or explain the contents	Reproduces basic terms, without difficul new knowledge, understands subject matt the terms and the notions that subs examples.		Ity transfers ter, explains stantiate by Knowledge is evaluation. It thoroughly ex logically link that it encaps originally giv correlative su		dge is at the le on. It observe hly explains th v links and ex ncapsulates. F ly given. Ther we subjects.	evel of analysis, synthesis and s legitimacy, accurately and ne content of the subject, and plains the terms and concepts ind solutions that are not re is a correlation with		
	Active participation in the	70-75% of attendance	76-86% of attendance		87-100% of attendance		ndance	Solved case study and project		
	lessons	2 points		4 points	7 points			3 points		
	Seminar paper	2		3	4			5		
4.3. Creating a final grade	Seminar paper	5 points		7 points		8 points		10 points		
according to evaluation		2		3		4		5		
elements	Colloquium / written exam	50-64,9%		65-79,9%		80-89,9%		90-100%		
		25 points		30 points		35 points		40 points		
	Oral exam	2		3		5		5		
	Grai Crain	25 points		30 points	35 points			40 points		

4.4. Creating a final grade		Percentage of adopted knowledge, skills and competences (teaching + final exam)	Numerous grade	ECTS grade	
4.4. Creating a final grade		90 - 100%	5 (excellent)	A	
according to absolute allocation		80-89,9%	4 (very good)	В	
			65 - 79,9%	3 (good)	С
		60 - 64,9%	2 (sufficient)	D	
		50 - 59,9%	2 (sufficient)	E	

## 5. ADDITIONAL INFORMATION ABOUT THE COURSE

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and through other media)	3. Goleš D.(2011). *Upravljanje kvalitetom* script, Veleučilište u Šibeniku, Šibenik		e- learaning
	<ol> <li>Injac N.(2002). *Mala enciklopedija kvalitete, I dio, Upoznajmo normu ISO 9000*, Oskar, Zagreb,</li> <li>Šiško Kuliš M., Grubišić D.(2010). *Upravljanje kvalitetom*, Sveučilište u Splitu, Ekonomski fakultet, Split, 2010. (selected chapters)</li> </ol>	7 2	
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>Lazibat T.(2009). *Upravljanje kvalitetom* Znanstvena knjiga, Zagreb</li> <li>Injac N.(2001). *Mala enciklopedija kvalitete, Moderna povijest kvalitete*, Oskar, Zagreb</li> <li>Drljača M.(2004).* Mala enciklopedija kvalitete, Troškovi kvalitete* Oskar, Zagreb</li> <li>Injac N.(2002).*Mala enciklopedija kvalitete, Informacije, dokumentacija, auditi*, Oskar, Zagreb</li> <li>Avelini Holjevac I.(2002).* Upravljanje kvalitetom u turizmu i hotelskoj industriji*Fakultet za turistički i hotelski menadžment, Opatija</li> </ol>	1 6 3 5 2	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured the attendance and student activity during classes and provided information on students' progress through short confurther guidance to students will be provided in order to increase the efficiency of their work. Students will be in well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employee employment, surveys from employers and Alumni association.	ough interactive work. B olloquiums and homewor formed about their rights nent service on the annu	y keeping track of k, information for and obligations as al state of student
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All informative will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is po official e-mail address from the domain @ vus.hr) that will be answered in a short time (no later than five work)	ation about teaching or an contact the teachers durin ossible to ask questions b ing days from the receipt	y delay in teaching g the consultation y e- mail (from the of e-mail).

1. GENERAL INFORMATION ABOUT THE SUBJECT								
1.1. Title	Principles of corporate finance	1.8. ISVU course code	141499					
1.2. Lecturer	Jelena Žaja, mag.oec., lec.	1.9. MOZVAG course code						
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(45+30+0+0)					
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Management	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> – materials available On-line, 0%					
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	2.					
1.6. Study year	3 <sup>rd</sup>	1.13. Modernization	yes 🗆 no					
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %					
2. COURSE DESCRIPTION								
2.1. Course objectives	Introduce students with basic concepts of modern financial management through lectures, classroom discussions, business cases and project task solving so that after completing the course each student knows how to approach basic financial management issues and where to look for additional information to solve complex issues that appear in practice in everyday business. To introduce students to the concept of corporate finance, its role in the company's business and to expand their basic knowledge in the field of: • time preferences of money; • measurement of financial risk in function of capital cost; • money markets and capital markets, flows of funds in business processes and the interdependence of property and liabilities management and ways of financing them;							

	<ul> <li>elements of financial and investment planning;</li> <li>basis of financial efficiency of investment projects;</li> <li>financing securities transactions with a special focus on bonds and shares and assessing the justification for investing in financial instruments in the market;</li> <li>financing business with own capital;</li> <li>fundamental laws of debt utilization, capital structure and dividend policy.</li> </ul>	e money and capital
2.2. Terms of course entry and required competences	No conditions.	
2.3. Learning outcomes on the study programme level	LO2: Define and evaluate the processes of thinking, planning, decision-making and management in terms of electronically supported production LO6: Correctly write and interpret basic concepts in the field of economics and economics of enterprises, entrepreneurs and entreprene correctly interpret their interdependencies LO8: Select and apply basic principles of planning and career development in the profession and their own entrepreneurial ventures LO9: Select appropriate professional literature in Croatian and foreign language, prepare and independently present presentations in C foreign language to expert and general audiences, and critically evaluate the presented professional topics LO14: Communicate successfully with clients, users and colleagues in a verbal and written manner using appropriate terminology ind to communicate about the profession in a foreign language LO16: Valorize the important factors that affect the business of the organization and individuals, and apply the basic methods and com- management and accounting of business	business and eurship and Croatian and cluding the ability neepts of planning,
2.4. Expected learning outcomes on the course level	Learning outcomes towards Bloom's taxonomy:         (up to two verbs per LO)         15. to define and categorize basic concepts and tasks of financial management,         16. to measure the return and financial risk of the securities portfolio and analyse the relation between risk and return,         17. to interpret the financial relations of the enterprise with the financial institutions and the financial market,         18. to evaluate the impact of financial leverage and on the profitability of business entities,         19. to prepare an analysis of financial statements on the example of a business entity by performing horizontal and vertical analysis and analysis by financial indicators,         20. to apply methods of net present value, return period, internal rate of return, profitability index, and assess the eligibility of investment in a project,         21. to propose the application of appropriate models and evaluate the value of equity and debt securities,         22. use materials and tools to search scientific and professional literature in Croatian and in English, and present accepted knowledge, ideas, problems and solutions independently and in the team.	LO Level: 55. Recapture, 56. Understanding, 57. Application, 58. Analysis, 59. Evaluation, 60. Synthesis 1,4 3,4 4 4 6 3,5 6,5 3,6
2.5. Course content according to detailed curriculum schedule	Constructive alignment	L

No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed
	Introduction to the course and a detailed performance plan.	-	Listen to the lecture. In the exercise classes, by independent work on computer students get acquainted with course content and documents on the e-learning course page.	-	2 hours
151.	Introductory lecture - basic concepts and determinants of financial management.	1, 3	Listen to the lecture and read the literature.	At the colloquium or the written and oral exam define the basic concepts of financial management. They know how to list and explain basic financial activities, sources of company assets and tasks of financial function in the company. They can explain the role of the Financial Manager, goals of corporation, and agency problem.	8 hours
152.	Financial environment.	1,3	Listen to the lecture and read the literature.	Describe the basic characteristics of the financial market. At the colloquium or the written and oral exam they know how to define and describe the basic securities that circulate in the money market.	6 hours
153.	Time value of money.	1,6	Listen to the lecture and read the literature.	They know how to explain the concept of time value of money and identify the basic variables in calculations of time value of money	10 hours
154.	The Valuation of Long-Term Securities	1, 2,7	Listen to the lecture and read the literature.	They can make distinction among valuation concepts. They know how to valuate long term securities (bond valuation, preferred stock valuation, common stock valuation).	8 hours
155.	Risk and financial management. Balance as a source of financial information.	1, 2, 3, 8	Listen to the lecture and read literature. In the exercise classes, they calculate the yield and financial risk of the securities portfolio independently or in a team, and draw conclusions about the risk-return relationship.	At the colloquium or the written and oral exam they can explain the concepts of investment portfolio, financial risk and ways of managing risk. They know how to calculate the expected return, the standard deviation and the coefficient of variation for an individual security or a portfolio of securities and to evaluate the risk of investing on the basis of the relationship between risk and return. They know how to interpret the relationship between security yields and market returns. They know how to explain the concept of a balance sheet, its properties and indicate users of financial information.	8 hours
156.	Financial reports.	1, 3, 8	Listen to the lecture and read the literature.	At the colloquium or the written and oral exam they can state the types of basic financial statements and explain their basic components. Know what can all be a source of cash in a business.	8 hours
157.	Objectives, purpose and methods of analysis of financial reports.	1, 3, 6, 8	They listen to a lecture and read literature. In the exercise classes, independently on a computer, they perform horizontal and vertical analysis of financial statements on the example of a business entity's	At the colloquium or the written and oral exam they can explain the term financial analysis and specify and explain the methods of analysis of financial statements. They know how to explain horizontal and vertical analysis procedures and apply them to	12 hours

