

Semester 1		
Office Org	anization and Informatization obligate	ory courses
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education I	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics I	ECTS:6.0
P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L: Andor Gužvanj L: Domagoj Tuličić	Programming basics	ECTS:6.0
P: Vesna Uglješić dipl. dizajner L:mag.des. Ulla Leiner Maksan L: Vesna Uglješić dipl. dizajner L: Ana Hoić L: Darija Ćutić , mag. ing. graph. techn. L: Zorana Andrić mag. ing. graph. techn.	Computer Typography	ECTS:6.0
P: Danijela Pongrac , prof. P:dr. sc. Roman Domović , prof. L:dr. sc. Roman Domović , prof. L: Željka Širanović mag.inf.zn. L: Nataša Uzelac	Office Automation	ECTS:6.0
P: Sanja Kraljević , dipl.ing., v. pred. L:dr. sc. Roman Domović , prof. L: Petar Osterman L: Sanja Kraljević , dipl.ing., v. pred. L: Renata Kramberger	Introduction to (X)HTML and CSS	ECTS:4.0
	E-business obligatory courses	•
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education I	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics I	ECTS:6.0
P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L: Andor Gužvanj L: Domagoj Tuličić	Programming basics	ECTS:6.0
P: Vesna Uglješić dipl. dizajner L:mag.des. Ulla Leiner Maksan L: Vesna Uglješić dipl. dizajner L: Ana Hoić L: Darija Ćutić , mag. ing. graph. techn. L: Zorana Andrić mag. ing. graph. techn.	Computer Typography	ECTS:6.0
P: Danijela Pongrac , prof. P:dr. sc. Roman Domović , prof. L:dr. sc. Roman Domović , prof. L: Željka Širanović mag.inf.zn. L: Nataša Uzelac	Office Automation	ECTS:6.0
P: Sanja Kraljević , dipl.ing., v. pred. L:dr. sc. Roman Domović , prof. L: Petar Osterman L: Sanja Kraljević , dipl.ing., v. pred. L: Renata Kramberger	Introduction to (X)HTML and CSS	ECTS:4.0
	IT Design obligatory courses	•

A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education I	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics I	ECTS:6.0
P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L: Andor Gužvanj L: Domagoj Tuličić	Programming basics	ECTS:6.0
P: Vesna Uglješić dipl. dizajner L:mag.des. Ulla Leiner Maksan L: Vesna Uglješić dipl. dizajner L: Ana Hoić L: Darija Ćutić , mag. ing. graph. techn. L: Zorana Andrić mag. ing. graph. techn.	Computer Typography	ECTS:6.0
P: Danijela Pongrac , prof. P:dr. sc. Roman Domović , prof. L:dr. sc. Roman Domović , prof. L: Željka Širanović mag.inf.zn. L: Nataša Uzelac	Office Automation	ECTS:6.0
P: Sanja Kraljević , dipl.ing., v. pred. L:dr. sc. Roman Domović , prof. L: Petar Osterman L: Sanja Kraljević , dipl.ing., v. pred. L: Renata Kramberger	Introduction to (X)HTML and CSS	ECTS:4.0



Semester 2		
Office Or	ganization and Informatization oblig	atory courses
P:mr.sc. Sanja Bračun dipl.oec. L: Brigitta Cafuta	e-Business	ECTS:6.0
P:prof.vis.šk. Ivica Levanat P: Alemka Knapp L: Alemka Knapp L:prof.dr. Dubravko Horvat L: Diana Šaponja-Milutinović dipl.ing.fizike, pred.	Physics	ECTS:6.0
P:dr.sc.rač. Ivica Dodig , prof.v.š. P:dr.sc.rač. Davor Cafuta , prof.v.šk. A:dr.sc.rač. Ivica Dodig , prof.v.š. A: Jelena Kapelac	Devices Design	ECTS:5.0
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education II	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics II	ECTS:6.0
P:Prof.dr.sc. Slavica Ćosović Bajić P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L:Prof.dr.sc. Slavica Ćosović Bajić L: Andor Gužvanj L: Domagoj Tuličić	Programming	ECTS:7.0
	E-business obligatory courses	•
P:mr.sc. Sanja Bračun dipl.oec. L: Brigitta Cafuta	e-Business	ECTS:6.0
P:prof.vis.šk. Ivica Levanat P: Alemka Knapp L: Alemka Knapp L:prof.dr. Dubravko Horvat L: Diana Šaponja-Milutinović dipl.ing.fizike, pred.	Physics	ECTS:6.0
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education II	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics II	ECTS:6.0
P:Prof.dr.sc. Slavica Ćosović Bajić P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L:Prof.dr.sc. Slavica Ćosović Bajić L: Andor Gužvanj L: Domagoj Tuličić	Programming	ECTS:7.0
P:mr.sc. Sergej Lugović MBA L:mag.oec Kristina Perec L: Dinko Horvat struč.spec.ing.techn.inf.	Market Communication	ECTS:5.0
	IT Design obligatory courses	
P: Feđa Vukić P: Aleksandra Bernašek Petrinec L: Aleksandra Bernašek Petrinec L: Iva Kostešić	Design and Visual Meaning	ECTS:6.0



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P:prof.vis.šk. Ivica Levanat P: Alemka Knapp L: Alemka Knapp L:prof.dr. Dubravko Horvat L: Diana Šaponja-Milutinović dipl.ing.fizike, pred.	Physics	ECTS:6.0
P: Vjeran Bušelić viši predavač A: Vjeran Bušelić viši predavač	Information literacy and critical thinking	ECTS:6.0
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education II	ECTS:1.0
P: Tihana Strmečki A: Andrea Katarić	Mathematics II	ECTS:6.0
P:Prof.dr.sc. Slavica Ćosović Bajić P: Bojan Nožica dipl. ing, v.pred. L: Bojan Nožica dipl. ing, v.pred. L:Prof.dr.sc. Slavica Ćosović Bajić L: Andor Gužvanj L: Domagoj Tuličić	Programming	ECTS:7.0



Semester 3			
Office Organization and Informatization obligatory courses			
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education III	ECTS:1.0	
P:prof. Marta Alić A:prof. Marta Alić A: Nataša Uzelac	Advanced e-Business	ECTS:4.0	
P:Prof. dr. sc. Miroslav Slamić profesor visoke škole L: Željko Kovačević , struč.spec.ing.techn.inf. L: Martina Petrovečki struč.spec.ing.techn.inf. L: Danko Ivošević pred.	Object Oriented Programming I	ECTS:5.0	
P:dr.sc.rač. Davor Cafuta , prof.v.šk. P:dr.sc.rač. lvica Dodig , prof.v.š. L: Brigitta Cafuta	Operating Systems	ECTS:5.0	
Office Or	ganization and Informatization electiv	ve courses	
P:Mr.sc. Vladimir Lebinac dipl.ing. A: Vjeran Šimunić L: Vjeran Šimunić A: Lea Gagulić	Communication Systems and Networks	ECTS:6.0	
P:dr.sc. Igor Urbiha prof.vis.šk. A:dr.sc. Igor Urbiha prof.vis.šk.	Probability and Statistics	ECTS:4.0	
P:Pred. Ida Popčević prof. A: Sara Slamić Tarade struč.spec. rel.publ. A:Pred. Ida Popčević prof.	Communication Skills	ECTS:4.0	
Office O	ganization and Informatization electiv	ve courses	
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof. A: Zoran Vulelija	English Language for IT	ECTS:3.0	
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	German for IT	ECTS:3.0	
	E-business obligatory courses		
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. L:mag.oec Kristina Perec L: Vida Senci	Social Networks	ECTS:5.0	
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education III	ECTS:1.0	
P:prof. Marta Alić A:prof. Marta Alić A: Nataša Uzelac	Advanced e-Business	ECTS:4.0	
P:Prof. dr. sc. Miroslav Slamić profesor visoke škole L: Željko Kovačević , struč.spec.ing.techn.inf. L: Martina Petrovečki	Object Oriented Programming I	ECTS:5.0	

struč.spec.ing.techn.inf. L: Danko Ivošević pred.		
P: Ivan Rajković A: Višen Tadić struč.spec.art A: Ivan Rajković A: Dinka Radonić	Picture, Sound and Video Processing	ECTS:4.0
	E-business elective courses	
P:Mr.sc. Vladimir Lebinac dipl.ing. A: Vjeran Šimunić L: Vjeran Šimunić A: Lea Gagulić	Communication Systems and Networks	ECTS:6.0
P:dr.sc. Igor Urbiha prof.vis.šk. A:dr.sc. Igor Urbiha prof.vis.šk.	Probability and Statistics	ECTS:4.0
P:Pred. Ida Popčević prof. A: Sara Slamić Tarade struč.spec. rel.publ. A:Pred. Ida Popčević prof.	Communication Skills	ECTS:4.0
	E-business elective courses	
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof. A: Zoran Vulelija	English Language for IT	ECTS:3.0
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	German for IT	ECTS:3.0
	IT Design obligatory courses	
P:Prof. dr. sc. Jana Žiljak Gršić , mag. design L: Alan Divjak	3D design	ECTS:5.0
P: Aleksandra Bernašek Petrinec A: Aleksandra Bernašek Petrinec	Graphics Techniques	ECTS:4.0
P:dr.sc. Maja Turčić pred. P:prof.dr.sc. Klaudio Pap L:prof.dr.sc. Klaudio Pap L:dr.sc. Maja Turčić pred. L: Darija Ćutić , mag. ing. graph. techn.	Graphics Programming Languages	ECTS:5.0
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education III	ECTS:1.0
P: Ivan Rajković L: Višen Tadić struč.spec.art L: Ivan Rajković L: Dinka Radonić	Video production Processes	ECTS:4.0
P:Prof. dr. sc. Jana Žiljak Gršić , mag. design P: Feđa Vukić A: Iva Kostešić	Theory and Design Development	ECTS:6.0
	IT Design elective courses	
P:Mr.sc. Vladimir Lebinac dipl.ing. A: Vjeran Šimunić L: Vjeran Šimunić A: Lea Gagulić	Communication Systems and Networks	ECTS:6.0



P:dr.sc. Igor Urbiha prof.vis.šk. A:dr.sc. Igor Urbiha prof.vis.šk.	Probability and Statistics	ECTS:4.0	
P:Pred. Ida Popčević prof. A: Sara Slamić Tarade struč.spec. rel.publ. A:Pred. Ida Popčević prof.	Communication Skills	ECTS:4.0	
IT Design elective courses			
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof. A: Zoran Vulelija	English Language for IT	ECTS:3.0	
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	German for IT	ECTS:3.0	



Semester 4			
Office Organization and Informatization obligatory courses			
P: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Renata Kramberger A: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Brigitta Cafuta	Databases	ECTS:5.0	
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education IV	ECTS:1.0	
P:dr.sc. Goran Salamunićcar A: Željko Kovačević , struč.spec.ing.techn.inf. A:Dr. sc. Aleksandar Stojanović pred.	Object Oriented Programming II	ECTS:5.0	
P: Vesna Uglješić dipl. dizajner P: Mia Čarapina dipl. ing., pred. L: Mia Čarapina dipl. ing., pred.	Project Programming	ECTS:3.0	
P: Danijela Pongrac , prof. A: Danijela Pongrac , prof. A:prof. Marta Alić	Spreadsheets	ECTS:3.0	
P:dr.sc. Željko Širanović prof.v.š. L:dr.sc. Željko Širanović prof.v.š.	Introduction to Computer Networks	ECTS:4.0	
P:dr.sc. Alen Šimec v. predavač L: Davor Lozić pred.	XML Programming	ECTS:6.0	
Office Or	ganization and Informatization electiv	ve courses	
P: Ana Hoić P:Prof. dr. sc. Jana Žiljak Gršić , mag. design A: Ana Hoić	Innovations in information technology	ECTS:5.0	
P:dr.sc. Alen Šimec v. predavač L:dr.sc. Alen Šimec v. predavač L: Petar Osterman	Web application development	ECTS:5.0	
Office Or	ganization and Informatization electiv	/e courses	
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof.	Business English for IT	ECTS:3.0	
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	Business German for IT	ECTS:3.0	
	E-business obligatory courses		
P: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Renata Kramberger A: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Brigitta Cafuta	Databases	ECTS:5.0	
A: Marko Milanović A:pred. Valter Perinović mag.	Physical Education IV		

kineziologije		
P:dr.sc. Goran Salamunićcar A: Željko Kovačević , struč.spec.ing.techn.inf. A:Dr. sc. Aleksandar Stojanović pred.	Object Oriented Programming II	ECTS:5.0
P:prof.dr.sc. Klaudio Pap P: Aleksandra Bernašek Petrinec L: Aleksandra Bernašek Petrinec L: Darija Ćutić , mag. ing. graph. techn.	Web Browsers and Navigation	ECTS:3.0
P: Vesna Uglješić dipl. dizajner P: Mia Čarapina dipl. ing., pred. L: Mia Čarapina dipl. ing., pred.	Project Programming	ECTS:3.0
P:mr.sc. Sergej Lugović MBA	Sociotechnical approaches to the study o Information Systems	fECTS:4.0
P:dr.sc. Alen Šimec v. predavač L: Davor Lozić pred.	XML Programming	ECTS:6.0
	E-business elective courses	
P: Ana Hoić P:Prof. dr. sc. Jana Žiljak Gršić , mag. design A: Ana Hoić	Innovations in information technology	ECTS:5.0
P:dr.sc. Alen Šimec v. predavač L:dr.sc. Alen Šimec v. predavač L: Petar Osterman	Web application development	ECTS:5.0
	E-business elective courses	
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof.	Business English for IT	ECTS:3.0
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	Business German for IT	ECTS:3.0
	IT Design obligatory courses	
P: Milan Bajić L: Milan Bajić	Digital Photography	ECTS:4.0
P: Vesna Uglješić dipl. dizajner L: Vesna Uglješić dipl. dizajner	Graphics Design	ECTS:6.0
A: Marko Milanović A:pred. Valter Perinović mag. kineziologije	Physical Education IV	ECTS:1.0
P:dr.sc. Alen Šimec v. predavač L: Davor Lozić pred.	XML Programming	ECTS:6.0
	IT Design elective courses	
P: Branimir Markulin Grgić P: Vesna Uglješić dipl. dizajner L: Vesna Uglješić dipl. dizajner	Product Design	ECTS:3.0
P: Ivan Rajković A: Višen Tadić struč.spec.art A: Ivan Rajković A: Dinka Radonić	Picture, Sound and Video Processing	ECTS:4.0



P: Milan Bajić L: Milan Bajić	Sound Production	ECTS:4.0
	IT Design elective courses	
P: Ana Hoić P:Prof. dr. sc. Jana Žiljak Gršić , mag. design A: Ana Hoić	Innovations in information technology	ECTS:5.0
P:dr.sc. Alen Šimec v. predavač L:dr.sc. Alen Šimec v. predavač L: Petar Osterman	Web application development	ECTS:5.0
	IT Design elective courses	
P:dr.sc. Biljana Stojaković ,prof.v.š. u trajnom zvanju A: Lamia Egartner prof.	Business English for IT	ECTS:3.0
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	Business German for IT	ECTS:3.0



Semester 5			
Office Org	anization and Informatization obligat	ory courses	
P:dr.sc. Alberto Teković viši predavač P:dr.sc Sonja Zentner Pilinsky prof.v.š. A:dr.sc Sonja Zentner Pilinsky prof.v.š. A: Siniša Lacković struč.spec.ing.el.	Mobile Communications	ECTS:3.0	
P: Sanja Kraljević , dipl.ing., v. pred. A: Sanja Kraljević , dipl.ing., v. pred. L: Sanja Kraljević , dipl.ing., v. pred. L: Jakob Gračanin	Advanced Databases	ECTS:5.0	
P:dr.sc. Željko Širanović prof.v.š. L:dr.sc. Željko Širanović prof.v.š.	Advanced Internet Technologies	ECTS:3.0	
P: Doc. dr. sc. Lidija Tepeš Golubić v. pred. A: Vida Senci A: Doc. dr. sc. Lidija Tepeš Golubić v. pred.	Word Processing	ECTS:3.0	
P: Danijela Pongrac , prof. A: Danijela Pongrac , prof.	Office Organisation and Informatisation	ECTS:3.0	
P:izv. prof. dr. sc. Krunoslav Antoliš L:izv. prof. dr. sc. Krunoslav Antoliš	IT Systems Security and Protection	ECTS:5.0	
P:dr.sc.rač. Ivica Dodig , prof.v.š. L:dr.sc.rač. Davor Cafuta , prof.v.šk. L: Andrej Vitez	Introduction to UNIX Systems	ECTS:5.0	
	E-business obligatory courses		
P: Vjeran Bušelić viši predavač A: Višen Tadić struč.spec.art L: Višen Tadić struč.spec.art A: Ivan Rajković L: Ivan Rajković	Media Integration	ECTS:6.0	
P:dr.sc. Alberto Teković viši predavač P:dr.sc Sonja Zentner Pilinsky prof.v.š. A:dr.sc Sonja Zentner Pilinsky prof.v.š. A: Siniša Lacković struč.spec.ing.el.	Mobile Communications	ECTS:3.0	
P: Sanja Kraljević , dipl.ing., v. pred. A: Sanja Kraljević , dipl.ing., v. pred. L: Sanja Kraljević , dipl.ing., v. pred. L: Jakob Gračanin	Advanced Databases	ECTS:5.0	
P:izv. prof. dr. sc. Krunoslav Antoliš L:izv. prof. dr. sc. Krunoslav Antoliš	IT Systems Security and Protection	ECTS:5.0	
P:dr.sc. Mladen Mauher prof.v.šk. P:prof. Marta Alić A:prof. Marta Alić	e-Business Systems	ECTS:5.0	
P:mr.sc. Sergej Lugović MBA A:mag.oec Kristina Perec A: Dinko Horvat struč.spec.ing.techn.inf.	Technology Entrepreneurship	ECTS:6.0	
	IT Design obligatory courses		
P:Prof. dr. sc. Jana Žiljak Gršić , mag. design P: Vesna Uglješić dipl. dizajner L:mag.des. Ulla Leiner Maksan L: Vesna Uglješić dipl. dizajner	Visual Communication Design	ECTS:6.0	



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Study programme for academic ye	ear 2018/2019
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P: Ognjen Staničić dipl. ing. L: Ognjen Staničić dipl. ing.	Web Interactive Programming	ECTS:4.0
P:Prof.dr.sc. Slavica Ćosović Bajić P: Krešimir Štih L: Krešimir Štih	Computer Graphics	ECTS:5.0
P: Tin Kramberger struč. spec. ing. techn. inf., pred. L: Renata Kramberger	Computer Games Development	ECTS:5.0
P: Aleksandra Bernašek Petrinec L: Aleksandra Bernašek Petrinec	Reprophotography	ECTS:5.0
	IT Design elective courses	
P: Ivan Rajković S: Boris Hergešić	Digital Animation	ECTS:5.0
P: Dinka Radonić P: Milan Bajić L: Milan Bajić L: Dinka Radonić	TV and Video Recording	ECTS:5.0



Semester 6		
Office Org	anization and Informatization obliga	tory courses
P:dr.sc. Željko Širanović prof.v.š. L:dr.sc. Željko Širanović prof.v.š. L: Vedran Tadić struč.spec.ing.techn.inf.	Computer Network Administration	ECTS:4.0
P:dr.sc.rač. Davor Cafuta , prof.v.šk. L: Andrej Vitez L:dr.sc.rač. Ivica Dodig , prof.v.š.	UNIX Systems Administration	ECTS:5.0
P:dr. sc. Roman Domović , prof. L:dr. sc. Roman Domović , prof.	Computers and Software Installation	ECTS:3.0
P:mr.sc. Sergej Lugović MBA P:doc.dr.sc. Dalija Kuvačić profesor visoke škole A:mag.oec Kristina Perec A: Dinko Horvat struč.spec.ing.techn.inf.	Technology Entrepreneurship	ECTS:6.0
Office Or	ganization and Informatization elect	ive courses
A: Milan Bajić A:Prof. dr. sc. Jana Žiljak Gršić , mag. design	Practical Work	ECTS:3.0
Office Or	ganization and Informatization elect	ive courses
A: Vesna Uglješić dipl. dizajner A: Mia Čarapina dipl. ing., pred.	Final Thesis - A	ECTS:12.0
	E-business obligatory courses	
P: Ognjen Staničić dipl. ing. L: Ognjen Staničić dipl. ing.	Web Interactive Programming	ECTS:4.0
P: Vjeran Bušelić viši predavač S: Višen Tadić struč.spec.art S: Ivan Rajković	Multimedia Marketing	ECTS:5.0
P:dr.sc. Maja Turčić pred. L: Mario Janković mag. ing. graph. techn.	Web Design	ECTS:6.0
	E-business elective courses	
A: Milan Bajić A:Prof. dr. sc. Jana Žiljak Gršić , mag. design	Practical Work	ECTS:3.0
	E-business elective courses	
A: Vesna Uglješić dipl. dizajner A: Mia Čarapina dipl. ing., pred.	Final Thesis - A	ECTS:12.0
	IT Design obligatory courses	
P:dr.sc. Maja Turčić pred. L: Mario Janković mag. ing. graph. techn.	Web Design	ECTS:6.0
L:mag.des. Ulla Leiner Maksan L:Prof. dr. sc. Jana Žiljak Gršić , mag. design	IT Design - Practicum	ECTS:5.0
	IT Design elective courses	
P: Ivan Rajković L: Ivan Rajković	Digital Television	ECTS:5.0
P: Aleksandra Bernašek Petrinec L: Aleksandra Bernašek Petrinec	Design and Application of Vector Graphics	ECTS:5.0
P: Vesna Uglješić dipl. dizajner P:dr.sc. Maja Turčić pred.	eBook design	ECTS:5.0

L: Vesna Uglješić dipl. dizajner L:dr.sc. Maja Turčić pred.			
	IT Design elective	courses	
A: Milan Bajić A:Prof. dr. sc. Jana Žiljak Gršić , mag. design	Practical Work	ECTS:3.0	
	IT Design elective	courses	
A: Vesna Uglješić dipl. dizajner A: Mia Čarapina dipl. ing., pred.	Final Thesis - A	ECTS:12.0	

Code WEB/ISVU	23968/185289	ECTS	5.0	Academic year	2018/2019				
Name	3D design		·						
Status	3rd semester - IT Design (Izvanredni informatike) - obligatory course								
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) [15+45 (0+45+0+0)								
	work at home				90				
leachers	Lectures: 1. Prot. dr. sc.	Jana Ziijak Grsic , mag. (Jan Diviak	design						
Course objectives	The aim of the course is to learn how to use 3D graphic design tools and to understand the role of 3D graphics in								
	modern computer gam	e design, visualization, a	nimation and web and m	ultimedia content. Spec	ial emphasis has been				
	put on linking 3D graph	ics software and comput	er game design softwar	e, as well as key feature	s of 3D content creation				
	for computer games. The	ne use of 3D graphics is i	increasingly related to the	e design and the optima	al way to connect these				
	areas is considered. The	e course focuses on acqu elina, texturina, lighting	animation and renderin	Je of a complete 3D coni	tent development				
	integrates into a numbe	ntegrates into a number of different application areas, many of which are not traditionally linked to 3D graphics, which							
	testifies to the rapid sp	estifies to the rapid spread of the application of this technology. It also looks at new 3D technologies that enhance							
	mmersion and the scope of computer games, such as virtual and augmented reality. Since the field of 3D graphics is								
	number of 3D graphics	applications. After succe	essful completion of the	ourse, students will hav	e adopted the basic set				
	of knowledge and skills needed to make simpler 3D projects, as well as the understanding of advanced 3D graphics								
	techniques that serve a	is a basis for further edu	cation.	-					
Learning outcomes:	1.1.Understanding the	fields of application of 3D) graphics and how it fits	s into a modern multime	dia environment and				
	the processes of makin	g different types of conte	ent. Level:6 scope and the principle (of creating 3D models. L	ovol:6				
	3.3.Adopting basic know	wledge of 3D graphics to	ols. Level:6	in creating 5D models. Le	evel.0				
	4.4.Adopting the theory	of illumination and real	ism in 3D graphics, and	framing and working wit	h virtual cameras.				
	Level:6								
	5.5.Recognizing and se	lecting an adequate appli	roach to developing a 3L) graphics solution. Leve	1:6				
	7.7.Animation of 3D mo	dels and creating geome	etry deformations. Level	:6					
	8.8.Using the appropria	te lighting and rendering	settings to achieve the	desired results. Level:6					
	9.9.Linking created 3D	content with computer g	ame creation software.	∟evel:6					
	10.10.Independent crea	ation of a complete 3D gi	raphics solution. Level:6						
Methods of carrying	Ex cathedra teaching								
out lectures	Guest lecturer								
	Case studies								
	Demonstration								
	DISCUSSION								
Methods of carrying	Laboratory exercises or	n laboratory equipment							
out laboratory	Laboratory exercises, c	omputer simulations							
exercises	Group problem solving								
	Data mining and knowl	edge discovery on the W	eb						
	Discussion, brainstormi	ng							
	Computer simulations								
	Workshop								
Course content	1.1.Introduction to 3D o	araphics. Fields of applica	ation, role in the comput	er games industry 1h.	Learning outcomes:1				
lectures	2.2.History of 3D graph	ics, impact on the entert	ainment industry, marke	et situation, 1h, Learning	outcomes:1				
	3.3.Classification of sof	tware for 3D graphics pro	oduction, overview of av	ailable software and spe	cialized tools, 1h,				
	Learning outcomes:1,2	a computer games con	pocting with standard 30	araphics tools Applicat	tion of virtual reality				
	technology in computer	r games and production	environments, 1h, Learn	ing outcomes:1,2,9	lon of virtual reality				
	5.5.Basics of 3D space,	3D scene navigation, 1h	, Learning outcomes:2,3						
	6.6.Elements of 3D sce	nes, objects, lights, came	eras, effects, 1h, Learnin	g outcomes:2,3,4					
	8.8 Introduction to light	ting and virtual cameras	The Learning outcomes	:0mes:2,3					
	9.9.Achieving realism in	n 3D graphics, 1h, Learni	ng outcomes:4,5	.5, 1,5					
	10.10.Modeling tools, n	nanipulating the geometr	ry, 1h, Learning outcome	es:5,6,9					
	11.11.Texture creation,	UV mapping and proced	lural textures, 1h, Learn	ing outcomes:5,6,9					
	13.13.Object animation	. 1h. Learning outcomes	27						
	14.14.Light sources, HE	OR lighting, application of	f IES profiles, 1h, Learnir	ng outcomes:8,10					
	15.Kolokvij, 1h, Learnin	g outcomes:1,2,3,4,5,6,7	7,8,9,10						
Course content	1 Cotting acquainted w	ith 3D coftware interface	3D space pavigation	coordinate system 2h					
laboratory	2.Working with the view	vport. scene view modes	, shading types. 2h	oorumale system, 21					
	3.Types of geometry in	3D graphics, creation ar	nd modification of primit	ves, 2h					
	4.Tools for editing poly	gons, edges, and vertice	s, 2h						
	5.Organic modeling, pa	nting and sculpting, 2h	ntimization for compute	r dames 2h					
	7.Texturing, texture cre	eation, procedural textur	ing, working with channe	els, 2h					
	8.Material creation, PBF	R materials, material type	es, modeling rules in tra	nsparent surfaces, mate	rials in computer				
	games, 2h	apping tools 24							
	9. Creating UV maps - m 10. UV manning - textur	apping tools, 2h e creation and application	on on UV manned model	s, optimization for comp	uter games 2h				
I					acc. guines, zh				

	 Model animation, keyframing, procedural animation, working with animation curves and channels, 2h Scene illumination, applying HDR maps, Sun / Sky System, IES profiles application, studio lighting, 2h Photorealism in 3D graphics, dynamic range, tone mapping, 2h Rendering, rendering settings, spectral and NPR rendering, 2h Lighting and material baking, loading objects into game engine, realtime 3D graphics and rendering, 2h 							
Required materials	Basic: classroom, blackboard, chalk General purpose computer laboratory Whiteboard with markers Overhead projector							
Exam literature	obvezna literatura / odabrana poglavlja iz 1.3D modeliranje i tehničko crtanje, 2007, Đuro Kukec, Mihael Kukec 2.Virtualna okruženja: računalna grafika u stvarnom vremenu i njezine primjene, 2011, Igor S. Pandžić, ISBN 978-953-197-606-0 3.Uvod u računalnu grafiku, 2013, Vladan Papić, ISBN: 978-953-290-038-5 4.The Complete Guide to Blender Graphics: Computer Modeling Animation, Third Edition , 2016, John M. Blain , ISBN-13: 978-1498746458 5.3D Art Essentials: The Fundamentals of 3D Modeling, Texturing, and Animation, 2011, Ami Chopine, ISBN-13: 978-0240814711							
Students obligations	Regular lectures attendance							
Knowledge evaluation during semester	kolokvij							
Knowledge evaluation after semester	Presentation, oral exam							
Student activities:	Aktivnost ECTS (Oral exam) 2 (Practical work) 3							
Remark	This course can be used for final thesis theme							
Prerequisites:	No prerequisites.							
Proposal made by	Prof. dr. sc. Jana Žiljak Gršić							

Code WEB/ISVU	23731/170007	ECTS	5.0	Academic year	2018/2019
Name	Advanced Databases				-
Status	5th semester - Office C	rganization and Informa	tization (Izvanredni infor	matike) - obligatory cou	rse5th semester - E-
	business (Izvanredni in	formatike) - obligatory c	ourse		
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	15+45 (15+30+0+0) 90
Teachers	Lectures: Sanja Kraljev	ić , dipl.ing., v. pred.			
	Auditory exercises: Sar	ija Kraljević , dipl.ing., v. akob Gračanin	pred.		
	Laboratory exercises: 5	Sanja Kraljević , dipl.ing.,	v. pred.		
Course objectives	To introduce students t	o objects and control of	data access , the basics	of programming MySQL	servers and
	implementation of a da	tabase into an informati	on system.		
Learning outcomes:	1.ability to compare dif	ferent types of server-cl	ient architectures. Level	:6,7	
	2.ability to remove dat	abase malfunctions. Lev e efficiency of a databas	el:6 e model in an informatio	n system Level:67	
	4.ability to distinguish	between the structures of	of a centralised and a dis	tributed database. Leve	1:6
	5.ability to compare the	e mechanisms used in d	atabase management. L	evel:6,7	
	6.ability to create object	cts by using a query lang	guage (SQL). Level:6		
	7.ability to develop the	stored data (functions,	procedures, triggers) by	using advanced SQL tec	nniques . Level:6,7
	9.ability to devise the d	control of a parallel data	access by using various	techniques: data locking	a, locking granularity
	and defining a level of	data isolation. Level:6,7			
	10.abilityto control the	permissions to and leve	Is of data access . Level:	6,7	
	12. ability to identify th	e necessity for aetting p	rompt information by usi	ing systems of business	intelligence. Level:6
		e necessary for gering p			
Methods of carrying	Ex cathedra teaching				
out lectures	Case studies				
	Demonstration				
	Questions and answers	;			
	-				
Methods of carrying	Group problem solving				
out auditory	Discussion, brainstorm	ing			
exercises	Interactive problem sol	ving			
Methods of carrying	Laboratory exercises o	n laboratory equipment			
out laboratory	Laboratory exercises, o	computer simulations			
exercises	Discussion, brainstorm	ina			
	Interactive problem sol	ving			
Course content	1. Introductory lecture,	2h, Learning outcomes:	1,3 NN 26 Learning outcom	20512	
lectures	3.Aliases, subqueries, i	ndexes. normalization. 2	h. Learning outcomes:5	163.2	
	4.Database transaction	is, 2h, Learning outcome	es:5,6		
	5.Procedures and funct	ions, 2h, Learning outco	mes:6,7		
	6.Cursors, flow control, 7 Preparation for the fi	2h, Learning outcomes: rst mid-term exam 2h 1	7,8 earning outcomes:1.2.3	456	
	8.First mid-term exam,	2h, Learning outcomes:	1,2,3,4,5,6	, 1,5,0	
	9.Triggers, 2h, Learnin	g outcomes:7,9			
	10.Data locking, 2h, Le	arning outcomes:9			
	12.Connectivity. 2h. Le	arning outcomes:8.9.10			
	13.Data warehouse, 2h	, Learning outcomes:11	,12		
	14.Preparation for the	second mid-term exam,	2h, Learning outcomes:7	7,8,9,10,11,12	
	15.Second mid-term ex	am, 2n, Learning outcor	nes:7,8,9,10,11,12		
Course content	1.No classes				
auditory	2.No classes				
	3.No classes				
	4.No classes 5.No classes				
	6.No classes				
	7.No classes				
	8.No classes				
	10.No classes				
	11.No classes				
	12.No classes				
	13.No classes				
	15.No classes				
Course content	1.No classes				
laboratory	2.No classes				

	 3.Database fundamentals, 2h, Learning outcomes:1,2,3,4,5 4.Transactions, 2h, Learning outcomes:5,6,7 5.Procedures, functions, 2h, Learning outcomes:6,7,8 6.Flow control, 2h, Learning outcomes:7,8 8.First midterm exam, 2h 9.Triggers, 2h, Learning outcomes:7 10.Data locks, 2h, Learning outcomes:9,10 12.Connectivity, 2h, Learning outcomes:11,12 13.Injection prevention, 2h, Learning outcomes:9,10 14.No classes 15.Second midterm exam, 2h, Learning outcomes:11,12
Required materials	Basic: classroom, blackboard, chalk General purpose computer laboratory Whiteboard with markers Overhead projector Tools
Exam literature	 Basic literature: 1. Skripta iz kolegija, prezentacije s predavanja 2. MySQL Documentation: MySQL Reference Manuals Additional literature: 1. Manger; R.: Baze podataka, skripta, Sveučilište u Zagrebu, Prirodoslovno Matematički fakultet, drugo izdanje, Zagreb, 2014. 2. Balling, D. J. ; Zawodny, J.: High Performance MySQL, O'Reilly, 2015. 3. Vaswani, V.; MySQL Database Usage Administration, McGraw-Hill Osborne Media, 2010. 4. Cabral, S.; Murphy, K.: MySQL Administrator's Bible, Wiley Publishing, Inc., Indianapolis, Indiana, 2009. 5. Ramakrishnan, R.; Gehrke, J.: Database Management Systems, 3rd Edition, McGraw- Hill, New York, 2003. 6. Sumathi, S.; Esakkirajan, S.: Fundamentals of Relational Database Management Systems,
Students obligations	1. Done laboratory exercises (tolerance 1/6 absences). 2. Achieved minimum of 15 points of laboratory exercises (out of 50)
Knowledge evaluation during semester	Short exam is written on each laboratory exercises: holds 8 points, in each of the five labs (except laboratory exercise zero) can be won up to 8 points -> maximum 40 points from all exercises, exception: laboratory exercise zero holds 10 points. Distribution of total number of points from mid-term exams: 25% first mid-term exam, 25% second mid-term exam, 10% laboratory exercise zero, 40% remaining laboratory exercises. The first and second mid-term exam include material previously handled in lectures and laboratory exercises. Pass -> 50 % (50 bodova), Best results -> will be exempt from second mid term exam with "excellent (5)" grade,
Knowledge evaluation after	(criterion is the maximum number of points in two mid term exams and all labs, minus 10%). Written and oral exam. Final grade from written exam: 60% written exam, 40% laboratory exercises.
semester Student activities:	Aktivnost ECTS (Written exam) 5
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
Proposal made by	Sanja Duk, dipl. ing., 1.6.2017.

Code WEB/ISVU	23598/156390	ECTS	4.0	Academic year	2018/2019		
Name	Advanced e-Business						
Status	3rd semester - Office C	Drganization and Informa	itization (Izvanredni infor	matike) - obligatory cou	rse3rd semester - E-		
Teaching mode	Lectures + exercises (;	1000000000000000000000000000000000000	ourse seminar + metodology +	construction)	$15 \pm 30 (30 \pm 0 \pm 0 \pm 0)$		
	work at home		seminar + metodology +	construction)	75		
Teachers	Lectures:1. prof. Marta Auditory exercises:prot Auditory exercises: National Auditory	Alić f. Marta Alić taša Uzelac					
Course objectives	The course enables stu	Ident understanding pro	blems related with electr	onic business in tactical	, and operative aspects.		
Learning outcomes:	1.Analyze, classify, inte	egrate strategies and sys	stems of Advanced e-bus	iness that affect market	leadership. Level:6		
	 2.present architectures of ERP, CRM, DSS, SCM, Bl. Level:6,7 3.Ability to define the key categories of tools used in the DW process of business intelligence. Level:6,7 4.ability to categorize the OLAP tools (DOLAP, ROLAP, MOLAP, HOLAP). Level:6 5.Ability to develop data mining methods through case studies; memory based deduction, clustering, decision trees, Bayesian networks, neural networks, genetic algorithms, cart method. Level:6 6.bility to manage Web analyses in making business decisions; Web mining. Level:6,7 7.analyzing models of e-marketing in E-Management. Level:6 8.comment and analyze business on social networks. Level:6 9.categorize and analyze mobile business and business in cloud. Level:6 10.calculation and analysis of performance metrics in mobile business based on ROI method and B2B goals in mobile marketing. Level:6 11.analyze and present mobile marketing and mobile apps, comment and show CRM in mobile technology through Case studies . Level:6 12.analyze and design web pages using WordPress. Level:6 						
Methods of carrying	Case studies Discussion						
	Seminar, students pres	sentation and discussion					
	Lectures are presented	as combination of the t	heoretical frame with lar	ge number of practical c	asers. The students are		
Methods of carrving	Laboratory exercises o	n laboratory equipment	of flegative cases				
out auditory exercises	Laboratory exercises of Group problem solving Traditional literature and Data mining and know Discussion, brainstorm Mind mapping Interactive problem so Workshop	nalysis ledge discovery on the V ling	Veb				
Course content lectures	1.Introduction, 1h, Lea 2.One stage amplifiers 3.One stage amplifiers 4.One stage amplifiers 5.One stage amplifiers 6.Transistor series volt 7.Common source amplifiers 8.Common drain ampli 9.Multistage amplifiers 10.Amplitude and phas 12.Differential amplifier 3.Power amplifiers, 11 14.Feedback, 1h, Lean 15.Oscillators, 1h, Lean	rning outcomes:1 . Common emitter ampli . Common emitter ampli . Common emitter ampli . Common collector amp .age regulator, 1h, Learn olifier, 1h, Learning outcom ., 1h, Learning outcomes se frequency response, 1 se frequency response, 1 se frequency response, 1 er, 1h, Learning outcomes:9,: ning outcomes:10,11 rning outcomes:7,8,9,10	fier, 1h, Learning outcom fier, 1h, Learning outcom fier, 1h, Learning outcom ing outcomes:1,2,3 pmes:1,2,3,4 nes:4,5,6 :4,5,6 :h, Learning outcomes:1, .h, Learning outcomes:7, s:9 10,11 ,11	nes:1,2 nes:1,2 nes:1,2 mes:1,2 2,3,4,5,6 8			
Course content auditory	1.Analysis of terms in A 2.Dynamic Web pages, 3.WordPress installatio 4.Review of the admini 5.Work with multimedi 6.Template creation, F 7.Use of social network 8.Google AdWords, Go 9.Viral marketing, Usag 10.Guerilla marketing, 11.Mobile marketing an 12.Business in cloud - 13.Case study , 2h, Lea 14.Case study, 2h, Lea	Advanced e-business thro , Content management s in and creation of databa- istration interface, Prima a content, Plug-in, menu unctions inside and outsi (s in business, 2h, Learni ogle AdSense, Pay Per Cl ge of newsletters in pron 2h, Learning outcomes: nd mobile applications, C Google app, 2h, Learning arning outcomes:11 arning outcomes:11 arning outcomes:11	ough modules, 2h, Learn system (CMS), Fundamen ise., 2h, Learning outcom ry settings, Work with te and gadget (widgets) or ide of loop, How to create ing outcomes:6,8 lick ads, Affiliate marketi notional purposes, 2h, Le 7 CRM in mobile telephony, 9 outcomes:9	ing outcomes:1,2,3,4,5,6 tals of PHP, 2h, Learning tes:12 xt content, 2h, Learning o ganizing, 2h, Learning o e WordPress theme, 2h, ng, 2h, Learning outcom earning outcomes:7 , 2h, Learning outcomes:	5,7 ; outcomes:12 outcomes:12 utcomes:12 Learning outcomes:12 ies:7,8		
Required materials	Basic: classroom, black Special purpose labora General purpose comp Special purpose compu	<board, chalk<br="">itory uter laboratory uter laboratory</board,>					

	Whiteboard with markers Overhead projector Video equipment
Exam literature	 Basic literature: 1.Dr sc Goran klepac Dr.sc. MRšić Dr.sc. Kopal "Developing Churn Models Using Data Mining Techniques and Social Network Analysis".2015 2 mr.sc.Olivia-Silvana Prlić: sadržaj predavanja(PPT prezentacija(u repozitoriju predmeta Napredno elektroničko poslovanje Tehničkog veleučilišta u Zagrebu, 2013, www.tvz.hr/) 3. Panian, Ž., (2013): "Elektroničko poslovanje druge generacije", udžbenik Sveučilišta u Zagrebu, Biblioteka INFORMATIKA, Ekonomski fakultet Sveučilišta u Zagrebu (naglasak na drugi dio knjige) 4. Jelassi, T.; Enders, A.:" Strategies for E-Business: Creating Value through Electronic and Mobile Commerce (Concept and Cases)", (2nd Edition), Prentice Hall, 2008. 5. Dave Chaffey: "E-Business and E-Commerce Management" - Strategy, Implementation and Practice (5th Edition), Prentice Hall, 2011. 6. Goran Klepac, Leo Mršić: "Poslovna inteligencija kroz poslovne slučajeve", TIM press, Lider press, 2006. 7. George Plumley: "WORDPRESS", DOBAR PLAN d.o.o., Zagreb, 2012. 8. Perry Marshall: "GOOGLE ADWORDS" - kako doprijeti do milijuna klijenata za 20 sekundi, MASMEDIA, Zagreb, 2008. 9. Guy Kawasaki: "What the Plus! Google+ for the Rest of Us", 2012. Additional literature: 1. Praćenje stručnih časopisa i izazova u novim tehnologijama na Internetu 2. Frada Burstein, Clyde W. Holsapple: "Handbook on Decision Support Systems 1 - Basic Themes", Springer,2008. 3. Frada Burstein, Clyde W. Holsapple: "Handbook on Decision Support Systems 2 - Variations", Springer,2008. 4. Michael H. Hugos, Derek Hulitzky: "Business in the Cloud" - What Every Business Needs to Know About Cloud Computing, Wiley, 2010. 5. Jeanne Hopkins, Jamie Turner: "Go Mobile" - Location-Based Marketing,Apps,Mobile Optimized Ad Campaigns,2D Codes and Other Mobile Strategies to Grow Your Business Wiley, 2012.
Students obligations	Regular attending on lectures and exercises. Maximum of 2 absences from exercises.
Knowledge evaluation during semester	Colloquium#2#60#30\$Seminar#1#10#100\$Case study#3#30#15
Knowledge evaluation after semester	Written exam#2#50#70\$Oral exam#2#50#70\$
Student activities:	Aktivnost ECTS (Constantly tested knowledge) 2 (Practical work) 2
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
ISVU equivalents:	200117;200119;
Proposal made by	mr.sc.Olivia-Silvana Prlić Senior lecturer Course director

Code WEB/ISVU	23732/170008	ECTS	3.0	Academic year	2018/2019			
Name	Advanced Internet Tech	nologies						
Status	5th semester - Office O	rganization and Informat	ization (Izvanredni infor	matike) - obligatory cou	rse			
Teaching mode	Lectures + exercises (a	uditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0) 30			
Teachers	Lectures:1. dr.sc. Željko	Širanović prof.v.š.			_50			
	Laboratory exercises:dr	.sc. Željko Širanović prof	f.v.š.					
Course objectives	To transfer the basic kn	owledge related to swite	hing and switching devi	ces				
Learning outcomes:	2.ability to distinguish between static and dynamic routing. Level:6 3.ability to distinguish between static and dynamic routing. Level:6 3.ability to set up a static configuration of a router. Level:6,7 4.ability to set up a dynamic configuration of a router by using the RIP and OSPF routing protocols. Level:6,7 5.ability to set up and configure a functional router network . Level:6,7 6.ability to create basic security mechanisms on a router to check the user identity (AAA). Level:6,7 7.ability to create simple router access lists. Level:6,7 8.ability to plan the security policy of an Intranet connected to the Internet. Level:6,7							
Methods of carrying	Ex cathedra teaching							
out lectures	Case studies							
	Demonstration Simulations Modelling Discussion							
	Frontally, oral presental application of contempo projections, also availab	tions illustrated with presonance of the presentation techn ble online.	sentations about actual s ologies. Multi-media tea	solutions, numerical exa ching material will be us	imples, along with the sed with screen			
Methods of carrying	Laboratory exercises or	a laboratory equipment						
exercises	Group problem solving	omputer simulations						
	Discussion, brainstormi	ng						
	Interactive problem solv	ving						
	Workshop Familiarization with con	nonents device configu	ration booking up meas	suring management and	d communication			
	elements, putting netwo	ork into operation, signal	l and traffic measuring.	Analyzing obtained data				
Course content	1.Creation and impleme	entation of security policy	y through security techn	ologies, products and so	olutions , 2h, Learning			
lectures	2.Creation and impleme outcomes:8 3.Router design, installa 4.Router design, installa 5.Application of system 6.Application of system 7.Control lists, 2h, Lear 8.Control lists, 2h, Lear 9.Security of IP protoco 10.Security of IP protoco 11.Utilization of routers 12.Utilization of routers 13.Internet network ser 14.Internet network ser 15.Internet network ser	entation of security policy ation, configuration and a tation, configuration and a s for identity and users r s for identity and users r rning outcomes:4,6,7 rning outcomes:3,4,5,8 I, 2h, Learning outcome ol, 2h, Learning outcome in the construction of vi vices , 2h, Learning outco vices , 2h, Learning outco vices , 2h, Learning outco	y through security techn maintenance , 2h, Learn maintenance , 2h, Learn ights verification (AAA) o ights verification (AAA) o s:5,7 es:5,6,8 rtual private networks (\ rtual private networks (\ omes:1,4,5,6 omes:1,4,5	ologies, products and so ing outcomes:2,3,4,5 ing outcomes:2,3,4,5 on routers , 2h, Learning on routers , 2h, Learning /PN) , 2h, Learning outco /PN) , 2h, Learning outco	olutions , 2h, Learning outcomes:6,8 outcomes:3,4,6,8 omes:1,5,6 omes:4,5,6			
Course content	1.Configurin routers , 2I	h, Learning outcomes:2,3	3,4,5					
laboratory	2.Configurin routers , 21 3.Configuration of basic 4.Colloquium I., 2h, Lea 5.AAA configuration , 2H 6.Authentication and fill 7.Control lists , 2h, Lear 9.Colloquium II., 2h, Lea 10.Configuring virtual p 11.Configuring virtual p 12.Konfiguring merni 13.Configure network Ir 14.Configuring Internet 15.Colloquium III. , 2h	h, Learning outcomes:2, security settings on rou rning outcomes:2,3,4,5,4 tering , 2h, Learning outc rning outcomes:4,6,7 rning outcomes:4,7 arning outcomes:3,4,6,8 rivate networks (VPN) , 2 rivate networks (VPN) , 2 h internetskih servisa - E telephony, 2h, Learning	3,4,5 ters , 2h, Learning outco 4,6,8 comes:3,4,6,8 2h, Learning outcomes:3 2h, Learning outcomes:4 DNS, SNMP, 2h, Learning TP, 2h, Learning outcom outcomes:5	omes:2,3,4,5,8 ;,4,7 ;,5,8 i outcomes:1,4 nes:4,5				
Required materials	Basic: classroom, black General purpose compu Special purpose compu Whiteboard with marke Overhead projector Familiarization with con elements, putting netwo	board, chalk iter laboratory ter laboratory rs nponents, device configu ork into operation, signal	iration, hooking up meas l and traffic measuring. /	suring, management and Analyzing obtained data	d communication			

Exam literature	Basic literature:			
	1. Lammie, Tod: Cisco Certified Network Associate study guide, John Wiley Sons INC, 2011.			
	Dodatna:			
	1. Douglas E. Comer: Computer Networks and Internets, Prentice Hall, 2009.			
	2. 1. Conlan, P., J.,(2009), Cisco Network Profesional's - Advanced Internetworking Guide, Wiley Publiching Inc.			
Students obligations	maximum of 3 absences from exercises			
Knowledge	Redovitost pohaa#8#5#0\$Mini-test#5#10#60\$Kolokvij, numeri zadaci#3#20#60\$Kolokvij, teorijska			
evaluation during	pitanja#3#20#60\$Prakti rad#10#30#60\$Prakti ispit#1#15#60\$			
semester				
Knowledge	10 colloquiums. Attending laboratory exercises is a prerequisite for signature. The practical part of the exam contains			
evaluation after	one real-life problem on the basis of the covered material. Oral exam, if student passes the practical part of the exam.			
semester				
Student activities:	Aktivnost ECTS			
	(Written exam) 3			
Remark	This course can be used for final thesis theme			
Prerequisites:	Students cannot enroll in this course unless they have completed Uvod u mreže računala			

Study programme	for academic	year 2018/2019
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Code WEB/ISVU	23610/156403	ECTS	3.0	Academic year	2018/2019
Name	Business English for IT				-
Status	4th semester - Office O	rganization and Informat	ization (Izvanredni infor	matike) - elective course	e4th semester - E-
	business (Izvanredni in	formatike) - elective cou	rse4th semester - IT Des	ign (Izvanredni informat	ike) - elective course
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	eminar + metodology +	construction)	30+30 (30+0+0+0)
Toochors	Work at nome	a Stajaković profivičiu i	rainom zvanju		50
reachers	Auditory exercises: Lan	nia Egartner prof.	li ajilotti zvaliju		
Course obiectives	To develop students Er	nglish language skills: ora	l and written communica	ation in the field of expe	ertise, presentation of
,	oneself/company	5 5 - 5			
Learning outcomes:	1.ability to analyse the	position of the English la	inguage in the business	world. Level:6	
	2.to compare Croatian	and English non-finite for	rms. Level:6,7		
	3.to identify various no	n-finite forms in English.	Level:6 7		
	5.ability to generate a	business letter, a busines	ss e-mail. an order. an in	voice. etc Level:6.7	
	6.to make a difference	between formal an inform	mal email. Level:6		
	7.ability to relate the le	evels of ICT education in t	the English speaking cou	Intries and in Croatia. Le	evel:6,7
	8.ability to relate jobs i	n ICT in the English spea	king countries and in Cro	patia. Level:6,7	raatia Lovel:67
	0.ability to distinguish between high and low guality of business correspondence in English. Level:6				
	11.ability to give a pres	sentation of a company in	n English. Level:6,7	pondenee in Englishi Ee	
	12.to make a difference	e between various forms	of word formation in Eng	glish. Level:6	
	13.ability to analyse the	e characteristics of a job	interview. Level:6	Level C 7	
	15 ability to generate a	iob application letter an	d a CV. Level:6.7	Levelto,7	
	16.ability to analyse the	e differences between or	al and written business of	communication (verbal/	nonverbal;
	synchronous/asynchror	nous) . Level:6			
	17.to analyse various ty	ypes of business corresp	ondence. Level:6		
	18.to analyse phraseol	ogy in communication via	a phone. Level:6		
Methods of carrying	Ex cathedra teaching				
out lectures	Guest lecturer				
	Case studies				
	Demonstration				
	Ouestions and answers				
	Seminar, students pres	entation and discussion			
	Homework presentation	n			
	- Lectures are given in	an interactive way: stude	ents are constantly asked	d questions on the subje	ct being taught; they
	involving writing on the	hents and examples of the board and using key ex	amples from the reading	and listening texts - T	eaching equipment
	board, overhead project	tor, LCD projector, tape-	recorder.	g and insterning texts.	eaching equipment.
Methods of carrying	Group problem solving				
out auditory	Traditional literature ar	nalysis			
exercises	Data mining and knowl	eage discovery on the w	eb		
	Discussion, brainstorming				
	Interactive problem sol	ving			
	Workshop		un an of tool of Doodlass fo		for on origin
	information. The opinion	atterns through various t h exchange tasks:Asking	and answering the gues	tions: Fill in the most ar	nor specific
	Translation exercises; \	/ocabulary exercises (cro	sswords, word games);(Comparing various source	ces of information,
	Writing descriptions of	computing processes; W	riting dialogues (group v	vork); Keeping their own	vocabulary notebooks
Course content	1.Non-finite forms, 2h,	Learning outcomes:2,14			
lectures	2.Croatian and English	non-finite forms, 2h, Lea	rning outcomes:2,3,14		
	4.Formal and informal	email. 2h. Learning outco	mes:6.10.14.16		
	5.Types of business let	ter , 2h, Learning outcom	nes:10,14,16,17		
	6.Job application letter,	2h, Learning outcomes:	10,14,16,17		
	7.CV, 2h, Learning out	comes:10,14,16,17	16 17		
	9.Preliminary exam. 2h	. Learning outcomes:3.1	5		
	10.IT education levels i	n the world, 2h, Learning	outcomes:7,8,9		
	11.Presenting a compa	ny, 2h, Learning outcom	es:11,14		
	12.Phraseology in com	municatin via phone, 2h,	Learning outcomes:14,1	16,18	
	14.lob interview, 2h, Le	earning outcomes:13,14			
	15.Preliminary exam, 2	h, Learning outcomes:7,	8,9,11,13,14,16,18		
Course content	1.Operating systems; n	on-finite forms (introduc	tion), 2h, Learning outco	mes:2,3,4,14	
auditory	2.word processing; nor	1-TINITE TORMS (EXERCISES), tabases: vocabulary ever	zii, Learning outcomes:	:2,3,4,14 omes:4 5 17	
	4.Internet and email: w	riting business email. 2h	, Learning outcomes:4.5	,6,9,14,15	
	5.The Web; word forma	ition; writing a business l	etter (basics), 2h, Learn	ing outcomes:4,5,8,14,1	.5
	6.Jobs in ICT; prefixatio	n in IT terminology; appl	ying for a job, 2h, Learni	ng outcomes:3,4,8,14,1	5
	7.Graphics and design;	writing a CV, 2h, Learnir	ig outcomes:4,5,8,14,15	1501/15	
1		which g a publicess offer,	zii, Leanning outcomes:	Ŧ,J,J,I+,IJ	

	9.Preliminary exam, 2h, Learning outcomes:4,14		
	10.Web design; word formation, 2h, Learning outcomes:4,11,14 11 Program design and computer languages: Java: prefixation in IT terminology, 2h, Learning outcomes:4,11,14		
	12.Internet security; suffixation in IT terminology, 2h, Learning outcomes:4,11,14		
	13.Networks; compunding in IT terminology, 2h, Learning outcomes:4,11,14		
	14.New technologies; vocabulary exercises, 2h, Learning outcomes:4,11,14		
	15.Preliminary exam, 2h, Learning outcomes:4,11,13,14		
Required materials	Basic: classroom, blackboard, chalk		
	Whiteboard with markers		
	Overnead projector		
	Exercising language patterns through various types of tasks: Reading for information: Listening for specific		
	information; The opinion exchange tasks; Asking and answering the guestions; Fill in the most appropriate tense;.		
	Translation exercises; Vocabulary exercises (crosswords, word games);Comparing various sources of information,		
	Writing descriptions of computing processes; Writing dialogues (group work); Keeping their own vocabulary notebooks		
Exam literature	Basic literature:		
	1. E.M.Fabre, S.R.Esteras, Professional English in Use ICT, Cambridge University Press		
	materijali s predavanja (objavljeni na web stranicama kolegija) sastavljeni od tekstova preuzetih iz suvremene truža i jezetodilje literatura.		
	Struche I metodicke interature		
	3. Ashiey, A.A. Halubook of Commercial Correspondence. Our, 2000		
Students obligations	Regular attendance in classes (maximum of 3 absences from exercises are tolerated)		
Knowledge	2 preliminary exams in both lectures and exercises		
evaluation during			
semester			
Knowledge	written and oral exam		
semester			
Student activities	Aktivnost FCTS		
	(Written exam) 3		
Remark	This course can be used for final thesis theme		
Prerequisites:	Students cannot enroll in this course unless they have enrolled Engleski jezik za IT		
Proposal made by	Professor Biljana Stojaković, PhD		

Study programme	for academic year	2018/2019
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Code WEB/ISVU	23612/156405	ECTS	3.0	Academic year	2018/2019
Name	Business German for IT	·			
Status	4th semester - Office O	rganization and Informat	ization (Izvanredni infor	matike) - elective course	4th semester - E-
The state	business (Izvanredni int	tormatike) - elective cou	rse4th semester - IT Des	ign (Izvanredni informat	ike) - elective course
Teaching mode	Lectures + exercises (a work at home	vork at home 30			
leachers	Lectures:2. Doc. dr. sc. Auditory exercises: Doc	Lidija Tepes Golubić v. p dr. sc. Lidija Tepes Goli	rea. ubić v. pred.		
Course objectives	To develop students la	inguage skills, use basic	business terminoloav		
Learning outcomes:	1.ability to formulate a	CV and a job application	letter in English. Level:	5,7	
Methods of corrying	2.ability to analyse text to take a critical attitud 3.ability to give a task I 4.ability to write a sum 5.ability to write a busi 6.ability to give a task I 7.ability to develop land 8.ability to combine the	ts related to the field of e le toward the texts. Leve based presentation in Ge mary and a report of a te ness letter, application le based presentation in Ge guage skills in business o e previously acquired kno	expertise and check the l:6 rman. Level:6,7 ext . Level:6,7 etter, etc Level:6,7 rman. Level:6,7 communication; to use b owledge with the language	predefined theses in ord asic business terminolog ge in IT. Level:6,7	er to motivate students ıy. Level:6,7
out lectures	Questions and answers				
	Seminar, students pres	entation and discussion			
	Homework presentation	n			
	The course is intercultu	Iral and interdisciplinary.	Students are introduced	d to scientific and techni	cal achievements of the
	people whose language	e they study (especially i	n the specialism area).		
Methods of carrying	Group problem solving				
out auditory exercises	Interactive problem sol	ving			
	The student does vario metacognitive and soci for using dictionaries (b media), in order to be a German, all related to t write short summaries	us types of exercises in a al and affective learning bilingual, unilingual) and able to use manuals, prof the profession they are tr and use the basic busine	auditory recitations, bein strategies which make i other manuals (in a trad essional literature, docu ained for.The student is ss correspondence and	g continuously warned on ndividual learnig easier, itional form or those me mentation and other kno trained for using variou to communicate about e	of cognitive, The student is trained diated by electronic owledge sources in s reading techniques, to veryday issues.
Course content	1.Introductory lecture,	2h, Learning outcomes:7	atandina and analysia. 2		7
	3.Texts related to the fi 4.German grammar 1, 7 5.Job application letter, 6.Job interview, 2h, Lea 7.Colloquium 1, 2h, Lea 8.Creating a PowerPoin 9.Task based presenta 10.Task based presenta 11.German grammar 2, 12.Jobs of the future, 21 13.English loanwords ir 14.Future for the Inform 15.Colloquium 2, 2h, Lea	ield of IT expertise under 2h, Learning outcomes: 2h, Learning outcomes: 1,2,5,7,8 arning outcomes:1,2,3,4, t Presentation, 2h, Learn tion in German, 2h, Learn ation in German, 2h, Learn , 2h, Learning outcomes: 1, Learning outcomes: 2, 1 German language, 2h, 1 nation Technology (IT) In earning outcomes:1,2,3,4	standing and analysis, 2 ,7,8 1,2,5,7,8 5,6,7,8 ing outcomes:1,2,3,6,7,8 ing outcomes:4,6,7,8 2,7,8 4,7,8 _earning outcomes:2,4,7 dustry, 2h, Learning out 5,6,7,8	k, Learning outcomes:2 8 7,8 comes:2,4,7,8	7
Course content	1.Introductory lecture,	2h, Learning outcomes:7			-
auditory	 Lexts related to the fi Texts related to the fi A Review of German Job application letter, Glob interview, 2h, Lea Ccolloquium 1, 2h, Lea Creating a PowerPoin Task based presentat German grammar 2, Jobs of the future, 2i Busines English, 2h, Future for the Inform Scolloquium 2, 2h, Lea 	ield of II expertise under ield of IT expertise under Grammar 1, 2h, Learning 2h, Learning outcomes: arning outcomes:1,2,5,7, arning outcomes:1,2,3,4, t Presentation, 2h, Learn cion in German, 2h, Learn ation in German, 2h, Learn t, 2h, Learning outcomes: h, Learning outcomes:2,4, nation Technology (IT) In earning outcomes:1,2,3,4	standing and analysis, 2 standing and analysis, 2 outcomes:2,6,7 1,2,5,7,8 5,6,7,8 ing outcomes:1,2,3,6,7,1 ing outcomes:4,6,7,8 2,7,8 4,7,8 7,8 dustry, 2h, Learning out 5,6,7,8	n, Learning outcomes:2 h, Learning outcomes:2 8 comes:2,4,7,8	7 7
Required materials	Basic: classroom, black	board, chalk			
	Whiteboard with marke	ers			
	Operating supplies				
	prepared materials (tex	kts)			
Exam literature	Basic literature: 1. Marčetić, T.: Pregled 2. Hansen-Kokoruš R., I 3. odabrani tekstovi bja časopisa i s Interneta	gramatike njemačkoga j Matešić J., Pečur-Medinge avljeni na web stranicama	ezika, Školska knjiga, Za er Z., Znika M.: Njemačko a kolegija, recentni tekst	agreb o-hrvatski univerzalni rje ovi preuzeti iz suvremer	čnik, Zagreb, 2005. ne stručne literature,



1	1		
Students obligations	Attending classes and participati	on in the process	
Knowledge evaluation during semester	Preliminary exam 1 and 2, semin	ar paper	
Knowledge evaluation after semester	Written and/or oral exam		
Student activities:	Aktivnost (Activity in class) (Written exam) (Seminar Work)	ECTS 1 1 1	
Remark	This course can be used for final	thesis theme	
Prerequisites:	Students cannot enroll in this cou	urse unless they have completed Njemački jezik za IT	
Proposal made by	PhD. Lidija Tepeš Golubić, senior	lecturer, 4th of June 2018	

Code WEB/ISVU	23607/156400	ECTS	4.0	Academic year	2018/2019
Name	Communication Skills				
Status	3rd semester - Office O	rganization and Informat	ization (Izvanredni infor	matike) - elective course	3rd semester - E-
Taa ahin u waada	business (Izvanredni in	formatike) - elective cou	rse3rd semester - 11 Des	ign (Izvanredni informat	ike) - elective course
Teaching mode	work at home	$\frac{1}{10000000000000000000000000000000000$	eminar + metodology +	construction)	45+50 (50+0+0+0)
Teachers	Lectures:1. Pred. Ida Po	opčević prof.			
	Auditory exercises:Prec	d. Ida Popčević prof.	a a mal a sub-l		
Course objectives	Auditory exercises: Sar	a Slamic Tarade struc.sp	ec. rei.publ.	to boing included and ac	control to freedom of
Course objectives	speech, tolerating the o	different.	esponsibility, the rights t	to being included and ac	cepted, to freedom of
Learning outcomes:	1.ability to formulate th	ne basics of successful co	mmunication. Level:6,7		
	2.ability to identify obs	tacles to successful com	munication, understandi	ng conflicts, the basic fe	atures of group
	processes and rules of 3 ability to classify tech	public presentation. Leve	el:6 I for successful commun	ication with individuals	in arouns and in front of
	audience. Level:6,7	inques and skins needed			in groups and in none of
	4.ability to devise clear	4.ability to devise clear expressing and active listening; to provide feedback with respect. Level:6,7			
	ability to solve communication issues and conflicts. Level:6 Sability to present various business plans, problems and solutions. Level:6.7				
	7.ability to estimate the	e influence of gender bas	sed attitudes on work wit	th persons of the same of	or opposite gender.
	Level:6,7	J		•	
	8.ability to compare the	e intercultural difference	s for better communicati	ion with people belongin	g to various cultures.
	9.ability to form a lead	er roles and functions dir	ected towards social and	d emotional relations bet	tween members of a
	group and performance	e of individual and group	goals. Level:6		
	10.ability to develop hu	umanistic values, such as	mutual responsibility, the	he rights to inclusion and	d to being accepted,
	expressing ideas freely		IL. LEVEI.0,7		
Methods of carrying	Ex cathedra teaching				
out lectures	Guest lecturer				
	Case studies				
	Questions and answers	i			
	Seminar, students pres	entation and discussion			
	Homework presentation	n			
Methods of carrying	Group problem solving				
out auditory	Discussion, brainstorming Interactive problem solving Workshop				
exercises					
	Debate				
Course content	1.Communication proce	ess (1). , 2h, Learning ou	tcomes:1		
lectures	2.Communication proce	ess (2)., 2h, Learning out	comes:1,3		
	4.Non-verbal Communication	cation., 2h, Learning outcome	comes:2,3		
	5.Foundations of femin	ism., 2h, Learning outcor	mes:7,8		
	6.The influence of gend	der based opinions on wo	rk with persons of the sa	ame or the opposite gen	der., 2h, Learning
	7.Foundations of multic	culturalism. , 2h, Learning	g outcomes:7,8		
	8.Intercultural difference	ces more successful com	munication with people f	from other cultures. , 2h	, Learning outcomes:6,7
	9.Negative and positive 10 Constructive and de	e aspects of conflict., 2h,	Learning outcomes: 3,4,1	5 Parning outcomes: 3.4.5	
	11.Communication in s	mall groups., 2h, Learnin	g outcomes:3,4,5		
	12.Communication in la	arge groups., 2h, Learnin	g outcomes:3,4,5	4.5	
	13.Group structure and 14 Public presentation	1 process specificities. , 2 (1) 2h Learning outcom	n, Learning outcomes:3, hes:3.4.5	4,5	
	15.Public presentation	(2)., 2h, Learning outcon	nes:3,4,5,8		
Course contout	1 Junturo du ottione . Ob. Los		-		
auditory	2.Non-verbal communi	cation 2h. Learning outcomes:2,3,4,5,6	o comes:2.3.4.5.6		
	3.Advanced non-verbal	communication. , 2h, Le	arning outcomes:2,3,4,5	ō,6	
	4.Improvising. , 2h, Lea	arning outcomes:2,3,4,5,	5		
	6.Improvising a discuss	sion 2h. Learning outcom	es:2,3,4,3,6 nes:2,3,4,5,6		
	7.Discussion prepared	in advance., 2h, Learning	outcomes:2,3,4,5,6		
	8.Karl Popper debate. ,	2h, Learning outcomes:2	2,3,4,5,6		
	10.World Schools deba	te 2h. Learning outcom	es:2.3.4.5.6		
	11.British Parliament d	ebate. , 2h, Learning out	comes:2,3,4,5,6		
	12.Individual debate. ,	2h, Learning outcomes:2	,3,4,5,6		
	14.Group exercises. , 2	h. Learning outcomes:1.	∠,∍,4,⊃,0,7,8 2.3.4.5.6.7.8		
	15.Group exercises. , 2	h, Learning outcomes:1,	2,3,4,5,6,7,8		
Domuined materials	Danie, classream, http://	heard challs			
Required materials	Dasic: classroom, black Overhead projector	looard, chaik			
	Chairs and tables may	not be fixed to the floor.			

Exam literature	Basic literature:			
	1. J.C. Pearson, B.H. Spitzberg: Interpersonal communication: concepts, components and contexts. Dubuque: Wm. C. Brown Publishers, 1990			
	2. R. Bolton: People skills. New York: Touchstone. 1986			
	3, I.I. Van Emden, L. Becker: Presentation skills for students, London: Palgrave Macmillan, 2004			
	Additional literature:			
	1. J. Stewart (Ed.): Bridges, not walls: a book about interpersonal communication. McGraw-Hill, 1999			
	2. A. Holliday, M.I. Hyde, J. Kullman: Intercultural communication. London: Routledge, 2004			
	3. S.E. Lucas: The art of public speaking. New York: McGraw-Hill, 1998			
Students obligations	Attend at least 50% of the lectures and exercises.			
Knowledge	Regular attendance			
evaluation during	Exam, theoretical issues			
semester				
	Elements:Points			
	Regular attendance and activity in the classes: 10			
	The 1st preliminary exam results: 30			
	The 2nd preliminary exam results: 30			
	The 3rd preliminary exam results: 30			
	Total: 100+10			
	The points required for the final grade:			
	50 - 59 pointssufficient (D)			
	60 - 74 pointsgood (C)			
	75 - 85 pointsvery good (B)			
	86 and more pointsexcellent(A)			
Knowledge	Oral exam			
evaluation after				
semester				
Student activities:	Aktivnost ECTS			
	(Written exam) 4			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			

Study programme	for academic	year 2018/2019
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Code WEB/ISVU	23595/156386	ECTS	6.0	Academic year	2018/2019
Name	Communication System	s and Networks		•	•
Status	3rd semester - Office O	rganization and Informat	tization (Izvanredni infor	matike) - elective course	e3rd semester - E-
	business (Izvanredni inf	formatike) - elective cou	rse3rd semester - IT Des	ign (Izvanredni informat	ike) - elective course
Teaching mode	Lectures + exercises (a work at home	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 45+30 (15+15+0+0) work at home 105			
Teachers	Lectures:1. Mr.sc. Vladi	mir Lebinac dipl.ing.			
	Auditory exercises: Lea	Gagulic ran Šimunić			
	Laboratory exercises: V	lieran Šimunić			
Course objectives	To introduce students t	o the services, architect	ure and resources of a te	elecommunication system	m; to transfer to
	students the knowledge	e related to signal proces	ssing and encryption		
Learning outcomes:	1.ability to analyse the	communication needs o	f small and mid-sized bu	siness systems. Level:6	
	2.ability to propose a sy	stem of optimal configu	ration of information and	d communication subsys	stems. Level:6,7
	3.ability to analyse the	functionality and cost-ef	fectiveness of the existin	ng communication soluti	ions. Level:6,7
	5 ability to formulate the	e requests to the comm	unication subsystem of a	husiness information s	vstem Level:67
	6.ability to organise set	ting up, implementation	and maintenance and o	f communications in a b	usiness system.
	Level:6,7	5 1 1			
	7.ability to manage the	maintenance of a comm	nunication subsystem. Le	evel:6,7	
	8.ability to combine par	ts and processes into ar	n information and comm	unication system. Level:	6,7
Mothoda of comulas	Ex esthedrs tooching				
out lectures	Case studies				
	Demonstration				
	Simulations				
	Discussion				
	Questions and answers	d with a modern present	ation technology Theore	etical explanation is follo	wed by multimedia
	interactive demonstrati	ons of the information c	oding algorithm or real to	elecommunication signa	lls analysis and
	processing. Traffic simu	llation and analysis.	5 5	5	
Methods of carrying	Laboratory exercises, c	omputer simulations			
out auditory	Computer simulations				
exercises	Single and simple nume	erical problem solving or	the blackboard and in r	notebooks is multiplied b	w a spreadsheet MS
	Excel and MatLab soluti	ion. The solution discuss	ion follows.		y a spreadsheet his
Methods of carrying	Laboratory exercises, c	omputer simulations			
out laboratory	Computer simulations	·			
exercises	Interactive problem solv	ving			
	Uther Laboratory with 15 wor	knlaces equipped with c	artain specialized measu	irement instruments and	PC-s for data analysis
	and reporting. Working	in the pairs of students.			
Course content	1.Introduction to the co	urse; history of telecom	munications, 3h, Learnin	g outcomes:3	
lectures	2.The telecommunication	on system; Terminals, 3h	n, Learning outcomes:1,3	3	
	3.telecommunication si	gnals, 3h, Learning outc	omes:2		
	5.A / D conversion and b	Shannon sampling theor	em. 3h. Learning outcon	nes:4	
	6.Information; definition	n and description., 3h, Le	earning outcomes:3,5		
	7.Measure of information	on, entropy of the inform	ation source., 3h, Learni	ng outcomes:2,4	
	8.Uniform and statistica	al coding, 3h, Learning o	utcomes:4	na an a	
	10 The characteristics	of the transmission syste	em 3h Learning outcom	nessaye, sn, Leanning (Julcomes:2,4
	11.Modulations, 3h, Lea	arning outcomes:7	e, e, 2eag eacee.		
	12.The impact of noise	in the channel and the c	hannel capacity. Securit	y and encryption, 3h, Le	earning outcomes:7
	13.cryptography, 3h, Le	earning outcomes:8	noc.6 7		
	15.Traffic Analysis, 3h.	learning outcomes:5.8	nes:0,7		
		;			
Course content	1.Examples of commun	ications and systems, 1h	n, Learning outcomes:3		
auditory	2.Description of some c	ommunication terminals	s, 1h, Learning outcomes	::4	
	3.Examples of spectra of 4. Conditions of quality	characteristic signals, 1h	, Learning outcomes:1,4		
	5. The entropy and the a	amount of information. 1	h. Learning outcomes:2,4	4	
	6.Examples of uniform	coding, 1h, Learning out	comes:3,5		
	7.The first colloquium, 2	1h, Learning outcomes:1	,2,3,4,5		
	8.The statistical encoding	ng algorithm, 1h, Learnii	ng outcomes:3		
	10. The impact on the tr	ansmission system sign	als: impact of noise in th	e channel. 1h. Learning	outcomes:7
	11.Errors in transmissio	on, 1h, Learning outcome	es:6,8	e channel, in, Leannig	oucomesty
	12.Security coding, 1h,	Learning outcomes:5,7			
	13.Analysis of the modu	ulated signal, 1h, Learnir	ng outcomes:8		
	14. I ramic Analysis, 1h,	Learning outcomes:6,8	5678		
		In, Learning outcomest	,,,,,,		
Course content	1.no exercises				
laboratory	2.no exercises				
I	3.The first exercise, 3h,	Learning outcomes:3,5			

	4.The second exercise, 3h, Learning outcomes:3,5			
	5. no exercises			
	o. The third exercise, Sh, Learning outcomes:4,5			
	A The fourth exercise 3h Learning outcomes: 4.5			
	9. The fifth exercise, 3h, Learning outcomes: 5.6			
	10.no exercises			
	11.no exercises			
	12.no exercises			
	13.no exercises			
	14.no exercises			
	15.no exercises			
Required materials	Basic: classroom, blackboard, chalk			
	General purpose computer laboratory			
	Overhead projector			
	Laboratory with 15 workplaces equipped with certain specialized measurement instruments and PC-s for data analysis			
	and reporting. Working in the pairs of students.			
Exam literature	Basic literature:			
	1. P. Valožić: Komunikacijski sustavi i mreže, skripta, TVZ 2005.			
	2. P. Valožić: Komunikacijski sustavi i mreže, zbirka riješenih zadataka, TVZ 2005.			
	3. P. Valožić: Komunikacijski sustavi i mreže, laboratorijske vježbe, TVZ 2005.			
	Auguluonan menature: 1 V. Matkavić V. Siakovići Taarija informacija, Čkolska knjiga, Zagrab 1004			
	1. V. Matkovic, V. Sinkovic: Teorija informacija, Skolska knjiga, Zagreb, 1984.			
	2. Simon Haykin: Communication Systems, John Wiley Sons, Inc. New York,			
	3. Zeljko Pause: Vjerojatnost, informacija, stonasticki procesi, skolska knjiga, Zagreb, 2003.			
	4. VJEKOSIAV SINKOVIC, INFORMACIJA, SIMDOIIKA, SEMANTIKA, SKOISKA KNJIGA, ZAGRED, 1997.			
Students obligations	5. William Stallings: Data Computer Communications, Prentice Hail, Inc. London, 2000.			
Knowledge	Pequing produce at 10%			
evaluation during	Colloquium numerical accignments 20%			
semester	Colloquium Laboratory exercises 20%			
semester	Colloquium, theoretical issues 40%			
	E-learning activity 10%			
Knowledge	Written exam 80%			
evaluation after	Oral exam 20%			
semester				
Student activities:	Aktivnost ECTS			
	(Written exam) 6			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
ISVU equivalents:	200095;			
Proposal made by	Vladimir Lebinac, MScEE, sen.lect.			

Code WEB/ISVU	23743/170019	ECTS	5.0	Academic year	2018/2019
Name	Computer Games Deve	lopment			
Status	5th semester - IT Design	n (Izvanredni informatike	e) - obligatory course		
Teaching mode	Lectures + exercises (a work at home	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 90			
Teachers	Lectures: Tin Kramberge Laboratory exercises: B	Lectures: Tin Kramberger struč. spec. ing. techn. inf., pred.			
Course objectives	Mastering the technique	es of development of cor	mputer games.		
Learning outcomes:	1.IDE for game develop	ment. Level:6.7	inputer guines.		
	2.Establish (similarity / difference) between conventional programming and programming computer games Level:6 3.Physics and mathematics for game development Level:6 4.Plan development of computer games Level:6,7 5. Design computer game surroundings Level:6 6.Animate objects and surroundings with computer game programming framework. Level:6,7 7.Integrate artifitial inteligence with objects Level:6,7 8.Create computer game by the book Level:6				
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Modelling Discussion Questions and answers Homework presentatior	ı			
Methods of carrying out laboratory exercises	Laboratory exercises or Laboratory exercises, co Group problem solving Data mining and knowle Discussion, brainstormi Computer simulations Workshop	laboratory equipment omputer simulations edge discovery on the W ng	eb		
Course content lectures	1.Basics of computer ga 2.2D graphics and phys 3.User interface and ga 4.3D object basics, 2h, I 5.3D object modeling an 6.Illumination, shadows 7.Animations in a 3D en 8.Colloquium, 2h, Learn 9.Particle systems and a 10.Artificial intelligence 11.Alternative platform: 12.Multiplayer game de 13.Guest lecturer, 2h, L 14.Student project pres	ames, 2h, Learning outcomes, 2h, Learning out	omes:1,2,4 nes:2,3 h, Learning outcomes:1 8,4,5 ning outcomes:5,6 ing outcomes:5 outcomes:6 6 omes:2,4,5,6 2h, Learning outcomes:2 outcomes:2,4,8 utcomes:1,2,3,4,5,6,7,8 utcomes:1,2,3,4,5,6,7,8	,2,4,5 2,6,7 .earning outcomes:4,8	
Course content laboratory	1.No classes, 2h 2.Introduction to Object 3.Getting to know the d 4.2D graphics and phys 5.Games textures and s 6.Getting to know 3D ga 7.3D object modeling, 2 8.Colloquium, 2h, Learn 9.3D object animation, 10.3D animations and a 11.Setting up 3D Scene 12.Particle systems and 13.Artificial intelligence 14.Multiplayer game de 15.Colloquium, 2h, Lear	: Oriented Programming, evelopment tool, introdu- ics, 2h, Learning outcom- surroundings, 2h, Learning ame development, 2h, L- th, Learning outcomes:5 ing outcomes:1,2,3,4,5, 2h, Learning outcomes: 4 audio, 2h, Learning out e, 2h, Learning outcomes audio, 2h, Learning out evelopment, 2h, Learning rning outcomes:1,2,3,4,5	2h, Learning outcomes Juction to 2D game devel les:2,3 ng outcomes:1,2,4,5 earning outcomes:2,3,5 6 5,6 comes:5,6 :4,5 comes:2,4,5,6 :7 g outcomes:2,4,8 5,6,7,8	:1,2 opment, 2h, Learning ou	tcomes:1,2
Required materials	General purpose compu Whiteboard with marke Overhead projector	ıter laboratory rs			
Exam literature	Lauren S. Ferro: Gamific Dr. Edward Lavieri: Gett Patrick Felicia: Getting Claudio Scolastici: Unity	cation with Unity 5.x, Pac ting Started with Unity 5 Started with Unity, Packt y 2D Game Development	ckt Publishing, 2016. , Packt Publishing, 2015 : Publishing, 2013. : Cookbook, Packt Publis	shing, 2015	
Students obligations	Attendance at 70% of la	aboratory exercises, sub	mission of the practical	project.	
Knowledge	The theoretical part of t	he learning outcomes, n:	nax. 20 points		

evaluation during semester	2 colloquiums, 10 points each. For passage, it is necessary to collect> 5 points. Practical part of the learning outcomes max 80% of the points: Exercises, max. 40 points. The preparation, commitment, content and appearance of the project that is given for the exercise are evaluated. Colloquium exercises: individual reports, a condition for a positive grade. Practical work, max 40 points. Total, max. 100 points. 91 - 100 = 5 78 - 90 = 4 64 - 77 = 3 51 - 63 = 2 50 and under, under-achievement		
Knowledge	Total = Written exam + points during the semester of labs		
evaluation after	Total, max, 100 points.		
	91 - 100 = 5 78 - 90 = 4 64 - 77 = 3 51 - 63 = 2 50 and under, under-achievement		
Student activities:	Aktivnost ECTS		
Domorik	(Written exam) 5		
Remark	I his course can be used for final thesis theme		
Prerequisites:	Students cannot enroll in this course unless they have passed Programiranje		
Proposal made by	Tin Kramberger , 02.06.2017.		

Code WEB/ISVU	23742/170018	ECTS	5.0	Academic year	2018/2019
Name	Computer Graphics	-			
Status	5th semester - IT Desig	n (Izvanredni informatike	e) - obligatory course		
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0)
_	work at home				90
Teachers	Lectures:1. Prof.dr.sc. S	Slavica Ćosović Bajić			
	Lectures:1. Krešimir Šti	h			
	Laboratory exercises: K	resimir Stih			<u> </u>
Course objectives	To transfer to students	the basic knowledge rela	ated to computer graphic	cs; to qualify them to un	derstand the
Loorning outcomos	1 ability to categorize t	ments on specific practic	al solutions	Jution Lovalia	
Learning outcomes:	2 ability to categorize t	project in which solutions	to computer graphics so	re used including the pr	enarations of the work
	place, equipment and a	applications. Level:6.7	to compater graphies a	re used, meluding the pr	eparations of the work
	3.ability to formulate th	ne ways in which a specif	fic type of computer grag	phics task is solved: pict	ure, video, CAD,
	animation, Web, model design. Level:6,7				
	4.ability to reach a conclusion about the right method to be used in choosing a graphic application. Level:6,7				
	5.adulty to integrate projects of computer graphics carried out by using various methods and applications into a				
	predemined whole. Levels, / 6 ability to determine the optimal way of choosing an application or a method, in accordance with the resources				
	available (computer equipment applications). Level 6				
	7.ability to make an individual design of 2D models, 3D models, animations, interactions among objects, graphic				
	databases, 3Dvideo. Level:6				
	8.ability to generate en	igineering CAD models, 3	3D models to be used in	animations or in comput	er games. Level:6,7
	9.ability to design comp	plex CAD models in space	e ready for further proce	ssing (making a prototy	pe). Level:6,7
	11 ability to prepare pi	ctures photographs and	videos for integration in	to a whole I evel 6 7	
	12.ability to prepare pro-	e 3D virtual scene light r	esources used in animat	tions and complex video	effects. Level:6.7
	13.ability to prepare th	e parameters necessary	in using effects which ar	re usually used for proce	ssing videos and
	animations. Level:6,7				
Methods of carrying	Ex cathedra teaching				
out lectures	Case studies				
	Modelling				
	Discussion				
	Questions and answers	5			
	Other				
	The subject matter is ta	aught by using a great nu	umber of drawings, pictu	ires, animations and film	is, in order to facilitate
	Teaching equipment: h	ts are constantly asked o	questions in order to mot	Ivate them to take an ac	tive part in class.
Methods of carrying	Laboratory exercises	omputer simulations			
out laboratory	Group problem solving				
exercises	Discussion, brainstormi	ing			
	Mind mapping				
	Computer simulations				
	Other				
	The topic-related tasks	students solve on the PO	Cs with help of assisstant	t and digital step-by-ster	o tutorials.
Course content	1. History of Computer (Graphics (CG), 2h, Learni	ing outcomes:1		
lectures	2.Representative usage	es of CG, classification of	applications(, 2h, Learn	ing outcomes:1,2	
	3.Engineering Design C	Fraphics, CAD, CAM(, 2h,	Learning outcomes:4		
	4.Graphics hardver, 2h	, Learning outcomes:6			
	5.Geometrical transform	mations, 2h, Learning ou	tcomes:5		
	7.Input devices, interac	tion techniques and task	cs. 2h. Learning outcome	s:7	
	8.Dialogue design, user	r interface software. 2h.	Learning outcomes:1.3.7	1	
	9.Representing curves	and surfaces, solid mode	elling, 2h, Learning outco	omes:8,9,10	
	10.Achromatic and cold	oured light, the quest for	visual realism, 2h, Learr	ning outcomes:3,4,6	
	11.Visible-surface deter	rmination, illumination a	nd shading, Image manij	pulation and storage, 2h	, Learning
	Outcomes: 3,6,7	tochniques 2h Learnin	a outcomos:3 10 11		
	13.Animation, 2h. Lear	ning outcomes: 3.4.5.13	g outcomes.5,10,11		
	14.Digital cinematogra	phy, 2h, Learning outcon	nes:3,4,11,12,13		
	15.Computer game des	sign and analysis, 2h, Lea	arning outcomes:1,2		
Course content	1.Autocad - basics and	user interface, 2h, Learn	ing outcomes:1,3		
laboratory	2.CAD modeling - 2D, 2	h, Learning outcomes:2,	3		
	4 Complex 3D models	2h Learning outcomes.2,	5 7 8 9 10		
	5.CAD production prepa	aration. 2h. Learning out	comes:6.7.9.11		
	6.3D modeling aplication	ons, 2h, Learning outcom	es:1		
	7.User interface and ma	ain topics of the aplication	on, 2h, Learning outcome	es:1,2	
	8.3D modeling from scr	rachpad, 2h, Learning ou	tcomes:4,5	5 6 10 11	
	10 Rigging 2b Learnin	mais, surrace mapping, a	211, Learning outcomes:4	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	11.Lighting, 2h. Learnir	ng outcomes:4,5.6.12			
	12.Skinning, 2h, Learni	ng outcomes:4,5,6			

	13.Scene, 2h, Learning outcomes:3,10,11,13			
	15.Effects, 2h, Learning outcomes:10,11,13			
Required materials	Special purpose computer laboratory Whiteboard with markers Overhead projector The topic-related tasks students solve on the PCs with help of assisstant and digital step-by-step tutorials.			
Exam literature	 Foley, J., van Dam, A., Hughes, J., Phillips, R., Introduction to Computer Graphics, Addison-Wesley, 1997. Pandžić, I.S., Virtualna okruženja, Udžbenici Sveučilišta u Zagrebu, Element, Zagreb, 2004. Bjelovučić Kopilović, S., Riješeni primjeri i zadaci iz tehničkog crtanja i nacrtne geometrije u AutoCADu 2004, Digitalni priručnik, 32 bita d.o.o., Zagreb, 2004. The Art of Maya, An Introduction to 3D Computer Graphics, Alias/Wavefront Education, 2002. Cogner, D., Physics Modelling for Game Programmers, Thomson Course Technology, Boston, 2004. Masson, T., Cg 101, A Computer Graphics Industry Reference, New Riders Publishing, USA, 1999. Kerlow. I.V., The Art of 3-D : Computer Animation and Imaging, 2nd Edition, John Wiley Sons, 2000 			
Students obligations	Up to 1 absence without excuse, maximum of 3 absences from exercises, minimum of 33% of total of both tests during the term, minimum of 10% of each test			
Knowledge evaluation during semester	Regular attendance, colloquium, numerical assignments, homework, written test, examination			
Knowledge evaluation after semester	a seminar paper chosen in consultation with the teacher the written part of the exam consists of solving problems similar to those solved on laboratory exercises, on PC, in AutoCAD and Blender (3D modelling and animation tools) the oral part of the exam, if the student earned 60% of points or more in the written part of the exam, consists of questions related to all the matter from lectures			
Student activities:	AktivnostECTS(Written exam)5			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Krešimir Štih			

Code WEB/ISVU	23747/170023	ECTS	4.0	Academic year	2018/2019
Name	Computer Network Adm	inistration			
Status	6th semester - Office Or	ganization and Informat	ization (Izvanredni infor	matike) - obligatory cour	se
Teaching mode	Lectures + exercises (au work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0) 60
Teachers	Lectures:1. dr.sc. Željko Širanović prof.v.š. Laboratory exercises:dr.sc. Željko Širanović prof.v.š.				
Course objectives	To transfer to students t	the basic knowledge rela	ated to switching, switch	ing devices, network pro	tection and
Learning outcomes	1 ability to integrate IP t	tolonhony into a LAN Lo	vol:6 7		
Learning outcomes.	2.ability to integrate a w 3.ability to to give comm (DMZ), intrusion detectii 4.ability to to set up bas 5.ability to set up virtua 6.ability to set up the ac 7.ability set up both a lo 8.ability to solve probler 9.ability to set up both a test it on a simulator. Le	vireless network into a LAN. Le vireless network into a L nents on IT terms relate on systems (IDS), intrusi sic types of firewall in a of I LANs and interconnect ccess lists used to contro occal and a distant netwo ms occurring typically in a logical and a physical r evel:6,7	AN. Level:6,7 AN. Level:6,7 d to the security of comp ion prevention systems computer network. Leve them via a router. Leve of the traffic between VL rk identification and aut computer networks. Lev mid-size computer netwo	puter networks (firewall, (IPS), . Level:6 I:6,7 I:6,7 ANs. Level:6,7 horisation. Level:6,7 vel:6 ork, to anticipate the key	demilitarised zones v security aspects and
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Demonstration Simulations Modelling Discussion Questions and answers Seminar, students prese Homework presentation Frontally, oral presentat contemporary presentat available online.	entation and discussion itions illustrated with pre- tion technologies. Multi-1	sentations about actual media teaching material	solutions, along with the I will be used with screer	e application of a projections, also
Methods of carrying	Laboratory exercises on	laboratory equipment			
out laboratory exercises	Laboratory exercises, cc Group problem solving Data mining and knowle Essay writing Discussion, brainstormir Mind mapping Computer simulations Interactive problem solv Workshop Familiarization with com elements. Putting networ	omputer simulations edge discovery on the W ng ving ponents, device configu ork into operation, signal	eb Iration, hooking up meas and traffic measuring. A	suring, management and Analyzing obtained data.	d communication
lectures	2.VLAN Trunk i STP prot 3.Security of switch dev 4.Introduction to firewal 5.Operating principles a 6.Control lists on firewal 7.Control lists on firewal 8.Firewall maintenance 9.Firewall maintenance 10.IP telephony , 2h, Lea 11.Intrusion detection (I 12.Intrusion detection (I 13.Performance manage 14.Performance manage	ices in the VLAN , 2h, Learning of ices in the VLAN , 2h, Le Ils , 2h, Learning outcom nd how to connect firew Ils , 2h, Learning outcom and problem-solving , 2l and problem-solving , 2l and problem-solving , 2l anning outcomes:1,2 IDS) with the help of fire DS) with the help of fire ement and configuration ement and configuration earning outcomes:1,2,3	walls , 2h, Learning outcomes:2,5 hes:4 alls to networks , 2h, Le hes:4,5,6 hes:5,6,7 h, Learning outcomes:3, h, Learning outcomes:3, walls , 2h, Learning outco walls , 2h, Learning outco of computer networks, of computer networks, 4,5,6,7,8,9	arning outcomes:4 4,5,6,7 4,5,6,7 :omes:3,4,5,6,7,8,9 :omes:3,4,5,6,7,8,9 2h, Learning outcomes:1 2h, Learning outcomes:1	L,4,5,6,7,8,9 L,4,5,6,7,8,9
Course content laboratory	1.Configure the ports or 2.Creating and maintain 3.Configuring VLAN Trur 4.Setting the basic secu 5.Configuration of basic 6.Setting firewalls for to 7.Configuring the DMZ, 8.Configuring the DMZ, 9.Configuring the wirele 10.Integrating IP telepho 11.Configuring Virtual p 12.Debugging and trout 13.Debugging and trout	h the switch, 2h, Learnin ning VLANs on a switch, 2 hk Protocol, 2h, Learning rity mechanisms on swit security settings on fire protect the computer n 2h, Learning outcomes: 2h, Learning outcomes: 2h, Learning outcomes: 2h, Learning outcomes 2h, Learning of computer 2h, Learning of computer 2h, Learning of computer	g outcomes:5,8 2h, Learning outcomes:5 1 outcomes:5,8 cching devices, 2h, Learn walls, 2h, Learning outc etwork by using the acc 3,6 3,6 tcomes:2,5 hing outcomes:1,5 h, Learning outcomes:7 networks , 2h, Learning networks , 2h, Learning	5,8 hing outcomes:2,3,5,6,7 omes:2,3,4,5,6,7,8,9 ess list, 2h, Learning out ,8,9 outcomes:2,3,4,5,6,7,8, outcomes:2,3,4,5,6,7,8, outcomes:1,2,3,4,5,6,7,8	comes:2,3,4,5,6,7,8,9 9 9 8,9

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	15.The final practical exam, 2h, Learning outcomes:1,2,3,4,5,6,7,8,9				
Required materials	Basic: classroom, blackboard, chalk General purpose computer laboratory Special purpose computer laboratory Whiteboard with markers Overhead projector Video equipment Familiarization with components, device configuration, hooking up measuring, management and communication elements. Putting network into operation, signal and traffic measuring. Analyzing obtained data.				
Exam literature	 Basic literature: 1. Lammle, T., (2013), CCNA Routing and Switching Study Guide: Exams 100-101, 200-101, and 200-120, John Wiley Sons INC. Dodatna: 1. Douglas E. Comer: Computer Networks and Internets, Prentice Hall, 2009. 2. Conlan, P., J.,(2009), Cisco Network Profesional's - Advanced Internetworking Guide, Wiley Publiching Inc. 				
Students obligations	maximum of 3 absences from exercises				
Knowledge evaluation during semester	Redovitost pohaa#8#5#0\$Mini-test#6#10#60\$Kolokvij, numeri zadaci#3#20#60\$Kolokvij, teorijska pitanja#3#20#60\$Prakti rad#10#30#60\$Prakti ispit#1#15#60\$				
Knowledge evaluation after semester	10 colloquiums. Attending laboratory exercises is a prerequisite for signature. The practical part of the exam contains one real-life problem on the basis of the covered material. Oral exam, if student passes the practical part of the exam.				
Student activities:	AktivnostECTS(Written exam)4				
Remark	This course can be used for final thesis theme				
Prerequisites:	Students cannot enroll in this course unless they have completed Napredne tehnologije interneta Students cannot enroll in this course unless they have passed Uvod u mreže računala				
Code WEB/ISVU	23238/143170	ECTS	6.0	Academic year	2018/2019
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Name	Computer Typography				
Status	1st semester - Office O business (Izvanredni in course	rganization and Informa formatike) - obligatory c	tization (Izvanredni infor ourse1st semester - IT D	matike) - obligatory cour esign (Izvanredni inform	se1st semester - E- atike) - obligatory
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	30+30 (0+30+0+0) 120
Teachers	Lectures:1. Vesna Uglje Laboratory exercises: Z Laboratory exercises: E Laboratory exercises: A Laboratory exercises: M Laboratory exercises: V	ešić dipl. dizajner Zorana Andrić mag. ing. g Darija Ćutić , mag. ing. g Ana Hoić nag.des. Ulla Leiner Maks /esna Uglješić dipl. dizaji	graph. techn. raph. techn. san ner		
Course objectives	Introduction to the basi visual communication. various typefaces, and	ic elements of typograph The student should acqu use them in their projec	ny, typeface design and i ire the basic theoretical ts.	modification; also, the us knowledge, learn to rec	se of typography in ognize and modify
Learning outcomes:	1.to analyse basic typo 2.to identify main type 3.to differentiate variou 4.typeface design. Leve 5.to make a computer f 6.to analyse the import 7.to evaluate existing t 8.to make a connection 9.to make a connection 10.to design page layou	graphic terms and conce faces features. Level:6 us typefaces. Level:6 el:6 font. Level:6 cance of typography in v ypographic works. Level between typography an between calligraphy an ut. Level:6	epts. Level:6 isual communications. Le :7 nd design. Level:6,7 id typography. Level:6,7	evel:6	
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Other video projection				
Methods of carrying out laboratory exercises	Laboratory exercises of Laboratory exercises, c Group problem solving	n laboratory equipment computer simulations			
Course content lectures	1.Basic concepts, 2h, L 2.Typography terminole 3.History and developm 4.Typeface classificatio 5.Famous typefaces, 2h 6.Computer typography 7.The importance of ty 8.Typography as a mea 9.Typography in digital 10.Typeface design, 2h 11.Typeface design, 2h 12.Copyright and licens 13.Typography in docu 14.Page layout design, 15.Security graphics ty	earning outcomes:1,2 ogy, 2h, Learning outcor nent of typography, 2h, 1 in, 2h, Learning outcomes h, Learning outcomes:3, y, 2h, Learning outcomes pography in visual comm ans of expression, 2h, Le media, 2h, Learning out h, Learning outcomes:4,5 sing, 2h, Learning outcor ments, 2h, Learning outco 2h, Learning outcomes: pography, 2h, Learning outcomes	nes:1,2,9 Learning outcomes:1,2,9 es:2,3 6,7 s:4,5 nunication, 2h, Learning arning outcomes:6,7,8,9 comes:5,6,7 ,9 ,9 nes:5 comes:6,10 6,10 outcomes:6,8	outcomes:6,7,10	
Course content laboratory	1.Lettering, 2h, Learnin 2.Lettering, 2h, Learnin 3.Lettering, 2h, Learnin 4.Typeface classificatio 5.Typeface design, 2h, 7.Typeface design, 2h, 8.Typeface design, 2h, 9.Typeface design, 2h, 10.Page layout design, 11.Page layout design, 13.Page layout design, 13.Page layout design, 14.Individual project, 2 15.Individual project, 2	ig outcomes:1,2,3,4,9 ig outcomes:1,2,3,4,9 ig outcomes:1,2,3,4,9 in, 2h, Learning outcomes Learning outcomes:4,5, Learning outcomes:4,5, Learning outcomes:4,5, 2h, Learning outcomes: 2h, Learning outcomes: 2h, Learning outcomes: 2h, Learning outcomes: 2h, Learning outcomes: 6, Learning outcomes: 6, Learning outcomes: 7, Learning outcomes: 9, Learnin	es:2,3 es:2,3 9 9 9 6,8,10 6,8,10 6,8,10 6,8,10 7,8 7,8		
Required materials	Basic: classroom, black Special purpose compu Whiteboard with marke Overhead projector Operating supplies papers, pencils, rulers,	board, chalk iter laboratory ers calligraphy pens			
Exam literature	1. F. Mesaroš, Tipografs 2 V Žiliak K Pan POS	ski priručnik, Grafički ob STSCRIPT PROGRAMIRAN	razovni centar, Zagreb, 1 IE GRAFIKE, ES, Zagreb	1985. 1998 /2004 ISBN: 053.	- 199 - 000 elektr
I	ј∠. v. ∠пјак, к. Pap, POS	DISCRIPT PROGRAMIKAN	JE GRAFIKE, FS, Zagreb,	1330' 15004' I2RN: 323 -	- 199 - 000, elektr.

	Izdanje: http://free-zg.htnet.hr/kpap/ 3. V. Žiljak, TIPOGRAFIJA RAČUNALOM, str. 5 do 63 u knjizi Tiskarstvo 04, ISBN 953-199-0190, UDK 655(082), 655.4.92>(082).738.5 2004. FS i Grafički fakultet, elektr. izdanje: www.grf.hr/vziljak/tiskarstvo033. 4. V. Žiljak, TIPOGRAFIJA, 2004. Zagreb, Grafički fakultet katedra za računala i slog, elektroničko izdanje,: http://public.carnet.hr/%7Eviziljak/predavanja/tipografija1/Tipografski rjecnik1.htm 5. R. Bringhurst, The Elements of Typographic Style		
Students obligations	s Maximum of three absences from lab exercises, all colloquia an	d projects submitted on time.	
Knowledge evaluation during semester	Every assignement or project done as a part of the lab exercise	s is graded as a colloquium.	
Knowledge evaluation after semester	Tasks on the computer; oral exam.		
Student activities:	AktivnostECT(Classes attendance)1(Practical work)1(Written exam)2(Oral exam)2	TS	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		
Proposal made by	Vesna Uglješić		

Code WEB/ISVU	23749/170025	ECTS	3.0	Academic year	2018/2019
Name	Computers and Softwar	re Installation		-	-
Status	6th semester - Office O	rganization and Informat	tization (Izvanredni infor	matike) - obligatory cour	se
Teaching mode	Lectures + exercises (a	uditory + laboratory + s	eminar + metodology +	construction)	30+15 (0+15+0+0)
	work at home				45
leacners	Lectures: 1. dr. sc. Roma	an Domovic , prot. r. sc. Roman Domović - r	rof		
Course objectives	To transfer to students	the knowledge related to	o the architecture and fu	Inctioning of a personal (computer: to qualify
·····	students to install and i	maintain a computer, its	components and softwa	ire	
Learning outcomes:	1.ability to analyse the environment of an information system in regards to both hardware and software. Level:6 2.ability to identify needs and difficulties which occur when working with a computer Level:6				
	3.ability to test the ope	rability of both hardware	e and software of a comp	outer. Level:6	
	4.ability to assemble a	computer and configure	the hardware and softw	are components of an in	formation system.
	5.ability to set up the h	ardware of an informatio	on system. Level:6.7		
	6.ability to propose solu	utions related to informa	tion systems hardware,	software and security to	gether troubleshooting
	in case of computer ma	1 case of computer malfunctioning. Level:6, / / ability to be familiar with various types of computer and computer components. Level:6			
	ability to performinar with various types of computer and computer components. Level:0 Bability to propose solutions in case of computer malfunctioning. Level:6				
	9.ability to compare co	mputers and computer c	omponents in order to o	ptimize an information s	ystem hardware.
	Level:6,7	wa and increase and difficu		nutra functioning laural	6 7
	10.adility to anticipate	requirements and difficu	ities which occur in com	puter functioning. Level:	0,7
Methods of carrying	Ex cathedra teaching				
out lectures	Case studies				
	Ouestions and answers				
	`				
Methods of carrying	Laboratory exercises or	n laboratory equipment			
out laboratory	Laboratory exercises, c	omputer simulations			
exercises	Workshop	ing			
Course content	1.Introduction, 2h, Lear	ning outcomes:1	, 7 7		
lectures	3.Computer hardware 1	L. 2h. Learning outcomes	:2,7 s:2.3.7.9.10		
	4.Computer hardware 2	2, 2h, Learning outcomes	5:2,3,7,9,10		
	5.High-performance co	mputing, 2h, Learning ou	utcomes:1,2,3,7,9,10		
	6.First mid-term exam, 7.Servers, 2h, Learning	2n, Learning outcomes:	1,2,6,8,10		
	8.Malicious software, 21	h, Learning outcomes:2,3	3,6,8,10		
	9.Data security and pro	tection, 2h, Learning ou	tcomes:1,2,3,4,5,6,7,8,9	,10	
	10.Storage systems, 2n	n, Learning outcomes:1,2	2,6,8,10 nes:3,4,5		
	12.Review and analysis	of examples from IT are	a with guest speaker, 2	n, Learning outcomes:3,4	4,5
	13.Computer installatio	n, 2h, Learning outcome	es:3,4,5		
	14.Computer installatio	on, 2h, Learning outcome	es:3,4,5		
		in, zh, Leanning outcome	5.5,7,5		
Course content	1.Computer installation	, 1h, Learning outcomes	:3,4,5		
laboratory	2.Computer installation	, 1h, Learning outcomes	:3,4,5		
	3.Computer installation 4 Computer installation	i, 1h, Learning outcomes	:3,4,5 ·3 4 5		
	5.Computer installation	, 1h, Learning outcomes	:3,4,5		
	6.Computer installation	, 1h, Learning outcomes	:3,4,5		
	7.Computer installation	 Th, Learning outcomes The Learning outcomes 	:3,4,5 :3,4,5		
	9.Computer installation	, 1h, Learning outcomes	:3,4,5		
	10.Computer installatio	n, 1h, Learning outcome	s:3,4,5		
	11.Computer installatio	on, 1h, Learning outcome	es:3,4,5		
	13.Computer installatio	n, 1h, Learning outcome	s:3,4,5		
	14.Computer installatio	on, 1h, Learning outcome	es:3,4,5		
	15.Computer installatio	on, 1h, Learning outcome	s:3,4,5		
Required materials	Basic: classroom, black	board chalk			
Required materials	General purpose compu	uter laboratory			
	Whiteboard with marke	ers			
	Overhead projector				
	Operating supplies				
	Special equipment				
-	Computers, computer o	components, tools for ser	vicing computers, screw	is for fixing computer co	mponents.
Exam literature	Basic literature:	dmeta			
	Dodatna:				

	1. Ribarić, Slobodan. Građa računala - arhitektura i organizacija računarskih sustava. Algebra, 2011.			
Students obligations	Done laboratory exercises.			
Knowledge	Two mid-term exams, each carries 50% of the total grade.	Condition for the passage is 60 total points and 30 points		
evaluation during semester	from each mid-term exam.			
	Final distribution of points and grades:			
	PointsGrade			
	0-59 1			
	60-63 2			
	04-75 3			
	70-87 4			
Knowledge	Writton and oral oxam			
evaluation after				
semester	Final distribution of points and grades of written exam:			
	PointsGrade			
	0-59 1			
	60-63 2			
	64-75 3			
	/6-8/4			
	88-100 S	FOTO		
Student activities:	AKTIVNOST			
Demeril	(Whiteh exam)	5		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
ISVU equivalents:	200093;			
Proposal made by	Roman Domović, prof.			

Code WEB/ISVU Name	23613/156406 Databases	ECTS	5.0	Academic year	2018/2019
Status	4th semester - Office O business (Izvanredni inf	rganization and Informa formatike) - obligatory c	tization (Izvanredni inforı ourse	matike) - obligatory cour	se4th semester - E-
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	seminar + metodology +	construction)	15+45 (15+30+0+0) 90
Teachers	Lectures:1. Tin Kramber Auditory exercises: Tin Laboratory exercises: B Laboratory exercises: R Laboratory exercises: T	rger struč. spec. ing. tec Kramberger struč. spec. Irigitta Cafuta Ienata Kramberger in Kramberger struč. spo	hn. inf., pred. ing. techn. inf., pred. ec. ing. techn. inf., pred.		
Course objectives	Students need to grasp system. Practical work themselves and master	the concept, properties with the database mana different methods of ha	and role of databases ar gement system will enab andling databases.	nd data mining systems i le them to qualify stude	n an information nts to familiarize
Learning outcomes:	1.ability to build a datal 2.ability to design norm 3.ability to create basic 4.ability to construct SC 5.ability to control emb 6.ability to connect mul 7.ability to sort and gro 8.ability to compare an 9.ability to organize and	base model. Level:6,7 halized database. Level:6 SQL queries. Level:6,7 QL queries with data filte edded SQL functions. Le ltiple data tables using S up data retrieved by a q outer SQL query with ar d optimize the database	5 ering. Level:6,7 evel:6,7 GQL queries. Level:6,7 juery. Level:6 n inner SQL query. Level: using indexes. Level:6,7	6,7	
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Modelling Discussion Questions and answers				
Methods of carrying out auditory exercises	Laboratory exercises or Laboratory exercises, c Interactive problem solv	n laboratory equipment omputer simulations ving			
Methods of carrying out laboratory exercises	Laboratory exercises or Laboratory exercises, co Interactive problem solv	n laboratory equipment omputer simulations ving			
Course content lectures	1.Introduction, primary 2.Data types, model, no 3.Basic DDL and DML cl 4.String, date, and agre 5.Cartesian product, na 6.Join, 2h, Learning out 7.Alias, 2h, Learning ou 8.Group by, having, 2h, 9.Subselect, 2h, Learnin 10.Keys, indexes, full te 11.Query optimization, 12.Creating and restorin 13.Working with anothe 14.Guest lecturer, 2h 15.Repeat for the final of	and foreign, database d ormalization, 2h, Learnin lauses, 2h, Learning out egate functions, NULL va tural join, 2h, Learning o comes:3,4,5,6 . Learning outcomes:7 ng outcomes:8 ext indexes, 2h, Learning 2h, Learning outcomes: ng database backups, 2l er database system and exam, 2h, Learning outcomes	lesign, 2h, Learning outco ig outcomes:1,2 comes:3,4 ilues, 2h, Learning outco outcomes:3,4,5,6 g outcomes:9 9 h, Learning outcomes:9 tools, 2h, Learning outco	omes:1,2 nes:3,4,5 mes:1,2,3,4,5,6,7,8,9	
Course content auditory	1.No classes, 2h 2.No classes, 2h 3.Database design, 2h, 4.Database import, bas 6.Functions and the WH 7.Cartesian product, na 8.JOIN, 2h, Learning out 9.Colloquium, 2h, Learnin 11.GROUP BY, ORDER E 12.Subselect, 2h, Learnin 13.Indexes, 2h, Learnin 14.Compensatory exerce 15.Final exam, 2h, Learn	Learning outcomes:1 on, 2h, Learning outcom ic DDL and DML clauses IERE clause, 2h, Learnin tural join, functions, 2h, tcomes:4,5,6 ing outcomes:1,2,3,4,5, g outcomes:4,5,6 3Y, HAVING clauses, 2h, ing outcomes:6,8 g outcomes:9 cises, 2h, Learning outco rning outcomes:1,2,3,4,5	nes:1,2 , 2h, Learning outcomes: g outcomes:3,4,5 Learning outcomes:4,5,6 6 Learning outcomes:6,7 pmes:1,2,3,4,5,6,7,8,9 5,6,7,8,9	3	
Course content laboratory	1.No classes, 2h 2.No classes, 2h 3.Database design, 2h, 4.Database normalizati 5.Database import, bas	Learning outcomes:1 on, 2h, Learning outcom ic DDL and DML clauses	es:1,2 , 2h, Learning outcomes:	3	

	 6.Functions and the WHERE clause, 2h, Learning outcomes:2,3,4 7.Cartesian product, natural join, functions, 2h, Learning outcomes:4,5,6 8.JOIN, 2h, Learning outcomes:4,5,6 9.Colloquium, 2h, Learning outcomes:1,2,3,4,5,6 10.Aliases, 2h, Learning outcomes:4,5,6 11.GROUP BY, ORDER BY, HAVING clauses, 2h, Learning outcomes:6,7 12.Subselect, 2h, Learning outcomes:9 14.Compared the function of the provision of th
	15.Final exam, 2h, Learning outcomes:1,2,3,4,5,6,7,8,9
Required materials	General purpose computer laboratory Whiteboard with markers Overhead projector
Exam literature	Basic literature: 1. Kramberger, T.; Duk, S.; Kovačević, R.: Baze podataka, TVZ, Zagreb, 2018, ISBN: 978-953-7048-70-9 1. Abraham Silberschatz: DATABASE SYSTEM CONCEPTS SIXTH EDITION, 2011 2. Radovan, M.: Baza podataka, Informator, Zagreb, 1993.
	Additional literature: 1. Tkalac, S.: Relacijski model podataka, Informator, Zagreb, 1988. 2. Ullman, D.,J.: Database and Knowledge - base Systems, Computer Science Press, 1999. 3. Date, C.J.: An Introduction to Database Systems, Addison-Wesley publishing Company, New York. 1994
Students obligations	Presence at all laboratory exercises with a minimum of 10% points
Knowledge	

evaluation during semester

Code WEB/ISVU	23757/170033	ECTS	5.0	Academic year	2018/2019
Name	Design and Application	of Vector Graphics			
Status	6th semester - IT Desigi	n (Izvanredni informatiko	e) - elective course		
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	- construction)	30+30 (0+30+0+0) 90
Teachers	Lectures: Aleksandra Be Laboratory exercises: A	ernašek Petrinec Ieksandra Bernašek Petr	inec		
Course objectives	The acquisition of basic	knowledge and skills in	the design and impleme	entation of vector graph	nics.
Learning outcomes:	L.create complex vector graphics and their application. Level:6,7 2.distinguish between vector and raster graphics. Level:6 3.manage transformations of the coordinate system. Level:6,7 4.create complex graphics solutions using gradients, clips, masks and filters. Level:6,7 5.create and implement basic shapes of SVG graphical programming language. Level:6 6.create different typographic solutions. Level:6,7 7.manage the animation of SVG objects. Level:6,7 8.construct a paths with the Bezier curves. Level:6,7 9.manage and implement of vector graphics through other software platforms. Level:6,7				
Methods of carrying out lectures Methods of carrying	Ex cathedra teaching Guest lecturer Case studies Demonstration Discussion Questions and answers Other Lectures are interactive Laboratory exercises, co	with projection from a computer simulations	computer.		
out laboratory exercises	Group problem solving Discussion, brainstormin Computer simulations	ng			
Course content lectures	1.Graphic - historical , 2 2.Screen graphic, 2h, Le 3.Vector graphic, 2h, Le 4.Colloquium 1, 2h, Lea 5.The correlation betwe 6.SVG - Basic elements 7.SVG - Bezier curves, 2 8.SVG - Creating gradie 9.SVG - Incorporating th 10.SVG - Incorporating th 10.SVG - Creation of clip 11.SVG - Implementatio 12.SVG - Types of anima 13.SVG - Animation of o 14.HTML 5 graphics des 15.Colloquium 2, 2h, Le	th, Learning outcomes:2 earning outcomes:1,5,7 earning outcomes:1,5,8 ean the vector graphic sc and their attributes, 2h, th, Learning outcomes:3 nts, 2h, Learning outcomes text, 2h, Learning outcomes os and masks, 2h, Learn of filters, 2h, Learning ations, 2h, Learning out bjects, 2h, Learning out signed with CSS 3 and Sv arning outcomes:1,9	,3,5 oftware and SVG program Learning outcomes:1,3, ,6,8 nes:1,4 comes:1,4 ing outcomes:1,7,8 outcomes:1,7,8 comes:1,4,9 comes:9 /G, 2h, Learning outcom	mming language, 2h, Le ,4 nes:1,4,9	earning outcomes:1,3,4
Course content laboratory	1.Designing the concep 2.Elaboration of ideas, 2 3.Designing of conceptu 4.Digitalization of conce 5.Colloquium 1, 2h, Lea 6.SVG - Basic elements 7.SVG - Creating graphi 8.SVG - Creating gradie 9.SVG - Incorporating an 10.SVG - Incorporating an 11.SVG - Implementatio 12.SVG - Animation of o 13.SVG - Designing and 14.Colloquium 2, 2h, Le 15.There are no classes	t of the conceptual desig 2h, Learning outcomes: 2 ual design, 2h, Learning eptual design, 2h, Learni rning outcomes: 1,3,4 and their attributes, 2h, cs with Bezier curve, 2h nts, 2h, Learning outcom nd transformation of typ ask and clips, 2h, Learning up of filters, 2h, Learning ubjects, 2h, Learning out animating the conceptu arning outcomes: 1,2,3,4	gn, 2h, Learning outcom ,3,5 outcomes:1,3,8 ng outcomes:1,2,3,4,5,8 Learning outcomes:1,4 , Learning outcomes:1,4 nes:1,3,4 ography, 2h, Learning o ng outcomes:1,7,8 outcomes:1,9 comes:1,3,6,7,8,9 ial design, 2h, Learning I,5,6,7,8,9	es:1,4,5,7 3 uutcomes:3,6,8 outcomes:1,2,3,4,5,6,7	,8,9
Required materials	General purpose compu Whiteboard with marke Overhead projector Operating supplies	iter laboratory rs			
Exam literature	obvezna literatura 1.J. Žiljak Vujić: Sigurno 2.J. David Eisenberg: SV 3.Jay Nick: Learn SVG Ir Dopunska literatura 1.K. Pap: "Razvoj grafičl 655(082), 655.4 : 004. 7	sna grafika, Tehničko ve /G Essentials, O'Reilly, IS teractively, Catto Creat kih jezika baziranih na X 738.5, Zagreb, 2003.	eucilište u Zagrebu, ISE BN: 978 0 596 00223 7 ions ML-u", Tiskarstvo 03 Stu	3N: 978 953 7048 33 4 (besplatno izdanje na v ıbičke toplice, , ISBN 95	vebu) ;3-199-016-6, UDK



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Students obligations	attendance of exercises and tests	
Statemes obligations	maximum 2 absonce	
Knowledge	Colloquium x 3	
evaluation during		
semester		
Knowledge	Written exam - if you are not satisfied colloquium	
evaluation after	Oral examination	
semester		
Student activities:	Aktivnost	ECTS
	(Classes attendance)	1
	(Constantly tested knowledge)	1
	(Practical work)	1
	(Written exam)	1
	(Oral exam)	1
Remark	This course can be used for final thesis theme	
Prerequisites:	No prerequisites.	
Proposal made by	Aleksandra Bernašek, dipl. ing. graf. teh., 19.5.2015	

Code WEB/ISVU	23363/153298	ECTS	6.0	Academic year	2018/2019	
Name	Design and Visual Me	aning				
Status	2nd semester - IT Des	sign (Izvanredni i	nformatike) - obligatory c	course		
Teaching mode	Lectures + exercises	(auditory + labor	ratory + seminar + meto	dology + construction)	30+30 (0+30+0+0)	
_	work at home	-	-		120	
Teachers	Lectures:1. Aleksandr	a Bernašek Petri	nec			
	Lectures: Feda Vukić		× + = · ·			
	Laboratory exercises:	Aleksandra Berr	lašek Petrinec			
Course objectives	Laboratory exercises.		and concents about des	ign and visual compaties. The	student should acquire	
course objectives	the basic terminology	and definitions (of theoretical knowledge	and recognize important eleme	nts of visual culture , in	
	particular the relation	of design , visua	al perception and cognitic	on in comparison to modern dig	ital and multimedia	
	environment , and to	make them know	vn to apply to their own c	reative work .		
Learning outcomes:	1.identify key termind	ology of visual me	eaning in the design of th	e management of government	's own project . Level : 6.	
	Level:6					
	2.integrate theoretica	assumptions cr	iaracters and meanings ii	n order to use in setting up you	r own project. Level:6,7	
	4 create mental maps	s in designing vis	ual communications. Lev	el:6.7		
	5.analyze meanings in	analyze meanings in different media context. Level:6				
	6.establish principles	and ways of fund	ctioning of visual system	for orientation in the implement	tation of the project	
	design. Level:6					
	7.to design a semanti	c logic of graphic	c design for electronic me	edia and Web environments. Lev	/el:6	
	9 present the basic p	rinciples of the fu	inctioning of mass media	Level:6.7		
	10.analyze the visual	logic of the cybe	rnetic systems. Level:6			
	11.manage visual ser	nantics in a mult	imedia environment. Leve	el:6,7		
Involvement of	6.5.ID Realizirati dizaj	nerska rješenja u	u području grafičkih tehno	ologije i multimedijalnih sadržaj	a.: 20h in 180h	
learning outcomes						
study programme:						
Methods of carrying	Ex cathedra teaching					
out lectures	Guest lecturer					
	Case studies					
	Demonstration					
	Discussion Sominar, students pro	sontation and di	scussion			
	Seminar, students pre		SCUSSION			
Methods of carrving	Group problem solvin	a				
out laboratory	Traditional literature a	analysis				
exercises	Data mining and know	vledge discovery	on the Web			
	Discussion, brainstorr	ning				
	workshop					
Course content	1.Terminology, 2h					
lectures	2.Introduction to sem	iotics, 2h, Learni	ng outcomes:1			
	3.Generating meaning	gs, 2h, Learning	outcomes:2			
	4.Visual perception a	nd cognition, 2h,	Learning outcomes:3			
	5.Mental maps, 2h, Le 6 Meaning in context	arning outcome	S:4			
	7.The meaning of ima	ae: seeina. think	ting and acting. 2h. Learn	ning outcomes:6		
	8.The representationa	al theory, 2h, Lea	rning outcomes:7			
	9.Visual systems, 2h,	Learning outcom	nes:7			
	10.Information struct	ures and commu	nication systems, 2h, Lea	arning outcomes:7		
	11. The medium and t	ne message, 2n, earning outcome	Learning outcomes: /			
	13.Cybernetics and vi	sually forwarding	g information, 2h, Learnir	ng outcomes:9		
	14.Multimedia enviror	nment, 2h, Learn	ing outcomes:10	5		
	15.Design as inteface	, 2h, Learning ou	tcomes:11			
	1					
Course content	1. Ferminology, presei	ntation and critic	al discussion, 2h	2h Learning outcomes:1		
aboratory	3.Generating meaning	n, presentation a	nd critical discussion. 2h.	Learning outcomes:2		
	4.Visual perception a	nd cognition, pre	sentation and critical disc	cussion, 2h, Learning outcomes	:3	
	5.Mind maps, present	ation and critical	discussion, 2h, Learning	outcomes:4		
	6.The meaning in con	text, presentatio	n and critical discussion,	2h, Learning outcomes:5		
	7.The meaning of ima	ige: seeing, think	ting and acting, presental	tion and critical discussion, 2h,	Learning outcomes:6	
	8. The representational	a theory, present	tation and critical discuss	sion, colloquium, 2n, Learning of	Jtcomes:1,2,3,4,5,6,7	
	10.Information struct	ures and commu	nication systems, present	tation and critical discussion. 21	1. Learning outcomes:7	
	11.The medium and t	he message, pre	sentation and critical disc	cussion, 2h, Learning outcomes	:7	
	12.Mass media, prese	ntation and critic	cal discussion, 2h, Learnii	ng outcomes:8		
	13.Cybernetics and vi	sually passing in	formation, presentation a	and critical discussion, 2h, Lean	ning outcomes:9	
	14.Multimedia enviroi	nment, presentat	nd critical discussion col	n, zn, Learning outcomes:10	s [.] 7891011	
	13.Design as muendu	c, presentation a	na chicai uiscussion, Col	ioquium, zn, Leanning outcome	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	



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Required materials	Basic: classroom, blackboard, chalk Overhead projector
Exam literature	F. Vukić, Teorija i razvoj dizajna, Zagreb, 2012. R. Arnheim, Visual Thinking, University of California Press, 2004. R. Solso, Cognition and the Visual arts, MIT Press, 1996. P. Jacob, M. Jannerod, Ways of Seeing, The scope and limits of visual cognition, Oxford University Press 2003.
Students obligations	attending exercises maximum 2 absence
Knowledge evaluation during semester	2 tests term paper
Knowledge evaluation after semester	test + term paper
Student activities:	AktivnostECTS(Written exam)6
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.