			financial statements. They research the content of this thematic area and make a project assignment that presents the knowledge they have acquired and their ideas, and ways to solve problems.	financial statement analysis. Created and presented project assignment (using computer programs).	
158.	Indicators of financial analysis, examples and interpretations.	1, 5, 6, 8	They listen to a lecture and read literature. In the exercise classes, they calculate financial indicators and interpret the obtained results independently on a computer based on the financial statement of a business entity. They research the content of this thematic area and make a project assignment that presents the knowledge they have acquired and their ideas, and ways to solve problems.	At the colloquium or the written and oral exam they can define and describe the types / groups of financial indicators and apply them in the analysis of financial statements (in the exam and in the preparation of the project assignment). They know how to sketch and interpret Du Pont's indicator system and explain synthetic indicators. Created and presented project assignment (using computer programs).	14 hours
159.	Rules and principles of financing, liquidity and solvency.	1, 5, 6, 8	They listen to a lecture and read literature. In the exercise classes, independently on a computer, they calculate financial indicators and interpret the obtained results based on the financial statements of a business entity.	At the colloquium or the written and oral exam they can define and describe the basic principles and rules of financing. They know how to explain the difference between the concepts of liquidity and solvency, explain the term financial leverage and judge when it is opportune to use it. They are able to identify internal and external causes of insolvency and propose measures to improve the solvency of companies. Created and presented project assignment (using computer programs).	10 hours
160.	Short-term asset management.	1, 4, 8	They listen to a lecture and read literature. In the exercise classes, they calculate the value of working capital needed in the company.	At the colloquium or the written and oral exam they can define and describe the notion of working capital, permanent working capital, circular movement of working capital, factors on which the amount of working capital depends, management of working capital, inventory management and receivables management. They know how to analyze the structure of working capital and recommend the optimal size and structure of working capital in a particular company.	8 hours
161.	Financial planning and methods of assessing the profitability of capital investments.	1, 7, 8	They listen to a lecture and read literature. In the exercise classes, independently on a computer, they apply the methods of capital investment assessment on an example of a financial statement of a business entity and interpret the results	At the colloquium or the written and oral exam they can explain the term financial planning, cash control instruments. They know how to define the term investment and classify investments, identify the common characteristics of all investment projects and explain why the sensitivity analysis of an investment project is done. They know how to explain commonly used methods of evaluating	14 hours

				obtained. They research the content of this thematic area and develop a project assignment that presents the knowledge they have acquired and their ideas, and ways to solve problems.	investment projects, apply them on an example, and make a decision on the profitability of investing in a particular project. Created and presented project assignment (using computer programs).		
	162.	Financial insurance and short term financing.	1, 3, 5, 8	They listen to a lecture and read literature.	At the colloquium or the written and oral exam they can state the types and forms of financing of the company according to the availability of sources, identify differences between credit and equity financing. They know how to explain the four methods and techniques of short-term bank lending, the relative advantages and disadvantages of bank loans, and the factors that determine the amount of trade credit from the point of view of the debtor and creditor.	8 hours	
	163.	Mid-term and long-term financing - concepts and practical application.	1, 3, 5, 8	They listen to lectures and read literature, handle case studies.	At the colloquium or the written and oral exam they can define and describe the characteristics of medium and long-term credit. They can explain what leasing financing is (the concept and types of leasing, the advantages and disadvantages of leasing financing); identify differences between operating and financial leasing and recommend when to use what type of leasing.	8 hours	
	164.	Equity financing.	1, 5, 8	They listen to a lecture and read literature.	At the colloquium or the written and oral exam they can determine the structure of the financial capital of a joint stock company, they can indicate own and external sources of equity of a joint stock company and explain the way of financing a business with own funds. They know how to explain the notion of non- nominal and nominal capital of a joint stock company, and evaluate the benefits of financing with own capital.	8 hours	
	165.	Concluding Considerations / Repeating and Preparing for Exam.				48 hours	
3. EVALUATION OF STUDEN	T WO	RK					
3.1. Students` obligations	In acc to atte Studen	<ul> <li>In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper.</li> <li>Students who have during the course achieved: <ul> <li>From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year;</li> <li>From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period;</li> <li>More than 50% ECTS credits - students have the right to access the final exam of the subject.</li> </ul> </li> </ul>					

	Students can pass the final exam project and passing two colloquia exam).	in two ways: a) during the cours a); b) during the course (active p	e through continuous articipation in the les	student atter sons, solving	ndance (active participation in the case studies, creating and preser	e lessons, solving case studies, 1 ting the project) and passing th	naking and presenting the exam (written and oral	
	Attendance	1	Written exam		2,5 (by submitting both colloquiums the student is relieved of an written examination)	Project	0,5	
3.2. Monitoring student work	Experimental work		Research			Practical work		
(enter the share of ECTS credits for each activity so that the total	Essay		Report			Continuous examination		
number of ECTS points corresponds to the credit score of the course)	Colloquium	4,5 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper			Other (inscribe)		
	Class activities		Oral exam		2 (by submitting both colloquiums the student is relieved of an oral examination)	Other (inscribe)		
	The student's workload on Commitment	all bases amounts to 1 EC	CTS point for 30 h	nours of wo	ork per semester and is esti Hours (estimate)	mated as:		
3.3. Student workload	36 Attending classes			7	5			
	37. Creating and Project     15							
	38. Preparation for the C	Colloquium / exam through self-s	study	9	0			
4. GRADING								
	Valuation Element	Poor			Satisfying	Above	average	
	Organization	The paper is not organized order and its structure is la	in a logical cking.	The paper distinctior main part	is well structured with a clean between the introduction, the of the text and the conclusion	The paper is well-st distinction between main part of the text that are perfectly log another	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another	
4.1. Seminar paper grading	Terminology, writing style	Words and phrases are low with official terminology. <sup>1</sup> not appropriate, sentences modest vocabulary, and fr repeated grammatical mist	v harmonized Writing style is are too long, equent and akes.	Words and terminolog appropriat the vocabu grammatic	d phrases are aligned with off gy. The writing style is te, the sentence structure is cl ulary is appropriate and has li cal errors.	cial Words and phrases a terminology and sho their meaning. The vexcellent, the senten concise, the vocabul are no grammatical of the senten concise.	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors	
	Quoting and referencing	Sources are not specified a references do not match th a superficial approach to the	nt all. The e topic and show ne research topic.	Sources are listed, but incomplete and with errors. The references are appropriate for		vith Sources are accurate consistent. The refer	Sources are accurate, complete and consistent. The references are appropriate,	

						the subject and show a attitude.	satisfactory	research	their list is "r shows a robu	ich" and comprehensive and ust research approach.
		Poor				Satisfying			Ab	ove average
4.2. Colloquium / exam grading	Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.			ing. Rep rms new ents the exam	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.			Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.		
	Active participation	ctive participation in the 70-75% of attendance 76-86% of attendance 87-10		87-10	0% of attend	dance	Solved case study.			
	lessons		2 points	S		4 points		7 points		3 points
	Project		2			3		4		5
4.3. Creating a final grade	riojeci		5 points		7 points		8 points			10 points
according to evaluation			2		3		4			5
elements	Colloquium / writte exam	n	50-64,9%		65-79,9%		80-89,9%			90-100%
			25 point	ts	30 points			35 points		40 points
	Onel evem		2			3	5			5
	Orar exam		25 point	ts		30 points		35 points		40 points
4.4. Creating a final grade		Perc kno compete	entage of adopted wledge, skills and ences (teaching + final exam)	Numero	Prous grade ECTS grad					
according to absolute allocation			90 – 100% 80 – 89,9%	5 (exc 4 (ver	y good)	A B				
			65 – 79,9% 60 – 64,9%	3 (§ 2 (suf	good) ficient)	C D				
			50 - 59,9%	2 (suf	ficient)	E D				