ECTS

23244/143181

Code WEB/ISVU

Name	Devices Design
Status	and semester - Office Organization and Informatization (Izvanredni informatike) - obligatory course
Teaching mode	2 and 3 denotes the original denotes the origi
	work at home 90
Teachers	Lectures:1, dr.sc.rač. lvica Dodig . prof.v.š.
	Lectures:2. dr.sc.rač. Davor Cafuta , prof.v.šk.
	Auditory exercises:dr.sc.rač. lvica Dodig , prof.v.š.
	Auditory exercises: Jelena Kapelac
Course objectives	To introduce students to the structure of computer systems.
Learning outcomes:	1.ability to distinguish between between digital and analogueue circuits. Level:6
	2.ability to analyse simple digital circuits. Level:6
	3.ability to compose complex logic structures by using the simple ones. Level:6,7
	4.ability to make connection between a computer system and logical algebra as its basis. Level 6, /
	5 ability to extract certain components of a device following the principle of logic modules and circuits. Levels
	0. ability to compare components of various angles devices. Level.0,7
	8.ability to integrate simple logic structures into more complex ones. Level:6.7
	9.ability to test both the design and operability of digital circuits. Level:6
	10.ability to write documentation on digital circuits functioning. Level:6,7
Involvement of	1.1.OPĆI Služiti se stranim jezikom u literaturi i svakodnevnoj stručnoj komunikaciji. : 10h in 150h
learning outcomes	1.2.OPĆI Primijeniti znanje matematike i fizike na inženjerske probleme.: 10h in 150h
of the course in	1.3.OPCI Koristiti tehnike, vještine i suvremene alate neophodne za inženjersku praksu.: 10h in 150h
study programme:	1.4.OPCI Povezati inzenjerske aktivnosti konstruiranja, proizvodnje i marketinga s potrebama korisnika proizvoda i usrljuga z 10b ja 150b
	usiuge 100 m 1900 3 1 INF Analizirati i predvidjeti popačanje programa papisanog u pseudo kodu ili poznatom programskom jeziku: 60h jn
	150h
	3.2.INF Osmisliti, izraditi i testirati mrežnu stranicu izrađenu u osnovnim modernim tehnologijama.: 10h in 150h
	3.3.INF Savladati teoretska i praktična znanja o tipografiji u informatičkoj struci: 120h in 150h
	3.4.INF Razumijevati građevne dijelove i koncept digitalnih uređaja i modernih operacijskih sustava: 150h in 150h
Methods of carrying	Ex cathedra teaching
out lectures	Case studies
	Discussion
	I ne lectures are based on presentations of particular circuits and computer structures.
Methods of carrying	Group problem solving Darticular problems are called with the full participation of students
out auditory	raticular problems are solved with the full participation of students.
Course content	Fundamentals of digital technology. 2b. Learning outcomes: 1.2
lectures	2 Analog and digital value 2h Learning outcomes:12
	3. Logical algebra and logical functions 2. Learning outcomes:1.10
	4.Numeric systems and codes., 2h, Learning outcomes:9
	5.Basic combination circuits., 2h, Learning outcomes:1,3,10
	6.Basic combination circuits., 2h, Learning outcomes:1,3,7,10
	7.Basic sequential circuits., 2h, Learning outcomes:1,3,7,10
	8.Basic sequential circuits., 2h, Learning outcomes:1,3,7,10
	9. Computer design principles, 1n, Learning Outcomes:4,7,6,10 Fundamental parts of computer: CPUL memory subsystem input-output devices 1h Learning outcomes:5.6.8.10
	10 Fundamental parts of computer: CPU memory subsystem, input output devices, 2h Learning outcomes: 5.6.8.10
	11.Fundamental parts of computer; CPU, memory subsystem, input-output devices., 1h, Learning outcomes:8,9
	Microprocessor and microcomputer., 1h, Learning outcomes:4,8,9,10
	12.Assembler programm., 2h, Learning outcomes:7,9
	13.BIOS program., 2.h, Learning outcomes: 7,9
	14. Structure and reactures of input/output devices, <i>j</i> , 2 <i>h</i> , Learning outcomes:5,0,9
	15. Types of communication between computer units., 21, Learning outcomes.5,0,9
Course content	1 Logical algebra 2h Learning outcomes: 1 2
auditory	2.Logical algebra. 1h, Learning outcomes:1,2
	Logical functions., 1h, Learning outcomes:2,7,9,10
	3.Logical functions., 2h, Learning outcomes:2,7,9,10
	4.Logical circuits analysis and synthesis., 2h, Learning outcomes:3,7,10
	5. Logical circuits analysis and synthesis., 2h, Learning outcomes:3,7
	b.Basic sequential circuits analysis and synthesis., 21, Learning Outcomes:3,7,8
	A configuring a computer analysis and synthesis, 21, Learning bucchies, 5,5,7,8
	9.Configuring a computer, . 2h. Learning outcomes: 1,9,00
	10.The bus traffic analysis. , 2h, Learning outcomes:5,6,10
	11.The bus traffic analysis. , 2h, Learning outcomes:5,6,10
	12.x
	13.x
	14.X
	X.C1
Pequired materials	Coneral nurnese computer laboratory
nequired materials	Overhead projector
	The exercises are done in PC laboratories by using various programmes for testing the quality features of a computer.

5.0

Academic year

2018/2019

Exam literature	Basic literature: 1. U. Peruško: Digitalna elektronika, Školska knjiga, Zagreb 1991. 2. S. Ribarić: Arhitektura računala, Školska knjiga, Zagreb 1996. 3. U. Peruško, V. Glavinić: Digitalni sustavi, Školska knjiga, Zagreb 2005. 3. Tehnička dokumentacija računala. Additional literature:
Students obligations	Attendance 80% lectures and auditory exercises. All laboratory exercises.
Knowledge evaluation during semester	Two written exams.
Knowledge evaluation after semester	Written and oral exam.
Student activities:	AktivnostECTS(Written exam)5
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
Proposal made by	mr.sc. Darko Lukša dipl.ing



Zagreb University of Applied Sciences

Code WEB/ISVU	23745/170021	ECTS	5.0	Academic year	2018/2019
Name	Digital Animation				
Status	5th semester - IT De	sign (Izvanredni	informatike) - elective cou	Irse	
Teaching mode	l ectures + exercises	s (auditory + lab	oratory + seminar + meto	dology + construction)	30+30(0+0+30+0)
	work at home		oracory i serimar i meto		90
Teachers	Lectures:1. Ivan Rail	<ović< th=""><th></th><th></th><th></th></ović<>			
	Seminar exercises: E	Boris Hergešić			
Course objectives		_			
Learning outcomes:	1 Level:6,7				
	2 Level:6,7				
	3 Level:7				
	4 Level:6,7				
	5 Level:6				
Mothoda of corruing	Ex cathodra toachin	~			
out lectures	Guest lecturer	9			
	Case studies				
	Discussion				
	Questions and answ	ers			
Methods of carrying	Laboratory exercises	s, computer simu	ulations		
out seminars	Group problem solvi	ng Suda da a dia asua			
	Data mining and kno	rming	ry on the web		
	Interactive problem	solvina			
	Workshop	Solving			
Course content	1., 2h, Learning out	comes:1,2,3,4,5			
lectures	2., 2h, Learning out	comes:1,2,3,4,5			
	3., 2h, Learning out	comes:3			
	4., 2h, Learning out	comes:3			
	5., 2h, Learning out	comes:3			
	7 2h. Learning out	comes:3			
	8 2h. Learning out	comes:1.2.3			
	9. , 2h, Learning out	comes:3,4			
	10., 2h, Learning ou	itcomes:3,4			
	11., 2h, Learning ou	itcomes:3,4			
	12., 2h, Learning ou	itcomes:3,4			
	13., 2h, Learning ou	itcomes:3,4			
	14., 2h, Learning ou	1100 mes: 1, 2, 3	5		
	15. , 21, Learning 00	1.0011103.1,2,3,4,.			
Course content	1. , 2h, Learning out	comes:1,2,3,4			
seminars	2., 2h, Learning out	comes:1,2,3,4			
	3., 2h, Learning out	comes:1,2,3,4			
	4., 2h, Learning out	comes:3,4			
	5., 2h, Learning out	comes:3,4			
	6., 2h, Learning out	comes:3,4			
	8. 2h. Learning out	comes:4			
	9., 2h, Learning out	comes:4			
	10., 2h, Learning ou	itcomes:2,3			
	11., 2h, Learning ou	itcomes:3,4			
	12., 2h, Learning ou	itcomes:2,3			
	13., 2h, Learning ou	itcomes:4	F		
	14., 20, Learning ou	1100000000000000000000000000000000000	5		
	15. , 21, Learning of	1001103.1,2,3,4,			
Required materials	Basic: classroom, bla	ackboard, chalk			
	Whiteboard with ma	rkers			
	Overhead projector				
	Video equipment				
F	D				
Exam literature	Treporucena:	Invival Kit", Dich	ard Williams		
	2. "Digital animation	bible": George	Avgerakis		
	Dopunska	, conger	· - · · · · · · · · · · · · · · · ·		
	3. "The illusion of life	e - Disney anima	tion", Frank Thomas and C	Ollie Johnson	
	4. "Maxon Cinema 4	D R16 Studio" - S	Sham Ticko		
	5. "Learning Autodes	sk Maya Foundat	tion"		
Student activities:	Aktivnost		EC	TS	
	(Classes attendance	2)	1		
	(Project) (Seminar Work)		3		
Bomark		read for final the	L sis thoma		
nemark	I ins course can be u	ised for final the			



Zagreb University of Applied Sciences

Study programme for academic year 2018/2019

Prerequisites: No prerequisites.

Code WEB/ISVU	23623/156421	ECTS	4.0	Academic year	2018/2019
Name	Digital Photography				
Status	4th semester - IT Des	ign (Izvanredni info	rmatike) - obligatory	course	
Teaching mode	Lectures + exercises work at home	(auditory + laborat	ory + seminar + met	odology + construction)	30+30 (0+30+0+0) 60
Teachers	Lectures:1. Milan Baji Laboratory exercises:	ć Milan Bajić			
Course objectives	Students will be able principles of creating practices in the medi- interpreting the work	to take pictures usi images and digital a and their use in th s .	ng standard photo te image processing. Tr ne multimedia enviror	chnique. They will become fam ain student for basic photograj nment . Acquire analytical skill:	iliar with the basic bhic processes and s of understanding and
Learning outcomes:	1.Define basics of pho 2.Describe basic phot 3.Understand basic p 4.Apply knowledge to 5.Apply knowledge at 6.Plan, handle and us Level:6,7 7.Quantify and develo 8.Plan, use and sketc	tography and phot cography procedure hotography principl measure quality of pout photography and the photo accessories op light measureme h usage of artificial	o camera. Level:6,7 s. Level:6,7 es. Level:6 f photography. Level: nd technology at wor s at photo assignmen ent and exposition. Pr light. Aplly to work. F	6,7 k. Level:6,7 t. Be able to differentiate quali edict and control characteristic redict outcomes Level:6,7	ty when using accessories. s of photography. Level:6
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Demonstration Discussion Questions and answe	rs			
Methods of carrying out laboratory exercises	Laboratory exercises Laboratory exercises, Group problem solvin Traditional literature Data mining and knov Discussion, brainstori Interactive problem s Workshop	on laboratory equip computer simulatio g analysis wledge discovery or ning olving	oment ons n the Web		
Course content lectures	1.Course introduction 2.Photo cameras and 3.Exposition and sens 4.Artificial light sourc 5.Framing, perspectiv 6.Authors through pe News photography. L 7.Lanscape photograph 8.Documentary photo 9.Studio photograph 10.Studio photograph 11.Photographic moti 12.Aerial photograph 13.Underwater photo 14.Resolution. Image Learning outcomes:2 15.Analysis, discussio	A, 2h, Learning outco lenses, 2h, Learning ors, 2h, Learning out ve, composition, 2h, riods and styles . Ar andscape., 2h phy, 2h, Learning ou ography, 2h, Learning v - commercial and p hy - nude, portrait, fr f, 2h, Learning outco graphy, 2h, Learning outco graphy, 2h, Learning processing. Multim .4	omes:1,2,3,4,5,6,7,8 g outcomes:1 utcomes:1,2,3,7 tcomes:2,3 Learning outcomes:2 nalysis of techniques utcomes:2,3,4 ng outcomes:2,3,4 product, 2h, Learning ashion, 2h, Learning comes:2,3,4,8 g outcomes:2,3,4,8 d outcomes:2,3,4,8 d outcomes:2,3,4,8 d outcomes:2,3,4,8	2,3 and styles . Portrait. Interview. outcomes:2,3,4,8 outcomes:2,3,4,8 ware for image processing. Mo at portfolios, 2h, Learning outco	Photo report. Travel photo. bile applications., 2h, omes:1,2,3,4,5
Course content laboratory	1.Lab introduction, 2ł 2.Hands on with phot 3.Hands on studio eq 4.Stduio light, 2h, Lea 5.Project research, 2ł 6.Studio photography 7.Documentary photo 8.Individual studio wo 9.Individual studio wo 10.Individual studio wo 12.Individual field wo 13.Individual field wo 14.Creation of digital 15.Presentation of dig	n, Learning outcome o equipment, 2h, Le uipment and access arning outcomes:8 n, Learning outcome ygraphy, 2h, Learning outco ygraphy, 2h, Learning ou york, 2h, Learning ou york, 2h, Learning ou rk, 2h, Learning out rk, 2h, Learning out rk, 2h, Learning out rk, 2h, Learning out portfolio, 2h gital portfolio, 2h	es:1,2,3,4,5,6,7,8 earning outcomes:1,2 soires, 2h, Learning o es:5,8 omes:3,5,7 ng outcomes:5 tcomes:5,6,7,8 tcomes:5,6,7,8 utcomes:5,6,7,8 ccomes:5,6,7,8 ccomes:5,6,7,8 ccomes:5,6,7,8	utcomes:1,2,6,7	
Required materials	Basic: classroom, bla Special purpose labor Special purpose comp Whiteboard with mar Overhead projector Video equipment	ckboard, chalk atory buter laboratory kers			

Exam literature	Digitalna fotografija, Tom Ang				
	DIGITALNA FOTOGRAFIJA Nove tajne profesionalnih fotografa, Scott Kelby				
	Kd fotografske slike, Davor Žerjav				
	Hrvatsko podmorje, Miro Andrić				
Students obligations	50 % attendance with the active participation and timely execution of the set of obligations related to the practical				
	work				
	Regular attendance (15 checks)				
	Practical work (1 check)				
Knowledge	mid term exam				
evaluation during	final exam				
semester					
Knowledge	Oral exam:				
evaluation after	Attendance - 10 % (a criterion for the passage of 80 %)				
semester	Theoretical exam - 50 % (a criterion for the passage of 50 %)				
	Practical work - 40 % (a criterion for the passage of 80 %)				
Student activities:	Aktivnost ECTS				
	(Written exam) 4				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Milan Bajic				

Study programme	for academic year	2018/2019
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Code WEB/ISVU	23756/170032	ECTS	5.0	Academic year	2018/2019		
Name	Digital Television				-		
Status	6th semester - IT Desig	n (Izvanredni informatik	e) - elective course				
Teaching mode	Lectures + exercises (a	uditory + laboratory + s	seminar + metodology +	- construction)	30+30 (0+30+0+0)		
T I	work at home	.: (90		
leachers	Lectures: 1. Ivan Rajkov	IC Van Baiković					
Course objectives	To introduce the basics	To introduce the basics of television production. Using the AV equipment to create own TV material and to defend the					
	dea in front of producer.						
Learning outcomes:	1.prepare and perform	AV content for the Interr	net platform. Level:6,7				
	2. develop cross medial program of selected products or services. Level:6,7						
	3.planing of shooting A	V works in various conumers of the second se	tions. Level:6,7	1 A. Lava I			
	5. identify basic concept	ts of the television. Leve	dia dia Av production. di6	. Level.0,7			
Methods of carrying	Ex cathedra teaching						
out lectures	Guest lecturer						
	Lase studies Discussion						
	Questions and answers						
Methods of carrying	Laboratory exercises, c	omputer simulations					
out laboratory	Group problem solving	adaa discovary on the M	loh				
exercises	Discussion, brainstormi	ing	leb				
	Interactive problem sol	ving					
	Workshop						
	1. 26. 1						
Course content	1., 2h, Learning outcon	nes:1,2,3,4,5					
lectures	3 2h. Learning outcom	nes:1,2,3,4,5					
	4. , 2h, Learning outcor	nes:1,2,3					
	5. , 2h, Learning outcor	nes:1,2,3,4,5					
	6., 2h, Learning outcon	nes:1,2,3					
	7., 2n, Learning outcon 8 2h Learning outcor	nes:1,2,3,4 mes:1,2,3,4,5					
	9 2h. Learning outcor	nes:1,2,3,4,5					
	10., 2h, Learning outco	omes:1,2,3					
	11., 2h, Learning outco	omes:3,4,5					
	12., 2h, Learning outco	omes:3,4,5					
	14 2h Learning outco	omes: 2, 3, 4, 5					
	15. , 2h, Learning outco	omes:2,3,4,5					
Course content	1., 2h, Learning outcom	nes:1,2,3,4,5					
laboratory	2., 2h, Learning outcon	nes:1,2,3					
	4 2h. Learning outcor	nes:3,4,5					
	5. , 2h, Learning outcor	nes:3,4,5					
	6. , 2h, Learning outcor	nes:2,3,4,5					
	7., 2h, Learning outcom	nes:1,2,3,4,5					
	8., 2n, Learning outcon 9 2h Learning outcor	nes:3,4,5 nes:2 3 4 5					
	10. , 2h, Learning outco	omes:1,2,3,4,5					
	11., 2h, Learning outco	omes:1,2,3,4,5					
	12., 2h, Learning outco	omes:3,4,5					
	13., 2h, Learning outco	3 mes: 3, 4, 5					
	15. , 2h, Learning outco	omes:1,2,3,4,5					
Required materials	Basic: classroom, black	board, chalk					
	Whiteboard with marke	!rs					
	Video equipment						
	Operating supplies						
Exam literature	Preporučena:						
	1. "Television Productio	on Handbook", Herbert Z	ettl				
	Additional literature:	ni": Miro Andrić					
	3. "Televiziiske viiesti".	Tena Perišin					
	,,,,,,,						
Student activities:	Aktivnost		ECTS				
	(Classes attendance)		1				
	(Project)		3				
	(Activity in class)		T				



Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.

Code WEB/ISVU	23242/143178	ECTS	6.0	Academic year	2018/2019		
Name	e-Business			•			
Status	2nd semester - Office Organization and Informatization (Izvanredni informatike) - obligatory course2nd semester - E- business (Izvanredni informatike) - obligatory course						
Teaching mode	Lectures + exercises work at home	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 120					
Teachers	Lectures:1. mr.sc. Sa Laboratory exercises	anja Bračun dipl.c s: Brigitta Cafuta	pec.				
Course objectives	The course enables student understanding problems related with e-business in tactical, and operative aspects. The aim is to explain students the e-business concept in which information and Internet technology is intensively used and to point out the importance of applying e-business in business models, taking into account business security and data protection. Through the analysis of practical examples of e-business practices, students will be prepared to face with challenges of the global electronic market and the digital economy in their future workplace.						
Learning outcomes:	 Prepare to participate in web maintenance and management projects, develop marketing plans and design of web ads. Level:6,7 Identify changes in society and the economy under the influence of information technology. Level:6 Link importance of planning process and market analysis in order to ensure successful asset management. Level:6,7 Analyse e-business, electronic commerce, and the electronic market in the new economy. Level:6 Analyse e-marketing and marketing tools. Level:6 Present existing systems, processes and instruments of e-payment and m-payment. Level:6,7 						
Methods of carrying out lectures	Ex cathedra teachin Guest lecturer Case studies Questions and answ Lectures are present motivated to expres	g ers ed as combinatio s their own either	on of the theoretical frame positive or negative case	e with large number of practica	l casers. The students are		
Methods of carrying out laboratory exercises	Group problem solvi Discussion, brainsto On laboratory exerci They use tools and k of CMS for the purpo	ng rming ses, students cre nowledge they a se of preparing, o	ate their own project of e cquire during lectures and creating and publishing th	-business modelling in a team of exercises. Exercises include vercises model.	consisting of 2 students. veb analytics and the use		
Course content lectures	1.Introductory lectur 2.Introducing studer outcomes:2 3.Environment, conc 4.Development of e- chain, 2h, Learning o 5.The means of achi Learning outcomes:3 6.Electronic markets 7.Implementation of Satisfaction and Loy 8.1st colloquium, 1h 9.Marketing and It's 10.Systems, process signatures, SWIFT, B 11.Social networking 12.m-business and r 13.Cloud business r 14.New e-business r 15.2nd colloquium, 3	re, 2h, Learning o the with the concer- rept, elements an business, new ec- bustness, new ec- bustness, new ec- bustness, proce- alty, 2h, Learning , Learning outcom Tools (SEO and S tes, protocols and IC, IBAN, 2h, Learn and application n-payment mode nodels , 2h, Learn nodels with 3D pr Lh, Learning outcom	utcomes:1 ept and basic features, str d legal regulation of e-bus onomy trends and model leadership of a company d e-business models by ir ess Management (ERP), P outcomes:3 nes:1,2,3 EM), Gerila, Viral and Affil e-payment instruments, rning outcomes:5 of social network analysis ls, 2h, Learning outcomes ing outcomes:6 inting, 2h, Learning outcomes omes:4,5,6	ategies and models of e-busine siness, 2h, Learning outcomes: of sustainability of competitive - technology, brand and busine ndustry, 2h, Learning outcomes rocurement (SCM) and Custom liate Marketing, 2h, Learning ou use of the public and secret ke s, 2h, Learning outcomes:5,6 ::6	ess , 2h, Learning 2 advantage, Porter's value ess intelligence, 2h, 3:3 er (CRM) with Customer utcomes:4 ey infrastructure and digital		
Course content laboratory	1.Choosing and appl 2.Making the first tw 3.Continuation of the teamwork, 2h, Learr 4.Continuation of the outcomes:3,4 5.Continuation of the outcomes:5,6 7.Team presentation outcomes:1,2,3,4,5,1 8.Team presentation outcomes:1,2,3,4,5,1 10.Team presentation outcomes:1,2,3,4,5,1 11.Team presentation outcomes:1,2,3,4,5,1 12.Team presentation outcomes:1,2,3,4,5,1 13.Team presentation outcomes:1,2,3,4,5,1 13.Team presentation outcomes:1,2,3,4,5,1 13.Team presentation outcomes:1,2,3,4,5,1 14.Team presentation	roving of theme for o chapters of the e following projec- ing outcomes:3,4 e following projec- e following projec- e following projec- e following projec- e following projec- of students projec- on of stude	or creating students own project (introduction and t chapters (project analys t chapters (clients, compe- t chapters (clients, compe- t chapters (domains, CMS ect and handing over the ect and handing over the ect and handing over the oject and handing over the	business model of e- business, business model), teamwork, 2 is, innovation, new technology etitors and partners), teamwork n), teamwork, 2h, Learning out and mobile technologies), tea complete documentation, 2h, 1 complete documentation, 2h, 1 complete documentation, 2h, 1 e complete documentation, 2h, 1 e complete documentation, 2h, 2 e complete documentation, 2h, e complete documentation, 2h, e complete documentation, 2h, e complete documentation, 2h, e complete documentation, 2h,	2h, Learning outcomes:1 2h, Learning outcomes:2,3 and Google survey), c, 2h, Learning comes:5,6 mwork, 2h, Learning Learning Learning Learning Learning Learning Learning Learning Learning Learning		

	outcomes:1,2,3,4,5,6 15.Team presentation of students project and handing over the complete documentation, 2h, Learning outcomes:1,2,3,4,5,6
Required materials	Basic: classroom, blackboard, chalk General purpose computer laboratory Overhead projector Students develops their own projects of e-business
Exam literature	Obavezna literatura: 1.Priručnik za e-poslovanje (2014.), Ministarstvo poduzetništva i obrta, Zagreb, dostupno na: https://poduzetnistvo.gov. hr/UserDocsImages/EU%20projekti/IPA%20IIIC/Pobolj%C5%A1anje%20poslovne%20konkurentnosti%20putem%20elektr oni%C4%8Dkog%20poslovanja/13-e-poslovanje-handbook-hrweb.pdf 2.Panian, Ž., (2013.): "Elektroničko poslovanje druge generacije", udžbenik Sveučilišta u Zagrebu, Biblioteka INFORMATIKA, Ekonomski fakultet Sveučilišta u Zagrebu 3.Krišto, I., (2012.) Elektroničko poslovanje, skripta Sveučilišta u Zagrebu, Biblioteka INFORMATIKA, Ekonomski fakultet Sveučilišta u Zagrebu 4.Spremić, M., (2004.): Menadžment i elektroničko poslovanje, Narodne novine d.d., Zagreb. 5.Bračun, S.,: Elektronički sadržaj predavanja dobiveni tijekom nastave, dostupni na https://Ims.tvz.hr/course/view.php?id=139 Preporučena literatura: 1.Praćenje stručnih časopisa i izazova u novim tehnologijama na Internetu 2.Analiza socijalnih mreža, (2017.), dr. sc. R. Kopal, D. Korkut, S. Krnjašic, Algebra, Zagreb 3.Strategija e-Hrvatske do 2020. (2016.), Ministarstvo uprave 4.Nadrljanski M., Nadrljanski Đ. (2016.). Elektroničko poslovanje", Nakladnik Redak 5.Dave Chaffey (2014.),: Digital Business and E-Commerce Management (6th Edition) 6.Adobe Creative Team (2012.),: "Adobe Dreamweaver CS6 Classroom in a Book", Adobe Press 7.mr.sc. Matić T., (2010.),: "Kako pribaviti i koristiti elektronički potpis", Narodne novine d.d. Zagreb, Pravna biblioteka priručnika 8.Ridderstrale J., Nordstrom K. A., (2004.),: "Karaoke kapitalizam", Differo d.o.o., Zagreb 9.Ridderstrale J., Nordstrom K. A., (2002.),: "Funky Business", Differo d.o.o., Zagreb 10.Kalakota R., Robinson M. (2002.),: "E-poslovanje 2.0" - Vodič ka uspjehu, Mate, Zagreb
Students obligations	100% of attendance on exercises because of Project preparation at stages
Knowledge evaluation during semester	1st and 2nd colloquium Team presentation of students Project and handing over the complete documentation
Knowledge evaluation after semester	Oral Exam (in case of non-fulfilment of 1st and 2nd colloquium conditions)
Student activities:	Aktivnost ECTS (Written exam) 3 (Oral exam) 3
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
ISVU equivalents:	200113;200115;

Code WEB/ISVU	23738/170014	ECTS	5.0	Academic year	2018/2019		
Name	e-Business Systems		-				
Status	5th semester - E-busine	ess (Izvanredni informati	ke) - obligatory course				
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	seminar + metodology +	construction)	30+30 (30+0+0+0)		
	work at home				90		
Teachers	Lectures:1. dr.sc. Mlade	en Mauher prof.v.šk.					
	Lectures:2. prof. Marta Alić						
	Auditory exercises:pror						
Course objectives	To transfer to students	the basic knowledge rel	ated to e-business system	ms na Lavalić			
Learning outcomes:	1.ability to identify basic elements and interactions of e-business systems. Level:6						
	3.ability to relate shop	ping life cycles of a buve	r and a seller . Level:6.7				
	4.ability to present elec	ctronic registers, their st	ructure and interactions.	Level:6,7			
	5.ability to sort groups	o sort groups of processes and data exchange processes in business communication. Level:6,7					
	6.ability to present star	ndardised electronic doci	uments used in business	5. Level:6,7			
	8 ability to identify star	nuarus or and recommen	f business management				
	9.ability to distinguish	sh between different types of e-markets. Level:6					
	10.ability to formulate/	design a system of elect	ronic business transactic	ons security. Level:6,7			
Methods of carrying	Ex cathedra teaching						
out lectures	Case studies						
	Discussion						
	Questions and answers	÷					
	Other						
	Course materials are ex	xposed by the use of tec	hnologies for the structu	ral visual presentation f	or elements and		
	interaction of electronic	c business systems. Drav	Nings to analyze and exp	plain key relations and co	orresponding		
Methods of carrying		computer simulations			useu.		
out auditory	Essay writing						
exercises	Workshop						
Course content	1.New paradigms of ele	ectronic business: holoni	c business systems, virtu	ual organizations, semar	tic collaborative		
lectures	environments, intelligent organizations), 2h, Learning outcomes:1						
	Learning outcomes 1	ctronic business: produc		identification, cost and p	fice structure), 211,		
	3.Basic elements of ele	ectronic business: produc	t/service (producer, sup	plier, merchant, custome	er, buying types), 2h,		
	Learning outcomes:1						
	4.Basic elements of ele	ctronic business: produc	t/service (delivery, mark:	ceting, claims/services/co	onsumer protection), 2h,		
	Learning outcomes:1						
	and trust in electronic business. 2h. Learning outcomes:2						
	6.Buying processes: product selection, buying parties, shopping preparation, buying, payment, delivery, ussage,						
	recycling), 2h, Learning outcomes:3						
	7.Selling processes: cu	stomer identification and	I CRM, order identificatio	on, payment authorizatio	n, delivery logistics), 2h,		
	8.Colloquium 1. 2h. Lea	arning outcomes:1.2.3					
	9.Interaction and integ	ration of distributed syst	ems: collaboration mode	els of distributed busines	s processes, electronic		
	business registers, pro	duct data exchange and	business communication	n, business-collaborative	associations, universal		
	business collaboration	language, 2h, Learning c	outcomes:4,5	umanta standardized d	acumenta in husinasa		
	processes 2h Learning	s: areas and groups of st a outcomes:6		uments, stanuaruizeu u	ocuments in business		
	11.Electronic business	recomendations and sta	ndards: electronic busine	ess standardization area	s, institutions and		
	standards (UN, EU/CEN	, ISO/IEC, OASIS), standa	ard models and processe	s (business process moo	leling standards, rules,		
	web services), 2h, Lear	ning outcomes:7	a de ade . Un brene el Druche e				
	Language (BPEL) Case	Study 2h Learning out	ndards: Universal Busine	ess Language (UBL), Bus	ness process execution		
	13.Processes and techr	nologies of business mar	lagement: generic busin	ess technologies (strated	aic. tactical.		
	operational), 2h, Learn	ing outcomes:8	· · · · · · · · · · · · · · · · · · ·	······································	, ., ,		
	14.Electronic markets:	vertical electronic marke	ets, horizontal electronic	markets, contextual ele	ctronic markets (On-		
	Demand), electronic m	arket strategies (nationa	framework of security and prote	ection of electronic busil nd protection in electron	iess systems: electronic		
	Learning outcomes:9.1	.0	inamework of security at	nu protection in electron	ic business , 211,		
	15.Colloquium 2, 2h, Le	earning outcomes:4,5,6,	7,8,9,10				
Course content	1.Defining product prop	perties, 2h, Learning out	comes:1				
auditory	2.Defining product prop	perties, 2h, Learning out	comes:1				
	A Product categories , A	2h, Learning outcomes:1 2h, Learning outcomes:1					
	5.Product definition , 2	h, Learning outcomes:1					
	6.Product definition , 2	h, Learning outcomes:1					
	7.Product definition , 2	h, Learning outcomes:1,	7				
	8.Catalogue, 2h, Learni	ing outcomes:7					
	10.Virtual catalogue 7	2h. Learning outcomes:7					
	11.Virtual catalogue , 2	2h, Learning outcomes:7					
I	1	-					

1	12 XML code 2b Learning outcomes:7					
	12.XML code , 21, Learning outcomes.7					
	14 Decementation compare 2b					
	15. Documentation - seminar 2h					
	15. Documentation - Seminar , 21					
Required materials	Basic: classroom, blackboard, chalk					
	General purpose computer laboratory					
	Whiteboard with markers					
	Overhead projector					
Exam literature	Basic literature:					
	1.Mladen Mauher: Sustavi elektroničkog poslovanja - sadržaji u elektroničkoj mapi, 2012; Sadržaji u sustavu Moodle					
	2014.					
	Additional literature:					
	1.Schneider, G.P.: Electronic Commerce, Publication Date: May, 2012 ISBN-13: 978-1133526827,					
	Edition: 10					
	2. Studija normizacije u e-Poslovanju, ver. 2.4, FER, 2009.					
	3.Core Components Technical Specification, v.3.0, United Nations Centre for Trade					
	Facilitation and Electronic Business, 2009.					
	4.OASIS Universal Business Language Version 2.1, 2012.					
Students obligations	maximum of 30% absences from lectures					
	maximum of 20% absences from exercises					
Knowledge	Lectures based learning outcomes, max 70 points					
evaluation during	Colloquium 1: Total of 35 outcome points, based on % of adequate answers to exam questions:					
semester	91%-100% = 35 points(5)					
	81%-90% = 31,5 points(4)					
	71%-80%= 28 points(3)					
	61%-70%=24,5 points(2)					
	Less of 60% = inadequate outcomes					
	Colloquium 2: Total of 35 outcome points, based on % of adequate answers to exam questions:					
	91%-100% = 35 points(5)					
	81%-90% = 31,5 points(4)					
	71%-80%= 28 points(3)					
	61%-70%=24,5 points(2)					
	Less of 60% = inadequate outcomes					
Knowledge	Documented product catalog 10 points					
evaluation after	Oral exame 20 points					
semester	Total of max. 100 points					
	91-100 = 5					
	81-90 = 4					
	71-80 = 3					
	61-70 = 2					
	Less of 60% = inadequate outcomes					
Student activities:	Aktivnost ECTS					
	(Written exam) 5					
Remark	This course can be used for final thesis theme					
Prerequisites:	No prerequisites.					
Proposal made by	Prof. Mladen Mauher, Ph.D.					

Code WEB/ISVU	23758/170034	ECTS	5.0	Academic year	2018/2019		
Name	eBook design						
Status	6th semester - IT Desig	ın (Izvanredni informatik	e) - elective course				
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	seminar + metodology	+ construction)	30+30 (0+30+0+0)		
Toochors	work at nome	Turčić prod			90		
Teachers	Lectures: 1. dr.sc. Maja Lectures: Vesna Uglieš	ić dipl. dizainer					
	Laboratory exercises:d	r.sc. Maja Turčić pred.					
	Laboratory exercises: \	/esna Uglješić dipl. dizaj	ner				
Course objectives	To transfer to students	the knowledge related t	o e-literature design				
Learning outcomes:	1.ability to design cons	Lability to design construction elements: nome page, content, neadlines, links, multimedia forms. Level:6 2 ability to design a book files. Level:6.7					
	3.ability to design e-bo	between different forma	ts of e-books. Level:6				
	4.ability to integrate m	ultimedia elements: vide	eo, animation, audio. L	evel:6,7			
	5.ability to understand	the advantages and dis	advantages of e-books	. Level:6			
	ability to design typography for e-readability. Level:6 ability to present solutions. Level:6.7						
	Lintegrate interactive scripting possibilities. Level:6,7						
	9.devise different ways	s of inclusivity and acces	sibility in epub . Level:	6,7			
Mothoda of counting	Ex cathodra toaching						
out lectures	Case studies						
	Seminar, students pres	sentation and discussion					
Methods of carrying	Laboratory exercises o	n laboratory equipment					
exercises	Group problem solving	Joinputer simulations					
Course content	1.Formats of e-literatur	re e-readers: EPUB, PDF,	mobi, 2h, Learning ou	tcomes:3	namic nago. 2h. Learning		
lectures	2.Advantages and disa	uvanitages of e-literature	s, different approaches	to design, static and dy	namic page, 2n, Learning		
	3.Design of EPUB forma	ats: metadata, 2h, Learn	ing outcomes:1,2				
	4.Design of EPUB form	ats: xhtml, CSS, 2h, Lear	ning outcomes:1,2				
	5.BOOK COVER design, 2 6 Interactive table of c	n, Learning outcomes:1, ontents design 2h Lear	Z ning outcomes:1.2				
	7.Design of headlines,	pagination, links, 2h, Lea	arning outcomes:1,2,6				
	8.Video and audio in ep	pub, 2h, Learning outcor	nes:4				
	9.E-book animation, 2h	i, Learning outcomes:4					
	11.inclusive design and	d accessibility, 2h, Learn	.o ing outcomes:9				
	12.Fallback content of	specific e-book elements	s, 2h, Learning outcom	es:2			
	13.Media overlays, 2h,	Learning outcomes:9	oiacte 2h Loorning ou	tcomoci7			
	15.no lesson. 2h	on techniques of final pro	Sjects, 211, Learning ou	comes.7			
Course content	1.Design of EPUB form	ats, 2h, Learning outcom	ies:1,2,3	2012			
laboratory	3.Content construction	in e-books (xhtml). 2h. '	, 20, Learning outcomes:1.2	25:1,2			
	4.Content design: css,	2h, Learning outcomes:	L,2,6				
	5.project assesment, 2	h, Learning outcomes:1,	2,3,6,7				
	6.E-book cover compose 7 Making of table of co	ntents in FPUB 2h Learnin	ig outcomes:1,6				
	8.Constructing necessa	ary content for communi	cation between e-read	ers and e-books , 2h, Le	arning outcomes:1,2,5		
	9.project assesment, 2	h, Learning outcomes:1,	2,5,6,7				
	10.implementing multi	media elements, 2h, Lea	irning outcomes:4	٠Q			
	12.Interactivity and an	imation, 2h, Learning ou	tcomes:8	.9			
	13.project assesment,	2h, Learning outcomes:	1,4,7,8,9				
	14.no lessons, 2h						
	13.110 10330113, 211						
Required materials	Basic: classroom, black	cboard, chalk					
	General purpose comp	uter laboratory					
	Overhead projector	315					
	Tools						
	e-readers						
Exam literature	1. EPUB Straight to the	point, Elizabeth Castro,	Peachpit Press, ISBN-1 Pringburst, Hartloy Mar	3: 978-0-321-73468-6	2170 110 5		
	3. Tipografski prirucnik	, Franjo Mesaros, Grafici	ki obrazovni centar	KS FUDIISHEIS, ISDN. 0-00)179-110-5		
	4. EPUB 3 Best Practice	es, Matt Garrish, Markus	Gylling, O'Reilly Media	Inc., 2013, ISBN: 978-1-	-449-32914-3		
	Mandaton, lab attainet						
Students obligations	Project completion	nce					
	Positive review of proje	ect assesments					
Knowledge	Lab attendance						
1	1						



evaluation during semester	Project assessment progress		
Knowledge	Oral exam		
evaluation after	Completed project		
semester			
Student activities:	Aktivnost	ECTS	
	(Written exam)	5	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		
Proposal made by	pred. Maja Turčić, dipl.ing.		

Code WEB/ISVU	23609/156402	ECTS	3.0	Academic year	2018/2019		
Name	English Language for I	T					
Status	3rd semester - Office C	Organization and Informa	tization (Izvanredni infor	matike) - elective course	e3rd semester - E-		
	business (Izvanredni ir	nformatike) - elective cou	Irse3rd semester - IT Des	sign (Izvanredni informat	tike) - elective course		
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + :	seminar + metodology +	- construction)	30+30 (30+0+0+0) 30		
Teachers	Lectures:1. dr.sc. Biljar Auditory exercises: Lar Auditory exercises: Zo	na Stojaković ,prof.v.š. u mia Egartner prof. ran Vulelija	trajnom zvanju				
Course objectives	To develop students Ei oneself/company	nglish language skills: or	al and written communic	ation in the field of expe	ertise, presenation of		
Learning outcomes:	1.ability to analyse the	1.ability to analyse the position of the English language in the field of IT and in global communication. Level:6					
	3.ability to develop individual reading skills related to texts referring to the field of expertise. Level:6,7 4. to translate texts related to the field of expertise. Level:6,7 5.ability to categorize the IT terminology in both English and Croatian. Level:6 6.tability o give comments on characteristics of both professional English and professional Croatian. Level:6 7.ability to make difference between the vocabulary and the grammar structures in standard language and in professional language. Level:6 8.ability to give comments on the quality of the English language on the Internet, especially of the content related to the field of expertise. Level:6 9.ability to analyse online translators. Level:6 10.ability to give English presentations on various subjects related to the field of expertise. Level:6,7 11.ability to create dialogues related to the field of expertise. Level:6,7 12.to analyse types of dictionary. Level:6						
	13.to make a difference Level:6 14.to generate sentence 15.to identify both reg 16.to analyse the aspe	difference between the Croatian language free word order and the English language fixed word order. e sentences appying sequence of tenses. Level:6,7 both regular and irregular plural forms in English. Level:6 the aspect of English verb tenses. Level:6					
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Demonstration Discussion Questions and answers Seminar, students presentatio - Lectures are given in are asked to give comu involving writing on the board overhead project	s sentation and discussion an interactive way: stud ments and examples of t e board, and using key e ctor. I CD projector, tape	ents are constantly aske heir own and to draw co xamples from the readin -recorder	ed questions on the subje nclusions Straightforwing and listening texts T	ect being taught; they ard presentations, Feaching equipment:		
Methods of carrying	Group problem solving		-recorder.				
out auditory exercises	Traditional literature a Data mining and know Essay writing Discussion, brainstorm Interactive problem so Workshop Exercising language p information;The opinio Translation exercises; processes; Writing sho	nalysis ledge discovery on the V lving atterns through various n exchange tasks;Asking Vocabulary exercises (cr rt dialogues (group work	Veb types of tasks:Reading fo and answering the que osswords, word games); ;); Keeping their own voc	or information; Listening stions; Fill in the most ap Writing short description abulary notebooks.	for specific propriate tense;. ns of computing		
Course content lectures	1.English as a lingua fr 2.English in ITand com 3.IT terminology, 2h, L 4.Croatian IT terminolo 5.English on the Intern 6.Machine translation, 7.Online machine trans 8.Dictionary, 2h, Learn 9.Learning English Onl 10.Preliminary exam, 2 11.Direct/Indirect Spee 12.Sequence of tenses 13.English and Croatia 14.English verb tense 15.Preliminary exam, 2	ranca, 2h, Learning outco puting, 2h, Learning outco earning outcomes:4,5 ogy, 2h, Learning outcome et, 2h, Learning outcomes: 2h, Learning outcomes: slators, 2h, Learning outcomes: and outcomes:3,11 ine, 2h, Learning outcomes: 2h, Learning outcomes:	omes:1 comes:1 nes:1,2,3,4,5,6 es:1,4,5,6,7 7,8,9 comes:7,8,9 nes:6 ,2,3,4,5,6,7,8,9,10 ons, 2h, Learning outcon :12,13 arning outcomes:14 comes:15 1,12,13,14,15	nes:12			
Course content auditory	1.Computer application 2.Types of computer; E 3.Input devices; Active 4.Scanner; Active voice 5.Output devices; Com 6.Preliminary exam, 2h 7.Storage devices; Cor	ns; English verb tenses (English verb tenses (exer e voice/Passive voice, 2h, e/Passive voice, 2h, Lear parison of adjectives ann n, Learning outcomes:2,3 nditional clauses, 2h, Lea	revision), 2h, Learning ou rcises), 2h, Learning out Learning outcomes:2,3, ning outcomes:2,3,4,6 d adverbs, 2h, Learning 8,4,7,10 rning outcomes:2,4,10	Jtcomes:2,4,7,10 :omes:2,4,7,10 4,7,10 outcomes:2,3,4,6,10			

	 8.Magnetski ure za pohranjivanje podataka; Conditional Clauses in Sequence of Tenses, 2h, Learning outcomes:2,3,10 9.Opti ure za pohranjivanje podataka; Modal verbs, 2h, Learning outcomes:2,3,4,7,10 10.Flash memory; Modal verbs, 2h, Learning outcomes:2,3,4,10 11.My ideal computer system; Direct/Indirect Speech, 2h, Learning outcomes:2,3,4,7,10 12.In a cybercafe; Sequence of Tenses, 2h, Learning outcomes:1,2,6 13.Buying a computer; Plural of Nouns, 2h, Learning outcomes:2,3,10 14.Mobile phones; English Verb Tense Aspect, 2h, Learning outcomes:1,3,7,9 15.Preliminary exam, 2h, Learning outcomes:2,3,4,7,10 					
Required materials	Basic: classroom, blackboard, chalk Whiteboard with markers Overhead projector Video equipment Operating supplies Exercising language patterns through various types of tasks:Reading for information; Listening for specific information;The opinion exchange tasks;Asking and answering the questions; Fill in the most appropriate tense;. Translation exercises; Vocabulary exercises (crosswords, word games); Writing short descriptions of computing processes; Writing short dialogues (group work); Keeping their own vocabulary notebooks.					
Exam literature	1.Professional English in Use ICT, for Computer and Internet, Esteras, Fabre, Cambridge University Press 2. Stojaković, B. Skripta English for computer users 1, 3. Mihaljević, M. Hrvatsko računalno nazivlje, 1993 4. materijali s predavanja (objavljeni na web stranicama kolegija) sastavljeni od tekstova preuzetih iz suvremene stručne i metodičke literature 5. Kiš, M. Englesko-hrvatski, hrvatsko-engleski školski informatički rječnik. Naklada Ljevak, Zagreb, 2003.					
Students obligations	Regular attendance in both lectures and exercises (maximum of 3 absences from exercises is tolerated).					
Knowledge evaluation during semester	2 preliminary exams in both lectures and exercises; Homework					
Knowledge evaluation after semester	Written and oral exams.					
Student activities:	Aktivnost ECTS (Written exam) 3					
Remark	This course can be used for final thesis theme					
Prerequisites:	No prerequisites.					
Proposal made by	Professor Biljana Stojaković, prof.v.šk.					

Code WEB/ISVU	23751/170027	ECTS	12.0	Academic year	2018/2019		
Name	Final Thesis - A		I				
Status	6th semester - Office O business (Izvanredni in	rganization and l formatike) - elect	Informatization (Izvanre tive course6th semeste	edni informatike) - elective cou r - IT Design (Izvanredni inform	rse6th semester - E- aatike) - elective course		
Teaching mode	Lectures + exercises (a work at home	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 0+90 (90+0+0+0) work at home 270					
Teachers	Auditory exercises:1. M Auditory exercises: Ves	ia Čarapina dipl. na Uglješić dipl.	ing., pred. dizajner				
Course objectives	To teach students how	to relate the kno	wledge acquired to solv	ving engineering tasks			
Learning outcomes:	 1.ability to identify a problem or a development area related to a subject assigned or approved by a mentor. Level:6 2.ability to analyse the achievements in the area. Level:6 3.ability to analyse the parts of a problem area. Level:6 4.ability to propose a solution to a problem. Level:6,7 5.ability to give a practical solution to a problem. Level:6,7 6.ability to reach a conclusion about the reaches made and the possibility of generalisation of work . Level:6,7 7.ability to present one's work results. Level:6,7 						
Methods of carrying out auditory exercises	Other Individual work						
Course content auditory	1.no classes 2.no classes 3.no classes 5.no classes 6.no classes 7.no classes 8.no classes 9.no classes 10.no classes 11.no classes 12.no classes 13.no classes 14.no classes 5.no classes						
Required materials	Tools Computer with MS Wor	d or Open Office	installed				
Exam literature	Konzultacije s mentoro	m.					
Students obligations	Final thesis writen in M	S Word or Open	Office				
Knowledge evaluation during semester	Prakti rad#1#1#100\$						
Knowledge evaluation after semester	Oral examination of the	thesis					
Student activities:	Aktivnost (Written exam)		EC 12	TS			
Remark	This course can not be	used for final the	esis theme				
Prerequisites:	Students cannot enroll Students cannot enroll	in this course un in this course un	less they have passed I less they have passed I	Matematika I Matematika II Fizika Dsnove programiranja Uredsko poslovanje Računalna tipografija Jvod u (X)HTML i CSS Programiranje Kineziološka kultura II Kineziološka kultura I			

Code WEB/ISVU	23611/156404	ECTS	3.0	Academic year	2018/2019		
Name	German for IT						
Status	3rd semester - Office O business (Izvanredni inf	rganization and Informa formatike) - elective cou	tization (Izvanredni infor rse3rd semester - IT Des	matike) - elective course ign (Izvanredni informat	:3rd semester - E- ike) - elective course		
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+30 (30+0+0+0) 30		
Teachers	Lectures:1. Doc. dr. sc. Auditory exercises: Doc	Lidija Tepeš Golubić v. p z. dr. sc. Lidija Tepeš Gol	pred. ubić v. pred.				
Course objectives	Develop students langu	iage knowledge					
Learning outcomes:	1.ability to read texts re 2.ability to demonstrate 3.ability to demonstrate 4.ability to present a te 5.ability to use properly 6.ability to use dictiona 7.ability to translate spe	ability to read texts related to the field of expertise, to find relevant information in a text. Level: ability to demonstrate the knowledge of IT terminology and the ability to use it in communication. Level: 3.ability to demonstrate the knowledge of grammar structures. Level: I.ability to present a text related to the field of expertise and provide an opinion on it. Level: 5.ability to use properly all of 4 language skills. Level: 5.ability to use dictionaries (monolingual and bilingual). Level: 7.ability to translate specific professional papers from German into Croatian. Level:					
Methods of carrying out lectures	Ex cathedra teaching Discussion Questions and answers Homework presentatior The course is intercultu people whose language	ix cathedra teaching Discussion Questions and answers Homework presentation The course is intercultural and interdisciplinary. Students are introduced to scientific and technical achievements of the people where language they study (especially in the specialism area)					
Methods of carrying	Group problem solving						
out auditory	Interactive problem solv	ving					
exercises	Other The student does various types of exercises in auditory recitations, being continuously warned of cognitive, netacognitive and social and affective learning strategies which make individual learning easier. The student is trained for using dictionaries (bilingual, unilingual) and other manuals (in a traditional form or those mediated by electronic media), in order to be able to use manuals, professional literature, documentation and other knowledge sources in German, all related to the profession they are trained for.The student is trained for using various reading techniques, to write short summaries and use the basic business correspondence and to communicate about everyday issues.						
lectures	2.Importance of Germai 3.German language gra 4.New media, 2h, Learn 5.Information technolog 6.Information technolog 7.Colloquium 1, 2h, Lea 8.Social networks, 2h, L 9.Curriculum vitae, 2h, 10.Curriculum vitae, 2h, 10.Curriculum vitae, 2h, 11.IT jobs, 2h, Learning 12.Job interview, 2h, Le 13.German Literature a 14.Dictionary and vocal 15.Colloquium 2, 2h, Le	n language study, 2h, Léa ammar - Nouns, 2h, Lear ning outcomes:2,6,7 gy (IT), 2h, Learning outc gy (IT), 2h, Learning outc arning outcomes:1,2,3,4, earning outcomes:1,2,5,6 n, Learning outcomes:1,2,5,6 nd Culture, 2h, Learning bulary, 2h, Learning outcomes: earning outcomes:1,2,3,4,5	aarning outcomes:1,5 ning outcomes:2,3,4 comes:2,6,7 5,6,7 ,7 5 ,6 ,6 outcomes:1,2,3,4,5,6,7 comes:3,4,5,6 1,5,6,7				
Course content auditory	1.Introductory lecture, 2 2.Importance of Germai 3.German language gra 4.New media, 2h, Learn 5.Information technolog 6.Information technolog 7.Colloquium 1, 2h, Lea 8.Social networks, 2h, L 9.Curriculum vitae, 2h, 10.Curriculum vitae, 2h, 10.Curriculum vitae, 2h 11.IT jobs, 2h, Learning 12.Job interview, 2h, Le 13.German Literature a 14.Dictionary and vocal 15.Colloquium 2, 2h, Le	2h, Learning outcomes:1 n language study, 2h, Lea ammar - Nouns, 2h, Lear ning outcomes:2,6,7 gy (IT), 2h, Learning outco gy (IT), 2h, Learnin	.,3 earning outcomes:1,5 ning outcomes:2,3,4 comes:2,6,7 5,6,7 ,7 5,6,7 ,6 ,6 outcomes:1,2,3,4,5,6,7 comes:3,4,5,6 i,5,6,7				
Required materials	Basic: classroom, blackl Whiteboard with marke Overhead projector Operating supplies The student does variou metacognitive and socia for using dictionaries (b media), in order to be a German, all related to t write short summaries a Basic literature:	board, chalk rs al and affective learning illingual, unilingual) and able to use manuals, pro he profession they are t and use the basic busine	auditory recitations, bein strategies which make i other manuals (in a trad fessional literature, docu rained for.The student is ess correspondence and f	g continuously warned on ndividual learning easier itional form or those me imentation and other kno trained for using various to communicate about e	of cognitive, r. The student is trained diated by electronic owledge sources in s reading techniques, to overyday issues.		
	1. T. Marčetić, T.: Pregle 2. Hansen-Kokoruš R., N	ed gramatike njemačkog Matešić J., Pečur-Medinge	ja jezika, Školska knjiga, er Z., Znika M.: Njemačko	Zagreb o-hrvatski univerzalni rje	čnik, Zagreb, 2005.		

	3. odabrani tekstovi objavljeni na web stranicama kolegija, recentni preuzetih iz suvremene stručne literature, časopisa ili s Interneta				
Students obligations	s Attending classes and participation in the process				
Knowledge	Preliminary exam 1 and 2; seminar paper				
evaluation during semester					
Knowledge evaluation after semester	Written and/or oral exam				
Student activities:	Aktivnost (Activity in class) (Written exam) (Report)	ECTS 1 1 1			
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	PhD. Lidija Tepeš Golubić, senior lect	urer, 11th of March 2014			

Code WEB/ISVU	23606/156399	ECTS	6.0	Academic year	2018/2019		
Name	Graphics Design		I				
Status	4th semester - IT Desig	n (Izvanredni infor	matike) - obligatory	course			
Teaching mode	Lectures + exercises (a	auditory + laborato	ry + seminar + met	odology + construction)	30+60 (0+60+0+0) 90		
Teachers	Lectures:1. Vesna Uglje	ešić dipl. dizajner	dizainor				
Course objectives	To transfor the basis of	vesna ogijesic ulpi.					
	1 integrating basic co			lour typography illustration ph	atagraphy Lavalie 7		
Learning outcomes:	 2.to conceive visual solution to given problem or topic through sketches. Level:6,7 3. to recognize important elements and reduce and simplify complex forms. Level:6 4.to integrate creativity, innovativity and originality into author work. Level:6,7 5.to develop design concepts further by using vector and pixel graphics editors and page layout programs. Level:6,7 6.prepress in pdf form. Level:6,7 7.to critically evaluate, establish and comment on advantages and disadvantages of specific designs. Level:7 8.to conceive, prepare and give a presentation of a project. Level:6,7 9.to present in front of audience and answer the questions put by fellow students and the examiner. Level:6,7 						
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Discussion Questions and answers Seminar, students pres Homework presentation	cathedra teaching se studies monstration ;cussion estions and answers minar, students presentation and discussion mework presentation					
Methods of carrying out laboratory exercises	Laboratory exercises, c Discussion, brainstormi Computer simulations	computer simulatio ing	ns				
Course content lectures	1.Basic terms and defir 2.History of graphic des 3.Theory of design, ges 4.Composition, form ar 5.Colour theory and us 6.Letter, typography, c 7.Image, drawing, illust 8.Student projects pres 9.Problem-solving appr 10.Creating a solution of 11.Developing a desigr 12.Originality, innovati 13.Analizing and discus 14.Significance of press 15.Student projects press	hitions related to gr sign, 2h, Learning of stalt, psychology ar d space, 2h, Learn ing colour in desigr alligraphy, 2h, Lear tration and photogr concept and makin n solution, 2h, Lear vity and creativity ssing relevant design entation and methor esentation with disc	Taphic design, 2h, Le butcomes:1,4,7 1d perception, 2h, Le ing outcomes:1,2 1, 2h, Learning outcor raphy, 2h, Learning d defining a problem 1g sketches, 2h, Lear ning outcomes:5,6 in design, 2h, Learning gn solutions, 2h, Lear ods used in its prepa cussion, 2h, Learning	earning outcomes:1 earning outcomes:1,2,3 omes:1,2 outcomes:1,2 outcomes:7,8,9 i, 2h, Learning outcomes:2,3,7 ning outcomes:2,4 ng outcomes:4,7 rrning outcomes:7 iration, 2h, Learning outcomes:8 g outcomes:7,8,9			
Course content laboratory	1.Reducing complex in 2.Various visual styles 3.Decomposing given f outcomes:1,2,3 4.Designing a simple sl 5.Arranging visual com outcomes:1,5 6.Visual presentation o 7.Letterform as symbol 8.Typographic associat 9.Typographic associat 10.Typographic associat 10.Typographic associat 11.The analysis of give 12.Visualizing the conc 13.Elaborating the sket 14.Assembling the present	hage to the level of of representing the orm to its basic elec- hape according to g positions by duplic f abstract concept l, 2h, Learning outce ions - direct, 2h, Le ions - indirect, 2h, ations - rhythm, 2h, n problem and sett ept by means of sk tches by using com sentation and prep- esentation with disc	graphic symbol, 2h, same object, 2h, Le ments, modifying ar given requirements, ating, moving, rotati by arranging simple comes:1,2,3,4,5 earning outcomes:1, Learning outcomes:1, Learning outcomes: ing verbal concept, (etches, 2h, Learning puter, 2h, Learning ress, 2h, Learning ot cussion, 2h, Learning ot	Learning outcomes:1,2,3 earning outcomes:1,2,3 and rearranging them to get a ne 2h, Learning outcomes:1,2,3,5 ing and mirroring of basic symbol shapes, 2h, Learning outcomes 2,3,4,5 1,2,3,4,5 :1,2,3,4,5 2h, Learning outcomes:2,7 g outcomes:2,7 outcomes:4,5 utcomes:6,8 g outcomes:7,8,9	w shape, 2h, Learning xl, 2h, Learning :1,2,3,4,5		
Required materials	Basic: classroom, black Special purpose compu Whiteboard with marke Overhead projector Operating supplies papers, markers, penci	board, chalk Iter laboratory ers Is					
Exam literature	UVOD U LIKOVNO MIŠL DESIGN FOR COMMUNI DESIGN AND FORM / Jo TEORIJA I POVIJEST DIZ THE ELEMENTS OF TYP Mandaton / abarator	JENJE / Marcel Bači CATION / Elizabeth hannes Itten AJNA / Feđa Vukić OGRAPHIC STYLE /	ć, Jasenka Mirenić Ba Resnick Robert Bringhurst				
Students obligations	Manualory laboratory e	exercises (80%), pr	oject completion (10	10 70].			

Knowledge evaluation during semester	Two preliminary exams submission of completed elements of a larger project, grades 1 5 Final presentation, grade 1 5 Grades are based on preparation, commitment, content and appearance of the project and its elements. Laboratory exercises grade is calculated as the average of above mentioned grades.				
Knowledge evaluation after semester	Visual presentation and oral defense of a design solution on a given topic, with elaboration on the problem analysis, concept, and explanation of relevant elements of design theory. Final grade is calculated as the average of laboratory exercises and final exam presentation grades (50 50%).				
Student activities:	Aktivnost ECTS (Written exam) 6				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Vesna Uglješić, Mag. Des.				

Code WEB/ISVU	23602/156395	ECTS	5.0	Academic year	2018/2019		
Name	Graphics Programming	Languages					
Status	3rd semester - IT Desig	yn (Izvanredni informatike	e) - obligatory course				
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	30+60 (0+60+0+0) 60		
Teachers	Lectures:1. dr.sc. Maja Turčić pred. Lectures:2. prof.dr.sc. Klaudio Pap Laboratory exercises: Darija Ćutić , mag. ing. graph. techn. Laboratory exercises:prof.dr.sc. Klaudio Pap Laboratory exercises:dr.sc. Maja Turčić pred.						
Course objectives	To transfer the basic k	nowledge related to grap	hic programming langua	iges			
Learning outcomes:	 ability to develop complex graphic applications in PostScript Level:6,7 ability to distinguish between a transformation of a coordinate system and a deformation of graphic characters Level:6 ability to develop programs for lines, curves, arcs and other types of vector paths Level:6,7 ability to create graphic elements in various colour systems and under various graphic conditions Level:6 ability to define user procedures for individual usage Level:6,7 create complex typographic designs using masks and loops Level:6,7 construct graphics with different kinds of loops (for, repeat, if-else) Level:6,7 manage a stack oriented programming language Level:6,7 						
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Discussion Questions and answers	ix catheora teaching Case studies Demonstration Discussion Questions and answers					
Methods of carrying out laboratory exercises	.aboratory exercises, computer simulations Group problem solving nteractive problem solving Solving of prepared tasks in the computer laboratory with the check of final solutions of every student.						
Course content lectures	 I.introduction to the possibilities of graphic programming languages, 2h, Learning outcomes:1 PDL languages. PostScript language for the page description., 2h, Learning outcomes:1 Creation of paths. Programming lines, their way of connecting and closed surfaces., 2h, Learning outcomes:3 A.Rendering lightness, filling closed areas., 2h, Learning outcomes:4 S.Programming arc shapes, rounded corners and dashed lines., 2h, Learning outcomes:3 6.Bezier curve, 2h, Learning outcomes:3 7.Programming in various colour systems., 2h, Learning outcomes:4 8.Rotation, translation and transformation of forms., 2h, Learning outcomes:2 9.User procedures, 2h, Learning outcomes:5 10.Different kinds of stacks, working with a stack, 2h, Learning outcomes:6, 7 12.Programming of typography. 2h, Learning outcomes:6 13.Masks and glyph manipulation, 2h, Learning outcomes:6 14.Controlling the character widths and spaces between words, 2h, Learning outcomes:6 						
Course content laboratory	1.Defining the graphic 2.Arc, dashed lines and 3Creating Bezier curv 4.Quiz, 2h, Learning ou 5.User coordinate spac 6.Stack manipulation, 7 7.Programming graphi 8.Quiz, 2h, Learning ou 9.Basic typography in f 10.Masks and creating 11.Controling glyph wid 12.Quiz, 2h, Learning of 13.No lesson, 2h 14.No lesson, 2h 15.No lesson, 2h	coordinate space, 2h, Lea 1 line endings manipulation es, 2h, Learning outcomest 1 transformations and we 2h, Learning outcomest 2h, Learning outcomest cs with for and if else loop 1 trcomest 1,2,4,5,7,8 Postscript language, 2h, 1 paths out of glyphs, 2h, 1 dths, 2h, Learning outcom 5 outcomest 1,4,6,7	arning outcomes:1,3 on, 2h, Learning outcom es:1,3 orking with different colo ,5,8 ps, 2h, Learning outcom Learning outcomes:1,4,6 Learning outcomes:1,6,7 nes:1,6,7	es:1,3 our systems, 2h, Learnin es:7 ;	g outcomes:1,2,4		
Required materials	Basic: classroom, black General purpose comp Whiteboard with marke Overhead projector	(board, chalk uter laboratory ers					
Exam literature Students obligations	 V. Žiljak, K. Pap, POS Izdanje: http://free-zg.ł PostScript Language Company, 1999 Postscript Language Publishing company, 1 Laboratory attendar 	STSCRIPT PROGRAMIRANJ htnet.hr/kpap/ Reference, Adobe Syste Tutorial and Cookbook, / 985 htee (maximum of 2 abser	JE GRAFIKE, FS, Zagreb, m Incorporated, ISBN 0- Adobe System incorpora nces)	1998. /2004. ISBN: 953 201-37922-8, Adison-We ted, ISBN 0-201-10179-3	· 199 - 000, elektr. :sley Publishing 3, Adison-Wesley		
	Maximum number of p	oints - 45					

	Requirement: 18 points				
	2. Positively reviewed quiz Maximum number of points - 15				
	Requirement: 6 points				
Knowledge evaluation during semester	Tri kolokvija po 5 bodova, maksimalno 15 bodova Prolaz: 2 boda (ukupno 6 bodova) Vjebe, maksimalno 45 bodova				
	Prolaz: 18 bodova Ocjenjuje se priprema, zalaganje i finalno rjeenje.				
	Ukupno 60 bodova 50-60 = 5 40-50 = 4 30-40 = 3 20-30 = 2 Manje od 18 nedovoljno postignu				
Knowledge evaluation after semester	Studenti ocijenjeni sa 4 ili 5 tijekom semestra izlaze samo na usmeni dio ispita gdje se provjerava teorija. Studenti sa ocjenama 2 i 3 izlaze na pismeni ispit gdje rjeavaju programski zadatak nakon a slijedi usmeni dio ispita odje se provjerava teorijsko znanje				
Semester	Pismeni ispit maksmimalan broj bodova 100: 90-100 = 5 80-90 = 4 70-80 = 3 60-70 = 2 manie od 60 nodovelino postignu				
Student activities	Altimot ECTS				
Student activities:	(Written exam) 5				
Remark	This course can be used for final thesis theme				
Prerequisites:	Students cannot pass this course unless they have passed Osnove programiranja				

Code WEB/ISVU	23603/156396	ECTS	4.0	Academic year	2018/2019	
Name	Graphics Techniques					
Status	3rd semester - IT Desi	an (Izvanredni inform	atike) - obligatory	(COURSE		
Teaching mode	Lectures + exercises (auditory + laboratory	(+ seminar + me	todology + construction)	30+30(30+0+0+0)	
i cucining inouc	work at home				60	
Teachers	Lectures: 1. Aleksandra	a Bernašek Petrinec				
	Auditory exercises: Ale	eksandra Bernašek Pe	etrinec			
Course objectives	Acquiring basic knowle	edge about the proce	sses of graphic p	oduction. Analyze all the parame	eters in creating a	
_	conceptual graphic pro	oduct, from idea to re	alization.			
Learning outcomes:	1.ability to distinguish	basic printing techni	ques. Level:6			
	2.Compare old printing techniques (historical review). Level:6,7 3.Classify printing substrates. Level:6,7					
	4.Integrate all process	es in the graphics inc	in nanor, carton a	nd cardboard manufacturing I a	wale	
	6 ability to identify the	types of printing sub	n paper, carton a	nu caruboaru manufacturing. Le	vei:o	
	7.ability to analyse the	e theory of colours. Le	evel:6			
	8.analyze types of des	ign solutions. Level:6	5			
	9.determine the tasks	of graphical industry	and errors that o	ccur during the printing process.	Level:7	
	10.Present a project a	ssignment. Level:6,7				
Methods of carrying	Ex cathedra teaching					
out lectures	Guest lecturer					
	Discussion					
	Questions and answer	S				
	Seminar, students pre	sentation and discuss	sion			
	Other					
	Lectures and analyzing	g of existing techniqu	ies in the printing	industry with presentation of the	e material in digital form.	
Methods of carrying	Group problem solving]				
out auditory	Discussion, brainstorm	ling				
exercises	Other	iving				
	Laboratory exercises of	on the field.				
Course content	1.Historical overview of	of basic graphing tech	niques, 2h. Learr	ing outcomes:1.2		
lectures	2.Assignment of and a	greement on project	tasks, 2h, Learnir	ig outcomes:1,2,3,4,5,6,7,8,9,10		
	3.Graphic prepres, 2h,	Learning outcomes:4	4,8,9			
	4.Graphic design, 2h,	Learning outcomes:4,	,8			
	5.Basic graphic colors;	Color theory, 2h, Lea	arning outcomes:	1,/ hindors, solvents, resinct and dos	icconte er driere. 2h	
	l earning outcomes:4	ting ink formulating:	miers, pigments,	binders, solvents, resins and des	liccants of uriers, 2n,	
	7.Color management.	, 2h. Learning outcome	es:4.7.9			
	8.Project overwiev, 2h	, Learning outcomes:	1,2,3,4,5,6,7,8,9,	10		
	9. Overview of basic pr	inting media; Paper a	and cardboard, 2h	, Learning outcomes:3,4,5,6,9		
	10.Standard paper size	es, 2h, Learning outco	omes:3,4,5,6,9			
	11.Main printing techn	iques: , 2h, Learning	outcomes:4,9			
	12.Main printing techn	iques: , Zh, Learning	outcomes:4,9			
	14 Main printing techn	iques: , 2h, Learning	outcomes:4,9			
	15.Errors in the printin	ig proces, 2h, Learnin	ng outcomes:4,9			
Course content	1.Visit to Printing hous	e Zagreb, 3h, Learnir	ng outcomes:1,2,	3,4,5,6,7,8,10		
auditory	2.Visit to Graphical ins	titute of Croatia, 3h,	Learning outcome	es:1,2,3,4,5,6,7,8		
	3. Visit to the current e	xhibition, 3h, Learnin	ig outcomes:1,3,6	0,/,8 5 7 9 10		
	5 Presentation of proje	cts 3h Learning out	romes 10	,,,,0,10		
	6.There are no classes					
	7.There are no classes					
	8.There are no classes					
	9.There are no classes					
	10. There are no classe	25				
	12 There are no classe	25				
	13.There are no classe	25				
	14.There are no classe	es				
	15.There are no classe	es				
Required materials	Basic: classroom, blac	kboard, chalk				
	Overhead projector					
	Video equipment					
	Special equipment					
	UV and IR lamps, IR ca	imeras.				
Exam literature	Basic literature:					
	1. Helmut Kipphan, HA	NDBOOKOF PRINTME	DIJA, Springer, 20	001. Germany		
	2. Nikola Tannofer, O I 3. Andrijano Golubović	Joji na nimu i srodnim Tehnologija izrado i	i medijima, Novi l svojstva papira	10e1, 2000. Zagreb VGŠ 1984 Zagreb		
	4. Jana Žiliak Vuiić. Sic	jurnosna grafika	Svojstva papira,	, 1907. Zagieb		



Students obligations	maximum of 2 absences from exercises and le	maximum of 2 absences from exercises and lectures			
Knowledge evaluation during semester	Regular attendance#10#10#70\$Colloquium, theoretical issues #1#40#50\$				
Knowledge evaluation after semester	Written and oral exam#1#100#60\$				
Student activities:	Aktivnost (Classes attendance) (Project) (Oral exam) (Written exam)	ECTS 1 1 1 1			
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Aleksandra Bernašek Petrinec, lecturer				

Code WEB/ISVU	23520/156272	ECTS	6.0	Academic year	2018/2019			
Name	Information literacy and critical thinking							
Status	2nd semester - IT Desig	n (Izvanredni informatik	e) - obligatory course					
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+30 (30+0+0+0) 120			
Teachers	Lectures:1. Vjeran Buše Auditory exercises: Vier	lić viši predavač an Bušelić viši predavač			•			
Course objectives	Gathering basic knowled	dge of Infromation Litear	rcy and Critical Thinking					
Learning outcomes:	1.to analyze basic chara 2.to judge type and volu 3.to gather needed infor 4.to judge selected sour 5.to build and articulate 6.to integrate effectivel 7.to judgje ethical usage 8.to write seminar/profe	.to analyze basic characteristics modern literacies -digital, visual, media, informatics and information. Level:6 .to judge type and volume given/recognised information need. Level:7 .to gather needed informaton quick and efficient using Internet . Level:6,7 .to judge selected sources and gathered information. Level:7 5.to build and articulate arguments and personal stance (reasons, claims, dilemma,). Level:6,7 5.to integrate effectively compelted information for given purpose. Level:6,7 .to judgje ethical usage of information evaluating information sources . Level:7 8.to judgje ethical usage of information evaluating information sources . Level:7 8.to write seminar/professional paper on given subject using professional/institutional template. Level:6,7						
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Modelling Discussion Questions and answers Seminar, students prese Homework presentation	entation and discussion						
Methods of carrying	Group problem solving							
out auditory	Traditional literature and	alysis						
exercises	Data mining and knowle Essay writing Discussion, brainstormir Mind mapping Interactive problem solv Workshop	Data mining and knowledge discovery on the Web Essay writing Discussion, brainstorming Mind mapping Interactive problem solving Workshop						
Course content	1. , 2h, Learning outcom	nes:1						
lectures	 , 2h, Learning outcom 	res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7 res:1,6,8 res:1,2,3,4,5,6,7,8						
Course content auditory	 , 2h, Learning outcom , 2h, Learning outco 	res:1,2,3,4,5,6,7,8 res:1,2,3,4,7,8 res:1,2,3,4,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8 res:1,2,3,4,5,6,7,8						
Required materials	Basic: classroom, blackt Whiteboard with marker Overhead projector Video equipment	ooard, chalk rs						
Exam literature	Preporučena 1. Špiranec, Banek, Info 2. Buchberger, Kritičko I Additional literature:	rmacijska pismenost Teo mišljenje priručnik kritičl	orijski okviri i polazišta, z kog mišljenja, slušanja, č	ZIS Zagreb, 2008. žitanja i pisanja, Universi	tats, 2012.			
	 Bassham , Irwin , Nardone , "Wallace, Critical Thinking: A Student's Introduction", 4th Edition, McGraw-Hill, 2011. Butterworth, Thwaites, "Thinking Skills", 2nd Edition Cambridge University Press, 2013. Thomson, "Critical Reasoning", Routledge; 3 edition, 2008 							
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Students obligations	50% dolaznosti uz aktivno sudjelovanje i pravovremeno izvrav	vanje zadanih obaveza vezano uz prakti rad						
Knowledge evaluation during semester	Redovitost pohaa (15+15 provjera) Kolokvij, teorijska pitanja (1 provjere) Prakti rad (2 provjere)							
Knowledge evaluation after semester	Usmeni ispit: Dolaznost - 10% (kriterij za prolaz 50%) Teorijska provjera - 20% (kriterij za prolaz 50%) Prva prakti provjera (prezentacija) - 20% (kriterij za prolaz 100 Druga prakti provjera (seminar) - 20% (kriterij za prolaz 100%) Usmeni ispit - 30%	%)						
Student activities:	Aktivnost EC (Written exam) 6	TS						
Remark	This course can be used for final thesis theme							
Prerequisites:	No prerequisites.							

Code WEB/ISVU	23615/156409	ECTS	5.0	Academic year	2018/2019		
Name	Innovations in informat	ion technology					
Status	4th semester - Office O business (Izvanredni in	rganization and Informa formatike) - elective coι	itization (Izvanredni info urse4th semester - IT De	rmatike) - elective course sign (Izvanredni informat	4th semester - E-		
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	+ construction)	30+30 (30+0+0+0) 90		
Teachers	Lectures:1. Prof. dr. sc. Lectures: Ana Hoić Auditory exercises: Ana	. Jana Žiljak Gršić , mag. a Hoić	design				
Course objectives	Acquisition of basic kno development. To qualif environment. To familia	owledge in the field of in y students to improve the arize students with inno	novation, their role and neir ideas, procedures ar vation patent applicatior	impact on business proce nd processes for a more s n process.	esses and technological successful business		
Learning outcomes:	Lability to analyse the area of a specific task. Level:6 2.ability to highlight innovations with competitive advantages. Level:6 3.ability to prepare an innovation concept design . Level:6,7 4.ability to design a proposal for an innovation. Level:6,7 5.ability to formulate a solution to innovation. Level:6 6.ability to design an innovation. Level:6 7.ability to write documentation for the innovation proposal (diagram, graph, map). Level:6 8.ability to present the innovation project. Level:6,7						
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Demonstration Discussion Questions and answers Seminar, students pres	; sentation and discussion					
Methods of carrying out auditory exercises	Laboratory exercises, c Group problem solving Discussion, brainstormi Interactive problem sol	:omputer simulations ing lving					
Course content lectures	1.The impact of innova inventor, 2h, Learning of 2.Defining the theme of 3.Setting up a plan of of 4.Testing innovative co 5.Planning and adjustm 6.Innovative concept pr 7.Process of registering 8.Innovation project ch 9.Possible market proje Learning outcomes:7 10.Project prezentation 11.Innovations critical a 12.Critical issues settin 13.Preparation of the fi 14.Innovative products 15.Innovative solutions	tion on the progress of t outcomes:1 f innovation and setting levelopment and realiza oncept, selection phase a nent system in which inn resentation in front of a g a patent theoretical ap lecking, project and com ection, identifying areas n in front of a student gra analysis - development p ag - second check milest inal solution for presenta b benefits and improvem s exposure - innovation e	he economy, originality up task, 2h, Learning ou- tion of ideas, 2h, Learning and inner guidance to inn iovative project find its a group, 2h, Learning outco proach, protection of int pliance with the law and of interest and offering to oup, 2h, Learning outcor planning and solutions co- one and defining innova ation, 2h, Learning outco ent of existing application exhibition simulation , sel	as a result of their own ir Jtcomes:1,2 ng outcomes:2,3 novation, 2h, Learning ou application, 2h, Learning ou comes:3,8 ellectual property, 2h, Le I market proposal, 2h, Le their solutions in a real en mes:8 orrection, 2h, Learning ou tive solutions, 2h, Learning omes:6,7 ons, 2h, Learning outcom lection works jury , 2h, Le	ntellectual effort of the itcomes:3,4,6 outcomes:3,4,5 earning outcomes:5,6 arning outcomes:1,5 nvironment, 2h, utcomes:7 ng outcomes:7 es:1,7 earning outcomes:8		
Course content auditory	1.Introductory exercise outcomes:1 2.Innovation topics defi 3.Setting up a plan of d 4.Testing innovative co 5.Planning and adjustm 6.Innovative concept pi 7.Process of registering 8.Innovation project ch 9.Possible market proje Learning outcomes:7 10.Project prezentation 11.Innovations critical a 12.Critical issues settin 13.Preparation of the fi 14.Student groups pres 15.Innovative solutions	is and concept of innova ining and set up a task, levelopment and realiza uncept selection phase a nent system in which inn resentation in front of a g a patent practical appr lecking, project and com ection, areas of interest in in front of a student gru analysis - development p ing - second check milest inal solution for presents sent their ulimate solution s exposure - innovation e	tion definition, problem 2h, Learning outcomes: 1 tion of ideas, 2h, Learnir nd inner guidance to inn iovative project find its a group, 2h, Learning outco oach, intellectual proper pliance with the law and identifying and their solu oup, 2h, Learning outcor planning and solutions co one and defining innova ation, 2h, Learning outco ons and defend their woo exhibition simulation, sel	solving innovative appro- solving innovative appro- ng outcomes:2,3 ovation, 2h, Learning out application, 2h, Learning out comes:3,8 'ty protection, 2h, Learning the market proposal, 2h utions offering in a real en mes:8 orrection, 2h, Learning ou tive solutions, 2h, Learnin mes:6,7 rk, 2h, Learning outcome lection works jury , 2h, Le	ach , 2h, Learning tcomes:3,4,6 outcomes:3,4,5 ng outcomes:5,6 i, Learning outcomes:1,5 nvironment, 2h, utcomes:7 ng outcomes:7 s:1,7 earning outcomes:8		
Required materials	Basic: classroom, black General purpose comp Whiteboard with marke Overhead projector	board, chalk uter laboratory ers					
Exam literature	Basic literature: 1. Juraj Božićević: "Inov 2. HRVATSKI GLASNIK I		ogijski razvoj", Hrvatsko NIŠTVA, #8232;Službeno	društvo za sustave, Zagro glasilo Državnog zavoda	eb, 2009. a za intelektualno		

	vlasništvo				
	Additional literature: 1. Carmine Gallo: Steve Jobs: "Tajne njegovih inovacija", Školska knjiga d.d., Zagreb, 2011. 2. Boris Golob: "Inovacija od ideje do tržišta", Dragon d.o.o., Rijeka, 2009.				
Students obligations	maximum of 3 absences from exercises				
Knowledge evaluation during semester	Programski zadatak#1#60#60\$Pisana provjera znanja#2#20#20\$Usmena provjera znanja#1#20#20\$				
Knowledge evaluation after semester	written exams,oral exams, practical work				
Student activities:	Aktivnost ECTS (Written exam) 5				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Marko Horvat, PhD, lect., 28.05.2015.				

Name Int Status 1s bu co Teaching mode Le Wa Teachers Le La La La La Course objectives To ma bu ad	Itroduction to (X)HTML st semester - Office Or usiness (Izvanredni info ourse ectures + exercises (au ork at home ectures:1. Sanja Kraljev aboratory exercises: Sa aboratory exercises: Re aboratory exercises: Re boratory exercises: Re aboratory exercises: Re boratory exercises: Re aboratory exe	and CSS ganization and Inform ormatike) - obligatory uditory + laboratory - vić , dipl.ing., v. pred. sc. Roman Domović anja Kraljević , dipl.in enata Kramberger etar Osterman o practical and theore content and layout. S site will be presented al does not require p etween different languages	hatization (Izvanredn course1st semester + seminar + metodol , prof. g., v. pred. tical aspects of using tudents will learn ho (from buying a dom rior knowledge of the	i informatike) - obligatory cour - IT Design (Izvanredni inform logy + construction) g HTML and CSS, the basic man w to design and code Web pag ain name to Web site finalizati	rse1st semester - E- atike) - obligatory 30+30 (0+30+0+0) 60 rkup languages for es. The process of				
Status 1s bu co Teaching mode Le wo Teachers Le La La La Course objectives To ma bu ad	st semester - Office Or usiness (Izvanredni info ourse ectures + exercises (au ork at home ectures:1. Sanja Kraljev aboratory exercises: Sa aboratory exercises: Sa aboratory exercises: Re aboratory	ganization and Inform ormatike) - obligatory uditory + laboratory - vić , dipl.ing., v. pred. s. sc. Roman Domović anja Kraljević , dipl.in enata Kramberger etar Osterman o practical and theore content and layout. S site will be presented al does not require p etween different languages	hatization (Izvanredn course1st semester + seminar + metodol , prof. g., v. pred. tical aspects of using tudents will learn ho (from buying a dom rior knowledge of the	i informatike) - obligatory cour - IT Design (Izvanredni inform logy + construction) g HTML and CSS, the basic man w to design and code Web pag ain name to Web site finalizati	selst semester - E- atike) - obligatory 30+30 (0+30+0+0) 60 kup languages for es. The process of				
Teaching mode Le wo Teachers Le La La La Course objectives To ma bu ad	ectures + exercises (ar ork at home ectures:1. Sanja Kraljev aboratory exercises: dr aboratory exercises: Re aboratory exercises: Re aboratory exercises: Re bo introduce students to bo introduce students to baking the Web based dopt the course materi ability to distinguish b SS3) and to get familia inguages. Level:6 .ability to write a code	uditory + laboratory vić , dipl.ing., v. pred. . sc. Roman Domović anja Kraljević , dipl.in enata Kramberger etar Osterman o practical and theore content and layout. S site will be presented al does not require p etween different lang or with the languages	+ seminar + metodol , prof. g., v. pred. tical aspects of using tudents will learn ho (from buying a dom rior knowledge of the	logy + construction) g HTML and CSS, the basic man w to design and code Web pag ain name to Web site finalizati	30+30 (0+30+0+0) 60 Kup languages for es. The process of				
Teachers Le La La La Course objectives To ma bu ad	ectures:1. Sanja Kralje aboratory exercises:dr. aboratory exercises: Sa aboratory exercises: Re aboratory exercises: Pe o introduce students to haking the Web based uilding a modern Web dopt the course materi .ability to distinguish b SS3) and to get familia inguages. Level:6 .ability to write a code	vić , dipl.ing., v. pred. sc. Roman Domović anja Kraljević , dipl.in enata Kramberger etar Osterman o practical and theore content and layout. S site will be presented al does not require p etween different languages	, prof. g., v. pred. tical aspects of using tudents will learn ho (from buying a dom rior knowledge of the	g HTML and CSS, the basic mai w to design and code Web pag ain name to Web site finalizati	kup languages for es. The process of				
Course objectives To ma bu ad	o introduce students to haking the Web based of uilding a modern Web dopt the course materi ability to distinguish b SS3) and to get familia inguages. Level:6 .ability to write a code	o practical and theore content and layout. S site will be presented al does not require p etween different lang or with the languages	tical aspects of using tudents will learn ho (from buying a dom rior knowledge of the	g HTML and CSS, the basic man w to design and code Web pag ain name to Web site finalizati	'kup languages for es. The process of				
	ability to distinguish b SS3) and to get familia Inguages. Level:6 .ability to write a code	etween different lang r with the languages	To introduce students to practical and theoretical aspects of using HTML and CSS, the basic markup languages for making the Web based content and layout. Students will learn how to design and code Web pages. The process of building a modern Web site will be presented (from buying a domain name to Web site finalization). [To successfully adopt the course material does not require prior knowledge of the Web development or Web building software.]						
Learning outcomes: 1.3 lar 2.3 co 3.4 ma 4.4 un 5.4 Un 5.4 Ga gra 7.4 so 10 11 Le 6.4 gra 7.4 so 10 11 Le 12 etti 13 tee 14 12 12 12 12 12 13 14 12 14 14 15 16 16 17 18 18 19 10 10 10 10 10 10 10 10 10 10	ontemporary character ability to design a web argins, positioning, flo ability to understand we ability to understand we ability to compare diff evel:6,7 .ability to evaluate too raphical user interface: .ability to take a critica ource software or platfi- .ability to take a critica .ability to anticipate th SS3. Level:6,7 .identify future technolo oftware and Web sites, 0.ability to identify a n 1.ability to identify inco evel:6 2.ability to give studen tc.). Level:7 3.ability to give studen tc.). Level:7 3.ability to plan one's o cchnologies. Level:6,7 4.suggest to plan busif 5.ability to integrate m 6.ability to integrate m 6.ability to give studen 7.ability to design horiz . Level:6 9.ability to create a We 0.ability to link multime 1.create visual effects	in (X)HTML and in CS r code representation ppage and to arrange ating and grids. Leve why in certain cases of which a browser displ- erent criteria which of ls used for Web site of s, etc.). Level:7 al attitude towards ter- orm, the future of HT e direction of the dev logies on Web (opera- design with multi-re- eed for general compo- onstancy of contempo- ts directions on whic pown advancement in mess career by openir ore Web pages into V d optimize images an vebpage key words a zontal or vertical nav eb page adapted to the edia elements into a for enriching user ex	through their theore S and design a Web , basic design, functi the code elements of life one and the same cod ays a Web page; to u etermine the quality esign (browsers, plu chnologies used in th ML and CSS, etc.) . Li elopment of the tech cing systems on the I solution interfaces et uter literacy. Level:6 orary web technologi in knowledge sources lavaScript, server-ori g own startup compo Veb site and connect d photos for Web site and to set metadata. I gation bar, adjust it me needs of different Web page (audio, vic perience of web site.	anni gweb sites (HTML 4.01, H ritical and practical usage in the page to meet the requests of t onality and standards of a sem of a Web page using various te de is shown differently in differ inderstand how to avoid proble of Web sites (benchmark and gins, code editors, office applid web site design (videocoded evel:7 noology of data display on the internet, a close connection be c Level:6 is and identify a need for cont is to use (printed materials, Inter ented programming languages any. Level:6,7 t them with absolute and relati e; choose a suitable format. Le Level:6,7 to a webpage content and abil browser width layout or media deo, web mapping services). Le Level:6,7	 Imple, CSS 2.1 and context of markup the W3C validation, lantic Web. Level:6,7 chniques tables, frames, rent browsers; to rms. Level:7 validation tests). cations and packages, :s, audiocodecs, open- Web using HTML5 and tween application tinuous improvement. rmet sources, turorials, s and other ve links. Level:6,7 vel:6,7 ity to know how to code a. Level:6,7 evel:6,7 				
Involvement of 1 learning outcomes 1 of the course in 1 study programme: 1 1 1 1 1 1 2 3 3 5 6 Methods of carrving Ex	1.0PĆI Služiti se stran 2.0PĆI Primijeniti znar 3.0PĆI Koristiti tehnik. 4.0PĆI Povezati inženj sluge.: 5h in 120h 5.0PĆI Identificirati, m 1.0SOBNE Znanje o su 2.0SOBNE Odgovorno 3.0SOBNE Etički i mor 4.0SOBNE Komunikac 9.0SOBNE Komunikac 9.0SOBNE Profesional 10.0SOBNE Prilagodlji 11.0SOBNE Prilagodlji 11.0SOBNE Prilagodlji 11.0SOBNE Prilagodlji 11.0SOBNE Prilagodlji 11.0SOBNE Prilagodlji 11.0SOBNE Presibiling ačela, pravnih normi i 2.INF Savladati teorets 5.0RG Korištenje, uspi režama: 1h in 120h 5.ELPO Primjena i real 2.ID Planiranje, procje 5.ID Realizirati dizajne x cathedra teaching	im jezikom u literatur nje matematike i fizik e, vještine i suvremer jerske aktivnosti kons nodelirati i rješavati ir uvremenim pitanjima st, dosljednost, točno alni pristup radu.: 5h aluacija argumenata, ijske vještine u okviru na i ljudska osobnost vost novim tehnologi st za nova znanja, isk ost i prilagodljivost u pravila struke.: 4h in i i testirati mrežnu str ska i praktična znanja oredba i planiranje pr izacija multimedijskih njivanje i osmišljavar erska rješenja u podru	i i svakodnevnoj stru e na inženjerske prol e alate neophodne z truiranja, proizvodnji ženjerske probleme. struke i društva.: 3h st, ažurnost.: 10h in in 120h pretpostavki i podata struke te s klijentim .: 2h in 120h jama i tehnikama kao ustva i kulturne okoli iznalaženju tehničkih 120h anicu izrađenu u osr o tipografiji u inform imjene alata u elektroni je dizajna sučelja pro čju grafičkih tehnolo	ičnoj komunikaciji. : 2h in 120h bleme.: 3h in 120h za inženjersku praksu.: 3h in 12 e i marketinga s potrebama ko : 2h in 120h in 120h 120h aka u cilju stvaranja mišljenja i na, na hrvatskom i engleskom j o dio procesa cjeloživotnog uče nosti.: 4h in 120h n rješenja uz neupitno poštivan natičkoj struci: 4h in 120h roničkom poslovanju, računalni ičkom okruženju: 5h in 120h ogramskih rješenja i mrežnih si	20h risnika proizvoda i pridonošenja rješenju eziku.: 2h in 120h enja.: 5h in 120h je temeljnih etičkih na.: 40h in 120h im sustavima i tranica: 40h in 120h .: 5h in 120h				

ΤVŻ

out lectures	Demonstration
	Questions and answers
	Seminar, students presentation and discussion
	Talk and discussion. Public polling and voting. Answering to questions that are bonus marked.
Methods of carrying	Laboratory exercises on laboratory equipment
out laboratory	Essay writing
exercises	Other
	Surveying and voting. Work in Moodle (e-learning portal).
Course content	1.Motivational lecture and introduction to markup languages. Future of web. Internet startups., 2h, Learning
lectures	outcomes: 1,9,10,11,12,13,14,15 2.Web development and markup languages. Validation. Webpage development fundamentals. Webpage design
	technologies. Basic syntax. Absolute and relative links. Downloads., 2h, Learning outcomes:4,5,6,7,8,9,15
	3.Basic web statistical indicators. Header and metadata. Strict, transitional and frame work modes. End of line. Byte-
	2h. Learning outcomes:5.6
	4. Character representation and characters support for Croatian. Redirections. iFrames. Anchorage in different frames.
	Tables and their modifications. HTML forms., 2h, Learning outcomes:6,9,15
	to HTML. Classes. Identifiers. Background, text, font, link and list selectors. Rising and falling line., 2h, Learning
	outcomes:7,8,12
	6.Box model. Block and inline elements. div and span. Cursors. Borders, margins, paddings. CSS Media Types. CSS
	Browsers., 2h, Learning outcomes:4,5,6,7,12
	7.CSS units and measures. Dimensioning. Klassification. Relative, absolute and fixed positioning. Conditional comments
	for Internet Exporer., 2h, Learning outcomes:1,4 8 Webpage elements composition and structure. Basic design. Horizontal and vertical pavigation har coding. Link
	stylization and roll-over menu effects., 2h, Learning outcomes:3,4,12
	9.Floating - basic and advanced aspects., 2h, Learning outcomes:2,3,7
	10. Responsive web design technology (RWD). Pseudoclasses and i pseudoelements. Lorem ipsum. Firebug add-on for Mozilla Firefox 2h. Learning outcomes: 2.3.8.9
	11.Navigation bar using images and image sprites. Corner rounding. Shadows. Code and image optimization. Selector
	combination. Centering. URI. , 2h, Learning outcomes:1,2,3,12
	Audiocodecs and audioformats. Flash to HTML5 conversion, Inserting video, audio and geolocation frames., 2h, Learning
	outcomes:1,4,6,7,8,9,12
	13.Introduction to CSS3, browser support and future of web design coding. Browser prefixes. Shadowing, corner
	outcomes:1,3,5,6,7,8,9,12
	14. Grid positioning. Webpage validations. Modernizr. Web fonts and formats. Technologies for further study (JavaScript,
	Dart, Spark, server-oriented programming languages, SEO)., 2h, Learning outcomes:3,9,12,13
Course content	1.no class, 2h
laboratory	2. First HTML code writing. Exercise related to relative and absolute links, character representation and metadata., 2h,
	3.Exercise related to external links (anchors) and frames. Work with pictures and favicons. Text markup., 2h, Learning
	outcomes:2,3,17
	4.Exercise related to tables, HTML forms and DOCTYPE., 2h, Learning outcomes:2,3,18 5 First CSS code writing, CSS and HTML linking, CSS markup of background, text, font, links and lists, Building a
	selectors e-textbook., 2h, Learning outcomes:2,3
	6.Exercise related to negative margins positioning. Gradient picture generation., 2h, Learning outcomes:2,3,17
	7.Exercise related to relative and absolute positioning., 2n, Learning outcomes:2,3 8.Exercise related to horizontal and vertical navigation with text hover effect., 2h, Learning outcomes:2,3,19
	9.Exercise related to floating elements positioning. First mid-term exam., 2h, Learning outcomes:2,3
	10.Exercise related to responsive webpage design (RWD) depending on webpage width and media., 2h, Learning
	11.Exercise related to making navigation bar with images and image sprites., 2h, Learning outcomes:2,3
	12. Exercise related to complete webpage designing, coding and development. Second mid-term exam., 2h, Learning
	outcomes:2,3
	Maps and audio frames., 2h, Learning outcomes:2,3,21
	14.Exercise related to frameworks, grid layout, webpage validation, using browser development tools Mozilla Firebug
	and Chrome Inspect Elements., 2h, Learning outcomes:2,3,6,9 15. Final exam preparation., 2h, Learning outcomes:2,3
Required materials	Basic: classroom, blackboard, chalk
	General purpose computer laboratory Whitehoard with markers
	Overhead projector
	Special equipment
	Latest software version installed (Mozilla Firefox, Internet Explorer, Google Chrome, Firebug, Notepad++, NetSupport
Exam literature	Recenzirana skripta iz kolegija.
	Prezentacijska skripta s predavanja objavljena na stranicama kolegija.
	Poglavlja W3Schoolsa s e-tutorijalima o HTML-u, XHTML-u i CSS-u (http://www.w3schools.com/).
	IM. MacDonaid, HTML5 - The Missing Manual, O'Kelliy, 2014.; 2. D.S.McFarland, CSS3 - The Missing Manual, O'Reilly,

	 2013. (eng: Reviewed course textbook. Lecture presentation notes (PDF) downloadable on course webpage. W3Schools e- tutorial chapters about HTML, XHTML and CSS (http://www.w3schools.com/ M. MacDonald, HTML5 - The Missing Manual, O'Reilly, 2014. D.S.McFarland, CSS3 - The Missing Manual, O'Reilly, 2013.). (eng: Reviewed course textbook. Lecture presentation notes (PDF) downloadable on course webpage. W3Schools e- tutorial chapters about HTML, XHTML and CSS (http://www.w3schools.com/ M. MacDonald, HTML5 - The Missing Manual, O'Reilly, 2013.). S.McFarland, CSS3 - The Missing Manual, O'Reilly, 2014. D.S.McFarland, CSS3 - The Missing Manual, O'Reilly, 2014. D.S.McFarland, CSS3 - The Missing Manual, O'Reilly, 2013.). 				
Students obligations	s Done laboratories, collected 18 points from 28 possible during the exercises.				
	- 12 exercises * 2 points - 2 short test * 2 points				
Knowledge	40% of the grade is lab (evaluation form of points collected during the exercises)				
evaluation during semester	30% score is first mid-term exam, 30% score is first mid-term exam.				
Knowledge	Lab exercises carries 40% marks.				
evaluation after semester	Written exam carries 60% marks.				
Student activities:	Aktivnost ECTS				
	(Written exam) 4				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
ISVU equivalents:	200109;				
Proposal made by	Sanja Duk, dipl.ing., 25.5.2017.				

Code WEB/ISVU	23599/156391	ECTS	4.0	Academic year	2018/2019		
Name	Introduction to Comput	er Networks					
Status	4th semester - Office O	rganization and Informa	atization (Izvanredni infor	rmatike) - obligatory cour	se		
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 60						
Teachers	Lectures:1. dr.sc. Željko Širanović prof.v.š. Laboratov evercices:dr.sc. Željko Širanović prof.v.š						
Course obiectives	To transfer to students	the basic knowledge re	lated to LAN technologie	S			
Learning outcomes:	 1.ability to distinguish between a physical and a logical computer network. Level:6 2.ability to take a critical attitude towards LAN and WAN structures. Level:7 3.ability to distinguish between the ISO OSI i TCPIIP network models. Level:6 4.ability to choose the basic network components, such as a hub, a switch and a router. Level:7 5.ability to create IP addresses and network faceplates for a specific local area network by using the VLSM methodology. Level:6,7 6.ability to configure properly a router and network hosts in a local area network. Level:6,7 7.ability to connect two local area networks via a router. Level:6,7 						
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Modelling Discussion Questions and answers Seminar, students pres Homework presentation Frontally, oral presenta application of contemp projections, also availa	entation and discussion n tions illustrated with pro orary presentation tech ble online.	esentations about actual nologies. Multi-media tea	solutions, numerical exa thing material will be us	mples, along with the ed with screen		
Methods of carrying out laboratory exercises	Laboratory exercises of Laboratory exercises, of Group problem solving Traditional literature ar Data mining and knowl Discussion, brainstormi Computer simulations Interactive problem sol Workshop Familiarization with cor measuring, Analyzing c	n laboratory equipment computer simulations edge discovery on the V ing ving nponents, creation of a	Veb network installation. Puti	ting the network into ope	eration, signal and traffic		
Course content lectures	1.Computer network ba 2.The OSI model , 2h, L 3.TCP/IP model , 2h, Le 4.Understanding the fu 5.Physical and logical to 6.Numbering system , 2 7.Classful IP adrdessing 8.Classless IP addressing 9.Media for connecting 10.Network devices and 11.Understanding LAN 12.Basic configuring ro 13.Basic configuring ro 14.Configuring static and 15.Configuring static and	asics , 2h, Learning outco earning outcomes:3 arning outcomes:3 nction of main protocols opology , 2h, Learning outcomes:4 2h, Learning outcomes:4 9 , 2h, Learning outcome ing , 2h, Learning outcome the networks and device d komponents, 2h, Lear operations , 2h, Learning uters routers IOS , 2h, L uters cabling, connectin nd dynamic routing dyn	omes:1,2 s, 2h, Learning outcomes outcomes:1,2 4 es:5 es , 2h, Learning outcom ning outcomes:3,4,5 g outcomes:3,4 earning outcomes:3,6 g and configuring interfa ic routing , 2h, Learning o amic routing , 2h, Learning	s:3 les:2,3,4 lices , 2h, Learning outcol outcomes:1,2,3,4,5,6,7 ng outcomes:1,2,3,4,5,6,	mes:4,6 7		
Course content laboratory	1.Designing and testing 2.Cabling a local and a 3.Network Mathematics 4.Calculating IP addres 5.Calculating IP addres 6.Setting up and conne 7.Setting up and conne 8.Collision and broadca 9.Collision and broadca 10.Ethernet traffic, 2h, 11.Ethernet traffic, 2h, 12.Basic configuration 13.Basic configuration 14.Basic configuration 15.Connecting a LAN w	g network cables , 2h, Lu nonlocal network, 2h, L s and network bandwidt ses and subnetworks, 2 ses and subnetworks, 2 with a network compone sting network compone sting domains, 2h, Lear learning outcomes:2,3 Learning outcomes:2,3 of a router, 2h, Learning of a router, 2h, Learning of a router, 2h, Learning ith the Internet, 2h, Lear	earning outcomes:1,7 earning outcomes:1,2,7 h, 2h, Learning outcomes:5 h, Learning outcomes:5 nts in a LAN, 2h, Learnin nts in a LAN, 2h, Learnin ning outcomes:4,5 ning outcomes:4,5 g outcomes:5,6 g outcomes:5,6 g outcomes:5,6 ming outcomes:1,2,3,4,5	5;5 g outcomes:2,3,4,5 g outcomes:2,3,4,5			
Required materials	Basic: classroom, black Special purpose laboral Special purpose compu Whiteboard with marke Overhead projector	board, chalk tory tter laboratory trs					

Zagreb University of Applied Sciences

	Video equipment Tools Operating supplies Special equipment Familiarization with components, creation of a network installation. Putting the network into operation, signal and traffic measuring. Analyzing obtained data.
Exam literature	Basic literature: 1. McMillan, T.,(2012), Cisco Networking Essential, John Wiley Sons, Inc. Additional literature: Hartpence, B., (2011) Packet Guide to Core Network Protocols, OReilly Media, Inc.
Students obligations	maximum of 3 absences from exercises
Knowledge evaluation during semester	Redovitost pohaa#10#10#30\$Kolokvij, numeri zadaci#1#10#60\$Kolokvij, teorijska pitanja#3#30#60\$Prakti rad#15#40#60\$Prakti ispit#1#10#60\$
Knowledge evaluation after semester	10 colloquiums. Attending laboratory exercises is a prerequisite for signature. The practical part of the exam contains one real-life problem on the basis of the covered material. Oral exam, if student passes the practical part of the exam.
Student activities:	Aktivnost ECTS (Written exam) 4
Remark	This course can not be used for final thesis theme
Prerequisites:	No prerequisites.
Proposal made by	Željko Širanović

Code WEB/ISVU	23736/170012	ECTS	5.0	Academic year	2018/2019	
Name	Introduction to UNIX Sy	rstems				
Status	5th semester - Office O	rganization and Informat	tization (Izvanredni infor	rmatike) - obligatory cour	se	
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0)					
Teachers	Lectures:1. dr.sc.rač. Ivica Dodig , prof.v.š. Laboratory exercises:dr.sc.rač. Davor Cafuta , prof.v.šk.					
Course objectives	Enable students to prac	ctically resolve tasks in r	elation to office informa	tization on various opera	ting systems.	
Learning outcomes:	1.ability to create files a	and directories on a UNI	X server through a comr	mand line. Level:6,7		
	 2.ability to generate summarized data through a command line on a UNIX server. Level:6,7 3.ability to rearrange files on a UNIX server to make the service run smoothly through a command line. Level:6,7 4.ability to create the permissions necessary to work with files and directories on UNIX through a command line. Level:6,7 5.ability to build a virtual UNIX based server. Level:6 6.ability to set the UNIX core in order to improve the hardware performance. Level:6,7 7.ability to design a network for a small-sized office with a UNIX based server . Level:6 8.ability to integrate the work of the Windows clients and of a UNIX server. Level:6,7 9.ability to create a service on a UNIX server to assign IP addresses to clients. Level:6 10.ability to test the functioning of a network in a small-sized office. Level:6 11.ability to analyze application implemantation on UNIX system. Level:6 					
Methods of carrying	Ex cathedra teaching					
	Case studies Demonstration Modelling Discussion Questions and answers					
Methods of carrying out laboratory exercises	Laboratory exercises or Laboratory exercises, c	n laboratory equipment computer simulations				
Course content lectures	 History and instalatio. Basic commands in U Advanced usage of th Specific UNIX commands Snultiuser administration Permitions in open soon Command line text economic text economi	n of open source operati INIX shell., 2h, Learning on the UNIX shell., 2h, Learning onds., 2h, Learning outco ion., 2h, Learning outco ource operating systems. ditors., 2h, Learning outcomes: 2h, Learning outcomes: t., 2h, Learning outcomes: h, Learning outcomes: h, Learning outcomes: tion and basic firewall op histration, 2h, Learning ou h, Learning outcomes: 1,	ng system, 2h, Learning outcomes:1 ng outcomes:2,3 mes:2,3 nes:3,4 , 2h, Learning outcomes: comes:2 3 arning outcomes:6,11 es:6,11 .1 vitions., 2h, Learning outcomes:9,10 2,3,4,5,6,7,8,9,10,11	ر outcomes:4 s:3,4 comes:7,8		
Course content laboratory	 1, 2h 2.Basic commands in U 3.Advanced usage of th 4.Specific UNIX comma 5.Multiuser administrati 6.Permitions in open so 7.Command line text ec 8.Basic shell scripting., 9, 2h 10.Process management 12.Kernel compiling, 2h 13.Network administrati 4.DHCP service admin 15.Practical exam, 2h, 1 	INIX shell., 2h, Learning on the UNIX shell., 2h, Learning outco ion., 2h, Learning outcor ource operating systems. ditors., 2h, Learning outcomes: 2h, Learning outcomes: 1, 2h, Learning outcomes: 1, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,	outcomes:1 ng outcomes:2,3 mes:2,3 nes:3,4 , 2h, Learning outcomes comes:2 3 es:7,11 s:6,11 .1 otions., 2h, Learning outco utcomes:9,10 8,4,5,6,7,8,9,10,11	s:3,4 comes:7,8		
Required materials	Special purpose compu Whiteboard with marke Overhead projector Special equipment	iter laboratory irs				
Exam literature	Basic literature: 1. Materijali uz predmet 2. C. Hunt,TCP/IP Netwo 3. S. Pritchard, et.all, LF Additional literature: 1. Linux Magazin (izdvo	t (internet stranice) ork Administration, 3rd e Pl Linux Certification, 2nd	dition, O'Reilly, 2002. d edition, O'Reilly, 2006.			
Students obligations	Minimum of 13 point fro	om laboratory work.				