5. ADDITIONAL INFORMATION ABOUT THE COURSE								
	Title	Number of copies in the library	Availability via other media					
5.1. Compulsory literature (available in the library and	3. Brealley, R., Myers, S., Marcus, A. (2011). *Principles of Corporate Finance*. McGraw Hill, New York.		On line					
through other media)	4. Van Horne, J. C., Wachowicz, J.M. (2009). *Fundamentals of Financial Management*. Prentice Hall		On line					
5.2. Additional literature (at the moment of changes and/or amended of study programme)								
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.							
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or an pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one l can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @ vus.hr) the working days from the receipt of e-mail).	ny delay in teaching will be publ hour per week), while brief ques hat will be answered in a short t	ished on the e-learning tions and explanations ime (no later than five					

## VI. SEMESTER

1. GENERAL INFORMATION	ABOUT THE SUBJECT				
1.1. Title	Project management	1.8. ISVU course code			
1.2. Lecturer	mr.sc. Darko Jureković, sen.lecturer	1.9. MOZVAG course code			
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours P+V+S+e-learning)	(30+30+0+0)		
1.4. Study programme (professional, specialist, undergraduate, graduate)	Undergraduate professional study of Business Informatics	<ul><li>1.11. Level of application of e-learning (level</li><li>1,2,3), percentage of online course performance (max. 20%)</li></ul>	Level 3 - materials available online, taking preliminary exams and a final written exam on a computer 0%		
1.5. Course status (mandatory, elective)	mandatory	1.12. Number of course revisions	1		
1.6. Study year	3	1.13 Modernization	yes no		
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20% of □		
2. COURSE DESCRIPTION					
2.1. Coourse objectives	To introduce students to the basic methodological application (management of goals, costs, time, people, quality, provide the state of	proach to project management by engaging during the s rocurement, risks) and new techniques, specific to proje	tudy of acquired knowledge		
2.2. Terms of course entry and required competences	Completed four-year secondary education; possession of a qualification at level 4.2 according to the Croatian Qualification Framework				

2.3. Learning outcomes on study programme level	the	IU9 to apply relevant professional literature in language for professional and general public, IU12 to apply key aspects of information tech technology) IU15 to compare and select appropriate devel- IU17 To conclude what the basic principles and	n Croatian and fo and critically evanology (program opment tools at p nd methods of qu	preign language, prepare and indep- aluate presented professional topic uming, algorithms, data structures, professional level uality project management are and	endently present presentations in Croatian an s databases, and project management in the fi work successfully in a team	nd foreign eld of information			
		<b>Learning outcomes</b> towards Bloom's tax (up to two verbs per LO)	onomy:			<ul> <li>LO Level:</li> <li>Recapture,</li> <li>Understanding,</li> <li>Application,</li> <li>Analysis,</li> <li>Evaluation,</li> <li>Synthesis</li> </ul>			
2.4. Expected learning	امت	1. To know the basic theoretical	knowledge in	n the field of project manage	ment	1,2,3,4,5,6			
outcomes on the course re-	VCI	2. Argue different types of proje	cts			2,3,4,5,6			
	-	4 Evaluate the role of individua	of projects	the project system		2,3,4,3,0			
	-	<ul> <li>5. Identify and argue the connection of projects with continuous processes and justify the project as a process of achieving the goals.</li> </ul>							
		6. Compare different types of pr economic impacts	ojects and exp	plain project lifecycle phases	with immediate and indirect	2,3,4,5,6			
	Cons	structive alignment							
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching method	Evaluation	Time needed			
2.5. The contents of the		Introduction to project management - organisation of courses/subjects and implementation of teaching.	-	Students listen to the lecture.	-	2 hours			
2.5. The contents of the course are elaborated in detail according to the hourly teaching		The beginnings of project management, what we can learn from history, and an overview of available learning content. Understanding concepts: project and project management.	1	Students listen to lectures, they work on a computer, they read literature.	Describe important concepts: project and project/project management.	8 hours			
	2.	Understanding concepts: methodology, standards, Body of Knowledge, PMBOK and PMI.	1,2,3,4	Students listen to a lecture, they work on a computer, they read literature	Explain important concepts in the field of project management according to methodology and standards: Body of Knowledge, PMBOK and PMI.	10 a.m.			

3.	Understanding concepts: program and portfolio. Distinguishing between goals and deliveries, understanding the term "project scope".	1,2,3	They listen to a lecture, they work on a computer, they read literature	Understanding concepts: program and portfolio. Distinguish the goals and delivery of the project. Explain <b>the</b> term "project scope".	10 a.m.
4.	Understanding concepts: resources, stakeholders and project roles. The role of project manager.	1,2,3,4	They listen to a lecture, they work on a computer, they read literature	Explain concepts: resources, stakeholders and roles on the project. Explain the role of project manager.	10 a.m.
5.	Classic and agile approaches to project management. The specificities and specificities of projects in the IT sector.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Evaluate the classic and agile approach of project management. Explain the specificities and specificities of projects in the IT sector.	10 a.m.
6.	The life cycle of the project and the process view of the project. Forms of organizational structures and projects in different organizations.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Explain the life cycle of the project and the process view of the project. List the forms of organizational structures and projects in different organizations.	10 a.m.
7.	What is the success of the project? Tips for more successful implementation of projects.	3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Evaluate a successful project.	10 a.m.
8.	Project launch and project charter. Introduction to project planning.	3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Describe the launch of the project and the charter of the project. Explain the phase of the introduction into project planning.	10 a.m.
9.	Scope planning and WBS (structural breakdown). Network diagram and project timeline.	1,2,3,4,5,6,	They listen to a lecture, they work on a computer, they read literature	Plan the scope and WBS (structural breakdown) on the example of a simple project. Create a network diagram and a timeline of the example of a simple project.	10 a.m.
10.	Creating a project budget. Planning a purchase on a project. Project implementation and monitoring/monitoring of performance.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Create a project budget based on the example given. A procurement planner on the project. Explain project monitoring and monitoring procedures.	10 a.m.
11.	Analysis of acquired value. Quality control. Reporting on the project.	1,2,3,4,5,6	They listen to lectures, they work on a computer, they read literature.	Control of the quality of the project. Create default reports on the example of a simple project.	10 a.m.
12.	Managing stakeholders and teams. Conflict management.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Describe the procedures for managing stakeholders on the project and project teams. Describe the procedures for managing conflicts on the project.	10 a.m.
13.	Risk management.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Assess the risks on the example project and draw up a risk management plan.	10 a.m.
14.	Closing the project. Documenting lessons learned. Project management	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Use the Oracle Primavera project management tool.	10 a.m.