Knowledge evaluation during semester	Course is divided into 7 parts. Upon every part last one is checked with theoretical exam (3points x 6 parts) and practical work (1 point). At the end of the semester theoretical exam (21 point) and practical exam (54 point) checks all 7 parts. More information in first lecture in repository of the course.				
Knowledge	Laboratory points are obtained during semester.				
evaluation after	Additionaly, theoretical exam (21 point) and practical exam (54 point) checks all 7 parts.				
semester	More information in first lecture in repository of the course.				
Student activities:	Aktivnost ECTS				
	(Written exam) 5				
Remark	This course can be used for final thesis theme				
Prerequisites:	Students cannot enroll in this course unless they have passed Operacijski sustavi				
Proposal made by	Ivica Dodig, Davor Cafuta (08.01.2014)				

Code WEB/ISVU	23755/170031	ECTS	5.0	Academic year	2018/2019		
Name	IT Design - Practicum						
Status	6th semester - IT Design (Izvanredni informatike) - obligatory course						
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	construction)	0+30 (0+30+0+0) 120		
Teachers	Laboratory exercises:1. Laboratory exercises:2.	mag.des. Ulla Leiner Ma Prof. dr. sc. Jana Žiljak (aksan Gršić , mag. design				
Course objectives	To qualify students to s	olve complex practical t	asks related to graphic o	Jesign			
Learning outcomes:	 1. ability to understand current issues in graphic design, visual communications design and new media design. Level:6 2. ability to plan elements necessary for advanced visual communication. Level:6,7 3. ability to propose a task based author work . Level:6,7 4. ability to give comments on the advantages of a solution inside a group. Level:6 5. ability to design an author work according to standards requested in a tender. Level:6 6. ability to write tender documentation. Level:6 7. ability to present the project development. Level:6,7 9. ability to present the project development. Level:6,7 11. ability to prepare documents for public presentations in Adobe Illustrator, Photoshop and InDesign. Level:6,7 12. ability to make a project presentation. Level:6,7 13. ability to present in front of audience, to answer questions put by the audience. Level:6,7 						
Methods of carrying out laboratory exercises	Laboratory exercises, computer simulations Discussion, brainstorming Computer simulations						
Course content laboratory	 1.Introduction and project definition, 2h, Learning outcomes:1 2.Visual identity topic selection, 2h, Learning outcomes:1 3.Project analysis and comparison with existing similar solutions, 2h, Learning outcomes:1,2 4.Development of concept in text format, 2h, Learning outcomes:1,2,3 5.Selection of elements, creating a basic design concept and making preliminary sketches, 2h, Learning outcomes:3,4,5 6.Definition and design of the marks, 2h, Learning outcomes:5,6,7 7.Elaboration of marks, colour scheme and typography selection, 2h, Learning outcomes:5,6,7 8.Defining mark and logo through the graphic standards manual, 2h, Learning outcomes:5,6,7 9.Preliminary project examination, 2h, Learning outcomes:9,11 10.Defining graphic standards manual elements - business communication, 2h, Learning outcomes:5,8 11.Design of promotional materials 1, 2h, Learning outcomes:5,6 13.Graphic interactive applications definition and development, 2h, Learning outcomes:8,10 14.Design of presentation, 2h, Learning outcomes:12 15.Student projects presentation, 2h, Learning outcomes:12,13 						
Required materials	Special purpose comput	ter laboratory					
Exam literature	Basic literature: 1. CharlottePeter Fiell: (2. Lucienne Roberts/Juli Additional literature:	Graphic design for the 2 ia Thrift: The designer ar	1st Century nd thegrid				
Students obligations	Project completion, max	ximum of 3 absences fro	m exercises				
Knowledge evaluation during semester	Prakti rad#1#100#100	\$					
Knowledge evaluation after semester	Defence and presentati manner of work executi	on of a designer's conce ion.	pt based on a set topic,	with elaboration on the	problem, concept, and		
Student activities:	Aktivnost (Written exam)		ECTS 5				
Remark	This course can be used	d for final thesis theme					
Prerequisites:	Students cannot enroll	in this course unless the	y have completed Dizajr	ı vizualnih komunikacija			
Proposal made by	Jana Žiljak Vujić predav	ač					

Code WEB/ISVU	23735/170011	ECTS	5.0	Academic year	2018/2019		
Name	IT Systems Security and	d Protection					
Status	5th semester - Office O	rganization and Informat	tization (Izvanredni infor	matike) - obligatory cou	rse5th semester - E-		
	business (Izvanredni in	formatike) - obligatory co	ourse				
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 90						
Teachers	Lectures:1. izv. prof. dr Laboratory exercises:iz	. sc. Krunoslav Antoliš v. prof. dr. sc. Krunoslav	Antoliš				
Course objectives	Knowledge accomplish	ment about IS security					
Learning outcomes:	 1.ability to classify security threats to information systems and the ways of their protection. Level:6,7 2.ability to analyse the legal frame used in protection of information systems (laws, rule books, directions, standards, etc.). Level:6 3.ability to build the protection of an information system according to the ISO 27001 standard. Level:6,7 4.ability to identify the sources of digital proofs related to changes, relocations, concealments, deletions. Level:6 5.ability to understand the dynamics of digital proofs related to changes, relocations, concealments, deletions. Level:6 6.ability to analyse a computer security incident on scene. Level:6 7.ability to analyse digital proofs related to threats to information systems security. Level:6 8.ability to formulate the notion of digital signature and its history. Level:6,7 9.ability to design a hybrid model of digital communication protection. Level:6 11.ability to understand notions and terms related to information security. Level:6 12.ability to classify methods and techniques of encryption. Level:6,7 						
Methods of carrying out lectures	etc.). Level:6 Ex cathedra teaching Case studies Demonstration Simulations Discussion Questions and answers Seminar students pres	entation and discussion					
	Homework presentation	n s oral explanation and Pr	werpoint presentation				
Methods of carrying	Group problem solving		weipoint presentation				
out laboratory exercises	Traditional literature ar Data mining and knowl Essay writing Discussion, brainstormi Interactive problem sol Workshop Encryption of multimed	nalysis edge discovery on the W ng ving lia data by particular soft	reb tware tools.				
Course content lectures	 The normative frame 2.Data confidentiality a 3.Information security, 4.Measures and Standa 5.Criminal acts of comp 6.Malicious programs a 7.Identification, analysi 8.Information threats a 9.Methods and techniqi 10.Authentication and i 11.Methods of authenti 12.Developing a securit 13.Techniques authenti 14.Cryptographic meth 15.PKI infrastructure, 2 	work of security intellige nd protection of persona 2h, Learning outcomes:2 irds for Information Secu- outer crime and zakonto nd threats to information s and risk assessment, 2 nd vulnerabilities of infor- ues of managing informa- identification methods, 2 cation and authorization ty policy information sys- ication and authorization ods and techniques, 2h, h, Learning outcomes:3,	nce system RH, 2h, Lear al data, 2h, Learning outco 2,11 rity, 2h, Learning outcon gather evidence about th a systems, 2h, Learning o th, Learning outcomes:1, rmation systems, 2h, Lea tion security vulnerabilit h, Learning outcomes: 6, 2h, Learning outcomes tem, 2h, Learning outcomes Learning outcomes:11,1 8,10	ning outcomes:2 comes:2 hem, 2h, Learning outco outcomes:1 6,7 arning outcomes:3,7 cies, 2h, Learning outcor :6 mes:3 :6 2,13	mes:2 nes:1,3		
Course content laboratory	1.Security protocols, IS 2.Safety and Security C 3.Authentication and id 4.Identifying and collec 5.The analysis of digita 6.Computer incident an 7.Techniques kiptiranja 8.Development of spec 9.Methods of encryptio 10.The analysis of the I 11.The analysis of the I 12.Hash functions, 2h, 13.The analysis of labo 14.The hybrid model of 15.A digital signature, of	O 27001, 2h, Learning of communications, 2h, Lea lentification methods, 2h ting digital evidence, 2h l evidence, 2h, Learning of the scene, 2h, Learning (substitution, transposit ific techniques for select n (symmetric, asymmetr DES algorithm, 2h, Learn RSA algorithm, 2h, Learn Learning outcomes:9 r MD5 algorithm, 2h, Lear secure transmission of c digital certificates, 2h, Lear	utcomes:3 rning outcomes:4 , Learning outcomes:4, , Learning outcomes:5,6, outcomes:4,7 g outcomes:6,12 ion), 2h, Learning outcom ed examples, 2h, Learnin ic), 2h, Learning outcom ing outcomes:12 ing outcomes:12 rning outcomes:9 data transfer, 2h, Learnin earning outcomes:3,4	,7 mes:4,12 ng outcomes:12 es:12 ng outcomes:9			
Required materials	Basic: classroom, black Whiteboard with marke Overhead projector	board, chalk rs					

	Portable overhead projector					
	Video equipment					
	Encryption of multimedia data by particular software tools.					
Exam literature	 Basic literature: 1.K. Antoliš et all.: Sigurnost informacijskih sustava, ISBN 978-953-322-216-5, priručnik, nakladnik: Algebra d.o.o., Zagreb ožujak, 2016. 2.K. Antoliš et all.: Sigurnost elektroničkog poslovanja, ISBN 978-953-322-155-7, priručnik, nakladnik: Algebra d.o.o., Zagreb srpanj, 2013 3.Antoliš, K., et al (2010), Sigurnost računalnih mreža - priručnik, Algebra, Zagreb, 4. Dujella A., Maretić M. (2007.) Kriptografija, Element, Zagreb, (Klasična kriptografija; 1 51.str.) http://web.math.hr/duje/kript/kriptografija.html 5. Leo Budin, et al.: Operacijski sustavi, Element d.o.o. Zagreb 2010. 6.K. Antoliš poglavlje u knjizi:The Darknet as a Safe Haven for Violent Extremists, str. 7787. U knjizi Violent Extremism and Radicalzation Procesesses as Driving Factors to Terrorism Threats,CIP: 323.285(082), ISBN 978-961-94011-1-8, Institut for Corporative Security Studies, May 2018, Ljubljana, Slovenija, 7.K. Antoliš, P. Mišević, A. Miličević: VULNERABILITIES OF NEW TECHNOLOGIES AND THE PROTECTION OF CNI, Media, culture and public relations, ISSN 1333-6371, Vol. 6. No.1, INFO-84, 1, UDK: 004.521.39:004.7:001, Authors Review/ Pregledni rad, 6, 2015, Zagreb, 8.K. Antoliš: ICT Identity Theft, Informatologija, 46, 2013., 4, 353-360, UDK:681.3:340:001, Authors Review/Pregledni rad, ISSN 1330-0067, Zagreb, Hrvatska. 					
Students obligations	maximum of 3 absences from exercises					
Knowledge evaluation during semester	Redovitost pohaa#15#30#25\$Seminarski rad#1#70#30\$					
Knowledge evaluation after semester	Preliminary exam, written exam, oral exam					
Student activities:	AktivnostECTS(Written exam)1(Essay)1(Seminar Work)1(Oral exam)2					
Remark	This course can be used for final thesis theme					
Prerequisites:	No prerequisites.					
ISVU equivalents:	200099;					
Proposal made by	doc. dr.sc. Krunoslav Antoliš, profesor visoke škole u trajnom zvanju					

5.Lab, 2h, Learning outcomes:6

Code WEB/ISVU	23364/154063	ECTS	5.0	Academic year	2018/2019				
Name	Market Communication	arket Communication							
Status	nd semester - E-business (Izvanredni informatike) - obligatory course								
Feaching mode	Lectures + exercises (a work at home	rres + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) at home 90							
Feachers	Lectures:1. mr.sc. Serge Laboratory exercises: D Laboratory exercises:m	ctures:1. mr.sc. Sergej Lugović MBA boratory exercises: Dinko Horvat struč.spec.ing.techn.inf. boratory exercises:mag.oec Kristina Perec							
Course objectives	The aim of the course is service, to spot the mai technology products / s characteristics of life, co	he aim of the course is to teach students to observe the market, distinguish niche for new technology product or ervice, to spot the main competitors and trends and be able to develop a strategy for the launch of the new- echnology products / systems / applications, based on the observation and assessment of the target group and its haracteristics of life, communication, or buying in a broader traditional and the digital environment.							
Learning outcomes:	1.Identify customer. Lev 2.develop new ICT prod 3.develop brand identit 4.plan marketing strate 5.define advertising and 6.develop control and o	Identify customer. Level:6 2. develop new ICT product or service . Level:6,7 3. develop brand identity of product or service. Level:6,7 4. plan marketing strategy and creative implementation . Level:6,7 5. define advertising and point of contact with customer. Level:6,7 6. develop control and optimisation of marketing strategy. Level:6							
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer	ix cathedra teaching Guest lecturer							
Methods of carrying out laboratory exercises	Group problem solving Traditional literature an Data mining and knowle	Group problem solving Traditional literature analysis Data mining and knowledge discovery on the Web							
Course content ectures	1.Introduction - The role 2.Analysis of environme 3.Behavioral economics 4.The concept and defir 5.Methods and tools for characteristics, 2h, Leai 6.Methods and tools for outcomes:6 7.The process of selecti 8.Evaluation of the brar 9.Segmentation, targeti 10.From design strateg 11.Planning and implen 12.Selecting and evalua 13.Online marketing an 14.Social media, online 15.SEM and SEO and wo	e of communication in the ent - understanding the r - the basics, 2h, Learnin hition of the brand, the h ming new technology pr rning outcomes:6 products and services c ng the name and brand d value, 2h, Learning ou ing and positioning , 2h, y to detailed marketing p hentation of design solut ation of the key perform d display advertising, 2t PR and marketing conte eb analytics, 2h, Learnin	e modern consideration market + Knowledge of t ng outcomes:6 history of the brand, 2h, 1 roducts and services thro design (through a cost / t (trademark, slogan, pac utcomes:6 Learning outcomes:6 plan, 2h, Learning outco cions in marketing, worki ance indicators, 2h, Lear h, Learning outcomes:6 ent, 2h, Learning outcom g outcomes:6	s of the market, 2h, Le the user / consumers, 2 Learning outcomes:6 ough tangible, rational technological / compet kaging, color), 2h, Lea mes:6 ing with agencies, 2h, ning outcomes:6 ues:6	earning outcomes:6 2h, Learning outcomes:6 or emotional attributes or itive doubts), 2h, Learning rning outcomes:6 Learning outcomes:6				
Course content aboratory	1.Lab, 2h, Learning out 2.Lab, 2h, Learning out 3.Lab, 2h, Learning out 4.Lab, 2h, Learning out	comes:6 comes:6 comes:6 comes:6							

6.Lab, 2h, Learning outcomes:6 7.Lab, 2h, Learning outcomes:6 8.Lab, 2h, Learning outcomes:6 9.Lab, 2h, Learning outcomes:6 10.Lab, 2h, Learning outcomes:6 11.Lab, 2h, Learning outcomes:6 12.Lab, 2h, Learning outcomes:6 13.Lab, 2h, Learning outcomes:6 14.Lab, 2h, Learning outcomes:6 15.Lab, 2h, Learning outcomes:6 Required materials Basic: classroom, blackboard, chalk... Exam literature Integrirana marketinška komunikacija, Tanja Kesić Upravljanje markama, Tihomir Vranešević Pobijedite Internet ili će Internet povijediti vas, Penović, Ličina, Cetinić Digital Adaptation, Paul Boag Students obligations Class attendance 70% Knowledge Seminar evaluation during semester Knowledge Oral Exam evaluation after semester Student activities: Aktivnost ECTS (Written exam) 5



Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
Proposal made by	mr.sc. Sergej Lugović MBA

Code WEB/ISVU	23417/155823	ECTS	6.0	Academic year	2018/2019	
Name	Mathematics I					
Status	1st semester - Office C business (Izvanredni in course)rganization and Informa Iformatike) - obligatory c	atization (Izvanredni infor course1st semester - IT D	matike) - obligatory cou Jesign (Izvanredni inform	rse1st semester - E- latike) - obligatory	
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory +	seminar + metodology +	- construction)	30+45 (45+0+0+0) 105	
Teachers	Lectures:1. Tihana Strr Auditory exercises: An	nečki drea Katarić				
Course objectives	To enable students to	solve mathematical prob	plems related to enginee	ring practice.		
Learning outcomes:	 Lability to calculate the value of units containing basic arithmetic operations consisting of complex numbers. Level:6 2.ability to draw the position of a complex number in gaussian plane. Level:6 3.ability to calculate the determinants and simple matrix units. Level:6 4.ability to calculate vector units. Level:6 5.ability to solve linear equations. Level:6 5.ability to understand the definition and composition of a function; to understand inverse functions. Level:6,7 7.ability to classify functions: even functions/odd functions, injections/surjections/bijections. Level:6,7 8.ability to sketch graphs of polynomials, trigonometric functions and rational functions without using derivatives. Level:6 10.ability to calculate the limit of a function. Level:6 11.ability to calculate the derivative of a function. Level:6 					
Involvement of learning outcomes of the course in study programme:	1.1.OPĆI Služiti se stra 1.2.OPĆI Primijeniti zna 1.3.OPĆI Koristiti tehni 1.5.OPĆI Identificirati, 2.2.OSOBNE Odgovorn 2.3.OSOBNE Etički i mo 2.4.OSOBNE Kritička e problema.: 5h in 180h	nim jezikom u literaturi i anje matematike i fizike ke, vještine i suvremene modelirati i rješavati inže iost, dosljednost, točnost oralni pristup radu.: 5h ir valuacija argumenata, p	i svakodnevnoj stručnoj k na inženjerske probleme e alate neophodne za inže enjerske probleme.: 5h in t, ažurnost.: 5h in 180h n 180h retpostavki i podataka u	komunikaciji. : 5h in 180h :: 150h in 180h enjersku praksu.: 5h in 1 n 180h cilju stvaranja mišljenja	ı 80h i pridonošenja rješenju	
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answers Other The chalkboard lecture	s es include theory and ma	any examples clearly ana	lyzed step by step, in co	operation with students	
out auditory exercises	Discussion, brainstorm Other Exercises are solved o	ing n the blackboard in coor	peration with students.			
Course content lectures	1.Complex numbers, a subtraction, multiplical Learning outcomes:1,2 2.Determinant (2nd or expansion nad using e 3.System of linear equ outcomes:5 4.Vectors, 2h, Learning 5.Elementary functions functions, hyperbolic fr 6.Elementary functions functions, hyperbolic fr 7.1. exam, 2h, Learning 8.Limits, sequences, 21 9.Sketching graphs of 10.Problem of finding a functions, 2h, Learning 11.Differential, implicit 12.Derivative of a com 13.LHopitals rule, 2h, I 4.Taylor polinomial of 15.2. exam, 2h, Learning	Igebraic and trigonomet tion, division, raising to a der - by formula, 3rd ord lementary transformatio ations, solving by Crame g outcomes:4,5 s: power functions, polyr unctions, 2h, Learning ou g outcomes:1,2,3,4,5,6,7 h, Learning outcomes:10 some functions (polynom a tangent, derivative of f g outcomes:9,12 t differentiation, parame posite function, derivati- Learning outcomes:11 f a function centered at : ing outcomes:9,10,11,12	ric form, basic arithmetic an integer power, and tai ler - by rule of Sarrus and nns), 2h, Learning outcom ers rule and by Gauss-Jor nomials, exponential func- utcomes:6,7 nomials, exponential func- utcomes:6,7,8 7,8) nials, trigonometric funct function, rules for derivat tric differentiation, 2h, Le ve of function f(x)=x^x, zero, 2h, Learning outcor	: operations with comple king roots (fractional pov d Laplace expansion, 4th tes:3,5 dan elimination method, tions, logarithmic functio tions, logarithmic functio tions), 2h, Learning outco tive of a sum, product an earning outcomes:10,11 2h, Learning outcomes:1 mes:11	x numbers (addition, ver)), Gauss plane, 2h, order - by Laplace 2h, Learning ons, trigonometric ons, trigonometric omes:9 d a quotient of two	
Course content auditory	1.Complex numbers, a subtraction, multiplical Learning outcomes:1,2 2.Determinant (2nd or expansion nad using e 3.System of linear equ outcomes:5 4.Vectors, 1h, Learning 5.Elementary functions functions, hyperbolic fi 6.Elementary functions	Igebraic and trigonomet tion, division, raising to a der - by formula, 3rd ord lementary transformatio ations, solving by Crame g outcomes:4,5 s: power functions, polyr unctions, 1h, Learning ov s: power functions, polyr	ric form, basic arithmetic an integer power, and tai ler - by rule of Sarrus and ons), 1h, Learning outcom ers rule and by Gauss-Jor nomials, exponential func utcomes:6,7 nomials, exponential func	: operations with comple king roots (fractional pov d Laplace expansion, 4th nes:3,5 dan elimination method, ctions, logarithmic function	x numbers (addition, ver)), Gauss plane, 1h, order - by Laplace 1h, Learning ons, trigonometric ons, trigonometric	

	functions, hyperbolic functions, 1h, Learning outcomes:6,7,8 7.1. exam, 1h, Learning outcomes:1,2,3,4,5,6,7,8 8.Limit, sequence, 1h, Learning outcomes:10 9.Sketching graphs of some functions (polynomials, trigonometric functions), 1h, Learning outcomes:9 10.Problem of finding a tangent, derivative of function, rules for derivative of a sum, product and a quotient of two functions, 1h, Learning outcomes:9,12 11.Differential, implicit differentiation, parametric differentiation, 1h, Learning outcomes:10,11 12.Derivative of a composite function, derivative of function f(x)=x^x, 1h, Learning outcomes:11					
	13.LHopitals rule, 1h, Learning outcomes:11 14.Taylor polinomial of a function centered at zero, 1h, Learning outcomes:11 15.2. exam, 1h, Learning outcomes:9,10,11,12					
Required materials	Basic: classroom, blackboard, chalk Whiteboard with markers Special equipment Lecture material is presented and problems are solved using appropriate CAS.					
Exam literature	 Basic literature: 1. P. Javor: Uvod u matematičku analizu, Školska knjiga, Zagreb, 1983. 2. S. Suljagić: Matematika I, skripta, Zagreb, 2005 3. I. Slapničar: Matematika 1, skripta, Split, 2002. 4. B. P. Deminovič: Zadaci i rješeni primjeri iz više matematike, Danjar, Zagreb, 1995. 5. N. Elezović: Linearna algebra, Element, Zagreb, 1995. Additional literature: 1. L. Krnić, Z. Šikić: Račun diferencijalni i integralni, I dio, Školska knjiga, Zagreb, 1992. 2. V. Devide: Riješeni zadaci iz više matematike, svezak i i II, Školska knjiga, Zagreb, 1985. 3. T. Bradić, R. Roki, J. Pečarić, M. Strunje: Matematika za tehničke fakultete, Multigraf, Zagreb, 1994. 					
Students obligations	No special requirements					
Knowledge evaluation during	Two exams during semester					
semester	Ratings by the outcome: maximum 100 points 50-62 sufficient (2) 63-75 good (3) 76-88 very good (4) 89-100 excellent (5)					
Knowledge evaluation after semester	Written exam 60% of mark Ratings of written part of the exam: maximum 100 points 50-62 sufficient (2) 63-75 good (3) 76-88 very good (4) 89-100 excellent (5) Oral exam 40% of mark					
Student activities:	Aktivnost ECTS					
	(Written exam) 6					
Remark	This course can be used for final thesis theme					
Prerequisites:	No prerequisites.					
ISVU equivalents:	143166;					
Proposal made by	dipl.ing.mat Tihana Strmečki., 10.06.2015.					

Code WEB/ISVU	23418/155824	ECTS	6.0	Academic year	2018/2019
Name	Mathematics II				
Status	2nd semester - Office business (Izvanredni ir course	Organization and Infor nformatike) - obligatory	matization (Izvanredn / course2nd semester	i informatike) - obligatory c - IT Design (Izvanredni info	ourse2nd semester - E- rmatike) - obligatory
Teaching mode	Lectures + exercises (work at home	auditory + laboratory	+ seminar + metodol	ogy + construction)	30+45 (45+0+0+0) 105
Teachers	Lectures:1. Tihana Str Auditory exercises: An	mečki drea Katarić			•
Course objectives	To enable students to	solve mathematical pr	oblems related to eng	ineering practice.	
Learning outcomes:	1.ability to calculate p	rimitive functions - ind	efinite integrals . Leve	el:6	
	2.ability to calculate d 3.ability to calculate ir 4.ability to calculate ir 5.ability to solve basic 6.ability to solve differ 7.ability to solve differ	efinite integrals. Level nproper integrals. Level ntegrals by using nume types of differential er rential equations by us rential equations by us	6 el:6 irical methods. Level:6 quations. Level:6 ing Laplace transform ing numerical method	5 ation. Level:6 s . Level:6	
Involvement of learning outcomes of the course in study programme:	1.1.OPĆI Služiti se stra 1.2.OPĆI Primijeniti zn 1.3.OPĆI Koristiti tehn 1.5.OPĆI Identificirati, 2.2.OSOBNE Odgovorr 2.3.OSOBNE Etički i m 2.4.OSOBNE Kritička e problema.: 10h in 180	nim jezikom u literatu anje matematike i fizik ike, vještine i suvreme modelirati i rješavati ir ost, dosljednost, točno oralni pristup radu.: 10 valuacija argumenata, h	ri i svakodnevnoj struč e na inženjerske prob ne alate neophodne z iženjerske probleme.: sst, ažurnost.: 10h in i h in 180h pretpostavki i podata	čnoj komunikaciji. : 10h in 1 leme.: 150h in 180h a inženjersku praksu.: 10h i 10h in 180h 180h ka u cilju stvaranja mišljenj	80h n 180h a i pridonošenja rješenju
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answer Other The chalkboard lecture	s es include theory and r	nany examples clearly	y analyzed step by step, in	cooperation with students.
Methods of carrying out auditory exercises	Group problem solving Discussion, brainstorm Other Exercises are solved o) ning n the blackboard in co	operation with studen	ts.	
Course content lectures	1.Indefinite integrals, J 2.Solving indefinite int 3.Solving indefinite int outcomes:1 4.Definite integrals, No 5.Improper integrals, to 6.Application of definit surfaces of revolution, 7.Numerical methods 8.1. exam, 2h, Learnir 9.Ordinary differential 10.First order ODE wit 11.Solving ODEs by va 12.Linear ODEs, homo Learning outcomes:5 13.Linear ODEs of sec 14.Solving ODEs by La 15.2. exam, 2h, Learn	primitive function, bas segrals by substitution segrals by integration be entegrals by integration be rigonometry and hype is integrals: areas of p 2h, Learning outcome of calculating definite ing outcomes:1,2,3 equations - introduction h separable variables, irriable substitution (ho genous and nonhomogo ond order with constar iplaces transformation ing outcomes:5,6,7	c integrals, 2h, Learni and using partial fract by parts, by completin i, Mid value theorem f rbolic supstitutions, 2 ane figures, the arc le s:1,2,3 ntegrals, 2h, Learning on, 2h, Learning outco homogenous ODEs, 2 mogeneous diff. eqs., genous, variation of co it coefficients, homoge Numerical methods of	ing outcomes:1 tions, 2h, Learning outcome g the square of second deg for integrals, 2h, Learning ou h, Learning outcomes:1,2 ength of a curve, volumes o g outcomes:1,2,3,4 ones:5 h, Learning outcomes:5 ode of form y=f(ax+by+c); onstant method, integrating enous and nonhomogenous of solving ODEs, 2h, Learnin	s:1 ree trinomial, 2h, Learning utcomes:1,2 f solids and areas of), 2h, Learning outcomes:5 factor method, 2h, , 2h, Learning outcomes:5 ng outcomes:5,6,7
Course content auditory	L.Indefinite integrals, 2.Solving indefinite int 3.Solving indefinite int outcomes:1 4.Definite integrals, Ni 5.Improper integrals, to 6.Application of definit surfaces of revolution, 7.Numerical methods 8.1. exam, 3h, Learnin 9.Ordinary differential 10.First order ODE wit 11.Solving ODEs by va 12.Linear ODEs, homo Learning outcomes:5 13.Linear ODEs of sect 14.Solving ODEs by La 15.2. exam, 3h, Learn	primitive function, bas segrals by substitution, segrals by integration b ewton-Leibnizs formula trigonometry and hype te integrals: the areas 3h, Learning outcome of calculating definite i ng outcomes:1,2,3,4 equations - introduction h separable variables, briable substitution (ho genous and nonhomogen ond order with constant uplaces transformation ing outcomes:5,6,7	c integrals, 3h, Learni and using partial frac by parts, by completin rbolic supstitutions, 3 of plane figures, the a s:1,2,3 ntegrals, 3h, Learning on, 3h, Learning outcome mogeneous diff. eqs., genous, variation of co t coefficients, homoge	ing outcomes:1 itions, 3h, Learning outcome g the square of second deg hes:1,2 h, Learning outcomes:1,2 rc length of a curve, volume g outcomes:1,2,3,4 imes:5 is:5 ode of form y=f(ax+by+c)) onstant method, integrating enous and nonhomogenous of solving ODEs, 3h, Learnin	 es:1 ree trinomial, 3h, Learning es of solids and areas of a, 3h, Learning outcomes:5 factor method, 3h, a, 3h, Learning outcomes:5 ag outcomes:6,7
Required materials	Basic: classroom, blac Whiteboard with mark Special equipment	kboard, chalk ers			



Zagreb University of Applied Sciences

	Some of the problems are solved using the appropriate software Mathematica.
Exam literature	 Basic literature: 1. P. Javor: Uvod u matematičku analizu, Školska knjiga, Zagreb, 1983. 2. S. Suljagić: Matematika II, skripta, Zagreb, 2006. 3. I. Slapničar: Matematika 2, skripta, Split, 2008. 4. B. P. Deminovič: Zadaci i rješeni primjeri iz više matematike, Danjar, Zagreb, 1995. Additional literature: 1. L. Krnić, Z. Šikić: Račun diferencijalni i integralni, I dio, Školska knjiga, Zagreb, 1992. 2. I. Ivanšić: Fourierov red i integral, diferencijalne jednadžbe, skripta, FER, Zagreb, 1997. 3. T. Bradić, R. Roki, J. Pečarić, M. Strunje: Matematika za tehničke fakultete, Multigraf, Zagreb, 1994.
Students obligations	No special requirements.
Knowledge evaluation during semester Knowledge evaluation after	Two exams during semester Ratings by the outcome: maximum 100 points 50-62 sufficient (2) 63-75 good (3) 76-88 very good (4) 89-100 excellent (5) Written exam 60% of mark
semester	Ratings of written part of the exam: maximum 100 points 50-62 sufficient (2) 63-75 good (3) 76-88 very good (4) 89-100 excellent (5) Oral exam 40% of mark
Student activities:	Aktivnost ECTS
-	(Written exam) 6
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
ISVU equivalents:	143183;
Proposal made by	dipl.ing.mat Tihana Strmečki., 19.05.2016.

Code WEB/ISVU	23737/170013	ECTS	6.0	Academic year	2018/2019	
Name	Media Integration					
Status	5th semester - E-business (Izvanredni informatike) - obligatory course					
Teaching mode	Lectures + exercises work at home	(auditory + labo	ratory + seminar + meto	odology + construction)	30+30 (15+15+0+0) 120	
Teachers	Lectures: Vjeran Buše	elić viši predavač				
	Auditory exercises: Iv	/an Rajković išen Tadić struč	spec art			
	Laboratory exercises:	: Ivan Rajković	specialit			
	Laboratory exercises:	: Višen Tadić stru	ıč.spec.art			
Course objectives	Presenting of importance of media integration activities in nowdays information technology developement.					
Learning outcomes:	1.ability to identify ge	eneral notions ar	nd definitions related to n	nultimedia, hypermediality and	I massmedia integration.	
	Level:0 2 ability to classify ba	sic types of mor	lern media functioning a	nd usage Level 6 7		
	3.ability to propose th	he best ways of u	using media in informatio	in transfer, learning and promo	otion. Level:6,7	
	4.ability to give comm	ments on social a	spects of media integrat	ion. Level:6		
	5.ability to combine v	work with audio a	and video formats. Level:	6,7		
	7. ability to create and	d carry out a pre	sentation of a content by	using multimedia tools. Level	:6.7	
			sentation of a content by		0,7	
Methods of carrying	Ex cathedra teaching					
out lectures	Case studies					
	Simulations					
	Discussion					
	Questions and answe	rs				
	Seminar, students pre	esentation and d	iscussion			
	Other	1011				
	The lectures are give	n by using multir	media gadgets and fully f	functional LCD projector.		
Methods of carrying	Laboratory exercises	on laboratory ec	Juipment			
out auditory	Group problem solvin	ig Wladaa diasayaa	, on the Web			
exercises	Discussion, brainstor	mina	on the web			
	Interactive problem s	olving				
	Workshop					
Mothoda of counting	Laboratory oversions	an laboratory or	winmont			
out laboratory	Group problem solvin	on laboratory ed	Juipment			
exercises	Data mining and know	wledge discovery	/ on the Web			
	Discussion, brainstorr	ming				
	Workshop	olving				
Course content	1., 2h, Learning outc	omes:1,2,3,4,5,6	5			
lectures	2., 2h, Learning outc	omes:1,2,3,4				
	4 2h. Learning outc	omes:1,2,3,4				
	5. , 2h, Learning outc	omes:1,2,3,4,5				
	6., 2h, Learning outc	omes:1,2,3,4,5,6	5			
	7., 2h, Learning outc	20 mes: 1, 2, 3, 4				
	9. , 2h, Learning outc	omes:2,3,4				
	10., 2h, Learning out	comes:2,3,4				
	11., 2h, Learning out	comes:1,2,3,4				
	13 2h. Learning out	comes:1,2,3,4,5				
	14., 2h, Learning out	comes:1,2,3,4,5				
	15. , 2h, Learning out	comes:5,6,7				
Course content	1 2h Learning outc	omes:1 2 3 / 5 6	3			
auditory	2. , 2h, Learning outc	omes:1,2,3,4				
	3., 2h, Learning outc	omes:1,2,3,4,5				
	4., 2h, Learning outc	omes:1,2,3,4,5				
	6 2h Learning outc	20 mes(1,2,3,4,5)				
	7. , 2h, Learning outc	omes:1,2,3,4,5				
	8. , 2h					
	9., 2h					
	10., 211 11., 2h					
	12. , 2h					
	13.,2h					
	14.,2h					
	1., 211					



Course content	12h
laboratory	22h
laboratory	3 2h
	0., 20
	/., 2n
	8. , 2h, Learning outcomes:1,2,3,4,5
	9. , 2h, Learning outcomes:1,2,3,4,5
	10. , 2h, Learning outcomes:1,2,3,4,5
	11. , 2h, Learning outcomes:4,5
	12. , 2h, Learning outcomes:4,5
	13 2h. Learning outcomes:4.5
	14. 2h Learning outcomes: 1.2.3.4.5
	15 2h Learning outcomes: 4.5 6
Required materials	Basic: classroom blackboard chalk
Required materials	Bascia classicom, blackband, chak
	Special purpose laboratory
	Video equipment
Exam literature	Prenoručena
	1 Periodecha
	1. reuszky M. i Zinfal A. Ilyad u zgapast a madiima i komunikalogiju. Zaklada Friedrich Ebert. Zagrab 2006
	2. Kunczis, M. i Zipiel, A.: Ovod u Zitanost u indenjina i komunikologiju, Zakidua i neurici Lbert, Zagieb 2000.
	5. Creeber G. FMartin K.: Digital Culture: Understanding New Media, Open University Press, 2006.
	4. Bradley A. I McDonald M.: The Social Organization - How to Use Social Media to Tap the Collective Genius of Your
	Customers and Employees, Harvard Business Review Press, 2011.
	Dopunska
	1.McLuhan, M:, Razumijevanje medija, Golden marketing-Tehnička knjiga, Zagreb 2008.
Students obligations	50% dolaznosti uz aktivno sudjelovanje i pravovremeno izvravanje zadanih obaveza vezano uz prakti rad
Knowledge	Redovitost pohaa (15 provjera)
evaluation during	Kolokvii, teoriiska pitania (2 proviere)
semester	Prakti rad (1 proviera)
Knowledge	Ilsmeni isnit
evaluation after	Dolazost - 10% (kriterii za prolaz 50%)
comester	Teoriste novier - 30% (kriterij za prolaz 50%)
Schiester	Prakti proviera - 60% (kriterii za prolaz 100%)
Student activities	Aktivnost FCTS
	(Written exam) 6
Remark	This course can be used for final thesis theme
Broroquisitos	Studentse cannot enroll in this cause upless theme
rieiequisites:	provents cannot enrol in this course unless they have passed oblada slike, zvuka i videa

Code WEB/ISVU	23730/170006	ECTS	3.0	Academic year	2018/2019	
Name	Mobile Communication	S				
Status	5th semester - Office O	rganization and Informa	tization (Izvanredni infor	rmatike) - obligatory cou	rse5th semester - E-	
	business (Izvanredni in	formatike) - obligatory c	ourse			
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction)30+30 (30+0+0+0)work at home30					
Teachers	Lectures:1. dr.sc Sonja	Zentner Pilinsky prof.v.š	\$.			
	Lectures: dr.sc. Alberto	Teković visi predavać iša Lacković struč spec i	na el			
	Auditory exercises: dr.s	c Sonja Zentner Pilinsky	prof.v.š.			
Course objectives	To qualify students to r	ecognize and solve engi	neering problems relate	d to mobile communicat	ions	
Learning outcomes:	1.ability to calculate th	e dissipation between a	transmitter and a receiv	er in public mobile netw	orks. Level:6	
	2.ability to identify vari	ous technologies which a	are used in public mobile	e networks. Level:6		
	4 ability to identify eler	chitectures and characte	eristics of different mobil	e systems. Level:6.7		
	5.ability to calculate th	e efficiency of a system	and a maximum numbe	r of mobile stations in a	coverage area. Level:6	
Methods of carrying	Ex cathedra teaching					
out lectures	Guest lecturer					
	The subject matter is e	xplained by using drawir	ngs, tables and diagram	s to make the comprehe	nsion easier. The	
	teacher tests the stude	ents continuously if they	participate in the lecture	es. Beside the blackboard	d it is necessary to have	
	a overhead projector a	nd LCD projector.				
Methods of carrying	Group problem solving	heme are colved on the	blackboard with the ass	istance of the students		
exercises		neme are solved on the	blackboard with the uss	istance of the stadents.		
Course content	1.Prerequisites to atter	nd exam. Introduction to	wireless networks, defin	ition of EM waves, polar	ization, open space	
lectures	losses, 2h, Learning ou	tcomes:1				
	2.Frequency bands use 3 EM power at Air Inter	d for GSM/UMIS/LIE/Blu	etooth/WLAN. Antenna s	Systems, 2h, Learning ou	itcomes:1	
	4.Propagation models.	RF signal transmission te	echniques (fading, interf	erence, diversity), 2h, Le	earning outcomes:1,2	
	5.Multiple access meth	ods (FDMA, TDMA, CDM/	A, SDMA, OFDMA, CSMA-	CA), 2h, Learning outcor	nes:2,4	
	6.Antennas antenna pa	rameters and antenna s	orts. GSM system archit	ecture, 2h, Learning out	comes:2,3,4	
	8 GSM system architec	ristics (modulation) cell	anning outcomes:2,3,4 annroach time slot stru	ctures) 2h Learning out	tcomes 2 3 4	
	9.GSM system characte	eristics (logical channels)	, Air Interface Control, Sy	ystem Information), GPR	SBasic Principles, 2h,	
	Learning outcomes:2,3	,4			·	
	10.GPRS System Archit	ecture, EDGE-Basic Princ	ciples, UMTS-QoS Classe	s and Frequency Bands,	2h, Learning	
	11.UMTS- Encoding in [Downlink and Uplink. Pov	wer Control. Soft and Sof	ter Handover. UMTS Svs	tem Coverage, and	
	Capacity, System Architecture, 2h, Learning outcomes:2,3,4					
	12.HSDPA-basic functionalities, terminal classes, basic characteristics, system upgrade, 2h, Learning outcomes:2,3,4					
	13.HSUPA-basic characteristics, definition of QoS, terminal classes, State-of-the-Art, LTE Introduction, 2h, Learning					
	14.LTE system demand	ls, basic characteristics,	LTE Radio Access Netwo	ork, LTE/SAE System Arch	nitecture, Mobility	
	Management, QoS clas	ses, 2h, Learning outcon	nes:2,3,4			
	15.0FDMA, System Cov	verage, Resource Blocks,	, Modulations, MIMO, 2h,	, Learning outcomes:2,3,	4	
Course content	1 calculations with dB	dBm_electric field at Tx	and voltage at Bx side	directivity gain free so	ace losses C/I with direct	
auditory	and reflected ray, 2h, L	_earning outcomes:1	and voltage at tix side,	uncervicy, guin, nee spe		
	2.antenna gain calculat	tions, voltage at receiver	rs side, transmitter and r	receiver power, 2h, Lear	ning outcomes:1	
	3.electric field calculati	ons at receivers side, tra	ansmitter and receiver p	ower, ARFCN number, 21	n, Learning	
	4.C/I Carrier to interfer	ence ration at receivers	side, antenna gain calcu	lations, 2h, Learning out	comes:1,2	
	5.First semiexam, 2h, L	earning outcomes:1,2				
	6.C/I calculations, signa	al attenuation due to EM	wave polarization, free	space losses, 2h, Learnir	ng outcomes:1	
	8.C/I calculations with (direct and one reflected	rav taken into calculatio	ns. 2h. Learning outcom	es:1	
	9.Erlang B equation, sy	stem efficiency calculati	ions, number of cells in a	a cluster, cluster area, 21	1, Learning	
	outcomes:2,4,5	ol l · · · · · ·				
	10.Second semiexam, A	2n, Learning outcomes:1 officiency calculations 2t	.,2,4,5 Learning outcomes:27	1 5		
	12.traffic and system e	fficiency calculations, 2h	1, Learning outcomes:2,4	4,5		
	13.space diversity calc	ulations, maximal Doppl	er frequency calculation	s, 2h, Learning outcome	s:2	
	14.traffic and system e	fficiency calculations, 2h	1, Learning outcomes:2,4	1,5		
	15. milli Semiexam, 21	, Learning outcomes.2,4	,.			
Required materials	Basic: classroom, black	board, chalk				
	Whiteboard with marke	ers				
	Overhead projector	home are called on the	blackboard with the acc	istance of the students		
Exam literature	Basic literature	neme are solved on the	DIACKDUALU WILLI THE ASS	istance of the students.		
	1. E. Zentner, Antene i	radiosustavi, Graphis, Za	agreb, 2001.			
	2. Lehpamer H.: Transr	nission Systems Design	Handbook for Wireless N	letworks, Artech House,	Boston-London,2002.	
	3. W.C.Y.Lee: Mobile Co	ommunications Design F	undamentals, McGraw-H	iill, 1993.		
	Additional literature:					



Students obligations	maximum of 5 absences from exercises and 5 absences from lectures			
Knowledge evaluation during semester	presence at lectures and exercises, 3 semiexams with theoretical questions and numerical exercises (50% required at each semi to obtain grade at the end of semester)			
Knowledge evaluation after semester	written and oral exam			
Student activities:	AktivnostECTS(Written exam)3			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Prof. dr. sc. Ervin Zentner			

Code WEB/ISVU	23753/170029	ECTS	5.0	Academic year	2018/2019
Name	Multimedia Marketing				
Status	6th semester - E-busine	ss (Izvanredni informatil	(e) - obligatory course		
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+15 (0+0+15+0) 105
Teachers	Lectures:1. Vjeran Buše	lić viši predavač			-
	Seminar exercises: Ivan	n Rajković			
	Seminar exercises: Više	n Tadić struč.spec.art			
Course objectives	To introduce students to	o the basics of today			
Learning outcomes:	1.ability to identify the l	basic terms related to m	ultimedia. Level:6		
	2.ability to plan and use	e multimedia tools and te	chnology . Level:6,7		
	3.ability to identify the s	strategic and operationa	I roles of marketing. Lev	/el:6	
	5 ability to make and gi	ve a presentation on a c	ontent by using multim	, edia tools Tevel:6.7	
	Stability to make and gr	ve a presentation on a e	oncene by using multim		
Methods of carrying	Ex cathedra teaching				
out lectures	Guest lecturer				
	Case studies				
	Discussion				
	Questions and answers	wusing multimodia gad	acts and fully functional	LICD projector	
Mothods of corruing			gets and fully functional	I LCD projector.	
Methods of Carrying	Group problem solving	omputer simulations			
out seminars	Data mining and knowle	edae discovery on the W	eb		
	Discussion, brainstormi	ng			
	Interactive problem solv	ving			
	Workshop				
	1 - 2h - La san in a sa ta sa				
Course content	1., 2n, Learning outcon	nes:1,2,3,4,5			
lectures	2., 211, Learning outcom	nes:1,2,3,4,3			
	4 2h. Learning outcon	nes:3			
	5., 2h, Learning outcon	nes:3			
	6. , 2h, Learning outcon	nes:3			
	7., 2h, Learning outcon	nes:3			
	8., 2h, Learning outcon	nes:1,2,3			
	10 2h Learning outcom	mes:3,4			
	11 2h. Learning outco	imes:3,4			
	12 2h. Learning outco	mes:3,4			
	13. , 2h, Learning outco	mes:3,4			
	14., 2h, Learning outco	mes:1,2,3,4,5			
	15. , 2h, Learning outco	mes:1,2,3,4,5			
Course content	1 2h Learning outcom	noc:1 2 3 /			
seminars	2., 2h, Learning outcon	nes:1,2,3,4			
Seminars	3. , 2h, Learning outcon	nes:1,2,3,4			
	4. , 2h, Learning outcon	nes:3,4			
	5., 2h, Learning outcon	nes:3,4			
	6. , 2h, Learning outcon	nes:3,4			
	7., 2h, Learning outcon	nes:5			
	9 2h Learning outcom	nes:4			
	10 2h. Learning outco	mes:2.3			
	11. , 2h, Learning outco	mes:3,4			
	12. , 2h, Learning outco	mes:4			
	13. , 2h, Learning outco	mes:4			
	14., 2h, Learning outco	mes:4			
	15. , 21, Learning outco	intes.1,2,3,4,3			
Required materials	Basic: classroom. blackl	board, chalk			
•	Whiteboard with marke	rs			
	Overhead projector				
	Video equipment				
	Operating supplies	*h = :+ =			
Exam literature	Students have to make	theit own multimedia ca	mpaign		
	1 "Plava krava" Seth G	odin			
	Additional literature:				
	2. "Gerilski marketing";	Jay Conrad Levinson			
	3. Prezentacijom do usp	ojeha; Jerry Weissman			
	4. "Strategije marketing	ja"; Nataša Renko			
Chudanta aki' i'		was available was 1			
Students obligations	50% dolaznosti uz aktiv	vno suajelovanje i pravov raviara)	vremeno izvravanje zad	anin obaveza vezano uz	ргакті гад
evaluation during	Kolokvii, teoriiska nitani	iovjera) ja (2 proviere)			
- and the second second					

semester	Prakti rad (1 provjera)		
Knowledge evaluation after	Usmeni ispit: Dolaznost - 10% (kriterij za prolaz 50%)		
semester	Teorijske provjere - 30% (kriterije za prolaz 50%) Prakti provjera - 60% (kriterij za prolaz 100%)		
Student activities:	Aktivnost	ECTS	
	(Written exam)	5	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		

Code WEB/ISVU	23604/156397	ECTS	5.0	Academic year	2018/2019		
Name	Object Oriented Progra	amming I					
Status	3rd semester - Office 0 business (Izvanredni ir	Drganization and Informa nformatike) - obligatory c	tization (Izvanredni infor ourse	matike) - obligatory cou	rse3rd semester - E-		
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	30+30 (0+30+0+0) 90		
Teachers	Lectures:1. Prof. dr. sc Laboratory exercises: 1 Laboratory exercises: 2 Laboratory exercises: 1	. Miroslav Slamić profeso Danko Ivošević pred. Željko Kovačević , struč.s Martina Petrovečki struč.	r visoke škole spec.ing.techn.inf. spec.ing.techn.inf.				
Course objectives	To transfer to students to solve practical tasks	s the basic knowledge rel s related to programming	ated to OO paradigms ar I	nd C++ in order to quali	fy them for using OOP2		
Learning outcomes:	1.ability to identify fun basic features of objec 2.ability to to form a cl 3.ability to give a softw 4.ability to devise oper 5.ability to design an C 6.ability to create one ¹ 7.(eng: ability to distin 8.(eng: ability to relate developing a GUI). Lev	 1.ability to identify fundamental differences between procedural and object-oriented paradigm and understand the basic features of objects. Level:6 2.ability to to form a class based on the definition of the properties and behavior of the object. Level:6 3.ability to give a software solution in C++ by means of classes and by using a paradigm developed by OOP. Level:6 4.ability to devise operators in C++ based classes. Level:6,7 5.ability to design an OOP based solution by using templates from STL C++ libraries. Level:6 6.ability to create one's own class and function templates in solving OOP based problems. Level:6,7 7.(eng: ability to distinguish between OOP languages (C++, C#, Java)). Level:6 8.(eng: ability to relate the knowledge gained in basic OO paradigms to different solutions to API classes in C++ for developing a GUI). Level:6,7 					
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Basic advances of OO (syntax, input/output a methods and attribute exceptions).	paradigm. Learning of O(and work with files and m s as class elements, inhe	D principles and their imp lemory, namespaces, ref ritance and other relatio	plementation using C+ + erences and pointers, cl nships between classes,	programming language asses and objects, access rights,		
Methods of carrying out laboratory exercises	Laboratory exercises, o	computer simulations					
Course content lectures	1.History and concept outcomes:1 2.U/l in C++ and other 3. Object, object mode 4.Classes, instances, a 5.Constructor, destruct 2h, Learning outcomes 6.Copying of objects, c 7. Constant members a 8.Operators overloadir 9.nheritance, deklarati 10.Access to functions 11.Polymorphism., 2h, 12.Virtual member fun 13.Function templates 14.Use of the STL libra 15.Solving the excepti outcomes:3,4,5,6,7	of the OO paradigm. C+- r specific features of the of el, properties and behavio tocess permission, public tor, functions, function or siz,3,7 copy constructor, associa and objects. References. ng., 2h, Learning outcomes ion, implementation of cl. , ancestors, overload. Ru Learning outcomes:3,4,7 ictions, virtual classes, 2 and class templates., 2h ons. Editing a named spa	+ as opposed to C. Advar C++ syntax, 2h, Learning our of objects , 2h, Learning of verload.Static and dynan ting objects., 2h, Learning Friend functions, 2h, Lea es:3,4,7 asses, the rights issued b les for the constructor in 7 h, Learning outcomes:4,1 h, Learning outcomes:3,5 ace. Carrying out a project	ntages of the OO paradig g outcomes:1 ing outcomes:1,2 nic object instances (new g outcomes:2,3,6 arning outcomes:2,3,7 by inheritance., 2h, Lear a class, 2h, Learning ou 5 ,7 ,7,8 ct by means of MFC class	am, 2h, Learning v and delete operators), ning outcomes:3,4,7 itcomes:3,4,7		
Course content laboratory	1. The preparation prace 2. Introduction to work Learning outcomes:1 3. Exercise 1: Object cli 4. Exercise 2: Methods, 5. Exercise 3: Access m 6. Exercise 4: : Copy co 7. Exercise 5: Friend fu 8. The first mid-term ex 9. Exercise 5: Friend fu 8. The first mid-term ex 9. Exercise 6: Operator 10. Exercise 7: Inherita 11. Exercise 8: Polymor 12. Exercise 9: Templat 13. Exercise 10: Names 14. Preparation for secc 15. The second mid-ter	ctice for introduction to C on exercises using Mood asses, attributes, 2h, Lea , constructor, destructor, nodifiers, types of functio onstructor, assignment op nctions, const. restrictior xam., 2h, Learning outcor overloading, 2h, Learnin nce, 2h, Learning outcor rphism, 2h, Learning outcor tes. Using STL., 2h, Learn space, exception, 2h, Lear mm., 2h, Learning outcom	+ + and specific feature le LMS and tool for autor arring outcomes:1,2 2h, Learning outcomes:1 ns, passing arguments to berator, 2h, Learning out hs, 2h, Learning outcome mes:1,2 g outcomes:2,3,4 nes:3,4,7 comes:4,5,6 hing outcomes:4,5,6,7 irring outcomes:3,4,5,6,7 ing outcomes:1,2,3,4,5,6,7 es:1,2,3,4,5,6,7,8	es I / O access., 2h, Lean natic evaluation of softw 1,2 o the function, 2h, Lean comes:1,2,7 s:1,2,7 7,8	ning outcomes:1 rare solutions., 2h, ing outcomes:1,2		
Required materials	General purpose comp Whiteboard with marke Overhead projector	outer laboratory ers					
Exam literature	Basic literature: 1. M. Slamić: Elektronio Zagrebu, 2012., www.t 2. Boris Motik,Julijan Šr	čki sadržaji predavanja (f tvz.hr. ribar:Demistificirani C++	PPT prezentacije) na web ,treće dopunjeno izdanje	stranici predmeta na Te ,m Zagreb, Element , 20	hničkom veleučilištu u)10.		

	Additional literature: 3. D. Radošević, Programiranje 2, TIVA Tiskara Varaždin, 2007. 4. Fold Thinking in C. J. Val 1 i Val 2, Promise Unit, 2002, http://www.minduiny.opt/Progla/TUCPD/Thinking/prof						
	 Ecker Hinking in C++ Vol 1 Vol 2, Flence Hall, 2003. http://www.hinkingencer/2008s/http://hinkingincer/20.html Stroustrup The C++ Programming Language, Addison-Wesley, Third edition, 2004. Željko Kovačević, C++ Analiza i primjena, Školska knjiga, 2004. 						
Students obligations	maximum of 3 absences from exercises						
Knowledge	The course is rated a total of 100 points . Way of acquiring points is as follows :						
evaluation during	first mid-term - solving tasks on the computer and test : max . 30 points						
semester	second mid-term - solving tasks on the computer and test : max . 30 points						
	laboratory exercises : max . 40 points						
	Points for laboratory exercises : Each exercise is scored with 10 bodova.ZBroj all points will be scaled to 40 points .						
	2 points for the preparation of the performed exercises						
	If you do the first two prepare for it gets 0 points, and for each subsequent preparation needs to be done is removed by						
	1 point. Pawite tacks proparation is pupishable with pogative points (a system for evaluating the task of proparing checks						
	Automatically algoriarism solutions)						
	-5 points for a solution to the problem in exercises						
	- 3 points for a test that is handled in the system MOODLE						
	Based on the points score is determined as follows : ?						
	90.01 to 100.00 points : excellent (5)?						
	80.01-90.00 points : very good (4) ?						
	65.01-80.00 points : good (3) ?						
	55.01-05.00 points : suncient (2)						
	Each learning outcome must be accomplished with a minimum of 50 $\%$.						
Knowledge	The course is rated a total of 100 points . Way of acquiring points is as follows :						
evaluation after	first mid-term - solving tasks on the computer and test : max . 30 points						
semester	second mid-term - solving tasks on the computer and test : max . 30 points						
	laboratory exercises : max . 40 points						
	Points for laboratory exercises : Each exercise is scored with 10 bodova.2Broj all points will be scaled to 40 points .						
	- 2 points for the preparation of the performed exercises						
	Based on the points score is determined as follows : ?						
	90.01 to 100.00 points : excellent (5) ?						
	80.01-90.00 points : very good (4) ?						
	65.01-80.00 points : good (3) ?						
	55.01-65.00 points : sufficient (2)						
	Each learning outcome much be accompliched with a minimum of 50 %						
Student activities:	Aktivnost ECTS						
	(Written exam) 5						
Remark	This course can be used for final thesis theme						
Prerequisites:	No prerequisites.						
Proposal made by	Prof. dr. sc. Miroslav Slamić, 154.2014.						

Code WEB/ISVU	23605/156398	ECTS	5.0	Academic year	2018/2019
Name	Object Oriented Progra	amming II			
Status	4th semester - Office C business (Izvanredni in	Organization and Informa Iformatike) - obligatory c	tization (Izvanredni infor ourse	matike) - obligatory cou	rse4th semester - E-
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	30+60 (60+0+0+0) 60
Teachers	Lectures:1. dr.sc. Gora Auditory exercises: Žel Auditory exercises:Dr	n Salamunićcar ljko Kovačević , struč.spe sc. Aleksandar Stojanovi	ec.ing.techn.inf.		
Course objectives	In OOP2, based on kno	wledge from OOP1, stud	ent is prepared for succe	essful solving of program	mers everyday issues
	using advanced object- chosen by each studer	-oriented and component	t-based paradigms, learn	ning as well C++, C# or	Javu (language as
Learning outcomes:	1.analysis of developm	ient environment possibi	lities (for C++, C# or Jav	va). Level:6	
	2.ability to write applic	ations with several class	es. Level:6,7		
	3.ability to write applic	ations which use exceptions which access to fi	ions. Level:6,7		
	5.ability to write applic	ations which have possil	bilities of user-defined se	ttinas. Level:6.7	
	6.ability to write applic	ations which use existing	g data structures. Level:6	5,7	
	7.ability to write applic	ations which use generic	classes. Level:6,7		
	9 ability to write applic	documents applications	with advanced user inter	face. Level:6.7	
	10.ability to integrate (external libraries and cor	mponents into application	ns. Level:6,7	
	11.ability to write mult	ithreaded applications w	hich executes code in pa	arallel on multiple proces	ssors or cores. Level:6,7
	12.ability to write netw	ork applications. Level:6	o,7 Lovel:67		
	14.write application wr	nich uses hash functions.	Level:6.7		
	15.distinguish object-o	riented and component-	based software developn	nent. Level:6	
	16.integrate in applicat	tion work with relational	database management s	systems (Oracle, DB2, S	ybase, MS-SQLServer,
	Access). Level.0,7				
Methods of carrying	Ex cathedra teaching				
out lectures	Case studies				
	Discussion				
	Questions and answers	5			
	Seminar, students pres	sentation and discussion			
Methods of carrying	Laboratory exercises, o	computer simulations			
out auditory exercises					
Course content	1.Development enviror	nment and applications v	vith several classes, 2h, I	Learning outcomes:1,2	
lectures	2.Exceptions, files (XM	L, LOG) and settings 1, 2	h, Learning outcomes:3	5	
	4.Build-in data structur	res and generic classes.	2h. Learning outcomes:6	.7	
	5.Simple user interface	e, 2h, Learning outcomes	::8		
	6.Advanced multi-docu	iment user interface, 2h,	Learning outcomes:9	.10	
	8.Usage of external lib	raries and components 2	2. 2h. Learning outcomes	:10	
	9.Multithreaded application	ations for multiple proce	ssors or cores 1, 2h, Lear	ming outcomes:11	
	10.Multithreaded appli	cations for multiple proc	essors or cores 2, 2h, Lea	arning outcomes:11	
	12.Network application	is, cryptography and has	sh functions 2, 2h, Learni	ng outcomes:12 ng outcomes:13.14	
	13.Component-based s	software development, 2	h, Learning outcomes:15	J - - - - ,	
	14.Integration of applic	cations work with relation	nal database manageme	nt systems 1, 2h, Learni	ng outcomes:16
		na bazu podataka 2, 211,	Learning outcomes.10		
Course content	1.Development enviror	nment and applications v	vith several classes, 2h, I	Learning outcomes:1,2	
auditory	2.Exceptions, files (XM	L, LOG) and settings, 2h,	, Learning outcomes:3,4,	5	
	4.Simple user interface	e, 2h, Learning outcomes	::8	, /	
	5.Advanced multi-docu	ument user interface, 2h,	Learning outcomes:9		
	6.Compensation of mis	sed and consolidation of	f knowledge for first 5 tea	aching units., 2h, Learnii	ng
	7.Examination for first	5 teaching units., 2h, Le	arning outcomes:1,2,3,4	,5,6,7,8,9	
	8.Usage of external libr	raries and components, 2	2h, Learning outcomes:1	0	
	9. Multithreaded application	ations for multiple proces	ssors or cores, 2h, Learni	ing outcomes:11	
	11.Component-based s	software development. 2	h. Learning outcomes:15) outcomes:12,13,14	
	12.Integration of applic	cations work with relation	nal database manageme	nt systems, 2h, Learning	g outcomes:16
	13.Compensation of m	issed and consolidation of	of knowledge for second	5 teaching units., 2h, Le	arning
	outcomes:10,11,12,13,	,14,15,16 cond 5 teaching units 21	h Learning outcomes:10	11 12 13 14 15 16	
	15.Final compensation	of missed, consolidation	of knowledge, and prep	arations for final exam	2h, Learning
	outcomes:1,2,3,4,5,6,7	/,8,9,10,11,12,13,14,15,1	16	· ···,	2
Required materials	Basic: classroom, black	khoard chalk			
	General purpose comp	uter laboratory			



Zagreb University of Applied Sciences

	Overhead projector			
Exam literature	Posebno pripremljeni nastavni materijali za C++, C# i Javu.			
Students obligations	Active participation on lectures (at least 6). done laboratory exercises done seminar			
Knowledge evaluation during semester	Regular attendance. Colloquium, numerical tasks. Seminar work. Written examination. Oral examination.			
Knowledge evaluation after semester	Laboratory exercises (11%) and seminar (22%): 33% Colloquia or written examination: 33% Written (on computer) examination and oral examination: 3	14%		
Student activities:	Aktivnost (Written exam) (Oral exam) (Practical work)	ECTS 2 2 1		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Goran Salamunićcar, Phd, 20.5.2016.			