		tools: An overview of for project managen markets/industries in used.	of software tools nent and the n which they are							
	15.	Project management professional develop certification opportu in the field of project Analysis of case stud	as a profession – oment, nities and careers t management. lies.	1,2,3,4,5,6	They lis compute individu	ten to a lectu or, read litera ally prepare	re, work on a ture, for the exam	Analyze prof opportunities management. analysis.	essional development in the field of project Create and present a default cas	e 10 a.m.
3. EVALUATION OF S	FUDEN	T WORK			·					
3.1. Students` obligations	In accor time stud Students Students b) during	dance with <i>the Ordinance</i> dents have an obligation to s who have achieved during From 0-24.9% of ECTS From 25 - 49.9% - they examination period; More than 50% - studen s can pass the final exam in g classes (active participation	on Study and the Ordina attend lecture classes at class: credits- they are rated F are rated FX (insufficien ts have the right to access the course in two ways: on in classes and exercise	ance on evalu- least 50%. A (unsuccessfunt) and must of ss the final ex a) during class es) and by ta	uation and evai All students mus ul) and cannot e come out and pa cam of the subje ss through conti king exams (wr	uation of stu t create, pres urn ECTS cru ss a written st. nuous monit tten and orai	ident work: for a sent and positive edits, and must r exam (test). A w pring of students part of the exam	nll full-time stuu ly colloquiate t e-enter the subj rritten exam (te: (active particip n).	dents, attendance at a minimum he seminar paper. ect in the next academic year; st) may be held within a regular pation in classes and exercises an	of 70% in class. Part- or extraordinary d two colloquiums);
3.2. Monitoring student	Attendar	nce	1	W	Vritten exam		1 (no colloqui	ums)	Project	
work (enter the share of ECTS credits for each	Experim	nental work		R	lesearch				Practical work	1
activity so that the total	Essay			R	eport				Continuous verification	
corresponds to the credit	Colloqui	ium	2 (no written and oral	exam) So	eminar paper				(other type)	
score of the course)	Teachin	g activities		0	oral exam		1 (no colloqui	ums)	(other type)	
3.3. Student workload	The stu 1 2 3	Udent's workload on a <b>Obligation</b> 1. Attendance 2. Practical work on exer 3. Preparation for collogi	ll grounds is for 1 E cises uium/exam through inde	CTS point	t 30 hours of	Work per           Hours           60           30           30	semester and (estimate)	is estimated	as:	
4. GRADING										·

	Valuation Eler	nent		Poor		Satisfyin	5		Above	e average	
4.1. Evaluation of the seminar paper	Organization Terminology, w style Ouoting and lis	vriting									
	references	ung									l
		Poor				Satisfying			Above ave	erage	
4.2. Evaluation of colloquiums / written and oral part of exams	The student fits understanding. apply basic terr does not know example the co	its from memory, without a deeper g. The student does not know or erms and concepts. The student w how to apply or explain by content of the course.			The student reproduces basic concepts and seamlessly transfers new knowledge, understands the material, explains the terms and concepts he/she substantiates with examples.			Knowledge is at the level of analysis, synthesis and evaluation. The student perceives legalities, accurately and thoroughly explains the content of the material and logically connects and explains ttsthe terms and concepts it substantiates with examples. The student finds solutions that were not originally given. The student notices correlations with related material.			
	Active attendance	9	70-75%	attendance	e	76-86% attendance		87-100	% attendance		
	Active attendance	C	4 points			7 points		1	0 points		
	Evereises		2			3			4	5	
4.3 Creating a final	Exercises		5 points			7 points		8 points		10 points	
grade according to				2		3		4		5	
evaluation elements	Colloquium / Wi exam	ritten	50-	-64,9%		65-79,9%		80-89,9%		90-100%	
			25	points		30 points		3	5 points	40 points	
	Oral ayom			2		3			5	5	
	Ofai exain		25	points		30 points		3	5 points	40 points	
4.4. Formation of the		Percentag knowledg competer (teaching	ge of adopted ge, skills and nces adopted + final exam)	Numer	erical grade	ECTS grade					
has basis of absolute		90 -	- 100%	5 (ex	excellent)	А					
distribution		80 -	- 89,9%	4 (ve	ery good)	B	_				
uisuibuuoli		65 -	- 79,9%	3 (g	good)		_				
		50 -	- 59,9%	2 (su 2 (su	ufficient)	E	-				

5. ADDITIONAL INFORMATION ON THE CASE								
5.1. Compulsory literature (available in	Title	Number of copies in the library	Availability via media					
the library and through other media)	1. Peer-reviewed teaching materials in the subject, available on the e-learning system		Available online					
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol> <li>PMBOK, 6th edition</li> <li>PMBOK, translation of the 4th edition into Croatian</li> <li>Mislav Ante Omazić, Stipe Baljkas; Project management</li> <li>Harold Kerzner; Project Management: A Systems Approach to Planning, Scheduling, and Controlling (12th edition)</li> </ol>	5						
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Control of the quality of work of students and the acquisition of the necessary knowledge and skills will be ensured through interactive activities in teaching and obtaining information about student progress through colloquiums will provide the information necessary for fut the efficiency of their work. Students will be informed about their rights and obligations and working methods and the necessary literature Quality assurance system indicators: Student survey, monitoring of annual data from the HZZZ on the annual employment status of students.	work. Keeping records of str urther instructions to students , surveys of employers and al	ident attendance and s in order to increase umni associations.					
5.4. Information on the course and contact with the teacher	It is the obligation of each student to be regularly informed about the course, the conduct of classes and the activities in class. All notices al will be published in a timely manner on the e-learning pages of the course and on the website of the Polytechnic. Students can contact tea hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-ma @vus.hr) to which they will be answered in the shortest possible time (no later than five working days after receiving the e-mail).	bout teaching or possible pos thers during the consultation il (from the official e-mail ad	tponement of classes n period (at least one ldress on the domain					

1. GENERAL INFORMATION	ABOUT THE SUBJECT		
1.1. Title	Development of Web Applications	1.8. ISVU course code	
1.2. Lecturer	Milan Hrga M.Eng., lecturer	1.9. MOZVAG course code	
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study of Business informatics	1.11. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	3 <sup>rd</sup> – course materials available online, taking colloquium and written exam on a computer, 0%
1.5. Course status (mandatory, elective)	Elective	1.12. Number of course revisions	2.
1.6. Study year	3 <sup>rd</sup>	1.13. Modernization	yes 🗆 no
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %
2. COURSE DESCRIPTION			
2.1. Course objectives	Prepare students for independent web applicatio	n development.	
2.2. Terms of course entry and required competences	Completed a four-year high school education; po	ossession of a qualification at level 4.2 according t	o the CROQF.

	IU3: Evaluate database design according to business requirements. IU9: Select appropriate professional literature in Croatian and foreign language, prepare and independently hold presentations in									
2.2. Learning outcomes on the	109	Select appropriate professional lit	erature in C	roatian and foreign language	e, prepare and independently note p	resentations in				
study programme level		2. Apply key aspects of information	n technolog	y (programming algorithms	data structures databases and prof	ect				
study programme lever	man	agement in the field of information	n technolog	y (programming, argorithms	, data structures, databases and proj					
		5. Compare and select appropriate	develonmen	t tools at the professional le	vel					
	Lean (up t	rning outcomes towards Bloom's taxo o wo verbs per LO)	nomy:			LO Level: 61. Recapture, 62. Understanding, 63. Application, 64. Analysis, 65. Evaluation, 66. Synthesis				
2.4. Expected learning		1,2,3,4,5,6								
outcomes on the course level		2,3,4,5,6								
		2,3,4,5,6								
		2,3,4,5,6								
		nts, and customize it for all targeted	2,3,4,5,6							
		6. Apply architecture patterns of a v	web application	on.		2,3,4,5,6				
	Cons	tructive alignment								
	Cons No:	s <b>tructive alignment</b> Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed				
	Cons No:	Thematic ensemble / Lecture Topic Introduction to the course and detailed curriculum	Course LO	Content / Teaching Method Listen to lectures.	Evaluation -	Time needed       2 hours				
2.5. Course content according to detailed curriculum	<b>Cons</b> <b>No:</b> 166.	Attractive alignment         Thematic ensemble / Lecture Topic         Introduction to the course and detailed curriculum         Introduction to Oracle Application Express web application architecture	Course LO - 1	Content / Teaching Method Listen to lectures. Listen to lectures, working on computer and read literature.	Evaluation         -         Describe essential web standards in the contex of historical development.         Explain the basics of Oracle Application Express platform and web application architecture.	Time needed       2 hours       t       8 hours				
2.5. Course content according to detailed curriculum schedule	Cons No: 166.	Attractive alignment         Thematic ensemble / Lecture Topic         Introduction to the course and detailed curriculum         Introduction to Oracle Application Express web application architecture         Basic elements of the graphical user interface	Course LO - 1 1,2,3,4,5,6	Content / Teaching Method Listen to lectures. Listen to lectures, working on computer and read literature. Listen to lectures, working on computer and read literature.	Evaluation         -         Describe essential web standards in the contex of historical development.         Explain the basics of Oracle Application Express platform and web application architecture.         Explain the basic elements of the Oracle Application Express graphical user interface. Create a simple graphical user interface.	Time needed       2 hours       t       8 hours       10 hours				
2.5. Course content according to detailed curriculum schedule	Cons No: 166. 167. 168.	Attractive alignmentThematic ensemble / Lecture TopicIntroduction to the course and detailed curriculumIntroduction to Oracle Application Express web application architectureBasic elements of the graphical user interfaceData Access	Course LO 1 1 1,2,3,4,5,6 1,2,3,4,5,6	Content / Teaching Method Listen to lectures. Listen to lectures, working on computer and read literature. Listen to lectures, working on computer and read literature. Listen to lectures, working on computer and read literature.	Evaluation         -         Describe essential web standards in the contex of historical development.         Explain the basics of Oracle Application Express platform and web application architecture.         Explain the basic elements of the Oracle Application Express graphical user interface. Create a simple graphical user interface.         Use SQL Workshop tool	Time needed       2 hours       t       8 hours       10 hours       10 hours				
2.5. Course content according to detailed curriculum schedule	Cons No: 166. 167. 168. 169.	Attractive alignmentThematic ensemble / Lecture TopicIntroduction to the course and detailed curriculumIntroduction to Oracle Application Express web application architectureBasic elements of the graphical user interfaceData AccessData Access	Course LO - 1 1 1,2,3,4,5,6 1,2,3,4,5,6 1,2,3,4,5,6	Content / Teaching Method Listen to lectures. Listen to lectures, working on computer and read literature. Listen to lectures, working on computer and read literature. Listen to lectures, working on computer and read literature.	Evaluation         -         Describe essential web standards in the contex of historical development.         Explain the basics of Oracle Application Express platform and web application architecture.         Explain the basic elements of the Oracle Application Express graphical user interface. Create a simple graphical user interface.         Use SQL Workshop tool         Provide access to data stored in the database.	Time needed         2 hours         8 hours         10 hours         10 hours         10 hours				

	171.	Web application security		1,2,3,4	Listen to lectures, wo computer and read lit		king on erature. Configure acc the application		cess control for individual parts on.	f 10 hours	
	172.	Creating report			,4,5,6 Listen to lectures, wo computer and read lif		king on erature. Describe basi		c types of reports.	10 hours	
	173.	Creating report			,3,4,5,6 Listen to lectures, wo computer and read lit		king on erature. Create differe database.		ent reports and link them to a	10 hours	
	174.	User forms			Listen to lectures, wor computer and read lit		erature. Describe the entry and dis		basic types of user forms for data play.	10 hours	
	175.	User forms			4,5,6	Listen to lectures, working on computer and read literature.		Create different user forms for data entry and display and link them to a database.		10 hours	
	176.	Web application navigation			4,5,6	Listen to lectures, working on computer and read literature.		Program the components used for navigation through the application.		10 hours	
	177.	Event management		1,2,3,4	4,5,6	Listen to lectures, working on computer and read literature.		Program events that occur as a result of user actions.		10 hours	
	178.	Advanced graphical user interface elements		1,2,3,4	4,5,6	Listen to lectures, wo computer and read lit	rking on terature.	Embed advanced graphical interface elements (Oracle JET Charts, Calendars).		10 hours	
	179.	Advanced graphical user interface elements		1,2,3,4	1,2,3,4,5,6 Listen to lectures, wo computer and read lit		rking on terature.	Embed advanced graphical interface elements (Trees).		10 hours	
		Distribution of completed web application		1,2,3,4	Listen to l 1,2,3,4,5,6 computer, prepare for		working on erature and Enable web am individually.		pplication in Oracle cloud.	10 hours	
3. EVALUATION OF STUD	ENT V	VORK									
3.1. Students` obligations											
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance		1		Written exam		1 (without colloquia)		Project		
	Experimental work			Re		rch			Practical work	1	
	Essay			J		t			Continuous examination		
	Colloquium		2 (without written and oral exam)		Seminar paper				Other (inscribe)		
	Class	activities		Oral		exam	1 (without colloquia)		Other (inscribe)		
3.3. Student workload	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:										
		Commitment				Hours (estimate)					

	39. Atten	ses			60	60				
	40. Practi	cal work	the Celler minut ( and m	41	f -t- h-	30	30			
	41. Prepa	the Conoquium / exam	unrough sen	1-study	30	30				
4. GRADING										
4.1. Seminar paper grading										
		Unsa	satisfactory		Satisfactory			Above average		
4.2. Colloquium / exam grading	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.				Reproduces the ifficulty imparts naterial, explair upported with exa	basic concepts an new knowledge, unde is the terms and amples.	d without erstands the concepts	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.		
4.3. Creating a final grade according to evaluation elements	Active participation	n in	70-75% of attendance		76-86	% of attendance	87-100% of attendance		Created mental map. Solved case study.	
	the lessons		4 points			7 points	10 points			
	a .		2		3		4		5	
	Seminar paper		5 points			7 points	8 points		10 points	
		2			3		4		5	
	Colloquium / writt	en 50-6		%		65-79,9%		80-89,9%	90-100%	
			25 points			30 points	35 points		40 points	
	0.1		2			3		5	5	
	Oral exam		25 points			30 points		35 points	40 points	
4.4. Creating a final grade according to absolute allocation	Per kn com		rcentage of adopted nowledge, skills and npetences (teaching + final exam) 90 - 100%		erous grade excellent)	ECTS grade				
			80 - 89,9% 65 - 79.9%	4 (v	very good)	B				
			60-64,9%	2 (8	sufficient)	D				
			50-59,9%		sufficient)	Е				
5. ADDITIONAL INFORM	ATION ABOUT THE COURSE									
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5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media							
(available in the norary and through other media)	1. Reviewed course materials available on the e-learning system		Available online							
	2. Oracle Corporation, Oracle Application Express – Application Development Foundations		Available online							
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1. Patrick Cimolini, Oracle Application Express by Design, Apress, 2017	5								
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensure track of attendance and student activity during classes and provided information on students' progress the information for further guidance to students will be provided in order to increase the efficiency of their work rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian en- student employment, surveys from employers and Alumni association.	red through interactive v rough short colloquium ork. Students will be info nployment service on th	work. By keeping s and homework, ormed about their ne annual state of							
5.4. information on the course and contact with the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the corpossible adjournment will be published in a timely manner on the e-learning site of the course and on can contact teachers during the consultation period (at least one hour per week), while for short question during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), w (no later than five working days after receiving the e-mail).	classroom activities. All the website of the Poly s and explanations they hich will be answered as	notices of classes technic. Students can be contacted s soon as possible							

1. GENERAL INFORMATIO	N ON THE CASE		
1.1. Case name	Cloud computing	1.8. Course code in ISVU	
1.2. Case holders	PhD. Frane Urem, college prof.	1.9. Course code in MOZVAG	
1.3. Associates	mr.sc. Darko Jureković., sen.lecturer	1.10. Teaching method (number of hours P+V+S+e-learning)	(30+30+0+0)
1.4. Study programme (professional, specialist graduate professional study programme)	Undergraduate professional study of Business Informatics	1.11. Level of application of e-learning (level 1,2,3), Percentage of courses online (max. 20%)	Level 3 - materials available Online, taking colloquiums and written exams on a computer 0%
1.5. Course status (mandatory,elective)	Elective	1.12. Sequence number of amendments to the college description	2.
1.6. Year of study	Year 3 of Study	1.13 Modernization	not to
1.7. Points Value (ECTS)	4	1.14. Estimate of the percentage of amendments and/or amendments course program	Less than 20% More than 20% of □
2. COURSE DESCRIPTION			
2.1. Course objectives	Prepare students for independent use of services ava	ailable in the computer cloud.	
2.2. Terms of course entry and required competences	Completed four-year secondary education; possession of	a qualification at level 4.2 according to the Croatian Chaml	ber of Economy.
2.3. Learning outcomes on the study programme level	IU9 to apply relevant professional literature in Croa and foreign language for professional and general p IU12. to apply key aspects of information technolog field of information technology) IU15. to compare and select appropriate developme	tian and foreign language, prepare and independently public, and critically evaluate presented professional t gy (programming, algorithms, data structures, databas nt tools at professional level	present presentations in Croatian opics les, and project management in the