Code WEB/ISVU	23240/143173	ECTS	6.0	Academic year	2018/2019	
Name	Office Automation			-	-	
Status	1st semester - Office O business (Izvanredni in course	rganization and Informat formatike) - obligatory c	tization (Izvanredni infor ourse1st semester - IT D	matike) - obligatory cour esign (Izvanredni inform	rse1st semester - E- latike) - obligatory	
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	· construction)	30+30 (0+30+0+0) 120	
Teachers	Lectures:1. dr. sc. Rom Lectures: Danijela Pong Laboratory exercises:d Laboratory exercises: Ž Laboratory exercises: N	an Domović , prof. grac , prof. r. sc. Roman Domović , p Željka Širanović mag.inf.z Nataša Uzelac	prof. zn.		·	
Course objectives	To qualify student to or	rganize and computerize	an office by means of m	nodern technologies		
Learning outcomes:	 1.ability to distinguish between different types of business information systems. Level:6 2.ability to distinguish between different types of business information systems organisation. Level:6 3.ability to make a plan of an office organisation. Level:6,7 4.ability to distinguish between different types of documents, the ways of their storage and regulations defining their validity. Level:6 5.ability to relate data administration to data modelling; to manage cipher systems. Level:6,7 6.ability to define the differences between Internet, intranet and extranet. Level:6 7.ability to organise a computerized workplace according to a regulation book on security and health in workplaces which include computers. Level:6,7 9.ability to virte documentation by using word processing tools. Level:6,7 11.ability to create spreadsheets by using program tools. Level:6,7 					
Involvement of learning outcomes of the course in study programme:	6.5.ID Realizirati dizajn	erska rješenja u područji	u grafičkih tehnologije i r	nultimedijalnih sadržaja.	.: 5h in 180h	
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answers Seminar, students presentation and discussion Other Material is delivered with maximum use of drawings, tables and diagrams to facilitate understanding, but also provides the concrete practices. Encourages the active participation of students in the classroom. Teaching aids: plates, PPT					
Methods of carrying out laboratory exercises	Laboratory exercises, c Group problem solving Discussion, brainstormi Workshop Other Students in the comput	:omputer simulations ing ter made #8203;#8203;	examples and tasks with	the help of teachers.		
Course content lectures	1.Introductory lecture a 2.Information systems 3.The process of prepa outcomes:3 4.Computer hardware s 5.The use of smart pho 6.Software Information 7.Assessment of inform Moodle., 2h, Learning c 8.Use of cloud technolo Dynamics CRM, Sharep 9.Application of Cloud t document preparation 10.Computer networks 11.Services on the TCP 12.Data warehouse, CF dictionary., 2h, Learnin 13.Human Resources (I 14.Ergonomic workplac 15.Assessment of netw database, human resou	and teach students abou in everyday and busines ring an information syste support for Information S support for Information S support and Business In nation systems, compute butcomes:6 ogies in the Microsoft envo boint)., 2h, Learning outc technology in a business for writing CVs., 2h, Lear in the modern business of P IP protocols, computer RM and his philosophy, and g outcomes:10,11 lifeware) in the IT sector, ce, and safe use of comp york technology in a cont urces (lifeware), ergonon	t the responsibilities and s environment., 2h, Lear em for decision making, system., 2h, Learning out s in modern business., 2 telligence., 2h, Learning er hardware and software vironment (MS tools: Woo omes:7 environment, a practica rning outcomes:8 environment, and its ap r networks and their links pplication and storage of , participation, responsib uter equipment in their of emporary setting, the se- nic workspace. Check sto	teaching material., 2h, ning outcomes:2 working diagram, the IS tcomes:4 h, Learning outcomes:2 outcomes:5 e support. Check store of rd, Excel, Powerpoint, Ou Il example of Croatian Te plication in daily life., 2h s., 2h, Learning outcome f data in the database, fi bilities and tasks., 2h, Lea daily operations, 2h, Lea ervices on the TCP / IP pr pre of E-learning system	Learning outcomes:1 structure., 2h, Learning f E-learning system utlook, Access, Microsoft elecom. Formatting and , Learning outcomes:9 le structure and data arning outcomes:11 rotocol, data warehouse, Moodle., 2h	
Course content laboratory	1.Understanding the op computer., 2h, Learnin 2.Working with the com documents in the cloud 3.Working with the con (margins, styles, text fo 4.Working with the con formatting. Working wi	perating environment, ap g outcomes:1 nputer program MS Powe d environment., 2h, Learn nputer program MS Worc ormatting). Working with nputer program MS Worc th documents in the clou	oplications with user data erpoint, exploring the toc ning outcomes:2 d document formatting a d documents in the cloud formatting styles (font, ud environment., 2h, Lea	a on a computer network ols and problem solving. nd preparation of docum environment., 2h, Learr paragraphs, indents), nu rning outcomes:4	and work with your Working with nents for operation ning outcomes:3 umbering titles, text	

	5.Working with the computer program MS Word, making graphs, tables, equations, caption images, graphs, tables, equations, production of contents and index structures. Working with documents in the cloud environment., 2h, Learning outcomes:6
	6.Working with the computer program MS Word, collaborative approach to document, track changes, commenting on the document, mail merge. Working with documents in the cloud environment. Working with documents in the cloud environment., 2h, Learning outcomes:6
	7.Examination on the computer, the practical part. Assessment work in Microsoft Word., 2h, Learning outcomes:7 8.Working with the computer program MS Excel, exploring the working environment, making tables and work with the document. Working with documents in the cloud environment. Working with Sharepoint tool., 2h, Learning outcomes:8 9.Working with the computer program MS Excel, data entry and calculation items, solve problems. Working with documents in the cloud environment. Working with Sharepoint tool., 2h, Learning outcomes:9 10.Working with the computer program MS Excel, work with formulas, charting, sorting data. Working with documents in the cloud environment. Working with Sharepoint tool., 2h. Learning outcomes:9
	11.Working with the computer program MS Excel, solve problems, connect to the mail merge document, prepared for printing a document. Working with documents in the cloud environment. Working with Sharepoint tool., 2h, Learning outcomes:10
	12.Working with MS Word document in a collaborative environment, save documents using cloud technology using Sharepoint., 2h, Learning outcomes:10,11
	13. Connecting tools MS Word, MS Excel, MS Powerpoint, problem solving and preparation for the midterm., 2h, Learning outcomes:10,11
	14. Examination on the computer, the practical part. Assessment work in Microsoft in Microsoft Excel., 21, Learning outcomes:11,12
	15.Examination on the computer, repeat exams of practical material, 21
Required materials	Basic: classroom, blackboard, chalk
	General purpose computer laboratory
	Video equipment
	Special equipment
	Students in the computer made #8203:#8203:examples and tasks with the help of teachers.
Exam literature	Basic literature:
	1. Klasić, K.: Uvod u uredsko poslovanje,skripta, Zagreb, 2004.
	2. Šimec, A.: Osnove primjene MS Office u uredskom poslovanju, skripta, Zagreb, 2009
	3. Šimec, A.: Upotreba i integracija ms office alata u poslovanju, skripta, Zagreb, 2013
	4. Varga, Ćurko et al: Informatika u poslovanju, Element, Zagreb, 2007.
	5. Srića, Kliment, Knežević: Uredsko poslovanje, Sinergija, Zagreb, 2003.
Students obligations	Minimum 3 points from the flash tests (regular attendance) from the theory. In the absence of exercises max 2 which
	must be compensated in consultation with the assistant. Required is a PPT presentation (practical work).
Knowledge	Regular attendance#6#6#0\$Colloquium, theoretical issues#2#51#0\$Practical work#1#5#0\$Practical
evaluation during	Exam#2#40#0\$
semester	
Knowledge	Written Exam#1#51#51\$Oral#1#9#9\$Practical Exam#1#40#40\$
evaluation after	
semester	
Student activities:	Aktivnost ECIS
	(Uasses allelituatice) 1
	(Written Exam) 2 (Activity in class) 1
	(Practical work) 2
Remark	This course can not be used for final thesis theme
Prerequisites:	No prerequisites
Pronosal made hy	Alan Śmac PhD
i i oposai made by	

Code WEB/ISVU	23734/170010	ECTS	3.0	Academic year	2018/2019	
Name	Office Organisation and	I Informatisation				
Status	5th semester - Office O	rganization and Information	tization (Izvanredni infor	matike) - obligatory cour	se	
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (30+0+0+0)					
	work at home				30	
Teachers	Lectures:1. Danijela Por	ngrac , prof.				
Course objectives	Auditory exercises: Dar	njela Pongrac , prof.	ation and office informat	tion systems dovelopme		
	1 ability to rolate the e	rappicational maturity to	alion and onice informat	ion systems development		
Leaning outcomes.	 2.ability to distinguish between different phases of an information system life cycle. Level:6 3.ability to distinguish between different methods and techniques used in an information system development. Level:6 4.ability to analyse a business system. Level:6 5.ability to draw diagrams of decomposition, document and data flow and work diagrams. Level:6 6.ability to create a business technology matrix. Level:6 7.ability to make a query specification. Level:6 8. ability to devise implementation, testing and maintenance of an information system. Level:6,7 9.Ability to analyze the needs of office systems of the future. Level:6 					
Methods of carrying out lectures Methods of carrying	Ex cathedra teaching Case studies Modelling Questions and answers Seminar, students pres Lectures are displayed lectures. Teaching equi Laboratory exercises, c	entation and discussion by using drawings, table pment: board, overhead omputer simulations	e diagrams and case stuc projector, LCD projector	lies. Students are stimul	ated to participatet	
out auditory exercises	Group problem solving Data mining and knowl Essay writing Workshop	edge discovery on the W	/eb			
Course content lectures	1.Ontology of the office 2.Functions and proces 3.Generic office system 5.Generic office system 6.Transfer Information 7.1 Colloquium, 2h, Lea 8.Standard model of Of 9.Standard model of Of 10.Standard Office Bus 11.Business Process De 12.Software engineerin 13.Office systems of th 14.Presentation of stud 15.2 Colloquium, 2h, Lea	e; Organization of offices ses; Office Processes; Ge technologies, 2h, Learn technologies, 2h, Learn and Communication Tec anning outcomes:1,2,3,4 fice automation; Docum fice automation; Dotam iness Model (Nonfunction composition Of Office Si g of office systems, 2h, i e future, 2h, Learning ou ents with debate, 2h, Le earning outcomes:5,6,7,8	(models and structures) eneric office functions, 2 ing outcomes:2,3 ing outcomes:2,3 hnology, 2h, Learning ou ent And Data Flow Diagr odel and XML schema, 2 nal Requirements), 2h, Li ystem, 2h, Learning outco Learning outcomes:7,8 utcomes:9 arning outcomes:1,2,3,4 3,9	, 2h, Learning outcomes h, Learning outcomes:2, itcomes:4 ams, 2h, Learning outcol h, Learning outcomes:4, earning outcomes:6,7 omes:4,5 .5,6,7,8,9	:1,2 3 mes:4,5 5	
Course content auditory	1.Introduction to Office 2.Concept and technolo 3.Web and App Parts; E 4.Web site; Web page; 5.Templates, Manage L 6.Workflow Design, Imp 7.Social Tools; Searche 8.Individual assignmen 9.Designing and Creati 10.Designing and Creati 11.Designing and Creat 12.Designing and Creat 13.Designing and Creat 14.Designing and Creat 15.Submit seminar wor	Collaboration Systems, by of the Sharepoint po Document Management, Managing users and acc ists, and Libraries, 2h, Le port / Export Data from E rs, Visio, 2h, Learning ou t to students, 2h, Learning a Website and Docur ting a Website and Docu ting a Website and Docu k, 2h, Learning outcome	2h, Learning outcomes:1 rtal server, 2h, Learning Versioning, 2h, Learning ess permissions, 2h, Lea earning outcomes:4 ixcel, 2h, Learning outco itcomes:5 ng outcomes:1,2,3,4,5,6, nenting Work, 2h, Learning menting Work, 2h, Learning s:1,2,3,4,5,6,7,8	outcomes:2 outcomes:2 rning outcomes:3 mes:4 7,8,9 ng outcomes:1,2,3,4,5,6, ing outcomes:1,2,3,4,5,6, ing outcomes:1,2,3,4,5,6, ing outcomes:1,2,3,4,5,6, ing outcomes:1,2,3,4,5,6,0 ing outcomes:1,2,3,4,5,6,0 ing outcomes:1,2,3,4,5,6,0	.7,8,9 6,7,8,9 6,7,8,9 6,7,8 6,7,8 6,7,8	
Required materials	Basic: classroom, black General purpose compu Overhead projector Video equipment	board, chalk uter laboratory				
Exam literature	Basic literature: 1. Prezentacije i radni n 2. Klasić, Klarin: Inform Additional literature: 1. K.C.Laudon, J.P.Laud Education, 2014. 2. R. Barker: CASE*MET 3. J. Martin: Informatior 4. Van Vliet, H.: Softwa	naterijali s predavanja i v acijski sustavi načela i p on; Management Informa HOD Tasks and Delivera n Engineering II - Plannin re Engineering, John Wile	vježbi, dostupni na LMS-u raksa, Intus informatika, ation Systems - MANAGI ables, Addison-Wesley Pu g and Analisys, Prentice ey and Sons, USA, 2001.	J TVZ-a i SharePoint-u Zagreb,2009. NG THE DIGITAL FIRM, 13 Iblishing Company, 1991 Hall, Englewood Cliffs, N	3th edition; Pearson Y 1990.	



Students obligations	At least 3 points from the flash of tests on lectures (regular attendance).				
	Internships (seminar work - Documentation on SharePoint system work - minimum 16 points)				
Knowledge	Redovitost pohaa#10#10#0\$Kolokvij, teorijska pitanja#2#60#0\$Seminarski rad#1#30#0\$				
evaluation during semester					
Knowledge evaluation after semester	-Case study of a real system - team work of three students - prerequsite for writting exam Writting exam composed of 6 questions, 50% is prerequisite for oral exam -Oral exam				
Student activities:	Aktivnost	ECTS			
	(Written exam) 3				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Danijela Pongrac, prof.				

Code WEB/ISVU	23596/156387	ECTS	5.0	Academic year	2018/2019		
Name	Operating Systems						
Status	3rd semester - Office O	rganization and Informat	tization (Izvanredni infor	matike) - obligatory cour	rse		
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 90						
Teachers	Lectures:1. dr.sc.rač. D Lectures:2. dr.sc.rač. Iv Laboratory exercises: B	avor Cafuta , prof.v.šk. ica Dodig , prof.v.š. rigitta Cafuta					
Course objectives	Understand and learn h	low to use the functional	ity of a modern operatin	ig system.			
Learning outcomes:	1.ability to extract the b 2.ability to distinguish b 3.ability to analyse the Level:6 4.ability to categorize t	basic elements of a comp between a subprogram a interruptions and interru he conditions of certain p	puter in FN model. Level ind a basic program, the uptions routines; to distir processes and their impl	if ir functions as well. Leve nguish between interrupt lementation. Level:6	il:6 tions and exceptions.		
	 ability to distinguish between a thread and a process, their advantages and disadvantages as well. Level:6 ability to write a program which solves the problem of one or more threads. Level:6,7 ability to compare the forced and unforced algorithms to organise the work of a processor. Level:6,7 ability to distinguish between different algorithms for loading auxiliary memory. Level:6 ability to calculate the size of a disk by means of basic parameters and compare the strategies of positioning the disk head. Level:6 ability to check which RAID field is used in assembling disks. Level:6 ability to analyse security aspects of the computer system. Level:6 ability to identify scheduling algorithms in multimedia system Level:6 						
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Discussion Questions and answers						
Methods of carrying out laboratory exercises	Group problem solving Computer simulations						
Course content lectures	 1.Operating system components , 2h, Learning outcomes:1 2.Input/output operations, 2h, Learning outcomes:1,2 3.Interrupt handling , 2h, Learning outcomes:1,3 4.Task, process and thread. Synchronisation ., 2h, Learning outcomes:1,2,4,5 5.Mutual exclusion in single and multiprocessor systems., 2h, Learning outcomes:4,5,6 6.Job scheduling, 2h, Learning outcomes:4,5,7 7.Operating system kernel. Semaphores. Producer and consumer problem. Deadlock., 2h, Learning outcomes:4,5,7 8.Partial exam., 2h, Learning outcomes:1,2,3,4,5,6,7 9.Paging., 2h, Learning outcomes:8,9,10 11.Multimedia in operating system., 2h, Learning outcomes:12 12.Security., 2h, Learning outcomes:11 13.Multiprocessor system., 2h, Learning outcomes:1,4,5 						
Course content	14. Vitualization, 21, Le 15.Final exam, 2h, Lear	ming outcomes:1,2,3,4,5	,6,7,8,9,10,11,12				
laboratory	2.No exercises, 2h 3.Interrupts, 2h, Learnin 4.No exercises, 2h 5.CPU scheduling algori 6.No exercises, 2h 7.No exercises, 2h 8.No exercises, 2h 9.Paging, 2h, Learning of 10.No exercises, 2h 11.Disk reading managi 12.No exercises, 2h 13.Multimedia algorithm 14.No exercises, 2h 15.No exercises, 2h	ng outcomes:1,3 itms., 2h, Learning outco outcomes:8 ement algorithms., 2h, L ns, 2h, Learning outcom	omes:1,2,4,5 earning outcomes:8,9,1 es:12	0			
Required materials	Basic: classroom, black General purpose compu Whiteboard with marke Overhead projector Solving prepared tasks	board, chalk uter laboratory rs using detailed instructio	ns available at http://ww	/w.zemris.fer.hr/predmet	ti/os1/tehvel/.		
Exam literature	Basic literature: 1. Silberschatz, S. Galvi edition, 1994. 2. Budin, Operacijski su Additional literature: 1. A Tanenbaum: Model	in, Operating System Co Istavi, Izdavač Element, ž rn Operating Systems, Pi	ncepts, Addison Wesley Zagreb, 2000. rentice Hall, 2001	Publishing Company, Rea	ading, Mass., forth		



Students obligations	Positive number of points from laboratory exercises.					
	All other informations is in repository on course page.					
Knowledge evaluation during semester	Partial and final exam. One of the exam can be repeated in case of weak results. All other informations is in repository on course page.					
Knowledge evaluation after semester	Written and oral exam. Number of points from laboratory exercises are used in mark calculation. All other informations is in repository on course page.					
Student activities:	Aktivnost ECTS					
	(Written exam) 5					
Remark	This course can be used for final thesis theme					
Prerequisites:	Students cannot enroll in this course unless they have passed Programiranje Students cannot enroll in this course unless they have passed Građa računala					
Proposal made by	Davor Cafuta, Ivica Dodig (10.01.2014)					

Code WEB/ISVU	23239/143172	ECTS	1.0	Academic year	2018/2019		
Name	Physical Education I						
Status	1st semester - Office O business (Izvanredni in course	rganization and Ir formatike) - oblig	nformatization (Izvanre atory course1st semes	edni informatike) - obligatory cou ster - IT Design (Izvanredni inforn	rse1st semester - E- natike) - obligatory		
Teaching mode	Lectures + exercises (a work at home	auditory + laborat	ory + seminar + meto	dology + construction)	0+30 (30+0+0+0) 0		
Teachers	Auditory exercises:1. p Auditory exercises: Ma	red. Valter Perino rko Milanović	vić mag. kineziologije				
Course objectives	To develop in students	the habit of pract	ising sports and impro	oving their psychophysical condit	ion and conduct		
Learning outcomes:	 1.ability to demonstrate how to perform properly technical elements of certain sports. Level: 2.ability to explain the basic terms related to certain sports. Level: 3.ability to explain the basic rules of certain sports. Level: 4.ability to recognize the muscle building exercises. Level: 5.ability to explain the importance of warming up and stretching. Level: 6.ability to describe the organisation of sport competitions. Level: 7.ability to understand the importance of daily workout throughout one's life. Level: 						
Involvement of learning outcomes of the course in study programme:	2.1.OSOBNE Znanje o s 2.2.OSOBNE Odgovorn 2.3.OSOBNE Etički i mo 2.4.OSOBNE Kritička ev problema.: 5h in 30h 2.5.OSOBNE Spremnos 2.9.OSOBNE Profesiona 2.11.OSOBNE Otvorenc	suvremenim pitan ost, dosljednost, t iralni pristup radu valuacija argumer t za rad na terenu ilna i ljudska osob ist za nova znanja	jima struke i društva.: očnost, ažurnost.: 10h .: 10h in 30h ata, pretpostavki i poo i i u nestandardnim uv nost.: 20h in 30h i, iskustva i kulturne o	5h in 30h in 30h dataka u cilju stvaranja mišljenja ijetima.: 5h in 30h kolnosti.: 10h in 30h	i pridonošenja rješenju		
Methods of carrying out auditory exercises	Other						
Course content auditory	 Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 Repeating a set of warm-up exercises for a specific kinesiologic activity, 2h, Learning outcomes:4 Adopting a set of stretching exercises for a specific kinesiologic activity, 2h, Learning outcomes:5 Repeating the basic rules of a specific kinesiologic activity, 2h, Learning outcomes:6 Using auxiliary and elementary games in the learning process of a specific kinesiologic activity, 2h, Learning outcomes:6 Adoption of basic technical and tactical elements of a specific kinesiologic activity, 2h, Learning outcomes:6 Competition and Games, 2h, Learning outcomes:5 Learning outcomes:5 Learning outcomes:5 Learning outcomes:6 Competition and Games, 2h, Learning outcomes:5 						
Required materials	Special equipment						
Exam literature	Osnovna: Milanović, D.:Priručnik : Milanović, D. i dr.: Fitne B. Anderson, E. Burke, Dodatna: Radovi nositelja: Zvonarek N., Primjena fintiranja i analiza profi Lukenda Ž., Tus J., Tipo	za sportske trene ss, FFK, Zagreb, B. Perl, Fitness za individualnog dop la braniča, 2003. vi treninga s tere	re, FFK Sveučilište u Z 1996. sve, Zagreb, 1997. unskog treninga u ruk tom, Zbornik radova 1	agrebu, Zagreb, 1997. ometu s ciljem poboljšanja osobi 1. ljetne škole kineziologa RH, Re	ne tehnike i taktike ovinj, 2002.		
Students obligations	maximum of 3 absence	es from exercises					
Knowledge evaluation during semester Knowledge	Prakti ispit#1#1#100\$						
evaluation after semester							
Student activities:	Aktivnost (Classes attendance)		EC 1	TS			
Remark	This course can not be	used for final the	sis theme				
Prerequisites:	No prerequisites.						
Proposal made by	pred. Valter Perinović r	nag. kineziologije					
Study programme	for academic	year 2018/2019					
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Code WEB/ISVU	23245/143186	ECTS	1.0	Academic year	2018/2019		
Name	Physical Education II	•	•	•	•		
Status	2nd semester - Office O business (Izvanredni inf course	rganization and Informa ormatike) - obligatory c	atization (Izvanredni infoi ourse2nd semester - IT E	rmatike) - obligatory cou Design (Izvanredni inforn	rse2nd semester - E- natike) - obligatory		
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	seminar + metodology +	construction)	0+30 (30+0+0+0) 0		
Teachers	Auditory exercises:1. pr Auditory exercises: Mar	ed. Valter Perinović ma ko Milanović	g. kineziologije				
Course objectives	To develop in students	the habit of practising s	ports and improving thei	r psychophysical conditi	on and conduct		
Learning outcomes:	1.ability to demonstrate 2.ability to organise exe 3.ability to distinguish to capabilities. Level:6 4.ability to compare van 5.ability to explain the to 6.ability to distinguish to 7.ability to explain the to	 .ability to demonstrate how to perform properly technical elements of certain sports. Level: .ability to organise exercises for groups of muscles. Level: .ability to distinguish between different types of workout carried out to achieve different motoric and functional capabilities. Level:6 1.ability to compare various body activities and their influences on anthropological features . Level:6,7 5.ability to explain the basic facts about the influence of daily workout on one's health . Level: 5.ability to distinguish between different nutrients and their effects on a body. Level:6 7.ability to explain the basic facts about the relation between workout and a body volume. Level: 					
Involvement of learning outcomes of the course in study programme:	2.1.OSOBNE Znanje o s 2.2.OSOBNE Odgovorno 2.3.OSOBNE Etički i mo 2.4.OSOBNE Kritička ev problema.: 5h in 30h 2.5.OSOBNE Spremnost 2.9.OSOBNE Profesiona 2.11.OSOBNE Otvoreno	 2.1.OSOBNE Znanje o suvremenim pitanjima struke i društva.: 5h in 30h 2.2.OSOBNE Odgovornost, dosljednost, točnost, ažurnost.: 10h in 30h 2.3.OSOBNE Etički i moralni pristup radu.: 10h in 30h 2.4.OSOBNE Kritička evaluacija argumenata, pretpostavki i podataka u cilju stvaranja mišljenja i pridonošenja rješenju problema.: 5h in 30h 2.5.OSOBNE Spremnost za rad na terenu i u nestandardnim uvjetima.: 5h in 30h 2.9.OSOBNE Profesionalna i ljudska osobnost.: 20h in 30h 					
Methods of carrying	Group problem solving			2011 11 0011			
out auditory exercises	Discussion, brainstormi Interactive problem solv Other	ng <i>v</i> ing					
Course content auditory	1.Repeating technical e 2.Repeating technical e 3.Adopting new elemen 4.Adopting new elemen 5.Adopting a set of exer 6.Adopting a set of exer 7.Establishing the rules 8.Adopting different tra 9.Adopting different tra 10.Implementation of th 11.Training of injury pre 12.Adoption of basic tec 13.Adoption of basic tec 14.Competition and Gar	lements of a specific kir lements of a specific kir ts of a specific kinesiolo crises for each muscle g of a specific kinesiologi ining methods , 2h, Lea ining methods , 2h, Lea e elements of various s evention exercises , 2h, chnical and tactical elem chnical and tactical elem mes, 2h, Learning outco mes, 2h, Learning outco	nesiologic activity, 2h, Le nesiologic activity, 2h, Le nesiologic activity, 2h, Le gic activity, 2h, Learning gic activity, 2h, Learning outco roup, 2h, Learning outco cactivity, 2h, Learning ou rning outcomes:5 rning outcomes:5 roporting activities, 2h, Le Learning outcomes:7 nents of a specific kinesis nents of a specific kinesis mes:5 mes:5	arning outcomes:1 arning outcomes:1 goutcomes:2 goutcomes:2 mmes:3 utcomes:4 arning outcomes:6 blogic activity, 2h, Learn	ing outcomes:6 ing outcomes:6		
Required materials	Special equipment						
Exam literature	Nema	- 6					
Students obligations	maximum of 3 absence	s from exercises					
Knowledge evaluation during semester	Prakti ispit#1#1#100\$						
Knowledge evaluation after semester	Ladoratory exercises						
Student activities:	Aktivnost (Classes attendance)		ECTS 1				
Remark	This course can not be	used for final thesis the	me				
Prerequisites:	No prerequisites.						

Code WEB/ISVU	23621/156418 E	СТЅ	1.0	Academic year	2018/2019	
Name	Physical Education III					
Status	3rd semester - Office Orga business (Izvanredni infor course	anization and Informati matike) - obligatory co	zation (Izvanredni infori urse3rd semester - IT D	matike) - obligatory cou esign (Izvanredni inforn	rse3rd semester - E- natike) - obligatory	
Teaching mode	Lectures + exercises (auc work at home	litory + laboratory + se	eminar + metodology +	construction)	0+30 (30+0+0+0) 0	
Teachers	Auditory exercises:1. prec Auditory exercises: Marko	I. Valter Perinović mag Milanović	kineziologije			
Course objectives	To develop in students the	e habit of practising sp	orts and improving their	r psychophysical condit	ion and conduct	
Learning outcomes:	1.ability to demonstrate h 2.ability to explain the ba 3.ability to explain the ba 4.ability to recognize the 5.ability to explain the im 6.ability to describe the o 7.ability to understand the	ability to demonstrate how to perform properly technical elements of certain sports. Level: 2.ability to explain the basic terms related to certain sports. Level: 3.ability to explain the basic rules of certain sports. Level: 4.ability to recognize the muscle building exercises. Level: 5.ability to explain the importance of warming up and stretching. Level: 5.ability to describe the organisation of sport competitions. Level: 7.ability to understand the importance of daily workout throughout one's life. Level:				
Methods of carrying out auditory exercises	Other					
Course content auditory	 1.Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 2.Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 3.Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 4.Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 5.Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 6.Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 7.Adopting a set of warm-up exercises for a specific kinesiologic activity, 2h, Learning outcomes:4 8.Adopting a set of stretching exercises for a specific kinesiologic activity, 2h, Learning outcomes:5 9.Repeating the basic rules of a specific kinesiologic activity, 2h, Learning outcomes:6 10.Using auxiliary and elementary games in the learning process of a specific kinesiologic activity, 2h, Learning outcomes:6 12.Adoption of basic technical and tactical elements of a specific kinesiologic activity, 2h, Learning outcomes:6 13.Competition and Games, 2h, Learning outcomes:5 14.Competition and Games, 2h, Learning outcomes:5 15.Training and automation of injury prevention exercises, 2h, Learning outcomes:4 					
Required materials	Special equipment					
Exam literature	Nema					
Students obligations	maximum of 3 absences f	rom exercises				
Knowledge evaluation during semester	Prakti ispit#1#1#100\$					
Knowledge evaluation after semester	Laboratory exercises					
Student activities:	Aktivnost (Classes attendance)		ECTS 1			
Remark	This course can not be us	ed for final thesis them	e			
Prerequisites:	No prerequisites.					

Code WEB/ISVU	23622/156419	ECTS	1.0	Academic year	2018/2019	
Name	Physical Education IV					
Status	4th semester - Office Or business (Izvanredni inf course	ganization and Informat ormatike) - obligatory co	zization (Izvanredni inforr ourse4th semester - IT De	matike) - obligatory cour esign (Izvanredni inform	se4th semester - E- atike) - obligatory	
Teaching mode	Lectures + exercises (an work at home	uditory + laboratory + s	eminar + metodology +	construction)	0+30 (30+0+0+0) 0	
Teachers	Auditory exercises:1. pr Auditory exercises: Marl	ed. Valter Perinović mag ko Milanović	g. kineziologije			
Course objectives	To develop in students t	he habit of practising sp	ports and improving their	r psychophysical condition	on and conduct	
Learning outcomes:	1.ability to demonstrate 2.ability to explain the b 3.ability to explain the b 4.ability to recognize the 5.ability to explain the ii 6.ability to describe the 7.ability to understand t	Lability to demonstrate how to perform properly technical elements of certain sports. Level: 2.ability to explain the basic terms related to certain sports. Level: 3.ability to explain the basic rules of certain sports. Level: 4.ability to recognize the muscle building exercises. Level: 5.ability to explain the importance of warming up and stretching. Level: 5.ability to describe the organisation of sport competitions. Level: 7.ability to understand the importance of daily workout throughout one's life. Level:				
Methods of carrying out auditory exercises	Other					
Course content auditory	 1.Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 2.Repeating technical elements of a specific kinesiologic activity, 2h, Learning outcomes:1 3.Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 4.Adopting new elements of a specific kinesiologic activity, 2h, Learning outcomes:2 5.Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 6.Improving the elements of a specific kinesiologic activity, 2h, Learning outcomes:3 7.Adopting a set of warm-up exercises for a specific kinesiologic activity, 2h, Learning outcomes:5 9.Repeating the basic rules of a specific kinesiologic activity, 2h, Learning outcomes:6 10.Using auxiliary and elementary games in the learning process of a specific kinesiologic activity, 2h, Learning outcomes:6 11.Adoption of basic technical and tactical elements of a specific kinesiologic activity, 2h, Learning outcomes:6 12.Adoption and Games, 2h, Learning outcomes:5 14.Competition and Games, 2h, Learning outcomes:5 15.Training and automation of injury prevention exercises, 2h, Learning outcomes:4 					
Required materials	Special equipment					
Exam literature	Nema					
Students obligations	maximum of 3 absences	s from exercises				
Knowledge evaluation during semester	Prakti ispit#1#1#100\$					
Knowledge evaluation after semester	Laboratory exercises					
Student activities:	Aktivnost (Classes attendance)		ECTS 1			
Remark	This course can not be ι	used for final thesis ther	ne			
Prerequisites:	No prerequisites.					

Code WEB/ISVU	23997/185593	ECTS	6.0	Academic year	2018/2019
Name	Physics				
Status	2nd semester - IT D	esign (Izvanredni i	nformatike) - obligatory c	ourse2nd semester - E-busine	ss (Izvanredni informatike)
	 obligatory course2 	nd semester - Offic	ce Organization and Infor	matization (Izvanredni informa	tike) - obligatory course
Teaching mode	Lectures + exercise work at home	s (auditory + labor	atory + seminar + metod	dology + construction)	30+30 (0+30+0+0) 120
Teachers	Lectures:1. prof.vis.	šk. Ivica Levanat			
	Lectures:2. Alemka	Knapp	. I la much		
	Laboratory exercise	s:pronur. Dubravki s: Alemka Knann			
	Laboratory exercise	s: Diana Šaponja-M	lilutinović dipl.ing.fizike,	pred.	
Course objectives	To introduce studen	ts to physical pher	nomena and quantities us	eful in the study of IT, describ	ed within a broader
-	context of the basic	laws of physics		-	
Learning outcomes:	1.ability to relate pr	ecision of measure	ment and of physical uni	ts. Level:6,7	
	2.ability to calculate	e simple linear mot	ions, motions on a circle,	and a launch at an angle. Lev	el:6
	4 ability to relate th	e work of forces to	kinetic and notential ene	ergy of a body Level 6 7	51.0
	5.ability to distingui	sh between a class	sical mechanical descripti	on of motion and special relat	vity. Level:6
	6.ability to analyse t	the effects of both	electric and magnetic fie	lds on electric charge. Level:6	
	7.ability to calculate	currents and volta	ages in simple circles with	n Ohm resistance using Kirchh	off's laws. Level:6
	9 ability to relate all	ernating current to	o electromagnetic inducti scillations without dampir	on. Level:6,7	
	10.ability to relate E	Sohr's model of ato	m to a quality description	of electron shells and ribbons	s. Level:6.7
	11.ability to make s	imple calculations	of emission/absorption of	photons and photoelectric eff	ect. Level:6
Methods of carrying	Ex cathedra teachin	g			
out lectures	Demonstration				
	Discussion				
	Questions and answ	ers			
	Other		and a second beaution of a second		te de la color de Composite Maria
	Oral presentation, in and analysis of physic	iciuding communic	phenomena and laws are	r active participation is stimula illustrated by familiar examp	les or improvised
	demonstrations, and	d by simple experir	ments where possible. Eq	uations and their derivations a	re fully outlined on the
	blackboard, illustrat	ed by sketches and	d diagrams as appropriat	е.	· · , · · · · · ·
Methods of carrying	Laboratory exercise	s on laboratory eq	uipment		
out laboratory	Laboratory exercise	s, computer simula	ations		
exercises	Uther Homework				
Course content	1.Physical quantities	s and units 2h. Le	arning outcomes:1		
lectures	2.Rectilinear motion	, free fall., 2h, Lea	rning outcomes:2		
	3.Motion along curv	e and circle., 2h, L	earning outcomes:2		
	4.Newton axioms, m	omentum., 2h, Le	arning outcomes:3		
	6.Einstein special th	eory of relativity	2h. Learning outcomes:5		
	7.Gravitational and	electric field., 2h, l	_earning outcomes:6		
	8.Direct current ., 2	h, Learning outcom	nes:7		
	9.Magnetic field., 2h	n, Learning outcom	es:6		
	11 Alternating curre	nt 2h Learning o	utcomes:8		
	12.Harmonic oscillat	tions., 2h, Learning	g outcomes:9		
	13. Wave optics, ph	otoelectric effect.,	2h, Learning outcomes:1	0,11	
	14.Atomic and nucle	ear structure., 2h, I	Learning outcomes:10	11	
	15.Electron shells, s	emiconductors., 21	n, Learning outcomes:10,	11	
Course content	1.Physical quantities	s and units: applica	ation of Python syntax, 2h	. Learning outcomes:1	
laboratory	2.Measurement and	analysis of results	, 2h, Learning outcomes:	1	
	3.Length measurem	ent, volume calcul	ation, Python programs a	ind output files , 2h, Learning	outcomes:1
	4.Rectilinear motion	, computer aided p	problem solving (numpy,	matplotlib)., 2h, Learning outo	omes:2
	6.Newton's laws. co	mputer aided prob	lem solving (numpy), 2h.	Learning outcomes:3	ning outcomes.z
	7.Work, power, ener	gy - numerical inte	egration, Monte Carlo me	thod (numpy, matplotlib, scipy	[,])., 2h, Learning
	outcomes:4				
	8.First partial exam, 9.Harmonic oscillati	2h on (numpy, matrik	tlib) 2h Learning outcor	nos:0	
	10.Measurement of	spring constant (le	east squares method. nun	npy, matplotlib), 2h, Learning	outcomes:9
	11.Measurement of	gravitational field	strength (least squares m	nethod, numpy, matplotlib), 2h	, Learning outcomes:3
	12.Torsion pendulur	n (least squares m	ethod, numpy, matplotlib), 2h, Learning outcomes:9	_
	13.Charge motion in	electric and mag	netic field (numpy, matple	otlib), 2h, Learning outcomes:)
	15.Second partial ex	kam, 2h	atom (numpy, matpiotlib	,, zii, Leanning outcomes:11	
Required materials	Basic: classroom, bl	ackboard, chalk			
	Special purpose labo	oratory			
	overhead projector	Irkers			
	:-				
L	1				

Exam literature	Basic literature:					
	1. Levanat, I., Fizika za TVZ Kinematika i dinamika, TVZ, Zagreb, 2010.					
	2. Pinter, V.: Osnove elektrotehnike, Knjiga prva, Tehnička knjiga, Zagreb, 1986 Additional literature:					
	1. Young Freedman, University Physics, Addison Wesley, San Francisco, 2007					
Students obligations	Laboratory exercises attendance (at most 2 exercises may not be done).					
Knowledge	Two partial exams from exercises, each up to 25 points.					
evaluation during	Homeworks, up to 15 points.					
semester						
Knowledge	Laboratory exercises full exam, up to 50 points.					
evaluation after	Theory exam, up to 20 points.					
semester	Exercises attendance gives 10 points, lectures up to 5 points, they are added to homework points after exam, or to the					
	points from both partial exams if student is not taking full exam.					
	Maximum number of points is 100. Grades:					
	255 p					
	365 р					
	475 p					
	585 p					
Student activities:	Aktivnost ECTS					
	(Classes attendance) 1					
	(Oral exam) 2					
	(Written exam) 3					
Remark	This course can not be used for final thesis theme					
Prerequisites:	No prerequisites.					
ISVU equivalents:	143179;					
Proposal made by	lvica Levanat, prof. v. škole, 21. 01. 2014					

Code WEB/ISVU	23614/156407	ECTS	4.0	Academic year	2018/2019		
Name	Picture, Sound and Vide	eo Processing	·				
Status	3rd semester - E-busine	ess (Izvanredni informat	tike) - obligatory course				
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory +	seminar + metodology +	- construction)	30+60 (60+0+0+0) 30		
Teachers	Lectures:1. Ivan Rajkov Auditory exercises: Din Auditory exercises: Ivan Auditory exercises: Više	rić ka Radonić n Rajković en Tadić struč.spec.art					
Course objectives	To transfer to students	the basic knowledge re	lated to the interactive m	nedia which use image,	sound and video		
Learning outcomes:	1.ability to identify the and animation. Level:6 2.ability to integrate m 3.ability to distinguish l 4.ability to design a wo 5.ability to prepare the 6.ability to devise a pre	Lability to identify the relations between multimedia methods: scanning, digital photography, printing, sound, video and animation. Level:6 2.ability to integrate multimedia tools. Level:6,7 3.ability to distinguish between classifications of programs and computer equipment in multimedia design. Level:6 4.ability to design a work containing audio and video formats. Level:6,7 5.ability to prepare the synchronization of sound, video and animation. Level:6,7 6.ability to devise a presentation of a content by using multimedia tools. Level:6,7					
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answers Lectures are with the ir	nteractive projection wit	h the computer. Studies	theoretical structures ar	nd uses in practice		
Methods of carrying out auditory exercises	Laboratory exercises, c Group problem solving Data mining and knowl Discussion, brainstormi Mind mapping Interactive problem sol Workshop	computer simulations edge discovery on the N ing ving	Web				
Course content lectures	 , 2h, Learning outcor Medij slika, zvuk i vic Standardi slikovnih fc Osnove izrade video Smontaa video materij Oblikovanje scenarija Knjiga snimanja, 2h, l Produkcijska izvedba Oblikovanje AV proje Izrada grafih paketa Interaktivnost multin Integracija grafike, a Learning outcomes:4,5 Platforme za prezer Optimiziranje AV suj Prezentacija zavrnil 	nes:1,2,3,4 deo, 2h, Learning outco yrmata: GIF, JPEG, TIFF, zapisa, 2h, Learning out ala, 2h, Learning outco , 2h, Learning outcome Learning outcomes:4,5, a projekta, 2h, Learning ekta, 2h, Learning outcome medijskih alata , 2h, Lea animacije, teksta, zvuka ,6 ntaciju multimedijskih p ja, 2h, Learning outcome h radova, 2h, Learning outcome	mes:1,2,3,4 PCX, BMP, PNG., 2h, Lear itcomes:1,2,3,4 mes:1,2,3,4 s:1,2,3,4,5,6 6 outcomes:4,5,6 mes:4,5,6 es:4,5,6 arning outcomes:4,5,6 i videa za kreiranje inter rojekata, 2h, Learning ou es:4,5,6 putcomes:4,5,6	ning outcomes:1,2,3,4 raktivnog sadraja za CD, tcomes:4,5,6	DVD i Web., 2h,		
Course content auditory	 Pregled vjebi, na rad Klasifikacija program Pregled kolokvija, 2h Obrada slike - Adobe Obrada slike - Adobe Obrada zvuka - Adobe Obrada zvuka - Adobe Osnove Animacije, 2 Pregled kolokvija II, 2 Obrada videa - Adob Obrada videa - Adob Obrada videa - Adob Snimanje materijala Montaa zavrnih rad Finalizacija zavrnih Prezentacija zavrnih 	a, upoznavanje, 2h, Lea a i raarske opreme u m a, Learning outcomes:1, Photoshop , 2h, Learni Photoshop 1, 2h, Learni e Audition , 2h, Learnin h, Learning outcomes:4 2h, Learning outcomes: 2h, Learning outcomes: e Premiere, 2h, Learnin be Premiere II, 2h, Learnin be Premiere II, 2h, Learnin ova, 2h, Learning outcome ova, 2h, Learning outcome radova II, 2h, Learning h radova studenta, 2h, I	arning outcomes:1,2,3 Jultimedijskom dizajnu., 1 2,3,4 ng outcomes:1,2,3,4 ning outcomes:1,2,3,4 g outcomes:4,5,6 ,5,6 1,2,3,4,5,6 g outcomes:4,5,6 ning outcomes:4,5,6 bing outcomes:4,5,6 se:4,5,6 outcomes:4,5,6 Learning outcomes:3,4	2h, Learning outcomes:1	L,2,3,4,5		
Required materials	Basic: classroom, black Whiteboard with marke Overhead projector Video equipment	board, chalk rrs					
Exam literature	Basic literature: 1. V. Žiljak, K. Pap, POS Izdanje: http://free-zg.h 2. V. Žiljak, TIPOGRAFIJ 655.4.92>(082).738.5 3. Foley,J and A.van Da Additional literature: 1. Foley,J and A.van Da	TSCRIPT PROGRAMIRAI Itnet.hr/kpap/ A RAČUNALOM, str. 5 d 2004. FS i Grafički fakul m:Fundamentals of Inte m, feiner, Hughes:Com	NJE GRAFIKE, FS, Zagreb, o 63 u kjizi Tiskarstvo 04, itet, elektr. izdanje: www. eractive Computer Graphi puter graphics: Principles	1998. /2004. ISBN: 953 ISBN 953-199-0190, UE grf.hr/vziljak/tiskarstvo0 ics, Addison-Wesley, 198 and Practise, second ec	- 199 - 000, elektr. 0K 655(082) , 03 32. ISBN 0-201-14468-9 dition in C, Addison-		

	Wesley, 1996. ISBN 0-201-84840-6				
Students obligations	maximum of 3 absences from exercises				
Knowledge evaluation during semester	Redovitost pohaa#15#15#0\$Kolokvij, numeri zadaci#6#20#0\$Programski zadatak#1#25#0\$Prakti rad#1#25#0\$Usmena provjera znanja#1#5#0\$Prakti ispit#1#10#0\$				
Knowledge evaluation after semester	Tasks on the computer and the oral part of the exam				
Student activities:	Aktivnost (Classes attendance) (Activity in class) (Practical work)	ECTS 1 1 2			
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Ivan Rajković				

Study programme	for academic	year 2018/2019
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Code WEB/ISVU	23601/156394	ECTS	4.	0	Academic year	2018/2019
Name	Picture, Sound and Vi	deo Processin	g		•	
Status	4th semester - IT Des	ign (Izvanredr	ni informatike) -	elective course		
Teaching mode	Lectures + exercises	(auditory + la	boratory + sem	iinar + metodology -	+ construction)	30+60 (60+0+0+0) 30
Teachers	Lectures 1 Ivan Baik	ović				
reachers	Auditory exercises: D	inka Radonić				
	Auditory exercises: Iv	an Rajković				
	Auditory exercises: V	šen Tadić stru	ıč.spec.art			
Course objectives	To transfer to student	s the basic kr	owledge relate	d to the interactive r	media which use imag	e, sound and video
Learning outcomes:	1.ability to identify th	e relations be	tween multimee	dia methods: scannir	ng, digital photograph	y, printing, sound, video
	2 ability to integrate	o multimedia to	ols Level·67			
	3.ability to distinguish	between clas	ssifications of p	rograms and comput	ter equipment in mult	imedia design. Level:6
	4.ability to design a w	ork containin	g audio and vid	eo formats. Level:6,	7	-
	5.ability to prepare th	e synchroniza	ition of sound, \	ideo and animation.	Level:6,7	
	b.ability to devise a p	resentation of	a content by u	sing multimedia tool	S. Level:0,7	
Methods of carrying	Ex cathedra teaching					
out lectures	Case studies					
	Discussion					
	Questions and answe	rs interactive pr	ninction with th	a computer Studios	theoretical structures	and uses in practice
Methods of carrying	Lectures are with the	computer sin	ulations	e computer. Studies		and uses in practice
out auditory	Group problem solvin	g	lalacions			
exercises	Data mining and know	vledge discov	ery on the Web			
	Discussion, brainstorr	ning				
	Mind mapping	olvina				
	Workshop	olving				
Course content	1., 2h, Learning outc	omes:1,2,3,4				
lectures	2. Medij slika, zvuk i v 3. Standardi slikovnih	ideo, 2h, Leai formata: CIE	ning outcomes	:1,2,3,4 BMD DNG 26 Log	rning outcomes: 1.2.3	4
	4. Osnove izrade vide	o zapisa. 2h. l	Learning outcor	, BMF, FNG., 211, Lea nes:1.2.3.4	ming outcomes.1,2,3,	+
	5.Montaa video mate	rijala, 2h, Lear	ning outcomes	:1,2,3,4		
	6.Oblikovanje scenari	ja, 2h, Learnir	ng outcomes:1,2	2,3,4,5,6		
	7.Knjiga snimanja, 2h 8. Produkcijska izvodi	, Learning out	comes:4,5,6	somos:4 5 6		
	9. Oblikovanie AV pro	iekta. 2h. Lea	rning outcomes	:4.5.6		
	10. Izrada grafih pake	ta, 2h, Learni	ng outcomes:4,	5,6		
	11.Interaktivnost mul	timedijskih ala	ata , 2h, Learnir	ng outcomes:4,5,6		
	12.Integracija grafike	, animacije, te 5.6	eksta, zvuka i vi	dea za kreiranje inte	raktivnog sadraja za ("D, DVD I Web., 2h,
	13. Platforme za prez	entaciju multi	medijskih projel	kata, 2h, Learning ou	utcomes:4,5,6	
	14.Optimiziranje AV s	uja, 2ĥ, Learn	ing outcomes:4	,5,6		
	15. Prezentacija zavri	nih radova, 2h	, Learning outc	omes:4,5,6		
Course content	1 Prealed viebi na ra		nie 26 Learnir	a outcomes:1.2.3		
auditory	2. Klasifikacija progra	ma i raarske o	preme u multir	nedijskom dizajnu. ,	2h, Learning outcome	es:1,2,3,4,5
	3. Pregled kolokvija, 2	h, Learning o	utcomes:1,2,3,4	4	-	
	4. Obrada slike - Adol	pe Photoshop	, 2h, Learning o	utcomes:1,2,3,4		
	6.Obrada zvuka - Ador	be Audition . :	1, 2n, Learning 2h. Learning ou	tcomes: 1, 2, 3, 4		
	7. Osnove Animacije,	2h, Learning	outcomes:4,5,6			
	8. Pregled kolokvija II	, 2h, Learning	outcomes:1,2,3	3,4,5,6		
	9. Obrada videa - Ado	be Premiere,	2h, Learning ou	tcomes:4,5,6		
	11. Priprema za snim	anie materijali	a, 2h, Learning	outcomes:4,5,6		
	12. Snimanje materija	ala, 2h, Learni	ng outcomes:4,	5,6		
	13. Montaa zavrnih ra	dova, 2h, Lea	rning outcomes	5:4,5,6		
	14. Finalizacija zavrni	h radova II, 2ł	n, Learning outo	comes:4,5,6		
	15. Prezentacija zavn		uenta, 211, Lear	ning outcomes:5,4		
Required materials	Basic: classroom, blac	kboard, chalk	<			
	Whiteboard with marl	kers				
	Overhead projector					
	video equipment					
Exam literature	Basic literature:					
	1. V. Žiljak, K. Pap, PC	STSCRIPT PR	OGRAMIRANJE (GRAFIKE, FS, Zagreb,	1998. /2004. ISBN: 9	53 - 199 - 000, elektr.
	Izdanje: http://free-zg	.htnet.hr/kpap	p/			
	2. V. Ziljak, TIPOGRAF		JM, str. 5 do 63	u kjizi Tiskarstvo 04	, ISBN 953-199-0190,	UDK 655(082) ,
	3. Foley.I and A.van Γ	am:Fundame	ntals of Interact	eieku. izuanje: www tive Computer Granh	ics. Addison-Wesley	1982. ISBN 0-201-14468-9
	Additional literature:			pacer ordpin	,	
	1. Foley,J and A.van D	am, feiner, H	ughes:Compute	r graphics: Principles	s and Practise, second	edition in C, Addison-

	Wesley, 1996. ISBN 0-201-84840-6			
Students obligations	maximum of 3 absences from exercises			
Knowledge evaluation during semester	Redovitost pohaa#15#15#0\$Kolokvij, numeri zadaci#6#20#0\$Programski zadatak#1#25#0\$Prakti rad#1#25#0\$Usmena provjera znanja#1#5#0\$Prakti ispit#1#10#0\$			
Knowledge evaluation after semester	Tasks on the computer and the oral part of the exam			
Student activities:	Aktivnost (Classes attendance) (Activity in class) (Practical work)	ECTS 1 1 2		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
ISVU equivalents:	200111;			
Proposal made by	Ivan Rajković			

Code WEB/ISVU	23750/170026	ECTS	3.0	Academic year	2018/2019		
Name	Practical Work		•				
Status	6th semester - Office O business (Izvanredni in	rganization and formatike) - elec	Informatization (Izvanre	edni informatike) - elective cou r - IT Design (Izvanredni inform	rse6th semester - E- natike) - elective course		
Teaching mode	Lectures + exercises (a work at home	uditory + labor	atory + seminar + meto	dology + construction)	0+90 (90+0+0+0) 0		
Teachers	Auditory exercises:1. P Auditory exercises: Mila	uditory exercises:1. Prof. dr. sc. Jana Žiljak Gršić , mag. design uditory exercises: Milan Bajić					
Course objectives	To enable students to	acquire the initi	al work experience in a t	echnical environment and pre	pare them for a career		
Learning outcomes:	1.ability to develop an 2.ability to plan tasks to 3.ability to relate the ai 4.ability to estimate sit 5.ability to anticipate th 6.ability to build a relat 7.ability o be prepared	ability to develop an attitude towards work. Level:6,7 ability to plan tasks to be performed in work time. Level:6,7 ability to relate the acquired knowledge to specific problems in workplace. Level:6,7 ability to estimate situations in which supervisors should be asked for help. Level:6,7 ability to anticipate the employer's needs. Level:6,7 ability to build a relationship with colleagues. Level:6,7 ability o be prepared for individual work in an organisation. Level:6,7					
Methods of carrying out auditory exercises	Other						
Course content	1.In cooperation with th	ne mentor, 6h, L	earning outcomes:1,2,3	,4,5,6,7			
auditory Required materials Exam literature Students obligations	2.In cooperation with th 3.In cooperation with th 4.In cooperation with th 5.In cooperation with th 6.In cooperation with th 7.In cooperation with th 9.In cooperation with th 10.In cooperation with 11.In cooperation with 13.In cooperation with 14.In cooperation with 15.In cooperation with 5.In cooperation with 15.In cooperation with	the mentor, 6h, L the mentor, 6h, the mentor, 6h,	Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2,3 Learning outcomes:1,2, Learning outcomes:1,2,	4,5,6,7 4,5,6,7 4,5,6,7 4,5,6,7 4,5,6,7 4,5,6,7 4,5,6,7 3,5	al of traineeship leader); it ents' tasks and duties are		
	is related to the study p defined by an agreeme testing and traineeship	orogramme a st nt between a st recognition are	udent is enrolled in at th udent and a mentor in a regulated by a Rule Boo	e Polytechnic of Zagreb. Stude company the traineeship is be	ents' tasks and duties are eing carried in. Work rules,		
Knowledge	Traineeship can be don	e in companies,	/institutions in Croatia or	abroad (with a written approv	al of traineeship leader); it		
evaluation during	is related to the study provide the study provid	programme a st	udent is enrolled in at th	e Polytechnic of Zagreb. Stude	ents' tasks and duties are		
Semester	testing and traineeship	recognition are	regulated by a Rule Boo	ok	ting curricu in. Work rules,		
Knowledge evaluation after semester	Traineeship can be don is related to the study p defined by an agreeme testing and traineeship	e in companies, programme a st nt between a st recognition are	/institutions in Croatia or udent is enrolled in at th udent and a mentor in a regulated by a Rule Boo	abroad (with a written approv e Polytechnic of Zagreb. Stude company the traineeship is be	al of traineeship leader); it ents' tasks and duties are eing carried in. Work rules,		
Student activities:	Aktivnost (Written exam)		EC 3	TS			
Remark	This course can not be	used for final th	esis theme				
Prerequisites:	No prerequisites.						
Proposal made by	Voditelj studija 14.02.2	014					

Code WEB/ISVU	23594/156384	ECTS	4.0	Academic year	2018/2019
Name	Probability and Statistic	S			
Status	3rd semester - Office O	rganization and Informat	ization (Izvanredni infor	matike) - elective cour	se3rd semester - E-
	business (Izvanredni inf	ormatike) - elective cou	rse3rd semester - IT Des	sign (Izvanredni informa	atike) - elective course
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	- construction)	30+30 (30+0+0+0) 60
Teachers	Lectures:1. dr.sc. Igor U Auditory exercises:dr.sc	Irbiha prof.vis.šk. c. Igor Urbiha prof.vis.šk.			
Course objectives	To introduce students to	o probabilistic way of thi	nking		
Learning outcomes:	1.ability to recognize a 2.ability to calculate pro Level:6 3.abilityto reach a conc 4.ability to organise the 5.ability to relate the no 6.identify whether a dis 7.ability to reach a conc 8.ability to reach a conc regard with normal dist 9.ability to reach a conc Ex cathedra teaching	random event, following obability according to the implementation of conc otion of independence of crete random variable h clusion about a discrete clusion about a continuor ribution . Level:6,7 clusion about the validity	a definition. Level:6,7 e traditional formula "a p roperties of the probabil litional probability. Leve an event to the solutior as an uniform, Bernoulli variable and its distribut us random variable and v of a hypothesis based o	priori" and through the ity function. Level:6,7 I:6,7 n to a problem. Level:6 or some other distribu cion, according to a def its distribution of prob on statistical tests. Lev	axiom based probability . ,7 tion. Level:6 inition. Level:6,7 ability, especially in el:6,7
out lectures	Discussion Questions and answers				
	Auditory			21	
Course content lectures	 I.Descriptive statistics: 2.Arithmetic mean, mod 3.Variance, standard de results, 2h 4.Linear regression, 2h 5.1st exam, 2h 6.Event, probability , 2r 7.Discrete random varia 8.Probability density fur discrete random variab 9.Discrete uniform distroutcomes:7 10.2nd exam, 2h, Learn 11.Continuous random 12.Normal (Gaussian) d 13.Testing a hypothesis 14.Chi squared test, 2h 15.3rd exam, 2h, Learn 	Arequency tables, histog de, median, quartile, per eviation, Chebyshev theo h, Learning outcomes:1,2 able, distribution of a dis netion, probability distrib le, 2h, Learning outcome ibution, Bernoulli trial, B hing outcomes:1,2,3,4,5, variable, 2h, Learning ou istribution, standard nor is for expectation with kno , Learning outcomes:9 ing outcomes:8,9	rram, cumulative function centile, quantile, 2h irrem, comparision of diff 2,3,4 crete random variable, 2 vution function, expectat ses6 ernoulli scheme, binomi 6 utcomes:8 mal distribution, chi squ own variance, 2h, Learn	on, 2h ferent measurement, c 2h, Learning outcomes tion, variance and stan ial distribution, Poisson lared distribution, 2h, L ing outcomes:9	omparision of different :6 dard deviation of a distribution, 2h, Learning .earning outcomes:8
Course content auditory	 Descriptive statistics: 2.Arithmetic mean, mod 3.Variance, standard de results, 2h 4.Linear regression, 2h 5.1st exam, 2h 6.Random event, proba 7.Discrete random varia 8.Probability density fur discrete random variable 9.Discrete uniform distrout outcomes:7 10.2nd exam, 2h, Learn 11.Continuous random 12.Normal (Gaussian) d 13.Testing a hypothesis 14.Chi squared test, 2h 15.3rd exam, 2h, Learn 	frequency tables, histog de, median, quartile, per eviation, Chebyshev theo bility , 2h, Learning outc able, distribution of a dis nction, probability distrib le, 2h, Learning outcome ibution, Bernoulli trial, B ning outcomes:1,2,3,4,5, variable, 2h, Learning ou istribution, standard nor 6 for expectation with kno , Learning outcomes:9 ing outcomes:8,9	ram, cumulative function centile, quantile, 2h orem, comparision of diff orete random variable, 2 oution function, expectat ernoulli scheme, binomi 6,7 utcomes:8 mal distribution, chi squ own variance, 2h, Learn	n, 2h ferent measurement, c 2h, Learning outcomes tion, variance and stan ial distribution, Poisson ared distribution, 2h, L ing outcomes:9	omparision of different :6 dard deviation of a distribution, 2h, Learning .earning outcomes:8
Required materials	Basic: classroom, black	board, chalk			
Exam literature	Basic literature: 1. S. Suljagić: Vjerojatno 2. http://tesla.vtszg.hr/s Additional literature: 1. Z.Pauše, Vjerojatnost 2. Ž. Pauše: Uvod u mat No special requirement	ost i statistika, elektronič suljagic :, Školska knjiga, Zagreb tematičku statistiku, Ško s	, 1974. Iska knjiga, Zagreb, 199)3.	
Knowledge	Exame during competer	ى			
evaluation during semester	iexams during semester				
Knowledge	There are three prelimin	nary exams (three quest	ions each), and if a stud	lent correctly	
		and chies the quest		.ce con cetty	

evaluation after semester	solved at least one problem of ea four problems of all three prelimi taking the written exam.	ach preliminary exam and correctly solved at least inary exams, it makes the student exempt from		
	A student may attempt to the ora problems in the written part of th	al part of the exam, if he has two correctly solved he exam.		
Student activities:	Aktivnost (Written exam)	ECTS 4		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Dr. Igor Urbiha			

Code WEB/ISVU	23617/156411	ECTS	3.0	Academic year	2018/2019
Name	Product Design	I	I		!
Status	4th semester - IT De	sign (Izvanredni i	nformatike) - elective cou	irse	
Teaching mode	Lectures + exercises	s (auditory + labc	vratory + seminar + meto	dology + construction)	15+30 (0+30+0+0)
	work at home				45
Teachers	Lectures:1. Vesna Ug	glješić dipl. dizajn	ier		
	Lectures: Branimir M	larkulin Grgić	dial dizainar		
Course objectives		s: vesna Ugijesic	ulpi. ulzajner	hingtion of functional structu	ral and a actuatic
Course objectives	characteristics	age about produ	ct development as a com	bination of functional, structur	rai and aesthetic
Learning outcomes:	1.analivze product d	esian from the st	andpoint of usability and	communication. Level:6	
	2.connect the factor	s and principles c	of design products. Level:6	5,7	
	3.analyze the impact	t, role, usefulness	and attractiveness of de	sign. Level:6	
	4.predict the activiti	es of product des	ign as part of company st	rategy. Level:6,7	
	5. make 2D concept	products using C	AD applications. Level:6		
	7. present the design	ed product and a	argue its usability and use	fulness, Level:6.7	
	, present the design		igue its usubility and use		
Methods of carrying	Ex cathedra teaching	g			
out lectures	Case studies	-			
	Demonstration				
	Simulations				
	Questions and answ	ers			
	Homework presentat	tion			
Methods of carrying	Laboratory exercises	s on laboratory ec	quipment		
out laboratory	Laboratory exercises	s, computer simul	lations		
exercises	Group problem solvi	ng rmina			
	Other	ming			
	Modeling; laboratory	v exercises are do	one in pairs with Mechanic	al Engineering students	
Course content	1.Introduction , 1h, l	earning outcome	es:1		
lectures	2. Design as an elem	nent of communic	ation corporate identity, l	brand identity, 1h, Learning o	utcomes:1
	3.Product usability :	ergonomic flexib	ility, technical reliability, 1	Ih, Learning outcomes:1	
	4.Product usability: a	aesthetic sensibili	ity, image consistency , 11	h, Learning outcomes:1	
	6. Principles of design	n . 1h. Learning o	utcomes:2		
	7.Principles of design	n , 1h, Learning o	utcomes:2		
	8.The impact on the	perception of dea	sign, 1h, Learning outcom	ies:3	
	9.The role of design	in the learning pr	ocess , 1h, Learning outco	omes:3	
	10. The utility of desi	gn, In, Learning	outcomes:3		
	12. Decision making	in design, 1h, Lean	arning outcomes:4.7		
	13.The organization	of design activitie	es in a company, 1h, Lear	ning outcomes:4,7	
	14.Design as a comp	onent of researc	h and development, 1h, L	earning outcomes:4,7	
	15.Management of t	he design proces	s, 1h, Learning outcomes:	:4,6	
Course content	1 Choosing and dofi	ning project topic	2h Loorning outcomosil	1.2.2.4	
laboratory	2.Topic research and	d analysis, definir	, 21, Learning outcomes.1	h. Learning outcomes:1.2.3.4	
,	3.User analysis, defi	ning target group	os, 2h, Learning outcomes	:1,2,3	
	4.Conception of poss	sible solutions , 2	h, Learning outcomes:2,3,	,4	
	5.Developing design	er solutions using) various methodologies, 2	2h, Learning outcomes:2,3,5	
	6.2D sketching, 2h, I	Learning outcome	25:5		
	8.Presentation of the	e current stage of	project . 2h. Learning ou!	tcomes:1.2.3.7	
	9.Working out the de	etails and defining	g exact dimensions with e	emphasis on ergonomics, 2h, l	_earning outcomes:1,5
	10.3D modelling of t	he product using	dedicated software, 2h, L	_earning outcomes:6	
	11.3D modelling of t	he product using	dedicated software, 2h, L	_earning outcomes:6	
	12.3D modelling of t	ne product using	dedicated software, 2h, L	earning outcomes:6	
	14.Concept and crea	ation of presentat	ion poster. 2h. Learning	outcomes:5.6.7	
	15.Student projects	presentation and	discussion , 2h, Learning	outcomes:1,2,3,7	
Required materials	Basic: classroom, bla	ackboard, chalk			
	General purpose con	nputer laboratory	'		
	Overhead projector	IKEIS			
	Special equipment				
	CAD application				
Exam literature	W. Lidwell, K. Holder	n, J. Butler: Unive	rzalna načela dizajna, Mat	te d.o.o. 2013.	
	V. Papanek: Dizajn z	a stvarni svijet, N	lakladni zavod Marko Mar	ulić, 1973.	
	N. Serić: Razvoj i diz	ajn proizvoda i up	pravljanje markom, Sveuči	ilište u Splitu, 2009.	
	I. Hauffe: Design, A	Concise History,	Laurence King, 1998.		