2.4. Expected learning outcomes on the course level	Lear (up to 1)	ning outcomes according to Bloom's t two verbs per IU) I. Identify computer cloud feature 2. Explain the main services in the 3. Configure and use a database in 4. Analyze large amounts of data 5. Evaluate the performance of ine 6. Rate the characteristics of the s	es e computer n a computer in the comp dividual con elected con	cloud er cloud outer cloud mputer cloud services oputer cloud		LO 1. 2. 3. 4. 5. 6.	Level:           Recapture,           Understanding,           Application,           Analysis,           Evaluation,           Synthesis           1,2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6           2,3,4,5,6
	Cons	structive alignment					
	No.	Thematic unit	IU courses	Teaching content/method	Evaluation		Time taken
		Introduction to the course and detailed performance plan of teaching.	-	They're listening to the lecture.	-		2 hours
		Introduction to computer cloud architecture - Introduction to Oracle Cloud infrastructure.	1	They listen to lectures, they work on a computer, they read literature.	Describe essential web standards in the con of historical development Interpret the basics of computer cloud architecture <b>and</b> Oracle Cloud infrastructu	ure	8 hours
2.5. Course content according to detailed curriculum schedule	2.	Oracle Cloud Console Basic Elements	1,2,3,4	They listen to a lecture, they work on a computer, they read literature	Explain the basic parts of the interface for accessing and configuring Oracle Cloud services.		10 a.m.
	3.	Infrastructure as a service, virtual infrastructure.	1,2,3	They listen to a lecture, they work on a computer, they read literature	Configure and install a Linux server in the Oracle cloud. Install web services on a vir Linux server.	tual	10 a.m.
	4.	Network infrastructure management, resource load management.	1,2,3,4	They listen to a lecture, they work on a computer, they read literature	Use and configure Virtual Cloud Networks Load Balancer services.	and	10 a.m.
	5.	Security and storage of cloud data.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Use and configure Object Storage services.		10 a.m.
	6.	Cloud databases.	1,2,3,4,5,6	They listen to a lecture, they work on a computer, they read literature	Use and configure an autonomous database the Oracle cloud. Use and configure autonomous databases by using SQL Devel tools.	e in loper	10 a.m.

	7.	Cloud Develop	ment Tools	3,4,5,6	They listen to a lectu on a computer, they r	re, they work read literature	Create a simp Oracle autono APEX develo	le web application that uses an mous database. Use the Oracle pment tool.	10 a.m.
	8.	Cloud Develop	ment Tools	3,4,5,6	They listen to a lectu on a computer, they r	re, they work read literature	Create a simp Oracle autono APEX develo	le web application that uses an mous database. Use the Oracle pment tool.	10 a.m.
	9.	Machine learnin	ng services	1,2,3,4,5	.6, They listen to a lectu on a computer, they r	re, they work read literature	Use and confi Warehouse se learning note	gure the Autonomous Data rvice. Use and configure machine book service.	10 a.m.
	10.	Services for an amount of data	alyzing a larger	1,2,3,4,5	.6 They listen to a lectu on a computer, they r	re, they work read literature	Use and confi	gure the Data Analytics service.	10 a.m.
	11.	Services for an amount of data.	alyzing a larger	1,2,3,4,5	.6 They listen to lecture on a computer, they r	es, they work read literature.	Use and confi	gure the Data Analytics service.	10 a.m.
	12.	AI services.		1,2,3,4,5	.6 They listen to a lectu on a computer, they i	re, they work read literature	Use and confi	gure the Digital Assant service.	10 a.m.
	13.	AI services.		1,2,3,4,5	.6 They listen to a lectu on a computer, they i	re, they work read literature	Use and confi	gure the Digital Assant service.	10 a.m.
	14.	Messaging serv	ices.	1,2,3,4,5	,6 They listen to a lectu on a computer, they i	re, they work read literature	Use and confi service.	gure the Oracle User Messaging	10 a.m.
	15.	Data security in cloud	the computer	1,2,3,4,5	,6 They listen to a lectu computer, read litera individually prepare	re, work on a ture, for the exam	Configure sec about the Ora-	urity settings for data stored cle cloud.	10 a.m.
3. EVALUATION OF THE S	TUDE	ENT WORK							
3.1. Students` obligations	In acc class. Stude Stude colloc	ordance with <i>the Ordin</i> Part-time students have nts who have achieved of From 0-24.9% of From 25 - 49.9% extraordinary exam More than 50% - s nts can pass the final ex uiums); b) during class	ance on Study and the of e an obligation to attend during class: ECTS credits- they are r - they are rated FX (insu- mination period; students have the right to am in the course in two es (active participation i	Ordinance of lecture class ated F (unsu fficient) an access the ways: a) du n classes ar	on evaluation and evaluati ses at least 50%. All studer accessful) and cannot earn I d must come out and pass a final exam of the subject. ring class through continuon d exercises) and by taking	fon of student we nts must create, p ECTS credits, an written exam (t pus monitoring o g exams (written	<i>prk</i> : for all full-t present and posit d must re-enter f est). A written e: f students (activ and oral part of	ime students, attendance at a mini ively colloquiate the seminar pap he subject in the next academic yo xam (test) may be held within a re e participation in classes and exer the exam).	mum of 70% in er. ear; gular or cises and two
3.2. Monitoring student work	Atten	lance	1	v	Vritten exam	1 (no colloqu	iums)	Project	
(enter the share of ECTS	Exper	imental work		R	lesearch			Practical work	l
that the total number of ECTS	Assay	,		R	leport			Continuous verification	
points corresponds to the	colloquiums 2 (no written and oral exam)				eminar paper			(other type)	
crean score of the course)	Teach	ing activities		V	iva voce	1 (no colloqu	iums)	(other type)	

	The student's w	vorkload	l on all grounds is	for 1 ECT	S point 30 hou	rs of work per se	mester and is	estimated as:					
3.3. Student workload	Obli	gation				Hours (	rstimate)						
	1. Attend	dance cal work	on exercises			60							
	3. Prepa	ration for	colloquium/exam thro	ugh independ	lent learning	30							
4. FORMATION OF THE R	ATING												
4.1. Seminar paper grading	rading												
	Poor         Satisfying         Above average												
4.2. Colloquium/exam grading	The student fits understanding. apply basic terr does not know example the co	s from me The stud ms and c how to a ntent of	emory, without a de dent does not know oncepts. The studen upply or explain by the course.	eper Th or se nt th he	ne student re amlessly transf e material, ex e/she substantiat	produces basic of ers new knowledge plains the terms es with examples.	concepts and e, understands and concepts	Knowledge is at the and evaluation. The accurately and thoro the material and log the terms and conce examples. The stude not originally given. correlations with rel	Above average the level of analysis, synthesis The student perceives legalities, noroughly explains the content of logically connects and explains ncepts it substantiates with tudent finds solutions that were wen. The student notices in related material.				
	A stime attack laws		70-75% atte	ndance	76-8	5% attendance	87-1	00% attendance					
	Active attendance	e	4 point	ts		7 points		10 points					
	Eveneises		2			3		4	5				
4.3. Creating a final grade	Exercises		5 point	ts		7 points		8 points	10 points				
according to evaluation			2			3		4	5				
	Colloquium/Wr exam	ritten	50-64,9	9%		65-79,9%		80-89,9%	90-100%				
			25 poin	nts		30 points		35 points	40 points				
	Oral ayam		2			3		5	5				
	Orarexam		25 poin	nts		30 points		35 points	40 points				
4.4. Creating a final grade according to absolute		Percen skills adopte	and competences ed (teaching + final exam)	Nume	rical rating	ECTS ratir	ECTS rating						
anocation			90 - 100% 80 - 89.9%	5 (e	erv good)	And							
			65 - 79,9%	3 (	good)	C							

		60 - 64,9%	2 (enough)	D			
		50 - 59,9%	2 (enough)	Е			
5. ADDITIONAL INFORM							
5.1. Compulsory literature		Number of copies in the library	Availability through other media				
(available in the library and through other media)	1. Peer-reviewed t	eaching materials in the subjec	et, available on the e-learning syst	em			Available online
	2. Oracle Academ	y Member Hub portal teaching	materials				Available online
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1. R. Ramklass , C 2020	Pracle Cloud Infrastructure Arcl	hitect Associate All-In-One Exar	n Guide (Exam 1Z0-1072), Mo	cGraw Hill,	5	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Control of the quality and activities in teach increase the efficienc Quality assurance sy associations.	y of work of students and the ac ning and obtaining information y of their work. Students will b stem indicators: Student surve	equisition of the necessary know about student progress through a be informed about their rights and y, monitoring of annual data fro	ledge and skills will be ensure colloquiums will provide the ir l obligations and working meth om the HZZZ on the annual e	d through intera offromation nece hods and the ne employment sta	active work. Keeping records essary for further instructions t cessary literature. tus of students, surveys of e	of student attendance o students in order to mployers and alumni
5.4. Information on the course and contacting the teacher	It is the obligation of classes will be publis (at least one hour pe address on the domai	each student to be regularly in hed in a timely manner on the r week), while for short question n @vus.hr) to which they will b	formed about the course, the con e-learning pages of the course an ons and explanations they can b be answered in the shortest possi	duct of classes and the activiti d on the website of the Polytee e contacted during class. It is ble time (no later than five wo	es in class. All chnic. Students also possible to rking days after	notices about teaching or poss can contact teachers during th o ask questions by e-mail (fro receiving the e-mail).	ible postponement of ae consultation period om the official e-mail

1. GENERAL INFORMATION	1		
1.1. Course lecturer	Ivan Livaja	1.7. Credit score (ECTS)	12
1.2. Course title	PROFESSIONAL PRACTICE	1.8. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + elearning)	360
1.3. Assistants and/or associates	Zvonimir Klarin,	1.9. Level of e- learning application (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> level), percentage of on line course performance (max. 20%)	1 <sup>st</sup> level
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate Study of Business Informatics	1.10. Number of course revisions	second
1.5. Course status (mandatory, elective)	Mandatory	1.11.Modernization	yes
1.6. Year of study	3 <sup>rd</sup>	1.12. Percentage estimate of course changes and/or supplements	Less than 20% □ More than 20% □
2. COURSE DESCRIPTION			
2.1. Course objectives	<ul> <li>The basic goal of student practice is gaining professional experie students to:</li> <li>adaptation to thework in genvironment;</li> <li>linking theoretic alknowledge and practicale xperience;</li> <li>Orientation to future employment;</li> <li>Strengthe ningthe links between the Polytechnic in Sibenik and</li> <li>feedback about knowledge and skills that the present labormark</li> </ul>	nce in the field of Informatic Management . Sto companies where students conduct professiona et expects, with the aim of improving the teach	udent practice will further enable l practice ing process
2.2. Terms of course entry and required competences	All courses must be attended before the beginning of professiona	ll training	
2.3. Learning outcomes on the study programme level	<ul> <li>forming a sense of responsibility and motivation for the execution</li> <li>creating the necessary social feelings for teamwork</li> <li>verification of learned knowledge and acquired skills in specifical</li> <li>acquiring the practice of reporting, consulting and managing but</li> <li>describing the system of interdependencies between the jobs and</li> <li>describing the methods of job scheduling,</li> <li>describing the methods of task assignment, and application of task</li> </ul>	on of assigned jobs. situations siness d responsibilities of employees in the company usk-solving technology	or the IT department