Students obligations	Attending classes (maximum of 3 absences in semester), done laboratory work, all project elements handed on time.			
Knowledge evaluation during semester	Submition of predefined project elements; twice a semester.			
Knowledge evaluation after semester	Submitting, presenting and defending the project. The project is scored according to the following criteria: analysis and concept 5 points conceptual and development sketches 5 points ergonomics 5 points aesthetics and visual representation 5 points presentation (portfolio + poster) 5 points			
Student activities:	AktivnostECTS(Project)1(Research)1(Classes attendance)1			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			

Code WEB/ISVU	24005/185972	ECTS	7.0	Academic year	2018/2019
Name	Programming	_			
Status	2nd semester - IT Desi	gn (Izvanredni inf	formatike) - obligatory	course2nd semester - E-busines	ss (Izvanredni informatike)
	 obligatory course2nd 	semester - Office	e Organization and Info	rmatization (Izvanredni informa	tike) - obligatory course
Teaching mode	Lectures + exercises (work at home	auditory + labora	tory + seminar + meto	odology + construction)	30+45 (0+45+0+0) 135
Teachers	Lectures:1. Bojan Noži	ca dipl. ing, v.pre	d.		
	Lectures:Prof.dr.sc. Sla	avica Cosović Baji Prof.dr.co. Slavica	Ć Ćοςονιć Βοιιć		
	Laboratory exercises:	Andor Gužvani	COSOVIC Dajic		
	Laboratory exercises:	Bojan Nožica dipl.	. ing, v.pred.		
	Laboratory exercises:	Domagoj Tuličić			
Course objectives	To transfer the knowle	dge related to pro	ogramming in C.		
Learning outcomes:	1.ability to analyse the	Possibilities of solution by using re-	olving multidimensiona	l fields in C programs. Level:6	
	3.ability to formulate a	and solve complex	k engineering problems	by means of one's own function	ons and files. Level:6.7
	4.ability to integrate th	ne option of readi	ng and writing the inpu	it/output data into files. Level:6	,7
	5.ability to identify the	possibility of usir	ng various types of file	s. Level:6	
	6.ability to create the a	access to objects	and functions by mean	is of references and pointers in	C language. Level:6,7
Methods of carrying	Ex cathedra teaching				
out lectures	Case studies				
	Discussion				
Methods of carrying	Laboratory exercises, of A student instructed k	computer simulat	ions lyod a practical oxamp	lo on computors	
exercises	A student, instructed t	by the teacher, so	iveu a practical examp	le on computers.	
Course content	1, 2h, Learning outco	mes:2,3			
lectures	2, 2h, Learning outco	mes:1,2,3,4,5,6			
	3, 2h, Learning outco	mes:1			
	4, 2h, Learning outco	mes:1,2,3			
	6 2h. Learning outco	mes:1.2.3.6			
	7, 2h, Learning outco	mes:3			
	8, 2h, Learning outco	mes:3			
	9, 2h, Learning outco	mes:4,5			
	10, 2n, Learning outc	omes:3,4,5			
	12, 2h, Learning outc	comes:3,4,5			
	13, 2h, Learning outc	omes:3,4,5			
	14, 2h, Learning outc	omes:3,4,5,6			
	15, 2n, Learning outc	omes:3,4,5,6			
Course content	1 2h. Learning outco	mes:1			
laboratory	2, 2h, Learning outco	mes:1			
	3, 2h, Learning outco	mes:1			
	4, 2h, Learning outco	mes:1,3			
	6 2h. Learning outco	mes:1,2,3,6			
	7, 2h, Learning outco	mes:4			
	8, 2h, Learning outco	mes:4			
	9, 2h, Learning outco	mes:4,5			
	10, 2n, Learning outc	omes:3,4,5			
	12, 2h, Learning outc	comes:3,4,5			
	13, 2h, Learning outc	omes:3,4,5			
	14, 2h, Learning outc	omes:3,4,5,6			
	15, 2ff, Learning outc	omes:5,4,5,0			
Required materials	General purpose comp	outer laboratory			
	Whiteboard with mark	ers			
	Overhead projector				
Evan literature	A student, instructed b	by the teacher, so	lved a practical examp	le on computers.	
Exam interature	1. M. Slamić: Elektroni	čki sadržaji preda	vania (PPT prezentacije	e) na web stranici predmeta na	Tehničkom veleučilištu u
	Zagrebu, 2012., www.	tvz.hr.			
	2. S.Ćosović Bajić, G.T	rutanić PROGRAM	IIRANJE u .C-u i vježbe ,	. Udžbenik u pripremi , radni ma	aterijal nalazi se na WEB
	stranici odjela, www.tv	/z.hr			
	Additional literature:	rihar Demistificira	ni C++ treće dopunier	no izdanje m Zagreb. Element	2010
	4. Nina Liipliin. Program	miranje 1, FOI Var	raždin i TIVA Tiskara Va	iraždin, 2004.	2010.
	5. Kernighan B. W., Rit	chie D. M., The C	Programming Languag	je.	
	6. Zeljko Kovačević, C-	++ Analiza i primj	jena, Školska knjiga, 20	004	
Studente obligations	Lactures are required	To obtain the size	natures must be at 700	6 of loctures	
Students obligations	Exercises are mandate	orv. TO OBTAIN SIG	GNATURE IS REOURE	% OF RECLURES.	ise.

	If a student has not done the preparation can not access to the quiz test.				
Knowledge	first mid-term (colloquium): max. 30 points				
evaluation during	second mid-term (colloquium: max. 30 points				
semester	laboratory exercises: max. 40 points.				
	Each exercise is scored with 10 points				
	2 points input quiz test				
	5 credits for programming task				
	3 points output quiz test				
	evaluation:				
	90.01 to 100.00 points: excellent (5)?				
	80.01-90.00 points: very good (4)?				
	70.01-80.00 points: good (3)?				
	60.00-70.00 points: sufficient (2)				
Knowledge	A student who is not satisfied with the assessment that was acquired during the semester can write exams at other				
evaluation after	examination periods (whole material), while recognizing the points from exercises.				
semester	Take the exam, all students who are eligible for signatures, which are not gathered enough points during the semester. On examination periods writes the whole subject matter, and they can get max 60 points that add up points from the exercises (max 40 points).				
	evaluation:				
	90.01 to 100.00 points: excellent (5)?				
	80.01-90.00 points: very good (4)?				
	70.01-80.00 points: good (3)?				
	60.00-70.00 points: sufficient (2)				
Student activities:	Aktivnost ECTS				
	(Written exam) 7				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
ISVU equivalents:	143185;155793;				

Code WEB/IS//II	24003/185070	ECTS	6.0	Academic year	2018/2010	
Name	Programming basics	ECIS	0.0	Academic year	2010/2019	
Status	1st semester - IT Design	(Izvanredni informatike) - obligatory course1st	somestor - E-husiness (I	zvanredni informatike) .	
Status	obligatory course1st semester - Office Organization and Informatization (Izvanredni informatike) - obligatory course					
Teaching mode	Lectures + exercises (au work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+45 (0+45+0+0) 105	
Teachers	Lectures:1. Bojan Nožica dipl. ing, v.pred. Laboratory exercises: Andor Gužvanj Laboratory exercises: Bojan Nožica dipl. ing, v.pred. Laboratory exercises: Domagoj Tuličić					
Course objectives	To transfer to students t	the basic knowledge rela	ted to programming in	Python		
Learning outcomes:	1.ability to formulate ba 2.ability to identify basic 3.ability to create the ba 4.ability to compare the 5.ability to develop simp	isic algorithms by means c elements. Level:6 asic structure of a progra efficiencies of different ole programming solutio	s of a pseudo code, a flo am. Level:6,7 selection conditions and ns related to engineerin	wchart. Level:6,7 J loops in a program. Lev g implementation. Level	vel:6,7 :6,7	
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answers Homework presentation					
Methods of carrying out laboratory exercises	Laboratory exercises on Group problem solving	laboratory equipment				
Course content lectures	1.Introduction, problem 2.Data types., 1h, Learn 3.Variable types, arithm 4.Python basic syntax. I 5.Python basic syntax, c 6.Loops., 1h, Learning o 7.Nested loops., 1h, Lea 8.Functions. Built-in fung 9.User defined functions 10.Tuples, strings and b 11.Lists, dictionary., 1h, 12.Files I/O., 1h, Learnin 13.Advanced programm 4.Eratosthenes sieve a 15.Sorting algorithms., 2	solving, algorithms, pse ing outcomes:1 netic expressions, operat nput and output function decision making., 1h, Lea utcomes:2,3 irrning outcomes:3,4 ctions. Modules., 1h, Learning uilt-in functions., 1h, Learning outcomes:4,5 ing outcomes:4,5 ing., 1h, Learning outcomes:3 lagorithm., 1h, Learning outcomes:3 h, Learning outcomes:3	udo code and flowcharts ors., 1h, Learning outcom arning outcomes:2,3 rrning outcomes:3,4 outcomes:3,4 arning outcomes:3,4,5 mes:4,5 putcomes:3,4,5 ,4,5	s., 1h, Learning outcome mes:1,2 nes:2,3	25:1	
Course content laboratory	1. Working with IDLE., 2f 2. Data types., 2h, Learn 3. Variable types, arithm 4. Basic programming. D 5. Decision making., 2h, 6. Loops., 2h, Learning o 7. First midterm., 2h 8. Built-in functions., 2h, 9. User defined functions 10. Strings., 2h, Learnin 11. Lists. Dictionary., 2h, 12. Files I/O., 2h, Learnin 13. Practice., 2h, Learnin 14. Second midterm., 2h 15. Extra term., 2h	n, Learning outcomes:1,2,3,4,5 ing outcomes:1,2,3,4,5 betic expressions, operat bebugging., 2h, Learning Learning outcomes:1,2,5 utcomes:1,4,5 Learning outcomes:3,4 s., 2h, Learning outcome g outcomes:3,4,5 , Learning outcomes:4,5 ig outcomes:4,5	2,3,4,5 ors., 2h, Learning outco outcomes:1,2,3,4,5 3,4,5 s:3,4	mes:1,2,3,4,5		

Required materials	Basic: classroom, blackboard, chalk
	Whiteboard with markers
	Overhead projector
Exam literature	Basic literature: 1. L. Budin, P. Brođanac, Z. Markučič, S. Perić: Rješavanje problema programiranjem u Pythonu. Element, 2014. 2. L. Budin, P. Brođanac, Z. Markučič, S. Perić: Napredno rješavanje problema programiranjem u Pythonu. Element, 2014.
Students obligations	Lectures are required. To obtain the signatures must be at 70% of lectures. Exercises are mandatory. TO OBTAIN SIGNATURE IS REQUIRED TO PARTICIPATE IN 80% exercise.
Knowledge evaluation during semester	first midterm second midterm laboratory exercises

Knowledge evaluation after semester	A student who is not satisfied with the assessment that was acquired during the semester can write exams at other examination periods (whole material), while recognizing the points from exercises. Take the exam, all students who are eligible for signatures, which are not gathered enough points during the semester. On examination periods writes the whole subject matter.		
Student activities:	Aktivnost (Written exam)	ECTS 6	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		
ISVU equivalents:	143168;155792;		

Code WEB/ISVU	23624/156422	ECTS	3.0	Academic year	2018/2019
Name	Project Programming	-			-
Status	4th semester - Office C	rganization and Inform	atization (Izvanredni info	rmatike) - obligatory c	ourse4th semester - E-
	business (Izvanredni in	formatike) - obligatory	course		
Teaching mode	Lectures + exercises (a	auditory + laboratory +	seminar + metodology -	+ construction)	15+15 (0+15+0+0)
Teachers	Lectures:1 Mia Čaraniu	na dinl ing pred			00
reachers	Lectures: Vesna Uglješ	ić dipl. dizajner			
	Laboratory exercises: N	∙lia Čarapina dipl. ing.,	pred.		
Course objectives	This course teaches stu	udents fundamentals of	project software develop	oment.	
Learning outcomes:	1.ability to identify diffe	erent phases of project	life cycle. Level:6		
	2.ability to isolate user	requirements. Level:6	on ucor requiremente L		
	4 ability to develop a s	offware solution in team	n level 6 7	vel.0,7	
	5.ability to adopt good	programming practices	s. Level:6,7		
	6.ability to make softw	are documentation. Lev	/el:6,7		
Methods of carrying	Ex cathedra teaching				
outlectures	Case studies				
	Discussion				
	Questions and answers	; 			
	Seminar, students pres	sentation and discussion	1		
Methods of carrying	Laboratory exercises o	n laboratory equipment			
out laboratory	Group problem solving				
exercises	Discussion, brainstorm	ing			
	interactive problem sol	ving			
Course content	1.Introduction 1h. Lea	arning outcomes:1			
lectures	2.Project cycle., 1h, Lea	arning outcomes:1			
	3.The software process	models., 1h, Learning	outcomes:1		
	4. I ools for group collab	poration., 1h, Learning outo	outcomes:3,4		
	6.Requirements model	ing., 11, Learning outco	omes:2.3		
	7.Organisation and ma	nagement of project ta	sks., 1h, Learning outcon	nes:2,3	
	8.Organisation and ma	nagement of project ta	sks. Comunication with th	ne client., 1h, Learning	outcomes:2,3
	9.Design within the cor	itext of software engine	ering., 1h, Learning out	comes:3	
	11.Tools for revision cc	ontrol and source code	management 1h. Learn	ing outcomes:3.4	
	12.Software developme	ent. Coding techniques	and programming practi	ces., 1h, Learning outc	omes:3,4,5
	13.Project documentat	ion. Document structur	ing and formating., 1h, L	earning outcomes:6	
	14.Quality managemer	it., 1h, Learning outcomes	1es:3,5		
	15.50rtware testing., 1	n, Leanning outcomes.5	,0		
Course content	1.Preparations for the p	project assignment., 1h	, Learning outcomes:1		
laboratory	2.Tools for group collab	poration., 1h, Learning	outcomes:4,5		
	3.Requirements gather	ing., 1h, Learning outco	omes:2,3		
	5.Organisation and ma	nagement of project ta	sks., 1h. Learning outcon	nes:2.3	
	6.Design within the cor	ntext of software engine	ering., 1h, Learning out	comes:3	
	7.Design within the cor	itext of software engine	eering., 1h, Learning out	comes:3	
	8.1001s for revision con	itrol and source code m	anagement. , 1h, Learnir	ig outcomes:3,4	
	10.Tools for revision co	ontrol and source code in	management 1h. Learn	ing outcomes:3.4	
	11.Software developme	ent., 1h, Learning outco	omes:3,4,5	5	
	12.Software developme	ent., 1h, Learning outco	mes:3,4,5		
	13.Software developme	ent., In, Learning outco	mes:3,4,5		
	15.Project documentat	ion., 1h, Learning outco	mes:6		
Required materials	Basic: classroom, black	board, chalk			
	General purpose comp	uter laboratory			
	Overhead projector	315			
	Tools				
Exam literature	Preporučena:				
	1) Prezentacije s preda 2) Agile Project Manag	vanja objavljene na stra	anicama kolegija hn Carroll: In Easy Stens	Limited: 2015: ISBN: 0	78-18/0786/15
	3) Software engineerin	g: A Practitioners Appro	ach; Roger S. Pressman;	McGraw-Hill Science;	2009; ISBN:
	978-0071267823				
	4) Software engineerin	g; Ian Sommerville; Pea	irson; 2015; ISBN: 978-0	133943030	
	6) Clean Code: A Hand	book of Agile Software	Craftsmanshin [,] Robert C	Martin: Prentice Hall:	2008· ISBN·
	978-0132350884	Sook of Agric Solewale	e. arcomanomp, Nobert C.	. arein, i renace nall, i	
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	7) Version Control with Git: Powerful tools and techniques for collaborative software development; Jon Loeliger, Matthew McCullough; 2012; ISBN: 978-1449316389 8) Git Essentials: Ferdinando Santacroce: 2015: ISBN: 978-1785287909				
Students obligations	Active presence on the exercises and presentation of given assignment.				
Knowledge evaluation during semester	 Written paper or presentation. During the semester the student is monitored through the presentation of tasks in laboratory and teamwork project. The final grade is based on the quality of completed individual and team tasks through the semester. 				
Knowledge evaluation after semester	Theoretical questionnaires. The work during the semester (if any) is not calculated into the final grade.				
Student activities:	Aktivnost ECTS (Written exam) 3				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Mia Čarapina, dipl. inž.				

Study programme	for academic year	2018/2019
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Name Reproductorgapity Status Stratus Stratus Stratus Status Stratus Stratus <td< th=""><th>Code WEB/ISVU</th><th>23744/170020</th><th>ECTS</th><th>5.0</th><th>Academic year</th><th>2018/2019</th></td<>	Code WEB/ISVU	23744/170020	ECTS	5.0	Academic year	2018/2019
Status Status Status B0+15 (0+15+0+0) Teaching mode Lectures - versities (subtory - theorem) + section at motodogy + construction) B0+15 (0+15+0+0) Teachers Lectures: 1, Adexandra Bernadek Petrinec Execures: 1, Adexandra Bernadek Petrinec Caurse objectives Th transfer to students the basic browledge related to light, optics, photocemical processes, photography and tepportage related to light, optics, photocemical processes, photography and Executives: 1, Analyse stages of analyse intervention (Levels 0, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,	Name	Reprophotography				
Teaching mode Lectures - exercises loading + lobratory + seminar + metodology + construction Doi:10.10.15.01.15.01.01.01.01.01.01.01.01.01.01.01.01.01.	Status	5th semester - IT Desig	ın (Izvanredni informatik	ce) - obligatory course		
Teachers Laboratory Laboratory eventses Laboratory eventses Learning outcomes:1,3 Laboratory eventses Learning outcomes:1,3 Learning outcomes:1,3 <thlearning outcomes:3,1<="" th=""> Learning outcomes:</thlearning>	Teaching mode	Lectures + exercises (a	auditory + laboratory +	seminar + metodology ·	+ construction)	30+15 (0+15+0+0)
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S.Integration of raster systems. Level 6,7 6.Plan and implement process from idea to finished product (photo). Level 6,7 Methods of carrying out lectures Ex cathedra teaching Case studies Ouestions and answers Seminar, students presentation and discussion Other Methods of carrying out laboratory exercises Laboratory exercises on laboratory equipment Laboratory exercises, computer simulations Group problem solving orrow-sing of themes practical exercises beside the use photo equipment. lightings and processing photo material. Course content lectures Liboratory exercises. Comming outcomes: 3, 5. Colors mixing, 2n, Learning outcomes: 3, 6. Color management system basics, 2n, Learning outcomes: 3 5. Colors mixing, 2n, Learning outcomes: 3, 6. Color management system basics, 2n, Learning outcomes: 3, 5. Colors mixing, 2n, Learning outcomes: 2, 6 11. Diput devices, 2n, Learning outcomes: 2, 6 12. Dubpidal image manipulations, 3n, Learning outcomes: 2, 6 13. Devices of measuring outpromes: 2, 6 14. Device calibration and characterization, 2n, Learning outcomes: 5 14. Device calibration and characterization, 2n, Learning outcomes: 5 14. Device calibration and characterization, 2n, Learning outcomes: 6 15. Sectores for measuring outpromes: 7 15. Sectore backs and white photos storage, 2n, Learning outcomes: 7 15. Sectore backs and white photos storage, 2n, Learning outcomes: 8 2. Screene black and white photos shortage, 2n, Learning outcomes: 2 5. Photographic studie: photos shortage, 2n, Learning outcomes: 4 2. Color france outputs of an exercise output of output boost, 2n, Learning outcomes: 3 3. Screene black and white photos shortage, 2n, 2n, 4n,		4.Distinguish quality co	ontrol devices. Level:6			
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Special equipment Special equipment: Color Management Fraser B, Murphy C, Peachpit Press Berkeley CA 2005 Color Primer: Color rimer: Introduction to history of color, color theory and color measurement, Buntine B, Light Source Corp Images Xrite 1998 Colormetry Fundamentals and Applications, Ohta N, Robertson A, John Willey ITST, 2005 Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending,laboratory exercises and colloquiums.		Special purpose compu	iter laboratory			
Special equipment: Optical measurement equipment systems; Exam literature Color Management Fraser B, Murphy C, Peachpit Press Berkeley CA 2005 Color Primer: Introduction to history of color, color theory and color measurement, Buntine B, Light Source Corp Images Xrite 1998 Colorimetry Fundamentals and Applications, Ohta N, Robertson A, John Willey ITST, 2005 Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending,laboratory exercises and colloquiums.		Special equipment				
Exam literature Color Management Fraser B, Murphy C, Peachpit Press Berkeley CA 2005 Color Primer: Introduction to history of color, color theory and color measurement, Buntine B, Light Source Corp Images Xrite 1998 Colorimetry Fundamentals and Applications, Ohta N, Robertson A, John Willey ITST, 2005 Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending,laboratory exercises and colloquiums.		Special equipment: Op	tical measurement equip	pment systems;		
Color Primer: Introduction to history of color, color theory and color measurement, Buntine B, Light Source Corp Images Xrite 1998 Colorimetry Fundamentals and Applications, Ohta N, Robertson A, John Willey ITST, 2005 Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending,laboratory exercises and colloquiums.	Exam literature	Color Management Fra	ser B, Murphy C, Peachp	it Press Berkeley CA 20	05	
Colorimetry Fundamentals and Applications, Ohta N, Robertson A, John Willey ITST, 2005 Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending,laboratory exercises and colloquiums.		Color Primer: Introduct	ion to history of color, co	olor theory and color me	asurement, Buntine B, L	ight Source Corp Images,
Digital ColorReproduction, Wandel, B, Elsevier Publishing 2003 Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending, laboratory exercises and colloquiums.		Colorimetry Fundamen	Itals and Applications, O	hta N. Robertson A. Johr) Willey ITST, 2005	
Digital Color Imaging Handbook edited by Gaurav Sharma Xerox Corporation Webster, New York CRC PRESS Boca Raton, London New York Washington, D.C. 2003 by CRC Press LLC Students obligations Lecture attending, laboratory exercises and colloquiums.		Digital ColorReproducti	ion, Wandel, B, Elsevier	Publishing 2003	., .,	
Students obligations Lecture attending, laboratory exercises and colloquiums.		Digital Color Imaging H	landbook edited by Gau	rav Sharma Xerox Corpo	oration Webster, New Yo	rk CRC PRESS Boca
Students obligations Lecture attending, laboratory exercises and colloquiums.		Raton, London New Tor	rk washington, D.C. 200	5 by CRC Pless LLC		
	Students obligations	Lecture attending, labo	ratory exercises and col	loquiums.		



Knowledge evaluation during semester	Mid-term and final exam.					
Knowledge evaluation after semester	Oral and written exam					
Student activities:	Aktivnost	ECTS				
	(Activity in class)	1				
	(Practical work)	1				
	(Classes attendance)	1				
	(Oral exam)	1				
	(Written exam)	1				
Remark	This course can be used for final thesis theme					
Prerequisites:	No prerequisites.					
ISVU equivalents:	200103;					
Proposal made by	Aleksandra Bernašek Petrinec, lecturer					

Study programme	for academic year	2018/2019
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Code WEB/ISVU	23619/156413	ECTS	5.0	Academic year	2018/2019	
Name	Social Networks					
Status	3rd semester - E-busine	ess (Izvanredni informati	ke) - obligatory course			
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology -	+ construction)	30+30 (0+30+0+0) 90	
Teachers	Lectures:1. Doc. dr. sc. Laboratory exercises:m	Lidija Tepeš Golubić v. p nag.oec Kristina Perec	ored.		-	
	Laboratory exercises: \	/ida Senci				
Course objectives	Critical thinking and int	erdisciplinary problem/s	ituation approach			
Learning outcomes:	1.Suggest eventual sol 2.Connect different (so 3.Analyze the effect of 4.Present current situa 5.Evaluate possible fut	ution. Level:6,7 cial) situations and apply social networking. Level tion/problem. Level:6,7 ure trends. Level:7	/ the same. Level:6,7 :6			
Methods of carrying out lectures	Ex cathedra teaching Case studies Discussion Questions and answers Seminar, students pres Homework presentation	s entation and discussion n				
Methods of carrying out laboratory exercises	Group problem solving Data mining and knowl Essay writing Discussion, brainstorm Workshop	edge discovery on the W	/eb			
Course content lectures	1.Introductory lecture, 2.Culture and society, 2 3.The term of sociology 4.Social networking, 2h 5.Intercultural compete 6.Student homeworks, 7.Colloquium 1, 2h, Lear 8.Human computer inte 9.New media, 2h, Lear 10.Media and technoloo 11.Education and new 12.Facebook effekt, 2h 13.Social media marke 14.Student homeworks 15.Colloquium 2, 2h, Lear	2h, Learning outcomes:1 2h, Learning outcomes:2 7, 2h, Learning outcomes:3,5 ence, 2h, Learning outcomes:1,2 7, 2h, Learning outcomes:1,2,3,4, eraction, 2h, Learning out hing outcomes:2,4 gie in education, 2h, Lear communication technolo , Learning outcomes:1,2, ting, 2h, Learning outcomes earning outcomes:1,2,3,4	.,5 ,4 ::3,4 mes:3,4 L,2,3,4,5 5 tcomes:1,3,4 rning outcomes:2,3 gies, 2h, Learning outco 3,5 nes:1,2,3,4,5 :1,2,5 4,5	omes:1,2,3,4,5		
Course content laboratory	1.Introductory lecture, 2.The term of sociology 3.Culture and society, 2 4.Social networking, 2h 5.Intercultural compete 6.Student homework, 2 7.Colloquium 1, 2h, Lear 9.New media, 2h, Learn 10.Media and technoloo 11.Education and new 12.Facebook effect, 2h 13.Social media marke 14.Student homework, 15.Colloquium 2, 2h, Learn	2h, Learning outcomes:1 7, 2h, Learning outcomes:3 2h, Learning outcomes:3 2h, Learning outcomes:3 2h, Learning outcomes:1, 2h, Learning outcomes:1,2,3,4, 2h, Learning outcomes:2,4 gie in education, 2h, Learning out 2h, Learning outcomes:2,4 gie in education, 2h, Lear communication technolo 1, Learning outcomes:1,2,2 2h, Learning outcomes:2,4 2h, Learning o	::2,4 mes:3,4 2,3,4,5 5 tcomes:4,5 rning outcomes:1,2,4 gies, 2h, Learning outco 3,5 nes:2,3,4 1,2,3,4,5 4,5	omes:1,2,4		
Required materials	Basic: classroom, black General purpose comp Whiteboard with marke Overhead projector	board, chalk uter laboratory ers				
Exam literature	Kirkpatrick D.: Faceboo Jarvis J.: Što bi napravio	k efekt, 2012. o Google, 2009.				
Students obligations	Classes, homework					
Knowledge evaluation during semester	Colloquium 1 and 2					
Knowledge evaluation after semester	Exam					
Student activities:	Aktivnost (Activity in class)		ECTS 1			



Zagreb University of Applied Sciences

	(Written exam)	1
	(Written exam)	1
	(Oral exam)	1
	(Report)	1
Remark	This course can be used for final thesis theme	
Prerequisites:	No prerequisites.	
Proposal made by	PhD. Lidija Tepeš Golubić, senior lecturer, 08.06.2015	

	22629/156600	ECTS	4.0	Acadomic yoar	2019/2010		
Name	Societechnical appress	hes to the study of lefe	rmation Systems	Academic year	2010/2019		
Name	Sociotechnical approaches to the study of information Systems						
Status Tarahing mada	4th semester - E-busine	ess (Izvanredni Informa	tike) - obligatory course				
leaching mode	vork at home	iuditory + laboratory +	seminar + metodology	+ construction)	90		
Teachers	Lectures:1. mr.sc. Serg	ej Lugović MBA					
Course objectives	To transfer to students systems in companies	the basic knowledge re	elated to the functionality	y and implementation o	of the PDM and ERP		
Learning outcomes:	1.ability to devise a rolu 2.ability to check the in 3.ability to test the bas 4.ability to create the u 5.ability to standardize 6.ability to estimate the	e of technical informati tegration with CAD sys- ic functionality of ERP ser ser forms, faceplates a the PDM and the ERP se functionality of a tech	on systems in a company stems. Level:6 systems. Level:6 and lookup tables. Level:6 systems. Level:6,7 anical information system	y. Level:6 6,7 1. Level:6,7			
out lectures	Guest lecturer Case studies						
Course content lectures	1.Role of a technical int 2.Introduction to the wi 3.Information retrieval 4.The basic functionalit of products and docum 5.The basic functionalit 6.Additional functionalit libraries, knowledge ma fabrication, engineering 7.The basic functionalit outcomes:3,5 8.The basic functionalit analysis, integration wi 9.The introduction of te outcomes:6 10.Resource planning, management., 1h, Lear 11.E-business and virtu 12.The concepts and ai 13.Methods and tools t 14.Usage of new compu- 15.The integration of th	formation system in a corking environment of and information carrier y of PDM system: prod ents through a lifetime y of PDM system: work ty of PDM systems: intra anagement in the prod g change management y of ERP systems: enter y of ERP systems: cust th PDM systems., 1h, L chnical information system production. Implement ning outcomes:6 al company., 1h, Learning o support virtual busing uter technologies for due engineering applicat	company. The basic term PDM systems. Creating a 's. View to the holders of uct structure and informa ., 1h, Learning outcomes flow manager, project m egration with CAD system uct development process ., 1h, Learning outcomes ., 1h, Learning outcom efinition of the virtual con ions. The integration of the	IS. PDM. ERP. , 1h, Learn project., 1h, Learning of information, 1h, Learni ation related to it, the n ::2,5 anager., 1h, Learning of ns, standardization of c s, manage product conf ::2,5 , production management gement, supply chain m Needs and development ormation systems in a c nes:4 mpany infrastructure., 1 pusiness partners, 1h, L	ning outcomes:1 putcomes:1 ng outcomes:1 nanagement components outcomes:2,5 omponents and production igurations, component ent., 1h, Learning nanagement, business t strategies., 1h, Learning company, Client		
Required materials	Basic: classroom, black Overhead projector Lectures theoretical ex	board, chalk planations illustrated w	ith real case studies.				
Exam literature	Basic literature: 1. www.cadlab.fsb.hr Additional literature: 1. J. Duhovnik; J. Tavča maximum of 3 absence	r:Elektronsko poslovanj s from exercises	e in tehnični informacijsl	ki sistemi; LECAD, Unive	erza v Ljubljani; 2000.		
		#2#100#0#Valalas	orijeka nitania#2#100#	-O¢			
evaluation during	Kolokvij, numen zadaci	#2#100#0\$K0l0KVIJ, 0	eorijska pitarija#2#100#	.0\$			
Knowledge evaluation after semester	Written exams and stud	dent project.					
Student activities:	Aktivnost (Written exam)		ECTS 4				
Remark	This course can be use	d for final thesis theme					
Prerequisites:	No prerequisites.						
Proposal made by	Droian Marjanović						

Code WEB/ISVU	23629/156601	ECTS	4.0	Academic year	2018/2019
Name	Sound Production				
Status	4th semester - IT Desi	gn (Izvanredni ir	nformatike) - elective co	urse	
Teaching mode	Lectures + exercises (work at home	(auditory + labo	ratory + seminar + meto	odology + construction)	30+45 (0+30+15+0) 45
Teachers	Lectures:1. Milan Bajić Laboratory exercises:	ś Milan Bajić			
Course objectives	Students will be able t multimedia project.	o independently	<pre>/ perform the production</pre>	of sound as an independent e	lement or part of a
Learning outcomes:	1.Identify basics of sou 2.Identify most freque 3.Understand best pra 4.Apply theoretical kn 5. Plan and execute pr	und production. ently used equip actice in sound p owledge on proj	Level:6 ment for sound recording production . Level:6,7 ect work. Level:6,7	g and editing. Level:6	
	6.Plan and cooperate	in team work. In	dividual project work. Le	evel:6,7	
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Demonstration Discussion Questions and answer Homework presentation	rs on			
Methods of carrying out laboratory exercises	Laboratory exercises of Laboratory exercises, Group problem solving Traditional literature a Data mining and know Discussion, brainstorn Interactive problem so Workshop	on laboratory eq computer simuli g analysis vledge discovery ning olving	uipment ations / on the Web		
Methods of carrying out seminars	Group problem solving Traditional literature a Data mining and know Essay writing Mind mapping Workshop	j inalysis vledge discovery	' on the Web		
Course content lectures	1.Course introduction, 2.introduction to soun 3.digital audio worksta 4.studio environment, 5.microphones, 2h, Le 6.audio console, 2h, L 7.digital audio editing, 8.Mid term exam, 2h, 9.audio formats and a 10.studio recording, 2 11.on location recordi 12.sound production f 13.internet radio and 14.sound production a 15.Final exam, 2h, Lea	2h, Learning ou d production, 2h ation, 2h, Learning 2h, Learning ou arning outcome earning outcome , 2h, Learning out Learning outcom rchive, 2h, Learning out h, Learning outco ng, 2h, Learning or video, 2h, Lea audio streaming at concert and cc arning outcomes	itcomes:1 n, Learning outcomes:1 ng outcomes:1 itcomes:2 s:2 es:2 utcomes:2,3,4 nes:1,2 ning outcomes:3 comes:2,3,4,5,6 outcomes:2,3,4,5,6 arning outcomes:2,3,4,5,6 arning	,6 ::4,5 outcomes:4,5	
Course content laboratory	1.Lab introduction, 2h 2.Hands on with photo 3.Hands on studio equ 4.Stduio light, 2h, Lea 5.Project research, 2h 6.Studio photography, 7.Documentary photo 8.Individual studio wo 9.Individual studio wo 10.Individual studio wo 11.Individual studio wo 12.Individual work, 2h 13.Individual work, 2h 14.Individual work, 2h	, Learning outco equipment, 2h, Jipment and acc rning outcomes: , Learning outco , 2h, Learning ou graphy, 2h, Lear rk, 2h, Learning rk, 2h, Learning rk, 2h, Learning rk, 2h, Learning t, 2h, Learning outco , Learning outco , Learning outco , Learning outco , Learning outco	mes:1 , Learning outcomes:1,2 essoires, 2h, Learning ou :2,3 imes:1 itcomes:1,2,3,4,5 outcomes:1,2,3,4,5 g outcomes:1,2,3,4,5 g outcomes:1,2,3,4,5,6 outcomes:1,2,3,4,5,6 imes:1,2,3,4,5,6 imes:1,2,3,4,5,6 in, Learning outcomes:1,2	,3 utcomes:1,2,3	
Course content seminars	1. , 2h 2. , 2h 3. , 2h 4. , 2h				

	5., 2h 6., 2h 7., 2h 8., 2h 9., 2h 10., 2h 11., 2h 12., 2h 13., 2h 14., 2h 15., 2h
Required materials	Basic: classroom, blackboard, chalk Special purpose laboratory Special purpose computer laboratory Whiteboard with markers Overhead projector Video equipment
Exam literature	Audio production worktext: concepts, techniques, and equipment / David E. Reese, Lynne S. Gross, Brian Gross.
Students obligations	50 % attendance with the active participation and timely execution of the set of obligations related to the practical work Regular attendance (15 checks) Practical work (1 check)
Knowledge evaluation during semester	mid term exam final exam
Knowledge evaluation after semester	Oral exam: Attendance - 10 % (a criterion for the passage of 80 %) Theoretical exam - 50 % (a criterion for the passage of 50 %) Practical work - 40 % (a criterion for the passage of 80 %)
Student activities:	AktivnostECTS(Classes attendance)1(Written exam)1(Project)2
Remark	This course can be used for final thesis theme
Prerequisites:	No prerequisites.
Proposal made by	Milan Bajic

Code WEB/ISVU	23597/156389	ECTS	3.0	Academic year	2018/2019
Name	Spreadsheets				
Status	4th semester - Office C	organization and Informa	tization (Izvanredni infor	matike) - obligatory cou	se
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	seminar + metodology +	construction)	15+30 (30+0+0+0)
	work at home	-			45
Teachers	Lectures:2. Danijela Po	ngrac , prof.			
	Auditory exercises: Dai	nijela Pongrac – prof			
Course objectives	To transfer to students	the advanced level of k	nowledge related to spre	adsheets	
Learning outcomes:	1.ability to perform var	rious types of table calcu	lations. Level:6		
	2.ability to design vario	ous forms of tables to sin	nplify presentations. Leve	el:6,7	
	3.ability to analyze and	relate data in tables to	data from external sourc	es (other programs). Le	vel:6
	4.ability to compile a p	roposal / solution in the i	table for the presented p	roblem. Level:6,7	
	6.ability to organize lar	rge amounts of data in ta	bles, according to prede	fined criteria. Level:6.7	
	7.ability to understand	the meaning of a widesp	pread use of spreadsheet	s in business environme	nt. Level:6,7
	8.ability to prepare the	BI analysis according to	the given conditions on	the table data. Level:6,7	1
Methods of carrying	Ex cathedra teaching				
outliectures	Demonstration				
	Simulations				
	Discussion				
	Questions and answers	sontation and discussion			
	Course materials are e	xposed by the use of tec	hnologies for the structu	ral visual presentation fo	or elements and
	interaction of electroni	c business systems. Drav	wings to analyze and exp	lain key relations and co	prresponding
	technological solutions	is done. Beside the boar	d the notebook compute	r and LCD projector are	used.
Methods of carrying	Laboratory exercises o	n laboratory equipment			
out auditory	Group problem solving	lving			
exercises	interactive problem sol	iving			
Course content	1.Introduction, History	overview, Spreadsheet o	lefinition, Spreadsheet a	rea appliance, Overview	of spreadsheet
lectures	interface, AutoFit, Auto	Fill, Paste Special, 1h, Le	earning outcomes:7		
	2.Workbook and Works	heet - linking and protec	ting, Number format - co	ding and custumizing, F	ormula elements,
	Formula operator, Fund	ction snytax and argume	nts, Reference types in f	ormula,Formula Autocon	nplete, Using names to
	3.Using names to work	with range. Insert table	and Subtotal function. Lo	ogical and Information F	unction, Lookup and
	Reference Function, Ac	Ivanced Statistical Funct	ion SUM, COUNT and AVE	ERAGE, Financial Functio	n, 1h, Learning
	outcomes:1,4,7				
	4.Database function, A	dvanced filtering, Text F	unctions, Array Formulas	, MegaFormulas, Array (onstant and Array
	5.MegaFormulas. Data	Validation, Graphic Pres	entation. Outline view an	d Subtotal. Advanced So	orting, 1h. Learning
	outcomes:2,3,4,7				
	6.Data Connection, Piv	ot table, , 1h, Learning o	utcomes:2,3,4,6,7		
	7.External data connec	tion, Linking and consoli	dating worksheets, Cond	itional formating, Web C	uery, Sparkline
	8.Preliminary exam. 1h	1. Learning outcomes:4.5	.7		
	9.Macro Recorder, Mac	ro Security, Recording a	, nd Cleaning code, Constr	uction WITH, VBA Objec	t Model, Hierarchy of
	Object, Class and Colle	ction, VB Editor, Propert	y and Methods of Object,	Manual code input - SU	B procedure, 1h,
	Learning outcomes:5,7	ax: Assigning names Ma	thematic and Logic Oper	rator Construction WITH	Construction EOP
	EACH NEXT. Constructi	on IF THEN ELSE. Constr	uction CASE. FOR NEXT L	oop. DO WHILE Loop. Fo	orm Control and ActiveX
	Controls, 1h, Learning	outcomes:4,5,7			
	11.VBA function - MsgE	Box and InputBox, Creati	ng VBA user function with	n different number of ar	gument, Type of code
	error, Add-In suppleme	nt, 1h, Learning outcom	es:4,5,7 .rm elements Methods o	f the Userform Events I	Manual codo input
	Userform, 1h. Learning	outcomes:4.5.7	init elements, Methous o	i the osenoini, Events, i	Manual code input-
	13.Developing User Or	iented Application; Stude	ents presentation and Dis	cussion, 1h, Learning ou	utcomes:4,5,7,8
	14.Dashboard Construct	ction , Students presenta	tion and Discussion, 1h,	Learning outcomes:4,5,	7,8
	15.Preliminary exam, 1	.n, Learning outcomes:1,	2,3,4,5,6,7		
Course content	1.Working with data(co	pov. paste, special paste.	styles, format, alignmer	nt. cells. editing). RC Mar	k. AutoFill. Working with
auditory	basic function and form	nulas (SUM, MIN, MAX, C	OUNT, AVERAGE, IF), 2h,	Learning outcomes:1,2	, , . 5
	2.Editing tables in difer	ent ways, Working and g	rouping Sheets, Custom	number format, Naming	formulas, Naiming Cell
	and Range, Protection	of Workbook, Worksheet	and Cell, Comments, Ins	sert and Hyde Column/Ro	ow and Worksheet, 2h,
	3.Insert table with func	, / tion SUBTOTAL, Working	with different calcualtio	n using advanced function	on of sum, count and
	average, Reference fur	nction(VLOOKUP, HLOOK	UP,MATCH, INDEX) Logic	al and Information funct	tion(IF, AND, OR,
	ISERROR, ISBLANK), 2h	, Learning outcomes:1,4			
	4. Working with differer	nt calcualtion using text f	unction (TRIM, CHAR, VA	LUE, LEFT, RIGHT, FIND,	LEN, MID, UPPER,
	Eunction (TRANSPOSE T	acial function(PMT, PV, F RIM, IFFRROR) Working	with megaformula 2b 1	earning outcomes 1 /	y arrays formulas,
	5.Examples of advance	ed filter with logical operation	ators and conditions on a	large array of data, Dat	abase
	function(DSUM,DMIN,D	MAX, DAVERAGE, DCOUN	T), Data validation, Adva	nced charting, Sparkline	charts, Multiple sorting
	and filtering, Outline and	nd Subtotal, 2h, Learning	outcomes:1,2,3,6,7	r Data tabla) 26 Jacon	ing
	o.Fivor table, Pivot Cha	nic, what if analysis?(G0a	п зеек, эсепано манаде	r, Data table), Zh, Learn	ing

	outcomes:1,2,3,4,6,7 7.PowerPivot (relationships between column, hierarchy, view in Excel), Making of the DAX formula through the fields and as calculating function, Web Services, Consolidation and linking data from different workbook , Conditional Formating, 2h, Learning outcomes:1,2,3,6,7 8.Preliminary exam, 2h, Learning outcomes:1,2,3,4,6,7 9.Recording macro, Cleaning macro code, Copying code, Relative and Apsolute range in macro, New modul, SUB procedure activation,Code input, Example of object and properties, Example of object and method, Saving macro workbook, Indipendent student work, 2h, Learning outcomes:1,7 10.Making different tasks with construction IF THEN ELSE, CASE, FOR EACH NEXT, and loop FOR NEXT, Assign Button form control to worksheet (ActiveX i Form Control), Independent student work, 2h, Learning outcomes:4,5 11.Making different tasks with VBA function with regard to number of argument, Making simple UserForm, Independent student work, 2h, Learning outcomes:2,4,5 12.Making complete UserForm, Set up properties control, Writing code, Independent student work, 2h, Learning outcomes:2,4,5,7 13.Making Dashboard with elements of function, formula, charts, ActiveX button and VBA code., 2h, Learning outcomes:4,5,7,8 14.Independent student work. Presentations of students practical work., 2h, Learning outcomes:1,2,5,7,8 15.Preliminary exam, 2h, Learning outcomes:1,2,3,4,5,6,7,8
Required materials	Basic: classroom, blackboard, chalk General purpose computer laboratory Special purpose computer laboratory Whiteboard with markers Overhead projector
Exam literature	Obavezna: 1. Prezentacije i radni materijali s predavanja i vježbi, dostupni na http://lms.tvz.hr 2. Walkenbach, John. Excel 2013 Bible. Published by JohnWiley Sons, Inc., Indianapolis, Indiana 3. Dunlop, Neil. Beginning Big Data with Power BI and Excel 2013. Published Apress, Springer Science+Business Media New York, 2015. 4. Ostali dostupni hrvatski i engleski priručnici za Microsoft Excel Additional literature: 1. Ferrari, A. Russo, M. Microsoft Excel 2013: Building Data Models with PowerPivot, Microsoft Press Book, 2013 2. Walkenbach, John. Excel 2013 Power Programming with VBA. Indianapolis, Indiana. Wiley Publishing, Inc. 2013 3. Excel Developer Center. https://msdn.microsoft.com/en-us/library/office/fp179694 (5.06.2017.)
Students obligations	maximum of 3 absences from lecturing maximum of 2 absences from exercises
Knowledge evaluation during semester	Redovitost pohaa#12#0#0\$Kolokvij, numeri zadaci#2#100#50\$
Knowledge evaluation after semester	Documented product catalog + oral exam
Student activities:	Aktivnost ECTS
Bomark	(Written exam) 3 This source can be used for final thesis theme
Remdrk	Ins course can be used for final thesis theme
ISVU equivalents:	200097; Deniisle Benerice meet
Proposal made by	Danijela Pongrac, prot.

Study programme f	for academic year	2018/2019
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Code WEB/ISVU	23914/181289	ECTS	6.0	Academic year	2018/2019		
Name	Technology Entreprene	urship					
Status	6th semester - Office O	rganization and Informa	tization (Izvanredni info	ormatike) - obligatory cou	rse		
Teaching mode	Lectures + exercises (a	uditory + laboratory + s	eminar + metodology	+ construction)	30+30 (30+0+0+0)		
	work at home				120		
Teachers	Lectures:1. mr.sc. Serg	ej Lugović MBA					
	Lectures:2. doc.dr.sc. D	ectures:2. doc.dr.sc. Dalija Kuvačić profesor visoke škole					
	Auditory exercises: Din	Auditory exercises: Dinko Horvat struc.spec.ing.techn.inf. Auditory exercises:mag.eos Kristina, Peres					
Course objectives	To introduce students h	now to recognise busines	s opportunity in techno	logy development inform	nation and		
Learning outcomes	1 ability to analyse a co	mnany environment	s opportunity in teening	nogy development, mom			
	2.ability to formulate a	business strategy. Level	:6.7				
	3.ability to generate a l	business plan and busine	ess reports. Level:6,7				
	4.ability to design a bus	siness organisation. Leve	el:6				
	5.ability to be a leader	in a company. Level:6,7					
Mathada of sounday	Ex esthesize too shine						
Methods of carrying	Ex catheora teaching						
	Case studies						
	Discussion						
	Questions and answers						
	Seminar, students pres	entation and discussion					
	Course and block and the s						
methods of carrying	Group problem solving						
exercises	Discussion, brainstormi	na					
Course content	1.Course introduction, 4	4h, Learning outcomes:1	,2,3,4				
lectures	2.The role of entrepren	eurship in economy, 4h,	Learning outcomes:1,2	2,3,4,5			
	3.Business opportunitie	es, 4h, Learning outcome	s:1,3,4				
	4.Vision and Business N	Aodel, 4h, Learning outco	omes:1,3,4				
	5.RISK and Return, 4n, 1 6 Marketing and Sales	Ab Learning outcomes: 1,3,4	1234				
	7.Knowledge assessme	nt. 4h. Learning outcom	es:1.2.3.4				
	8.Intellectual Property,	4h, Learning outcomes:	5				
	9.The new enterprise o	rganization, 4h, Learning	outcomes:1,2,5				
	10.Management of ope	rations, 4h, Learning out	comes:1,4				
	11.Profit and Harvest, 4	th, Learning outcomes:1	,4) > 1 5				
	12. The Finacial Plan, 4r	ent 4h Learning outcomes:1,2	2,3,4,3 nes:1 2 3 4 5				
	14.Business Model Can	vas. 4h. Learning outcon	nes:1,2,3,4,5				
	15.Provjera znanja i Se	minar, 2h, Learning outc	omes:1,2,3,4,5				
Course content	1.Lab, 2h, Learning out	comes:1					
auditory	2.Lab, 2h, Learning out	comes:1					
	3.Lab, 2n, Learning out	comes:1					
	5.Lab. 2h. Learning out	comes:1					
	6.Lab, 2h, Learning out	comes:1					
	7.Lab, 2h, Learning out	comes:1					
	8.Lab, 2h, Learning out	comes:1					
	9.Lab, 2h, Learning out	comes:1					
	11 Lab 2h Learning ou	itcomes:1					
	12.Lab, 2h, Learning ou	itcomes:1					
	13.Lab, 2h, Learning ou	itcomes:1					
	14.Lab, 2h, Learning ou	itcomes:1					
	15.Lab, 2h, Learning ou	itcomes:1					
	Desia, els seres resultants	heered chells					
Required materials	Dasic: classroom, black	board, chaik					
	overnedu projector						
Exam literature	Technoloav Ventures: F	rom Idea to Enterprise					
	Thomas Byers, Richard	Dorf, Andrew Nelson					
	U prijevodu						
Students obligations	maximum of 3 absence	s from exercises					
Knowledge	Mini-test#1#20#0\$Kol	okvij, teorijska pitanja#1	#20#100\$Seminarski	rad#1#20#100\$Prakti			
evaluation during	rad#1#20#100\$Usme	na provjera znanja#1#2	0#100\$				
semester			100+0 1 11 1	#05 #100+D 1:1 1:5	25 #100+		
Knowledge	Pismeni ispit#1#25#10	00\$Usmeni ispit#1#25#	100\$Seminarski rad#1	#25#100\$Prakti rad#1#	25#100\$		
evaluation after							
Student activities	Aktivnost		FCTS				
	(Written exam)		5				
	(Classes attendance)		1				



Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
ISVU equivalents:	170015;			
Proposal made by	mr.sc. Sergej Lugović			

Code WEB/ISVU	23739/170015	ECTS	6.0	Academic year	2018/2019
Name	Technology Entreprene	urship			
Status	5th semester - E-busine	ess (Izvanredni informatil	ke) - obligatory course		
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (30+0+0+0) work at home 120				
Teachers	Lectures:1. mr.sc. Sergej Lugović MBA Auditory exercises: Dinko Horvat struč.spec.ing.techn.inf.				
Course objectives	To introduce students b		s apportunity in technol	agy davelopment inform	nation and
Learning outcomes	1 ability to analyse a co	mpany environment Le		ogy development, inform	
	2.ability to formulate a 3.ability to generate a b 4.ability to design a bus 5.ability to be a leader i	Lability to analyse a company environment Level:6 2.ability to formulate a business strategy. Level:6,7 3.ability to generate a business plan and business reports. Level:6,7 4.ability to design a business organisation. Level:6 5.ability to be a leader in a company. Level:6,7			
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Discussion Questions and answers Seminar, students presentation and discussion				
Methods of carrying out auditory exercises	Group problem solving Essay writing Discussion, brainstormii	ng			
Course content lectures	 1.Course introduction, 4h, Learning outcomes:1,2,3,4 2.The role of entrepreneurship in economy, 4h, Learning outcomes:1,2,3,4,5 3.Business opportunities, 4h, Learning outcomes:1,3,4 4.Vision and Business Model, 4h, Learning outcomes:1,3,4 5.Risk and Return, 4h, Learning outcomes:1,2,3,4 6.Marketing and Sales, 4h, Learning outcomes:1,2,3,4 7.Knowledge assessment, 4h, Learning outcomes:1,2,3,4 8.Intellectual Property, 4h, Learning outcomes:1,2,3 9.The new enterprise organization, 4h, Learning outcomes:1,4 11.Profit and Harvest, 4h, Learning outcomes:1,2,3,4,5 13.Knowledge assessment, 4h, Learning outcomes:1,2,3,4,5 14.Business Model Canvas, 4h, Learning outcomes:1,2,3,4,5 15.Provjera znanja i Seminar, 2h, Learning outcomes:1,2,3,4,5 				
Course content auditory	1.Lab, 2h, Learning outo 2.Lab, 2h, Learning outo 3.Lab, 2h, Learning outo 4.Lab, 2h, Learning outo 5.Lab, 2h, Learning outo 6.Lab, 2h, Learning outo 7.Lab, 2h, Learning outo 9.Lab, 2h, Learning outo 10.Lab, 2h, Learning outo 11.Lab, 2h, Learning ou 11.Lab, 2h, Learning ou 13.Lab, 2h, Learning ou 13.Lab, 2h, Learning ou 14.Lab, 2h, Learning ou	comes:1 comes:1 comes:1 comes:1 comes:1 comes:1 comes:1 comes:1 tcomes:1 tcomes:1 tcomes:1 tcomes:1 tcomes:1 tcomes:1 tcomes:1 tcomes:1			
Required materials	Basic: classroom, blackboard, chalk Overhead projector				
Exam literature	Technology Ventures: From Idea to Enterprise Thomas Byers, Richard Dorf, Andrew Nelson U prijevodu				
Students obligations	maximum of 3 absence	s trom exercises			
Knowledge evaluation during semester	Mini-test#1#20#0\$Kolo rad#1#20#100\$Usmer	okvij, teorijska pitanja#1 na provjera znanja#1#2(#20#100\$Seminarski ra 0#100\$	ad#1#20#100\$Prakti	
Knowledge evaluation after semester	Pismeni ispit#1#25#10	00\$Usmeni ispit#1#25#	100\$Seminarski rad#1#	25#100\$Prakti rad#1#	25#100\$
Student activities:	Aktivnost (Written exam)		ECTS 6		
Remark	This course can be used	for final thesis theme			
Prerequisites:	No prerequisites.				



Zagreb University of Applied Sciences

ISVU equivalents:	181289;
Proposal made by	mr.sc. Sergej Lugović

Code WEB/ISVU	23618/156412	ECTS	6.0	Academic year	2018/2019
Name	Theory and Design De	evelopment		•	
Status	3rd semester - IT Des	ign (Izvanredni inforr	matike) - obligatory	course	
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (30+0+0+0)				
Teachers	Lectures:Prof. dr. sc. Jana Žiljak Gršić , mag. design				
Course objectives	The analysis and inte combine terminology the profession so that design guidelines add	Auditory exercises: IVA Kostesic The analysis and integration of the ideas and concepts of design in the context of society and culture . Students should combine terminology definitions and theoretical knowledge and formulate relevant guidelines for the development of the profession so that they know to apply in their own creative work . Through theoretical knowledge and key historical design guidelines adopted at the course, students will be able to evaluate and scrutinize designs.			
Learning outcomes:	 1.distinguish key terminology of design for the purpose of governing their own project . Level : 6. Level:6 2.identify development areas of design. Level:6 3.determine the impact of technology on the development of design . Level : 6. Level:6 4.assess the relation of design to the social environment . Level : 6. Level:6,7 5.allocate communication peculiarities of modern design. Level:6 6.identify similarities / differences of different visual cultures. Level:6 7.create semantic logic of graphic design for electronic media and Web environments . Level : 6.7. Level:6,7 8.compare designs. Level:6,7 9.analyze prominent works of recognized graphic design solutions. Level:6 10.analyze globally recognized media solutions. Level:6 11.analyze exhibitions. Level:6 				
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Demonstration Discussion Seminar, students pro	esentation and discus	ssion		
Methods of carrying out auditory exercises	Group problem solvin Traditional literature Data mining and know Discussion, brainstorn Mind mapping Interactive problem s Workshop	g analysis wledge discovery on t ming olving	the Web		
Course content lectures	1.Introductory lecture 2.Origins of design, 2 3.Critique of the mact 4.Material culture out 5.Industry, art and cu 6.Industrial culture ar 7.Isotype, 2h, Learning 9.Helvetica, 2h, Learning 9.Helvetica, 2h, Learnin 10.Bauhaus i De Stijl, 11.Social Systems an 12.Styling, decoratior 13.Post World War II 4.Design and the en 15.exam, 2h, Learnin	e, 2h h, Learning outcomes hine and labour divisi sside the context of m ldure, 2h, Learning ou d art, 2h, Learning o outcomes:7 ohng outcomes:7 2h, Learning outcom d Communication, 2h n and social system, 2 reconstruction and de vironment, 2h, Learn g outcomes:11	s:1 ion, 2h, Learning ou harket, 2h, Learning utcomes:4 utcomes:5 hes:7 h, Learning outcome 2h, Learning outcome esign, 2h, Learning o ing outcomes:10	tcomes:2 outcomes:3 es:7 nes:8 putcomes:9	
Course content auditory	1. Introduction , 2h 2. Research methods 3. Research methods 4. Research methods 5. Research methods 6. Research methods 7. Research methods 8. Research methods 9. Research methods 10. Research methods 11. Research methods 12. Research methods 13. Research methods 14. Research methods 15. Presentation and of assessment - Collogu	 Photo Studies, 2h, L Picture Cards, 2h, Le Word Clouds, 2h, Le Image Boards, 2h, L AEIOU, 2h, Learning Brainstorming graph Cognitive mapping, 4nd Mind mapping, 1h, Learnis Scenarios, 2h, Learnis Storyboarding, 2h, S Stakeholder maps, 2h Content inventory critical discussion, 1h, ium, 1h, Learning out 	earning outcomes:1 earning outcomes:2 earning outcomes:3 earning outcomes:3 outcomes:5 hic organizers, 2h, L 1h, Learning outcon arning outcomes:1, ing outcomes:7 rning outcomes:7 Learning outcomes , 2h, Learning outcome and audit, 2h, Learn , Learning outcome and audit, 2h, Learn , Learning outcome and audit, 2h, Learn , Learning outcome	4 earning outcomes:6 mes:7 2,3,4,5,6 s:7 mes:8 s:9 ning outcomes:10 s:11	
Required materials	Basic: classroom, bla Overhead projector	ckboard, chalk			

Exam literature	F. Vukić, Teorija i povijest dizajna, Zagreb, 2012.				
	B.Hanington, B. Martin, Universal Methods of Design, 2012.				
	Christian Wurster, Computers an illustrated history, 2001.				
	V. Margolin, F. Vukić, Hrvatski dizajn	V. Margolin, F. Vukić, Hrvatski dizajn sad, Zagreb, 2009.			
	M. Mrduljaš, D. Vidović, Dizajn i nezavisna kultura, Zagreb, 2010.				
	M. Tomiša, M. Milković, Grafički dizajn i komunikacija, Vraždin, 2013.				
Students obligations	attendance exercises				
-	maximum 2 absence				
Knowledge	2 tests				
evaluation during	Exercise tasks				
semester					
Knowledge	exam + essay				
evaluation after					
semester			I		
Student activities:	Aktivnost	ECTS			
	(Written exam)	2	I		
	(Classes attendance)	2			
	(Research)	2			
Remark	This course can be used for final thesis theme				
Prereguisites:	No prereguisites.				