	- describing the conte	nt and equ	ipment of work	cshops / services / systems										
	- listing tasks that include:													
	preventive maintenan	ce of infor	mation systems	s (daily, monthly and year	ly)									
	- describing the proce	dures of w	vork and comm	unication between the con	npany and th	e client (	or department within the com	npany) in order to increase						
	the efficiency of the b	ousiness, e	liminate the fai	lures and minimize them	in the future									
	describing the process of coordination of classification and disposal of equipment, technological / technical and other waste in accordance with													
	legal regulations													
	- describing the proce	- describing the procedure for reporting all the business / client queries and failures												
	- verifying acquired k	- verifying acquired knowledge in the field of programming languages and data modeling and process in specific circumstances												
	- interpreting the meth	nodologies	s and basic prin	ciples for the developmen	t and constru	iction of t	he site							
	- application of databa	ase system	is with the abili	ty to form, edit and mainta	ain relational	l and obje	ct-oriented databases							
	- interpret data flow co	ontrol med	chanisms, error	control, data transfer met	hods using ne	etwork ro	outing methods, apply LAN te	echnology						
	- describing and apply	ying the m	lost common te	chniques of information s	ystems prote	ction with	h knowledge of legal framew	ork for information and						
	computer security	6.1.			<u> </u>	11 1								
2.4. Expected learning outcomes on	Following completion	1 of this pr	actice, students	s will adopt and apply basi	c profession	al knowle	edge about ways and processe	es of department and sector						
the course level	in the enterprise, which	ch implies	afferent proce	sses of planning (finance,	enterprise de	evelopme	nt, new product development	t), organization (definition						
2.5. Commenter de l'insta	of of gamzational struc	ctures ), ie	adersnip (proje	ets, people), control (iniai		cs, numa	Tresources).							
2.5. Course content according to	/													
	_ 1	□ lectures 2.7. Comments:												
	$\Box$ lectures	hone	□ independer	nt tasks		2.7. Co	mments:							
	□ lectures □ seminars and works □ practical exercises	shops	□ independer □ multimedia	nt tasks a and network		2.7. Co	mments:							
2.6. Teaching methods	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> </ul>	shops	<ul> <li>independer</li> <li>multimedia</li> <li>laboratory</li> </ul>	nt tasks a and network		2.7. Co	mments:							
2.6. Teaching methods	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> </ul>	shops	<ul> <li>□ independer</li> <li>□ multimedia</li> <li>□ laboratory</li> <li>□ mentoring</li> </ul>	nt tasks a and network		2.7. Co	mments:							
2.6. Teaching methods	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> </ul>	shops	<ul> <li>independer</li> <li>multimedia</li> <li>laboratory</li> <li>mentoring</li> <li>other</li> </ul>	nt tasks a and network		2.7. Co	mments:							
2.6. Teaching methods	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th</li> </ul>	shops ne signed 4	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p	nt tasks a and network rofessional cooperation b	etween the P	2.7. Co Polytechn	mments: ic of Šibenik and the compar	ny, the student is obliged to						
2.6. Teaching methods	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession</li> </ul>	shops te signed A nal practic	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p	and network n and network rofessional cooperation b riate time period (this pra	etween the P ctice is com	2.7. Co Polytechn pulsory f	mments: ic of Šibenik and the compar or all regular and extraordina	ny, the student is obliged to ary students). Students who						
<ul><li>2.6. Teaching methods</li><li>2.8. Students` obligations</li></ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor</li> </ul>	shops te signed 4 nal practio matic-rela	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p ce in an approp ated companies	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat	etween the P ictice is comp ional or tacti	2.7. Co Polytechn pulsory f ical level	mments: ic of Šibenik and the compar or all regular and extraordina of management are exempted	ny, the student is obliged to ary students). Students who d from doing this practice,						
<ul><li>2.6. Teaching methods</li><li>2.8. Students` obligations</li></ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide</li> </ul>	shops te signed A nal practic matic-rela e a copy o	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p ce in an approp tted companies of the employm	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operate ent contract as proof of er	etween the P ictice is comp ional or tacti mployment.	2.7. Co Polytechn pulsory f ical level The stud	mments: ic of Šibenik and the compart or all regular and extraordina of management are exempted ent is obliged to conduct the	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he						
<ul><li>2.6. Teaching methods</li><li>2.8. Students` obligations</li></ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the</li> </ul>	shops te signed A nal practio matic-rela e a copy o e professio	independer     multimedia     laboratory     mentoring     other Agreement of p ce in an approp ated companies of the employm onal processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has	etween the P ictice is comp ional or tacti mployment. performed e	2.7. Co Polytechn pulsory f ical level The stud	mments: ic of Šibenik and the compar or all regular and extraordina of management are exempted ent is obliged to conduct the	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he						
<ul><li>2.6. Teaching methods</li><li>2.8. Students` obligations</li><li>2.9. Monitoring student work (enter</li></ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> </ul>	shops ne signed A nal practio matic-rela e a copy o e professio	<ul> <li>independer</li> <li>multimedia</li> <li>laboratory</li> <li>mentoring</li> <li>other</li> </ul> Agreement of proprise in an approprise companies of the employm onal processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam	etween the P actice is comp tional or taction performed e	2.7. Co Polytechn pulsory f ical level The stud every day.	mments: ic of Šibenik and the compar or all regular and extraordina of management are exempted ent is obliged to conduct the Project	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> </ul>	shops ne signed A nal practic matic-rela e a copy c e professio	<ul> <li>independer</li> <li>multimedia</li> <li>laboratory</li> <li>mentoring</li> <li>other</li> </ul> Agreement of propring ted companies of the employm on al processes (	and network and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam Research	etween the P ctice is comp ional or tacti mployment. performed e	2.7. Co Polytechn pulsory f ical level The stud every day.	mments: ic of Šibenik and the compar or all regular and extraordina of management are exempted ent is obliged to conduct the Project Project Practical work	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> <li>Essay</li> </ul>	shops ne signed A nal practic matic-rela e a copy c e professio	<ul> <li>independer</li> <li>multimedia</li> <li>laboratory</li> <li>mentoring</li> <li>other</li> </ul> Agreement of proprinted companies of the employm on al processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of en exercises or tasks) he has Written exam Research Report	etween the P ictice is comp ional or tacti mployment. performed e	2.7. Co Polytechn pulsory f ical level The stud every day.	mments: ic of Šibenik and the compart or all regular and extraordina of management are exempted ent is obliged to conduct the Project Practical work Continuous examination	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> <li>Essay</li> <li>Colloquium</li> </ul>	shops ne signed A nal practic matic-rela e a copy o e professio	<ul> <li>□ independer</li> <li>□ multimedia</li> <li>□ laboratory</li> <li>□ mentoring</li> <li>□ other</li> </ul> Agreement of properties of the employm on al processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam Research Report Seminar paper	etween the P ictice is comp ional or tacti mployment. performed e	2.7. Co Polytechn pulsory f ical level The stud	mments: ic of Šibenik and the compart or all regular and extraordina of management are exempted ent is obliged to conduct the Project Practical work Continuous examination Other	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> <li>Essay</li> <li>Colloquium</li> <li>Class activity</li> </ul>	shops ne signed A nal practio matic-rela e a copy o e professio	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p ce in an approp ated companies of the employm onal processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam Research Report Seminar paper Oral exam	etween the P ictice is comp ional or tacti mployment. performed e	2.7. Co Polytechn pulsory f ical level The stud	mments: ic of Šibenik and the compart or all regular and extraordina of management are exempted ent is obliged to conduct the Project Practical work Continuous examination Other Other	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)</li> <li>2.10. Grading and evaluating</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> <li>Essay</li> <li>Colloquium</li> <li>Class activity</li> <li>When conducting a profession</li> </ul>	shops ne signed A nal practio matic-rela e a copy c e profession rofessiona	□ independer □ multimedia □ laboratory □ mentoring □ other Agreement of p ce in an approp ted companies of the employm onal processes (	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam Research Report Seminar paper Oral exam dent is obliged to lead and	etween the P ctice is comp ional or tacti mployment. performed e 1 1 d write a Dia	2.7. Co Polytechn pulsory f ical level The stud every day.	ic of Šibenik and the compar or all regular and extraordina of management are exempted ent is obliged to conduct the Project Practical work Continuous examination Other Other on completed tasks / exercise	ny, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8 8 5. Student anticipates in						
<ul> <li>2.6. Teaching methods</li> <li>2.8. Students` obligations</li> <li>2.9. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)</li> <li>2.10. Grading and evaluating students` work during classes and</li> </ul>	<ul> <li>lectures</li> <li>seminars and works</li> <li>practical exercises</li> <li>distance education</li> <li>mixed e-learning</li> <li>field teaching</li> <li>In accordance with th undertake a profession are employed in infor and they must provide write the names of the Attendance</li> <li>Experimental work</li> <li>Essay</li> <li>Colloquium</li> <li>Class activity</li> <li>When conducting a pr advance the time of the</li> </ul>	shops ne signed A nal practic matic-rela e a copy o e profession professiona he Diary v	independer inducement of processes ( in an appropriated companies of the employm onal processes ( in practice, a stuwork, at the comparise	nt tasks a and network rofessional cooperation b riate time period (this pra and / or work at an operat ent contract as proof of e exercises or tasks) he has Written exam Research Report Seminar paper Oral exam dent is obliged to lead and urse lecturer. The lecturer	etween the P octice is comp ional or taction performed e 1 1 d write a Dia	2.7. Co Polytechn pulsory f ical level The stud every day.	ic of Šibenik and the compar or all regular and extraordina of management are exempted ent is obliged to conduct the Project Practical work Continuous examination Other Other on completed tasks / exercise tes the work journal and the	hy, the student is obliged to ary students). Students who d from doing this practice, Diary of work in which he 8 8 s. Student anticipates in n writes the student to the						

2.11. Compulsory literature	Title	Number of copies in the library	Availability via other media
other media)			
2.12. Additional literature (at the moment of changes and/or amended of study programme)			
2.13. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensu of attendance and student activity during classes and provided information on students` progress through for further guidance to students will be provided in order to increase the efficiency of their work. St obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian em employment, surveys from employers and Alumni association.	red through interactive wo short colloquiums and hor udents will be informed al ployment service on the ar	rk. By keeping track nework, information yout their rights and unual state of student

## LEARNING OUTCAMS MATRIX OF UNDERGRADUATE PROFESSIONAL STUDY BUSINESS INFORMATICS IN ACADEMIC YEAR 2020./2021.

LEARNING OUTCOMES	M/ E	I1	12	13	I4	15	<b>I</b> 6	17	<b>I</b> 8	19	I10	I11	I12	I13	I14	115	I16	I17	Learn.outc. per course
Principles of economics	М						+			+					+				3
Financial mathematics	Μ	+	+				+	+											4
Computer application in office automation	Μ	+	+											+	+				4
Programming fundamentals	М									+			+			+			3
Introduction to computer science	Μ	+	+			+				+		+	+			+			7
English for information technology I	М						+			+					+				3
Business communication	М									+					+			+	3
Principles of microeconomics	М						+			+							+		3
Computer architecture	М	+	+							+				+				+	5
Introduction to web technologies	М				+	+				+			+			+			5
Information technologies and environmental protection	М	+								+	+								3
Mathematics	М						+	+									+		3
E-business	М	+	+							+				+				+	5
English for information technology II	М						+			+					+				3
Principles of accounting	М						+	+		+					+				4
Management	М						+		+	+					+		+	+	6
Object oriented programming	М							+		+			+			+			4
Introduction to operating systems	М	+										+	+	+					4
Introduction to databases	М	+		+						+			+			+			5
Commercial and copyright low	М	+								+	+						+	+	5
Principles of marketing	М	+			+					+					+	+		+	6

Business statistics	М						+	+									+		3
Introduction to computer networks	М	+				+					+	+		+					5
Business information systems	М			+	+				+	+			+			+			6
Operating systems	М	+										+	+	+					4
Databases	М	+		+						+		+	+					+	6
Entrepreneurship	М						+		+								+		3
Information systems analysis and design	М			+						+		+	+			+		+	6
Management of information services	М	+		+					+	+							+	+	6
Protection and security of information Systems	М	+				+				+	+			+	+				6
Computer networks	М	+				+						+		+					4
Development of mobile applications	Е			+						+			+			+			4
Digital marketing and marketing analytics	E				+					+						+			3
Operation research	E		+					+		+					+	+	+		6
Quality management	E									+							+	+	3
Principles of corporate finance	E		+				+		+	+					+		+		6
Project management	М									+			+			+		+	4
Development of web applications	Е			+						+			+			+			4
Cloud computing	Е									+			+			+			3
Professional praxis	М	+	+						+	+	+	+			+	+	+	+	10
Mandatory courses contributing to learning outcome		17	6	5	3	5	10	5	5	24	5	8	11	8	10	10	8	11	
Total courses that contribute to learning outcome		17	8	7	4	5	11	6	6	31	5	8	14	8	12	15	11	12	