Code WEB/ISVU	23746/170022	ECTS	5.0	Academic year	2018/2019
Name	TV and Video Recordin	ıg			
Status	5th semester - IT Desig	gn (Izvanredni informatik	e) - elective course		
Teaching mode	Lectures + exercises (auditory + laboratory + s	eminar + metodology +	- construction)	30+45 (0+30+15+0)
	work at home				75
Teachers	Lectures:1. Milan Bajić				
	Lectures: Dinka Radon	lić Milan Dalić			
	Laboratory exercises:	Milan Bajic Dinka Badonić			
	Euboratory excreises.	Dirika Kadoline			
Course objectives	Students will be able t	o independently perform	video recording as an in	dependent element or p	part of a multimedia
-	project.		-		
Learning outcomes:	1.define elements of b	roadcast equipment. Lev	el:6		
	2.understand the basic	c principles of TV and vide	eo recording. Level:6		
	3.apply knowledge in p 4 plan and advanced k	practical work. Level:6,7	and camora acossoiros i	in making assignments	Loval:67
	5 plan use and sketch	work with artificial lighti	na Level:67	in making assignments.	Level.0,7
	6.Plan and cooperate i	n team work. Individual p	roject work. Level:6,7		
			•		
Methods of carrying	Ex cathedra teaching				
out lectures	Guest lecturer				
	Case studies				
	Discussion				
	Ouestions and answer	s			
	Homework presentatio	on and a second s			
Methods of carrying	Laboratory exercises o	on laboratory equipment			
out laboratory	Laboratory exercises,	computer simulations			
exercises	Traditional literature a) nalvcic			
	Data mining and know	ledge discovery on the W	/eb		
	Discussion, brainstorm	ning			
	Interactive problem so	lving			
	Workshop				
Mathada of soundary	Crown nachlana agluina				
Methods of Carrying	Traditional literature a) nalvcic			
out seminars	Data mining and know	ledge discovery on the W	/eb		
	Essay writing				
	Mind mapping				
	Workshop				
Course content	1 Course introduction	2 h			
lectures	2.Cameras and lenses	. 2h. Learning outcomes:2	2		
	3.Artificial light source	s, 2h, Learning outcomes	- :2,6		
	4.Framing and compose	sition, 2h, Learning outco	mes:1,2,3		
	5.exposure, focus, zoo	ming, 2h, Learning outco	mes:1,2,3		
	6.tripods, stabilizers, c	ranes, 2h, Learning outco	omes:1,2,3		
	7.camera moves, 2n, L 8 Mid term exam 2h	Learning outcomes:1,2,3,4	4		
	9 sound recording 2h	Learning outcomes:1.2.3	3		
	10.shooting people an	d objects, 2h, Learning ou	, utcomes:1,2,3,4		
	11.eng shooting, 2h, L	earning outcomes:1,2,3,4	ļ.		
	12.efp shooting, 2h, Le	earning outcomes:1,2,3,4	,5,6		
	13.interview lighting, 2	2h, Learning outcomes:1,	2,3,4,5,6		
	15 Final exam 2h	nai shooling, zh, Leannig	y outcomes:1,2,5,4,5,6		
Course content	1.Lab introduction, 2h,	, Learning outcomes:3			
laboratory	2.studio environment,	2h, Learning outcomes:1	,2,3		
	3.recording equipment	t, 2h, Learning outcomes:	1,2,3		
	4.lighting equipment, 2	2h, Learning outcomes:1,	2		
	6 composition 2h Lea	y outcomes: 5,4			
	7.shooting with natura	il lighting. 2h. Learning ou	tcomes:3.4.5		
	8.shooting with artifici	al lighting, 2h, Learning c	outcomes:3,4,5,6		
	9.shooting studio intro	ductions, 2h, Learning ou	itcomes:3,4,5,6		
	10.shooting street sur	vey, 2h, Learning outcom	es:3,4,5		
	11.interview lighting a	nd shooting, 2h, Learning	outcomes:3,4,5,6		
	13 Individual Work, 2h	Learning outcomes:4,5,6	5		
	14.Individual work. 2h	, Learning outcomes:4,5,6	5		
	15.Presentation of digi	ital portfolio, 2h			
Course content	1.,2h				
seminars	Z., ZN				
	3. , 2h				
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	4. , 2h				
	5., 2n 6. 2h				
	0., 211 7. 215				
	10 2h				
	11. 2h				
	12 2h				
	13 2h				
	14. , 2h				
	15. , 2h				
Required materials	Basic: classroom, blackboard, chalk				
	Special purpose laboratory				
	Special purpose computer laboratory				
	Whiteboard with markers				
	Overhead projector				
	Video equipment				
Exam literature	Video production handbook / Gerald Millerson, Jim Owens				
	Lighting for digital video and television / John Jackman				
Students obligations	50 % attendance with the active participation and timely execution of the set of obligations related to the practical				
	Work				
	Regular attendance (15 checks)				
	Produced work (1 check)				
Knowledge	mig term exam				
evaluation during	nnai exam				
Knowlodge					
evaluation after	Utai exam:				
comostor	Attendance - 10 % (a criterion for the passage of 80 %) Theoretical even $= 50.\%$ (a criterion for the passage of $= 0.\%$)				
semester	Practical work - 4 0% (a criterion for the passage of 8 0%)				
Student activities:	Aktivnost FCTS				
	(Written exam) 5				
Remark	This course can be used for final thesis theme				
Prereguisites:	Students cannot enroll in this course unless they have passed Digitalna fotografija				

Code WEB/ISVU	23748/170024	ECTS	5.0	Academic year	2018/2019	
Name	UNIX Systems Administ	tration				
Status	6th semester - Office O	rganization and Informa	tization (Izvanredni infor	matike) - obligatory cou	rse	
Teaching mode	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+30 (0+30+0+0) work at home 90					
Teachers	Lectures:1. dr.sc.rač. Davor Cafuta , prof.v.šk. Laboratory exercises:2. dr.sc.rač. Ivica Dodig , prof.v.š.					
Course objectives	To onable students to r	anulej vilez	formatization tacks on v	arious operating system		
Learning outcomes	1 ability to set up a DN	S server under Unix OS		anous operating systems	.	
	2.ability to set up a bits server on UNIX OS. Level:0 2.ability to configure a Web server on UNIX OS. Level:6 3.ability to integrate a database with a Web server on UNIX OS. Level:6,7 4.ability to build a system of time triggers used to start a service. Level:6,7 5.ability to set up a shared file system. Level:6,7 6.ability to control packages which pass through a network security layer under UNIX OS. Level:6,7 7.ability set up an e-mail server. Level:6,7 8.ability to connect an e-mail filtering system with an e-mail service . Level:6,7 9.ability to analyse the network traffic going through security layer on UNIX OS. Level:6 10.ability to identify errors committed in setting up UNIX system services. Level:6 11.ability to test UNIX system services. Level:6					
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Discussion					
Methods of carrying out laboratory exercises	Laboratory exercises or Laboratory exercises, c	n laboratory equipment computer simulations				
Course content lectures	 Doamin name system Domain name system Web server configura Integration of server Databases, 2h, Learn Application scheduler T.E-mail systems., 2h, I B.E-mail server adminis E-mail server anti spa Incoming mail serve Windows to UNIX sh Cluix to Windows sha Firewall, 2h, Learnin Troubleshooting and Theoretical exam, 1 	n, 2h, Learning outcomes n administration, 2h, Lea stion., 2h, Learning outco side languages into web ing outcomes:3,11 ., 2h, Learning outcome Learning outcomes:7,11 stration, 2h, Learning out am technologies., 2h, Lear er protocols., 2h, Learning aring, 2h, Learning outco aring, 2h, Learning outco aring, 2h, Learning outco g outcomes:9,11 d backup, 2h, Learning o h, Learning outcomes:1,	s:1,11 rning outcomes:1,11 mes:2,11 server., 2h, Learning ou s:4,11 tcomes:7,11 arning outcomes:8,11 g outcomes:7,8,11 omes:5,11 omes:5,11 utcomes:10,11 2,3,4,5,6,7,8,9,10,11	tcomes:2,11		
Course content laboratory	 1, 2h 2.Domain name system 3.Web server configura 4.Integration of server 5.Databases, 2h, Learn 6.Application scheduler 7, 2h 8.E-mail server adminis 9.E-mail server anti spa 10.Incoming mail serve 11.Windows to UNIX sh 12.Unix to Windows sha 13.Firewall, 2h, Learnin 14.Troubleshooting and 15.Practical exam, 2h, 	n administration, 2h, Lea ition., 2h, Learning outco side languages into web ing outcomes:3 -, 2h, Learning outcome stration, 2h, Learning outco am technologies., 2h, Lear er protocols., 2h, Learning aring, 2h, Learning outco aring, 2h, Learning outco g outcomes:9,11 d backup, 2h, Learning o Learning outcomes:1,2,3	rning outcomes:1 omes:2 server., 2h, Learning ou s:5 tcomes:7 arning outcomes:8 g outcomes:7,8 omes:5,11 omes:5,11 utcomes:10,11 8,4,5,6,7,8,9,10	tcomes:2		
Required materials	Special purpose compu Whiteboard with marke Overhead projector Special equipment	iter laboratory ers				
Exam literature	Basic literature: 1. Materijali uz predme 2. C. Hunt,TCP/IP Netwo 3. S. Pritchard, et.all, LI Additional literature: 1. Linux Magazin (izdvo	t (internet stranice) ork Administration, 3rd e Pl Linux Certification, 2n ojeni brojevi)	dition, O'Reilly, 2002. d edition, O'Reilly, 2006.			
Students obligations	Minimum of 13 point fro	om laboratory work.				
Knowledge	Course is divided into 7	' parts. Upon every part	last one is checked with	theoretical exam (3poin	ts x 6 parts) and	
evaluation during	practical work (1 point)			() () () () () () () () () ()		

semester	At the end of the semester theoretical exam (21 point) and practical exam (54 point) checks all 7 parts. More information in first lecture in repository of the course.			
Knowledge	Laboratory points are obtained during semester.			
evaluation after	Additionaly, theoretical exam (21 point) and practical exam (54 point) checks all 7 parts.			
semester	More information in first lecture in repository of the course.			
Student activities:	Aktivnost ECTS			
	(Written exam) 5			
Remark	This course can be used for final thesis theme			
Prerequisites:	Students cannot enroll in this course unless they have passed Uvod u UNIX sustave			
Proposal made by	lvica Dodig, Davor Cafuta (08.01.2014)			

Code WEB/ISVU	23616/156410	ECTS	4.0	Academic year	2018/2019		
Name	Video production Proce	sses			-		
Status	3rd semester - IT Desig	3rd semester - IT Design (Izvanredni informatike) - obligatory course					
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	eminar + metodology +	+ construction)	30+60 (0+60+0+0)		
	work at home				30		
Teachers	Lectures: Ivan Rajković	-					
	Laboratory exercises: [Dinka Radonić					
	Laboratory exercises: I	van Rajković					
	Laboratory exercises: V	/isen Tadic struc.spec.art					
Course objectives	The object of the cours	e is to familiarize the bas	ic principles of video pr	oduction, definition of th	ne image and sound		
Loorning outcomoci	1 ability to formulate p	reduction blocks. Lovelie	7				
Learning outcomes:	2 comment the perform	mance of the project Level.	, / el·6				
	3.pain and organize str	rategy for video productic	n. Level:6.7				
	4.plan and create AV c	ontent for the Internet pla	atform. Level:6,7				
	5.analize basic concept	ts of video production. Le	vel:6				
Methods of carrying	Ex cathedra teaching						
out lectures	Guest lecturer						
	Case studies						
	Homework presentation	n					
	Oral presentations						
Methods of carrving	Laboratory exercises, c	computer simulations					
out laboratory	Group problem solving						
exercises	Data mining and knowl	ledge discovery on the W	eb				
	Discussion, brainstorm	ing					
	Mind mapping						
	Interactive problem sol	iving					
	l aboratory excercises						
Course content	1 Pregled kolegija, na r	rada unoznavanie 2h Le	arning outcomes 1 2 3	4 5			
lectures	2.Primieri iz prakse. 2h	. Learning outcomes:1.2.	5	7,5			
	3.Osnovni produkcijski	procesi, 2h, Learning out	comes:1,5				
	4.Mediji, multimedija, p	produkcija, 2h, Learning c	utcomes:1,5				
	5.Produkcijska studija,	2h, Learning outcomes:1	,2,3				
	6.Predprodukcijska faza	a projekta, 2h, Learning c	outcomes:3,4				
	7.Elevator pitch, 2h, Le 8 Timski rad, 2h, Learn	ing outcomes: 3,4					
	9.Osnovni oblici video z	zapisa. 2h. Learning outc	omes:3.4.5				
	10.Produkcijske priprer	me projekta. 2h. Learning	outcomes:1.2.3.4				
	11.Postprodukcijske faz	ze projekta, 2h, Learning	outcomes:3,4				
	12.Distribucija materija	ala, 2h, Learning outcome	es:3,4				
	13.Marketing video zap	bisa, 2h, Learning outcom	es:1,4,5				
	14.Kako uspjeno preze	ntirati, 2h, Learning outco	omes:2,3,4,5				
	15.Prezentacija izveder	hin radova, zh, Learning (outcomes:1,2,3,4,5				
Course content	1.Uvodne viebe. 2h. Le	arning outcomes:2					
laboratory	2.Osnovne video kame	re, 2h, Learning outcome	s:2,3,4				
,	3.Analizira video mater	rijala, 2h, Learning outcor	nes:2,3,4				
	4.Osnove zvuka, 2h, Le	arning outcomes:2,3,4					
	5.Analiza snimljenih au	dio zapisa, 2h, Learning d	outcomes:2,3,4				
	6.Osnove rasvjete, 2n, 7 Apaliza spimljopih m	Learning outcomes:2,3,4	comoc:1 2 3 4				
	8 Priprema popude pro	viekta 2h Learning outco	mes:3 4 5				
	9.Izlaganie projekta. 2h	1. Learning outcomes:3.4	.5				
	10.lzvedba produkcijsk	e studije, 2h, Learning ou	itcomes:2,3,4				
	11.Priprema za produk	ciju, 2h, Learning outcom	es:2,3,4				
	12.Snimanje materijala	i, 2h, Learning outcomes:	2,3				
	13.Osnove montae, 2h,	, Learning outcomes:2					
	14.Montaa pripremijeni	In materijala, 2n, Learning	g outcomes:2,3,5				
	15.Zavravanje projekta	i, zii, Leanning outcomes.	5				
Required materials	Basic: classroom, black	board, chalk					
	Special purpose compu	uter laboratory					
	Whiteboard with marke	ers					
	Overhead projector						
	Video equipment						
	Laboratory excercises						
Exam literature	Preporučena	an Ilandhaald Ilanhant 7.	:				
Students obligations	1. Television Production	on manubook", Herbert Ze	:u				
Knowledge	Colloquium #2#50#10						
evaluation during	conoquium #2#30#10	νΨ					
semester							
1	1						



Zagreb University of Applied Sciences

Knowledge evaluation after semester	Written and oral exam.			
Student activities:	Aktivnost	ECTS		
	(Project)	3		
	(Classes attendance)	1		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			

Code WEB/ISVU	23740/170016	ECTS	6.0	Academic year	2018/2019	
Name	Visual Communication	Design	•			
Status	5th semester - IT Design (Izvanredni informatike) - obligatory course					
Teaching mode	Lectures + exercises (auditory + laboratory + :	seminar + metodology +	construction)	30+30 (0+30+0+0)	
Teachers	Lectures:1. Vesna Ugli	ešić dipl. dizainer			120	
	Lectures:Prof. dr. sc. Ja	ana Žiljak Gršić , mag. de	sign			
	Laboratory exercises:	nag.des. Ulla Leiner Mak	san			
	Laboratory exercises:	Vesna Uglješić dipl. dizaj	ner			
Course objectives	Acquisition of an adva	nced level of knowledge	related to visual commur	nication		
Learning outcomes:	1.ability to understand	I the elements of visual c	ommunication. Level:6			
	2.ability to plan eleme	nts necessary for conten	porary visual communic	ation. Levei:6,7	avel:6.7	
	4.ability to give comm	ents on each solution wit	hin a group. Level:6	iding user expirience. Et	.veno,/	
	5.ability to make an au	uthentic visual identity de	esign. Level:6			
	6.ability to test the fur	nctionality of author work	s. Level:6			
	/. ability to design applications, pictograms and other communication element, user interface. Level:6					
	9.ability to present the	e development of a project	ct. Level:6.7), /		
	10.ability to create a g	raphic standards manua	I for independent use of	visual identity. Level:6,7	1	
	11.to prepare element	s needed for presentatio	n by using vector and pi	el graphics editors and	page layout programs.	
	Level:6,7	a and alve a precentatio	n of a project Lovelie 7			
	12.to conceive, prepar	e and give a presentation	h of a project. Level:6,7	w students and the exa	miner Level·6 7	
	15.00 present in none (ne questions put by reno			
Methods of carrying	Ex cathedra teaching					
out lectures	Case studies					
	Demonstration Discussion					
	Questions and answer	s				
	Seminar, students pre	sentation and discussion				
	Homework presentation	n				
out laboratory	Discussion brainstorm	ning				
exercises	Computer simulations	inig				
Course content	1.Basic concepts of vis	sual communication, 2h,	Learning outcomes:1,4,6			
lectures	2.User-centered design	n, user experince, 2h, Le	arning outcomes:1,2,4,6	1 2 4 6 9		
	4 Basic elements of vis	sual identities 2h Learni	ng outcomes 1 2 4	1,2,4,0,0		
	5.Visual identity in market communication, 2h, Learning outcomes:4,6,8					
	6.Mark and logo - histo	ory, development, import	ance, 2h, Learning outco	mes:1,2,3,5		
	7.Basic standardization via graphic standards manual, user interface, 2h, Learning outcomes:2,10,11 8 Colour scheme and typographic style, 2h, Learning outcomes:2,3,5,10					
	9.Defining applications of visual identity via graphic standards manual. 2h. Learning outcomes: 2.3.5.7.8.10.11					
	10.Trademark design and approach to branding, 2h, Learning outcomes:3,4,6,8					
	11.Design of promotion materials and their implementation into real-life environment, 2h, Learning outcomes:7,8					
	12.Visula communicat	ions design evaluation cr	iteria, 2h, Learning outco	mes:4,6	4.6	
	14.Student projects pr	esentation with discussion	on 1. 2h. Learning outcon	res:4.9.11.12.13	.4,0	
	15.Student projects presentation with discussion 2, 2h, Learning outcomes:4,9,11,12,13					
Course content	1.Problem analysis, re	search and defining proje	ect, 2h, Learning outcom	es:2,6		
laboratory	3. Visualization of conc	epts by freehand sketch	s 1. 2h. Learning outcomes:	2,3,5 nes:1.2.3.5		
	4.Visualization of conc	epts by freehand sketche	es 2, 2h, Learning outcon	nes:1,2,3,5		
	5.Preliminary examina	tion - presentation of pro	ject development, 2h, Le	earning outcomes:4,9,11	.,12,13	
	6.Selection of sketches	s and further elaboration	by computer, 2h, Learni	ng outcomes:1,5,11		
	8 Colour scheme and t	vnography styles 2h Le	arning outcomes 1 2 5			
	9.Basic standardizatio	n via graphic standards r	nanual, 2h, Learning out	comes:2,10,11		
	10.Defining application	ns of visual identity via g	raphic standards manual	, 2h, Learning outcomes	;:2,3,5,7,8,10,11	
	11.Preliminary examin	ation - presentation of p	oject development, 2h, l	_earning outcomes:4,9,1	.1,12,13	
	12.Design of promotio	n materials and their imp n materials and their imp	ementation into real-life	environment 1, 2n, Lea	arning outcomes: 7,8	
	14.Completing graphic	standards manual conta	aining all needed applicat	tions and added promot	ion materials, 2h,	
	Learning outcomes:1,2	2,5,7,8,10,11				
	15.Student projects pr	esentation with discussion	on, 2h, Learning outcome	s:4,9,11,12,13		
Required materials	Special nurnose comp	uter laboratory				
nequired materials	Whiteboard with mark	ers				
	Overhead projector					
	Operating supplies					
	paper, pencils, marker	S				
Exam literature	Dasic literature:	nodernog oblikovanja				
I		noaching oblikovanja				

	2. F. Vukić: Stoljeće hrvatskog dizajna 3. T. Vranišić: Upravljanje markama Additional literature:					
Students obligations	Mandatory laboratory exercises (80%), project completion (100%).					
Knowledge evaluation during semester	Kolokvij, teorijska pitanja#2#30#30\$Prakti rad#1#40#40\$					
Knowledge evaluation after semester	Defending and presenting a design solution on a given topic, explaining the problem, concept and development process.					
Student activities:	AktivnostECTS(Written exam)6					
Remark	This course can be used for final thesis theme					
Prerequisites:	Students cannot enroll in this course unless they have passed Grafički dizajn					
Proposal made by	Jana Žiljak Vujić, PhD					

Study programme for academic	year 2018/2019
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Code WEB/ISVU	23608/156401	ECTS	5.0	Academic year	2018/2019	
Name	Web application develo	pment				
Status	4th semester - Office Organization and Informatization (Izvanredni informatike) - elective course4th semester - E-					
	business (Izvanredni in	formatike) - elective cou	rse4th semester - IT Des	ign (Izvanredni informat	ike) - elective course	
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0) 90	
Teachers	Lectures:dr.sc. Alen Šin	nec v. predavač				
	Laboratory exercises: P	etar Osterman r.c., Alon Šimoc V. prodo	voč			
Course objectives	To transfor to students	the basic knowledge rela	vac	docian		
Learning outcomes:	1 ability to propare a co	the basic knowledge rea	aled to web application	avalia		
Learning outcomes:	2 ability to distinguish l	between different progra	mming tools for the dev	elopment of client-site a	nd server-site	
	applications. Level:6	between unterent progra				
	3.ability to make a proj	ect plan for the developr	nent of Web applications	s . Level:6,7		
	4.ability to combine the	e programming tools use	d for the development o	f Web applications. Leve	:1:6,7	
	5.ability to develop a d	atabase model. Level:6, /	andiantian Laural C			
	7.ability to design a Web page. Level:6					
Methods of carrying	Ex cathedra teaching					
out lectures	Guest lecturer					
	Simulations					
	Modelling					
	Ouestions and answers					
	Seminar, students pres	entation and discussion				
	Lectures, examples from	m real life, creation meth	odology, independent w	vork		
Methods of carrying	Laboratory exercises, c	computer simulations				
out laboratory	Group problem solving	ina				
exercises	Interactive problem sol	vina				
	Workshop	ing .				
Course content	1.Introductory lecture a	and teach students about	the responsibilities and	teaching material., 2h,	Learning outcomes:1	
lectures	2.Introduction to HTML	5 and what it is. Example	s from practice. The diff	erence between HTML a	nd XHTML., 2h,	
	Learning outcomes:2	document and create liv	ake Definition of CSS an	d how to use it with the	HTML document	
	Examples from practice	e 2h. Learning outcome	s:2		innie adeament.	
	4.HTML5 forms, where	they are used and what t	they do. Examples from	practice. Model executir	ng scripts on the server.	
	HTTP POST and GET. Ex	kamples from practice., 2	h, Learning outcomes:3			
	5.A client-server architecture, the characteristics of the client and the server, Apache Web server and how it works., 2h,					
	Learning outcomes:3 6 Introduction to PHP scripting language, server side web applications. 2b Learning outcomes:4					
	7.Examination of the first part of the theory, html. forms. CSS. basic web server and its function, htm scripting					
	language., 2h, Learning outcomes:4					
	8.PHP syntax and its us	age, the PHP variables a	nd labeling rules., 2h, Le	earning outcomes:5		
	9.Data types and string	is, using operators and lo	ops., 2h, Learning outco proving the second second	mes:5 require and include con	nmands 2h Learning	
	outcomes:6	op in the programming e	invironment, data neius,	require and include con	inianus., 211, Leanning	
	11.MySQL database, its	application and what th	ey do. Examples of how	to create a relational da	tabase., 2h, Learning	
	outcomes:6					
	12.Connecting PHP scri	pting language with the	database, query the data	abase and display the se	earch results. Enter,	
	13.What is lavascript, v	which is its application an	id what it is used, exami	ples in practice, 2h, Lear	ning outcomes:6.7	
	14.Web application sec	urity, how to protect you	rself and which are the	most common forms of a	attacks on web	
	applications, 2h, Learni	ng outcomes:6,7				
	15.Examination of the s	second part of the theory	r, php (syntax, data type	es, data fields, loops), My	/SQL database, SQL	
		ε, ΛΜΕ, ΝΟΟ., 2Π				
Course content	1.Introductory exercise	s teach students about t	he duties and education	al materials, and prepar	es the computer to work	
laboratory	with the scripting langu	age., 2h, Learning outco	mes:1			
	2.Installing Virtual Serv	er on the computer, lear	ning about their work er	ivironment. It takes prac	tice to install Apache,	
	MySQL database and F	ne client., 2n, Learning o making HTML pages Usi	utcomes:z	that do not have a GUI	(Notenad + +	
	UltraEdit, Notepad, Wo	rdpad), the knowledge of	writing HTML code, ver	ification and validation of	code., 2h. Learning	
	outcomes:2		5		5	
	4.Solving the task and	making the HTML code w	ith the added document	formatting using CSS to	ools. Using only simple	
	programs that do not h	ave a GUI (Notepad + +,	UltraEdit, Notepad, Woi	rdpad), the knowledge o	t writing CSS code,	
	5.Creating forms using	a text editor. Check dun	kcionalnosti for HTTP PO	ST and GET. Solving pro	blems with the forms	
	and print text on the sc	creen. Work on the local of	computer with virtual se	rvices in open source en	vironment., 2h,	
	Learning outcomes:3					
	6.Repetition of knowled	lge and development of	Internet sites on a virtua	I server using HTML ma	rkup text, forms, CSS,	
	PHP., 2h, Learning outo	comes:3	forme CEE basic web	convor and its function	nhn corinting language	
	2h. Learning outcomes	sc part of practice, HTML :4	., ionns, CSS, basic web	server and its function,	prip scripting language.,	
	8.Introducing the virtua	 al environment Xampp ar	plications, run applicati	ons required for operation	on of the virtual server,	
I						

	solving tasks., 2h, Learning outcomes:4 9.Solving problems using PHP syntax, PHP variables and labeling rules in HTML, 2h, Learning outcomes:5 10.Solving problems in PHP, data types, strings, use the operator and the loop, 2h, Learning outcomes:5 11.Application of the loop in the programming environment, data fields, require and include commands, 2h, Learning outcomes:5 12.Using MySql database, creating databases, tables, fields in the table, define the fields, their values#8203;#8203;, the determination of the primary and secondary key., 2h, Learning outcomes:6 13.Connecting to MySQL database with the programming code in PHP, and the appointment of a query to the database (read data from the database, data modification and deletion of data), the print data from the database to display user, 2h, Learning outcomes:6,7 14.Using JavaScript in your application and protection of Web applications from attacks, web application security, 2h, Learning outcomes:6,7 15.Examination of the second part of the practice, php (syntax, data types, data fields, loops), MySQL database, SQL queries to the database, XML, RSS., 2h				
Required materials	 Basic: classroom, blackboard, chalk Special purpose computer laboratory Overhead projector Tools Special equipment Web server package 				
Exam literature	Šimec, Alen; Programiranje i optimizacija Internet stranica u HTML5 okruženju; Tehničko veleučilište u Zagrebu; 2015; Šimec, Alen; Uvod u HTML, XHTML i CSS; Tehničko veleučilište u Zagrebu; 2011; Čarapina, M.: XAMPP - upute za instalaciju i korištenje, 2012., Tehničko veleučilište u Zagrebu; Nixon, Robin; Learning PHP, MySQL, JavaScript, CSS HTML5, 3rd Edition; O'Reilly Media; 2014.; Seyed M.M. "Saied Tahaghoghi; Hugh E. Williams; Learning MySQL; O'Reilly Media; 2007. PHP (www.php.net); Apache (www.apache.org) MySQL (www.mysql.com); W3C preporuke (www.w3c.org);				
Students obligations	Attendance and active participation in lectures 15 points Attendance and active participation in training 15 points Essay and project 20 points				
Knowledge evaluation during semester	1st Colloquium (theory and tasks) 25 points 2nd Colloquium (theory and tasks) 25 points				
Knowledge evaluation after semester	Written exam 100 points				
Student activities:	AktivnostECTS(Classes attendance)1(Written exam)2(Project)2				
Remark	This course can be used for final thesis theme				
Prerequisites:	No prerequisites.				
Proposal made by	Alen Šimec, PhD				
•••••					

Code WEB/ISVU	23600/156393	ECTS	3.0	Academic year	2018/2019		
Name	Web Browsers and N	avigation	I		I		
Status	4th semester - E-busi	4th semester - E-business (Izvanredni informatike) - obligatory course					
Teaching mode	Lectures + exercises	(auditory + labora	tory + seminar + meto	odology + construction)	15+60 (0+60+0+0)		
	work at home				15		
Teachers	Lectures: Aleksandra	Bernašek Petrinec					
	Lectures:prof.dr.sc. K	laudio Pap	Xale Datainaa				
	l aboratory exercises	: Darija Ćutić mac	ing graph techn				
Course obiectives	To transfer to students the basic knowledge related to Web navigation and Web browsing						
Learning outcomes:	1.ability to analyse the computer addressing: to create Internet addresses. Level:6						
5	2.ability to identify ty	pes of Web locatio	ns and Web navigation	models . Level:6			
	3.ability to distinguis	h between differen	t categories of Web loc	ations porosity . Level:6			
	4.ability to create nav	vigation by means	of XML technology. Lev	/el:6, /			
	6.ability to devise bro	owsing of domains.	pictures and links. Lev	vel:6.7			
	7.Create content for	web. Level:6,7					
Methods of carrying	Ex cathedra teaching	ł					
out lectures	Case studies						
	Simulations						
	Questions and answe	ers					
	Lectures are with the	interactive project	tion with the computer.	Studies theoretical structures	and uses in practice.		
Methods of carrying	Laboratory exercises	, computer simulat	ions				
exercises	Interactive problem solvin	solving					
	Solving of prepared t	asks in the comput	er laboratory with the o	check of final solutions of every	/ student.		
Course content	1.Multilayer planning	of website linkage	, 1h, Learning outcome	es:1,4			
lectures	2.Identification of we	bsites and Internet	resource, 1h, Learning	g outcomes:1			
	3.Navigation within a	document, 1h, Lea	arning outcomes:7	.1.6			
	5. Search via keyword	inages and links,	Th, Learning outcomes:	1			
	6.Creation and netwo	orking of ActionScri	pt graphics, 1h, Learnir	ng outcomes:7			
	7.Creating animation	s and navigation ir	Adobe Flash, 1h, Learn	ning outcomes:7			
	8.Implementation of	video content in w	eb structure and naviga	ation management (1), 1h, Lean	ning outcomes:7		
	10 Types of web loca	ition (1) 1h Learni	ng outcomes 2 3	ation management (2), 11, Lea	ning outcomes:/		
	11.Types of web loca	tion (2), 1h, Learni	ng outcomes:2,3				
	12.Models of logical r	navigating organiza	ation of web: linear, net	work, tree end pure web organ	ization (1), 1h, Learning		
	outcomes:2,5	avianting organiz	tion of wohe linear not	work trop and pure web argan	vization (2) 1h Learning		
	outcomes:2.5		actori or web. intear, net	work, tree end pure web organ	ization (2), 11, Learning		
	14.Colloquium, 2h, Le	earning outcomes:	1,2,3,4,5,6,7				
	15.There are no class	ses					
Course content	1 Introduction with H	TML programming	languago 26 Loarning	autcomoci4			
laboratory	2.Tablels in HTML. 2h	1. Learning outcom	es:4	outcomes:4			
,,	3.The program manip	oulation of URL stri	ng with DOM model, 2h	n, Learning outcomes:2			
	4.Colloquium 1, 2h, L	earning outcomes:	2,4				
	5.Lists in HTML, 2h, L	earning outcomes:	4 Web encertien 2b				
	7. Declaration of varia	ables and defining (functions in JavaScript.	2h. Learning outcomes:3,4,5			
	8.Commands for HTT	P protocol , 2h, Lea	arning outcomes:1				
	9.Colloquium 2, 2h, L	earning outcomes:	1,3,4,5				
	10.Search domain, in	nages, links and ho	ist segments, 2h, Learn	ing outcomes:6,7			
	12.Creation of naviga	ation for tree Web (organization . 2h. Learn	ing outcomes:3.5			
	13.Searching by mea	ins of key words, 2	h, Learning outcomes:1	.,2			
	14.Compensation of I	labs, 2h, Learning o	outcomes:1,2,3,4,5,6,7				
	15.Colloquium 3, 2h,	Learning outcome	s:1,2,3,4,5,6,7				
Required materials	General nurnose corr	nuter laboratory					
incounce materials	Whiteboard with mar	kers					
	Overhead projector						
	D						
Exam literature	Basic literature:	Agić I Žiliak:"Mo	delling and Simulation	of Integration of Web system	Jigital and Conventional		
	Printing", 29th Intern	ational Research C	onference of IARIGAI, L	ake of Lucerne, Switzerland, 20)02		
	2. K. Pap: "Razvoj gra	afičkih jezika bazira	inih na XML-u", Tiskarst	tvo 03 Stubičke toplice, , ISBN 9	953-199-016-6, UDK		
	655(082), 655.4 : 004	4. 738.5, Zagreb, 2	003.				
	3. K. Pap: "XML u star	ndardizaciji tiskars 4 - 738 5	tva", str. 135-150, Tiska	arstvo 03, Zagreb, 2003., ISBN	953-199-016-6, UDK		
	Additional literature:	τ. / . Ο					
	1. T.A. Powell, Web D	esign: The Comple	te Reference, Osborne/	/McGraw-Hill, Berkeley,Californ	ia 2000. ISBN:		
	0-07-212297-8						
	1						



Students obligations	maximum of 2 absences from exercises and colloquium			
Knowledge	Regular attendance#15#10#0\$Colloquium, numerical assignments#3#90#0\$			
evaluation during				
semester				
Knowledge	Tasks on the computer and the oral part of the exam			
evaluation after				
semester				
Student activities:	Aktivnost	ECTS		
	(Written exam)	1		
	(Oral exam)	1		
	(Practical work)	1		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Doc. dr. sc. Jana Žiljak Vujić			

Code WEB/ISVU	23754/170030	ECTS	6.0	Academic year	2018/2019	
Name	Web Design					
Status	6th semester - E-busin obligatory course	iess (Izvanredni informati	ke) - obligatory course6t	h semester - IT Design (Izvanredni informatike) -	
Teaching mode	Lectures + exercises (work at home	Lectures + exercises (auditory + laboratory + seminar + metodology + construction) 30+60 (0+60+0+0) work at home 90				
Teachers	Lectures:4. dr.sc. Maja Laboratory exercises:	i Turčić pred. Mario Janković mag. ing.	graph. techn.			
Course objectives	To transfer to student	s the basic knowledge re	lated to Web design: con	cept, design and realisa	ition	
Learning outcomes:	 1.ability to devise a public presentation. Level:6,7 2.ability to prepare a Web page to be uploaded and posted on the Internet. Level:6,7 3.ability to create interactive graphic applications. Level:6,7 4.ability to present a project development. Level:6,7 5.ability to check the functionality. Level:6 6.ability to develop an authentic and usable Web page. Level:6,7 7.ability to design a task based Web page as an author work . Level:6 8.ability to give comments on imperfections of certain solutions, to take a critical attitude. Level:6 11.ability to give comments on advantages of certain solutions, depending on their purpose. Level:6 13.ability to give comments on advantages of certain solutions, depending on their purpose. Level:6 					
Methods of carrying out lectures	Ex cathedra teaching Guest lecturer Case studies Lecturing and analysis individual concepts, au	s of the existing solutions cquiring the knowledge n	linked with the task, con ecessary for independen	sideration of advantage	s and disadvantages of	
Methods of carrying out laboratory exercises	Laboratory exercises, computer simulations Group problem solving Discussion, brainstorming Workshop					
Course content lectures	1.content planning, ar 2.basic web design pri 3.wireframing, 2h, Lea 4.static and dinamic la 5.responsive layout, 2 6.designing and differa 7.web design typograp 8.colour theory, 2h, Le 9.preparation of imaga 10.background design 11.forms, link and tab 12.user experience im 13.usability of a web p 14.project presentatio 15.no lesson, 2h	chitecture of information nciples, the difference of inning outcomes:11 ayout, 2h, Learning outco h, Learning outcomes:6,1 entiating navigation elem ohy, 2h, Learning outcomes:5 es and graphics for web, and animation, 2h, Learn le design, 2h, Learning ou portance, 2h, Learning ou page, 2h, Learning outcomes	and basic web page anal media, 2h, Learning outo 0 ents, 2h, Learning outcon es:6,8 2h, Learning outcomes:3 ning outcomes:3,6 utcomes:5,6 nes:5,6,7 s:1,5	tomy, 2h, Learning outco comes:2,12 mes:6,8 }	omes:9,13	
Course content laboratory	1.familiarising with the 2.wireframe web desig 3.making of the layout 4.navigation design, 2 5.layout of elements, 2 6.choosing and editing 7.project assesment, 2 8.color scheme selecti 9.typography impleme 10.transition design ai 11.responsive design 13.web page testing, 2 4.project assesment, 15.project presentatio	2 tools, 2h, Learning outcome, gn, 2h, Learning outcome, grid, 2h, Learning outcome, grid, 2h, Learning outcomes:6, 2h, Learning outcomes:6, 3h, Learning outcomes:4, dh, Learning outcomes:4, on, 2h, Learning outcome, entation, 2h, Learning outcome continued, 2h, Learning outcom continued, 2h, Learning o 2h, Learning outcomes:2, ah, Learning outcomes:2, n, 2h, Learning outcomes; an, 2h, Learning outcomes; an, 2h, Learning outcomes; an, 2h, Learning outcomes;	omes:7,11 25:6,8 30mes:6,8 30 5,6,7,8,10,11 25:6,8 2000 comes:6,8 2000 comes:6,8 2000 comes:3,8 2010	1		
Required materials	Special purpose comp Overhead projector Video equipment	uter laboratory				
Exam literature	 Jason Beaird: The pr Joe Clark: Building F Niko Macdonald: WI 	rinciples of beautiful web Accessible Websites nat is web design?	design			
Students obligations	Attendance (maximum	n of 2 absences)				
Knowledge evaluation during	Attendance Project production					

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semester	2 tests 0-4 points: 1 5 points: 2 6-7 points: 3 8-9 points: 4 10 points: 5		
Knowledge evaluation after semester	Project presentation Written exam 0-4 points: 1 5 points: 2 6-7 points: 3 8-9 points: 4 10 points: 5		
Student activities:	Aktivnost (Written exam)	ECTS 6	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		

Code WEB/ISVU	23752/170028	ECTS	4.0	Academic year	2018/2019
Name	Web Interactive Progra	mming			
Status	6th semester - E-busin	ess (Izvanredni informati	ke) - obligatory course		
Teaching mode	Lectures + exercises (a	auditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0)
	work at home	, ,	57		60
Teachers	Lectures:1. Ognjen Sta	ničić dipl. ing.			
	Laboratory exercises: Ognjen Staničić dipl. ing.				
Course objectives	To transfer to students	To transfer to students the basic knowledge related to the programming technologies of interactive Web applications			
	with the emphasis on JavaScript				
Learning outcomes:	 1.ability to build interactive Web content by using HTML DOM, CSS and JavaScript. Level:6,7 2.ability to combine date and time objects for the purpose of dynamic interaction. Level:6,7 3.ability to make a difference between events and retrieve them on demand. Level:6 4.ability to classify elements of Web forms and their functions. Level:6 5.ability to create forms and their validation. Level:6 6.ability to interact multiple multiple interaction. Level:6 				
	7.ability to create anim 8.ability to analyse eler	ations, multilevel position ments according to the D	ns and links between We OM model. Level:6	eb elements. Level:6,7	
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Discussion Questions and answers				
	Lectures are with the ir	nteractive projection with	the computer. Studies t	cheoretical structures an	d uses in practice.
Methods of carrying	Laboratory exercises, c	computer simulations			
out laboratory	Group problem solving	vina			
exercises	Solving of prepared tag	iks in the computer labor	atory with the check of f	final solutions of every s	tudent.
Course content	1.Introduction to JavaS	cript, 2h, Learning outco	mes:1	,	
lectures	2.Data types and funct	ions, 2h, Learning outcor	mes:4,5		
	3.Loops and object, 2h	, Learning outcomes:3	-		
	4.Strings and arrays, 21	n, Learning outcomes:1,. del and HTML forms 2h	/		
	6.lavaScript events. 2h	. Learning outcomes:1.3	Learning outcomes.1,4		
	7.Arraylike object, imag	ge object, timeout, 2h, Le	earning outcomes:1,2,3		
	8.Browser object mode	l , 2h, Learning outcome	s:1,5,6		
	9.Style object, JavaScri	pt APIs, ECMAScript 6, 21	n, Learning outcomes:1,5	<u>,6</u>	
	10.Introduction to SVG	, 2h, Learning outcomes:	8 teamacifi 7 9		
	12.SVG - animations, 2	h. Learning outcomes:6.	7.8		
	13.jQuery, 2h, Learning	g outcomes:1,6,7	.,0		
	14.JavaScript framewor	rks (AngularJS), 2h, Learr	ning outcomes:1		
	15.No classes, 2h				
Course contout	1 No alasana Dh				
laboratory	2.No classes, 2h. Learn	ing outcomes:1.4.5			
	3.JavaScript fundamen	tals, functions, 2h, Learn	ing outcomes:1,3		
	4. Arrays and strings, 2	h, Learning outcomes:1,5	5		
	5.DOM - interactive qui	z, 2h, Learning outcome	s:4		
	6.Events - form registra	ation, 2h, Learning outco	mes:1,4,5		
	8.Timeout, images - sli	deshow. 2h. Learning ou	tcomes:1		
	9.Style, window, 2h, Le	arning outcomes:1,6			
	10.AJAX, 2h, Learning c	outcomes:1,3			
	11.No classes, 2h	automosil 67			
	13.Compensations, 2h.	Learning outcomes:1.7			
	14.2nd exam, 2h, Lear	ning outcomes:1,7			
	15.No classes, 2h	-			
Required materials	General purpose comp	uter laboratory			
	Overhead projector	ers			
	overneda projector				
Exam literature	1. Marijn Haverbeke: "F	Eloguent JavaScript"			
	2. Peter Gasston: "Mod	erni web - responzivni w	eb dizajn"		
	3. Adam Freeman: "Pro	AngularJS"			
Students obligations	Regular attendance, m	aximum of 2 absences fr	om exercises		
Knowledge	Regular attendance, te	sts, programming assign	ments and exams		
evaluation during semester					
Knowledge	Tasks on the computer	and the oral part of the	exam		
evaluation after					
semester					
1	1				



Student activities:	Aktivnost	ECTS	
	(Written exam)	1	
	(Oral exam)	1	
	(Practical work)	2	
Remark	This course can be used for final thesis theme		
Prerequisites:	No prerequisites.		
Proposal made by	dipl. ing. O. Staničić		

Code WEB/ISVU	23741/170017	ECTS	4.0	Academic year	2018/2019
Name	Web Interactive Proc	ramming			
Status	5th semester - IT De	sian (Izvanredni i	nformatike) - obligatory o	ourse	
Teaching mode	Lectures + exercises	s (auditory + labo	pratory + seminar + meto	dology + construction)	30+30 (0+30+0+0)
Teachers	Lectures:1. Ognjen S	itaničić dipl. ing.	·		00
Course objectives	Laboratory exercises To transfer to studer	ts the basic know	c dipl. ing. wledge related to the prog	gramming technologies of inte	eractive Web applications
	with the emphasis o	n JavaScript			
Learning outcomes:	2.ability to combine date and time objects for the purpose of dynamic interaction. Level:6,7 3.ability to make a difference between events and retrieve them on demand. Level:6 4.ability to classify elements of Web forms and their functions. Level:6 5.ability to create forms and their validation. Level:6 6.ability to integrate multiple multimedia content into a Web page. Level:6,7 7.ability to create animations, multilevel positions and links between Web elements. Level:6,7 8.ability to analyse elements according to the DOM model. Level:6				
Methods of carrying out lectures	Ex cathedra teaching Case studies Demonstration Simulations Questions and answe Lectures are with the	g ers e interactive proje	ection with the computer.	Studies theoretical structures	s and uses in practice.
Methods of carrying	Laboratory exercises	s, computer simul	lations		
out laboratory exercises	Group problem solvin	ng solving			
.	Solving of prepared t	tasks in the comp	outer laboratory with the	check of final solutions of eve	ry student.
Course content	1.Introduction to Java 2.Data types and fur 3.Loops and object, 3 4.Strings and arrays, 5.Document object n 6.JavaScript events, 7.Practice using exai 8.Arraylike object, in 9.Browser object mo 10.Style object, Java 11.Server communic 12.JQuery, 2h, Learn 13.JavaScript framew 14.No classes, 2h, Lea 1.No classes, 2h	aScript, 2h, Learn nctions, 2h, Learn 2h, Learning outo , 2h, Learning outo , 2h, Learning outo mples, 2h, Learning object, time del, 2h, Learning Script APIs, ECMA ation, AJAX, 2h, L ing outcomes:6,7 vorks (AngularJS) earning outcomes	hing outcomes:1 hing outcomes:4,5 homes:3 tcomes:1,7,8 forms, 2h, Learning outco comes:1,3 ng outcomes:1,2,3 out, 2h, Learning outcom outcomes:1,5,6 AScript 6, 2h, Learning ou learning outcomes:1,3 , 2h, Learning outcomes:1 1,4,5	mes:1,4,5 es:1,2,3 tcomes:5,6,8 l	
	3.JavaScript fundame 4.Arrays and strings, 5.DOM - interactive of 6.Events - form regis 7.1st exam, 2h, Lear 8.Timeout, images - 9.Style, window, 2h, 10.AJAX, 2h, Learnin 11.No classes, 2h 12.jQuery, 2h, Learn 13.Compensations, 2 14.2nd exam, 2h, Le 15.No classes, 2h	entals, functions, 2h, Learning out quiz, 2h, Learning stration, 2h, Learning stration, 2h, Learning outcomes:1, slideshow, 2h, Le Learning outcomes:1,3 ing outcomes:1,6 2h, Learning outco arning outcomes	2h, Learning outcomes:1 comes:1,5,8 g outcomes:4 hing outcomes:1,4,5 6 earning outcomes:1 es:1,6 5,7 omes:1,7 :1,7	,3	
Required materials	General purpose con Whiteboard with mai Overhead projector	nputer laboratory rkers	,		
Exam literature	1. Marijn Haverbeke: 2. Peter Gasston: "M 3. Adam Freeman: "F	: "Eloquent JavaSo oderni web - resp Pro AngularJS"	cript" oonzivni web dizajn"		
Students obligations	Regular attendance,	maximum of 3 a	bsences from exercises		
Knowledge evaluation during semester	Regular attendance,	tests, programm	ing assignments		
Knowledge evaluation after semester	Tasks on the comput	ter and the oral p	art of the exam		
Student activities:	Aktivnost		EC	15	
l	(written exam)		1		



	(Oral exam)	1
	(Practical work)	2
Remark	This course can be used for final thesis theme	
Prerequisites:	No prerequisites.	
Proposal made by	dipl. ing. O. Staničić 25. 5. 2017	

Code WEB/ISVU	23733/170009	ECTS	3.0	Academic year	2018/2019
Name	Word Processing				
Status	5th semester - Office C	Organization and Information	tization (Izvanredni infor	matike) - obligatory cour	rse
Teaching mode	Lectures + exercises (a work at home	auditory + laboratory + s	seminar + metodology +	construction)	30+30 (30+0+0+0) 30
Teachers	Lectures:1. Doc. dr. sc. Auditory exercises: Vid Auditory exercises: Do	Lectures:1. Doc. dr. sc. Lidija Tepeš Golubić v. pred. Auditory exercises: Vida Senci Auditory exercises: Doc. dr. sc. Lidija Tepeč Colubić v. pred			
Course objectives	Basic knowledge of tex	t processing skills	· · · ·		
Learning outcomes:	1.ability to analyse a te 2.ability to design a te 3.ability to devise texts 4.ability to give a prese 5.ability to compare pr 6.ability to distinguish 7.ability to edit text by 8.ability to identify typ	Lability to analyse a text on the level of sounds, words, lexemes and on grammatical level. Level:6 2.ability to design a text, its content and a form. Level:6 3.ability to devise texts for Web pages. Level:6,7 4.ability to give a presentation on a subject. Level:6,7 5.ability to compare programs used for translation. Level:6,7 6.ability to distinguish between advantages and disadvantages of translation programs. Level:6 7.ability to edit text by means of word processing tools. Level:6,7 8.ability to identify types of texts and their function. Level:6			
Methods of carrying out lectures	Ex cathedra teaching Seminar, students presentation and discussion Homework presentation The subject matter is explained by using additional examples and by projecting already solved problems with a LCD projector				
Methods of carrying out auditory exercises	Laboratory exercises o Laboratory exercises, c Group problem solving Data mining and knowl	n laboratory equipment computer simulations ledge discovery on the W	/eb		
Course content lectures	1.Introductory lecture, 2.Text processing, 2h, 3.Text Processing Tools 4.Scientific and technic 5.Making a PowerPoint 6.CV, 2h, Learning outc 7.Video CV, 2h, Learnin 8.Colloquium 1, 2h, Lee 9.InDesign, 2h, Learnin 10.Computer-assisted 1 11.Computer-assisted 1 12.Preparing website to 13.Preparing website to 14.Preparing project do 15.Colloquium 2, 2h, Le	2h, Learning outcomes:1 Learning outcomes:1,2,7 s, 2h, Learning outcomes cal writing, 2h, Learning of presentation, 2h, Learning outcomes:1,2,8 ng outcomes:1,2,8 arning outcomes:1,2,3,4, ng outcomes:7,8 translation, 2h, Learning translation, 2h, Learning ext, 2h, Learning outcom ext, 2h, Learning outcom ocumentation, 2h, Learni earning outcomes:1,2,3,4	1,2 7,8 5:1,2,7,8 putcomes:1,2,7,8 ng outcomes:1,2,4 5,6,7,8 outcomes:5,6 outcomes:5,6 les:1,2,3 ng outcomes:2,7 4,5,6,7,8		
Course content auditory	1.Introductory lecture, 2.Memo, 2h, Learning of 3.Layout, 2h, Learning 4.Scientific and technic 5.Making a PowerPoint 6.CV, 2h, Learning outo 7.Paging and tabs, 2h, 8.numbering and bullet 9.Colloquium, 2h, Lear 10.Cover letter, 2h, Lear 11.Table of content, 2h 12.Tables, 2h, Learning 13.Scientific paper, 2h, 14.Preparing website to 15.Colloquium 2, 2h, Lo	2h, Learning outcomes:1 outcomes:2 outcomes:2,7 cal writing, 2h, Learning of presentation, 2h, Learning comes:1,2,8 Learning outcomes:1,2,7 ts, 2h, Learning outcome rning outcomes:1,2,3,4,5 arning outcomes:1,2,7 n, Learning outcomes:2,7 g outcomes:2,7 , Learning outcomes:2,7, ext, 2h, Learning outcome	1,2 putcomes:2,7 ng outcomes:1,2,4 r s:1,2,7 ,6,7,8 8 les:1,2,3 4,5,6,7,8		
Required materials	Basic: classroom, black General purpose comp Whiteboard with marke Overhead projector	<board, chalk<br="">uter laboratory ars</board,>			
Exam literature	Basic literature: 1. Microsoft Typograph 2. Milijaš, Ljiljana. PC šl 3. Seljan, S. Tehnologij. 2005. Str. 24-44 4. Seljan, Sanja; Gašpa 5. Jurafsky, Daniel; Mar Computational Linguist 6. Microsoft Visual Basi Additional literature: http://www.ietf.org/rfc/ http://www.across.net/	y. http://www.microsoft. kola - Office XP. Varaždin a i jezik // Informacijske z Ir, Angelina. Primjena pre rtin, James H. Speech and tics and Speech Recognit ic for Applications Home /rfc1855.txt en/index.aspx	com/typography/(12.01.2 n: Pro-mil, 2002. znanosti u procesu promj evodilačkih alata u EU i p d Language Processing: / ion. New Jersey: Prentice Page. http://msdn.micros	2005.) jena / Lasić-Lazić, J. Zagr otreba za hrvatskim tehr An Introduction to Natura e Hall, 2000. (odabrana p soft.com/vba/ (12.01.20(reb : Filozofski fakultet, nologijama, HDPL 2007. al Language Processing, poglavlja) D5.)

	L. Tepeš Golubić, J. Kolarec: Tehnički i socijalni pogledi na web forume, na primjeru foruma TVZ-a, Opatija, Mipro, 2012.			
Students obligations	Attending classes/exercises and participation in the process			
Knowledge evaluation during semester	During the semestar students have 2 preliminary written exams. If the exams were positively eveluated, the student does not have to attend the final exam. Otherwise there is an oral exam.			
Knowledge evaluation after semester	Written and/or oral exam			
Student activities:	Aktivnost (Written exam) (Oral exam) (Activity in class)	ECTS 1 1 1		
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Lidija Tepeš Golubić, v.pred.			

Study programme	for academic ye	ear 2018/2019
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Code WEB/ISVU	23620/156415	ECTS	6.0	Academic year	2018/2019	
Name	XML Programming					
Status	4th semester - Office O business (Izvanredni in course	4th semester - Office Organization and Informatization (Izvanredni informatike) - obligatory course4th semester - E- business (Izvanredni informatike) - obligatory course4th semester - IT Design (Izvanredni informatike) - obligatory course				
Teaching mode	Lectures + exercises (a work at home	uditory + laboratory + s	eminar + metodology +	construction)	30+30 (0+30+0+0) 120	
Teachers	Lectures:dr.sc. Alen Šin Laboratory exercises: D	nec v. predavač Davor Lozić pred.				
Course objectives	To introduce students t document, read it, brov	o XML standards and me vse it and transform it.	thods of presenting dat	a; to qualify students to	produce an XML	
Learning outcomes:	1.ability to understand	the notion of a proper X	ML document. Level:6,7			
	2.ability to understand 3.ability to understand 4.ability to create vario 5.ability to understand 6.ability to create confi 7.ability to carry out tra 8.ability to understand	2.ability to understand the meaning of XML elements. Level:6,7 3.ability to understand data types in XML documents. Level:6 4.ability to create various XML documents. Level:6,7 5.ability to understand interoperable data structures. Level:6,7 6.ability to create configuration files for application modules. Level:6,7 7.ability to carry out transformations of XML documents. Level:6 8.ability to understand the hierarchy of XML documents. Level:6,7				
Methods of carrying	Ex cathedra teaching					
out lectures	Case studies					
	Discussion					
	Questions and answers	ontation and discussion				
	Other					
	MS Powerpoint present	ation, live examples				
Methods of carrying	Laboratory exercises, c	omputer simulations				
out laboratory	Group problem solving					
exercises	Computer simulations					
	Other					
C	Creating and solving pr	obiems.		lterebine meteriale. Ob	1	
Course content	2 Introductory lecture a	tandards and syntax of	(ML documents 2b Les	rning outcomes:2	, Learning outcomes:1	
lectures	3 Architecture and pub	lishing of XML document	s 2h Learning outcom			
	4.What is XML and what	t is its form, the rules of	writing an XML docume	nt., 2h. Learning outcom	ies:2	
	5.Creating XML docume	ents, examples from prac	ctice., 2h, Learning outc	omes:3	00.2	
	6.XML structure and ve	rtical view of an XML do	cument., 2h, Learning ou	utcomes:3		
	7.Examination of the fir	rst part of the theory, XM	IL standards, XML synta:	x and rules of writing, ar	chitecture and	
	publishing., 2h					
	8.XML processing instru	uctions, comments, links	to the document and ho	ow to format XML conten	it., 2h, Learning	
	9.What are XML entities 10.Method of processin applications and service	s and their role, the synt g an XML document, the es (data exchange, appli	ax and the need for XMI client and server, and t cation integration, conte	. namespaces., 2h, Learr he method of application ant management, messa	ning outcomes:5 n of the different ging), 2h, Learning	
	11.What is XML Schema document., 2h, Learnin	a, which is its meaning a g outcomes:6	nd what we XML Schem	a allows for the applicati	on of the XML	
	12.Safety data commun 13.Writing rules and ex outcomes:7.8	nications using the XML tensibility of XML Schem	Scheme., 2h, Learning o le, creating your own da	utcomes:6,7 ta types, attribute defini	tions., 2h, Learning	
	14.JSON format writing 15.Examination of the s XML Schema, 2h, Learn	rules and what is JSON, second part of the theory ing outcomes:2	SON and XML format re , XML processing instru	lationship, JSON schema ctions, comments, links,	, 2h role of XML entities,	
_						
Course content	1.Introductory exercise	s teach students about t	he duties and education	al materials, and prepar	es the computer to work	
	2.Understanding the wo	ork environment, a comr	outer, access to the com	puter by using the user (data of the student.	
	Opening the program to	o write XML files and pro	blem solving., 2h, Learn	ing outcomes:2		
	3.Creating an XML file,	spelling and syntax. Che	cking the structure and	the correct way of writin	ng a document using the	
	program for validation.	, 2h, Learning outcomes	2			
	4.Creating an XML file,	spelling and syntax. Che	cking the structure and	the correct way of writin	ig a document using the	
	5 Connecting to an XMI	, 211, Learning outcomes	2 cumont for formatting c	ontont Cascading Style	Shoot 2h Loarning	
	outcomes:2			Sintent, Cascading Style	Sheet, 211, Leanning	
	6.Repeating tasks of th	eory and practice, prepa	ration for the midterm.,	2h, Learning outcomes:	2	
	7.Examination of the fir	st part of practice, stand	lards XML, XML syntax a	and rules of writing, arch	itecture and publishing.,	
	2h, Learning outcomes	:2				
	8.50 ving problems of X	ML processing instructio	ons, comments, links to t	ne document and how t	o format XML content.,	
	211, Learning outcomes	Z A XML entities and know	ing what their role, the	syntax and the need for	XMI namesnaces 2h	
	l earning outcomes?	AME ENGLIES, and KNOW	ing what their role, the	syntax and the need for	Ame namespaces., 20,	
	10.Processing an XMI of	locument. the client and	server, and the method	of application of the dif	ferent applications and	
	services (data exchang	e, application integration	n, content management,	, messaging), 2h, Learnii	ng outcomes:2	
	11.Creating an XML Sch	nema, which is its meani	ng and what we XML Sc	nema allows for the appl	ication of the XML	
	document., 2h, Learnin	g outcomes:2				
	12.Connecting XML Sch	ema and XML document	s, XML Validation Schen	ne, problem solving., 2h,	Learning outcomes:2	
1	1					

	13.Writing rules and extensibility of XML Scheme, creating your own data types, attribute definitions., 2h, Learning outcomes:2 14 Reneating tasks of theory and practice, preparation for the midterm, 2h, Learning outcomes:2			
	15.Examination on the computer, repeat exams of practical material., 2h, Learning outcomes:2			
Required materials	Basic: classroom, blackboard, chalk Special purpose computer laboratory Whiteboard with markers Overhead projector XAMPP application			
Exam literature	Simec, Alen; Programiranje i optimizacija Internet stranica u HTML5 okruženju; Tehničko veleučilište u Zagrebu; 2015; Šimec, Alen; Uvod u HTML, XHTML i CSS; Tehničko veleučilište u Zagrebu; 2011; W3C preporuka; Extensible Markup Language (XML) (www.w3c.org); W3Schools Online Web Tutorials (www.w3schools.com); Fawcett J., Ayers D., Quin L. R. E., Beginning XML, 5th Edition, John Wiley Sons, 2012.; Simon St. Laurent, Michael Fitzgerald; XML Pocket Reference, 3rd Edition; O'Reilly Media; 2005. Doug Tidwell; XSLT, 2nd Edition; O'Reilly Media; 2008. Priscilla Walmsley; XQuery, Search Across a Variety of XML Data; O'Reilly Media; 2007. XML.com, O'Reilly, www.xml.com; Holzner S., Inside XML, Pearson Education, 2000; Ray E.T., Learning XML, 2nd edition, O Reilly, 2003;			
Students obligations	Attendance and active participation in lectures 15 points Attendance and active participation in training 15 points Essay and project 20 points			
Knowledge evaluation during semester	1st Colloquium (theory and tasks) 25 points 2nd Colloquium (theory and tasks) 25 points			
Knowledge evaluation after semester	Written exam 100 points			
Student activities:	AktivnostECTS(Classes attendance)1(Written exam)2(Project)2(Practical work)1			
Remark	This course can be used for final thesis theme			
Prerequisites:	No prerequisites.			
Proposal made by	Alen Šimec, PhD			