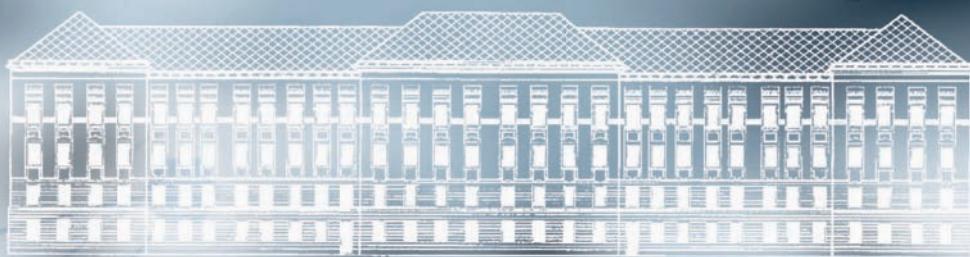




Sveučilište u Rijeci
TEHNIČKI FAKULTET

University of Rijeka
FACULTY OF ENGINEERING



GODIŠNJAK
TEHNIČKOG
FAKULTETA
Sveučilišta u Rijeci

ANNUAL REPORT
OF THE FACULTY
OF ENGINEERING
University of Rijeka

2014./2015.

GODIŠNjak TEHNIČKOG FAKULTETA

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OF THE FACULTY OF ENGINEERING

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University of Rijeka

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Tehnički fakultet

*University of Rijeka
Faculty of Engineering*

**GODIŠNJAK TEHNIČKOG FAKULTETA SVEUČILIŠTA U RIJECI 2014./2015.
ANNUAL REPORT OF THE FACULTY OF ENGINEERING UNIVERSITY OF
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Dr. sc. / D. Sc. Sven Maričić

ZAMJENIK UREDNIKA | DEPUTY EDITOR:

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LEKTURA | PROOFREADING:

Marta Lončarević (hrvatski / Croatian);
v. pred. / Sen. Lect. Ksenija Mance;
v. pred. mr. sc. / Sen. Lect. M. Sc. Elisa Velčić Janjetić (engleski / English)

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ADRESA UREDNIŠTVA | EDITORIAL BOARD ADDRESS:

Godišnjak Tehničkog fakulteta Sveučilišta u Rijeci
51000 Rijeka, Vukovarska 58, Hrvatska / Croatia

Tel.: +385 (0)51 / 651 - 444

Fax: +385 (0)51 / 651 - 416

dekanat@riteh.hr

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predgovor dekana dean's preface



Dragi prijatelji Tehničkoga fakulteta,

sukladno višegodišnjoj tradiciji, a rukovodeći se i onom kriлатicom: što nije zapisano nije se niti dogodilo, i ove smo godine pripremili naš Godišnjak, posvećen pedeset i petoj obljetnici Tehničkoga fakulteta Sveučilišta u Rijeci. U njemu smo, kao i u svim prijašnjima, pokušali prikazati sve naše aktivnosti i rezultate realizirane tijekom akademske godine 2014./15. Jasno, sve su aktivnosti imale cilj ostvariti izvrsnost u znanstvenoj, nastavnoj i stručnoj djelatnosti te ostvariti poziciju prepoznatljive sastavnice riječkoga sveučilišta, kako u hrvatskom, tako i u europskom visokoobrazovnom i znanstvenoistraživačkom prostoru.

Zbog jačanja nastavne i istraživačke infrastrukture Fakulteta i ove smo godine, kao i prethodne dvije, uložili više od milijun kuna vlastitih sredstava u nabavku nastavno-laboratorijske opreme. Radna skupina, predvođena prof. dr. sc. Zlatanom Carom, nastavila je s pripremom projekta Centar tehničkih znanosti Sjevernoga Jadrana. Ministarstvo znanosti, obrazovanja i sportsa uvrstilo je projekt na Indikativnu listu projekata iz područja znanstvene infrastrukture za programsko razdoblje 2014.-2020. Također, u veljači ove godine svečano smo pustili u rad sustav solarnog hlađenja laboratorija Zavoda za termodinamiku i energetiku. Sustav je snage 19 kW, a projekt je realiziran zajedno s Regionalnom energetskom agencijom Kvarner u okviru projekta EMILIE, uz finansijsku pomoć Primorsko-goranske županije.

Kako bismo poboljšali kvalitetu života studenata na Fakultetu, u suradnji sa Studentskim centrom Rijeka, uređen je i ponovo pušten u rad prostor naše kantine u kojoj se sada pruža i usluga subvencionirane studentske prehrane.

Dear Friends of the Faculty of Engineering,

In accordance with the long-term tradition and guided by the saying: What has not been written down, has not even happened, we have prepared our Yearbook also this year to mark the fifty-fifth anniversary of the Faculty of Engineering of Rijeka University. As in the previous ones, we have tried to present all our activities and results realized during the 2014/2015 academic year. Clearly, all the activities were aimed at achieving excellence in scientific, teaching and professional activities, thereby achieving a position of a recognizable member of Rijeka University, both in Croatian and in European higher education and scientific research area.

In order to strengthen the teaching and research infrastructure of the Faculty, this year, as well as in the previous two years, we have invested more than one million kuna of our own funds in purchasing teaching and laboratory equipment. The working group, headed by Prof. Zlatan Car, D. Sc., continued with the preparation of the project The Engineering Sciences Centre of the Northern Adriatic. The Ministry of Science, Education and Sports has included the project in the Indicative list of projects in the field of scientific infrastructure for the programming period 2014-2020. Moreover, in February of this year, a 19 kW solar cooling system of the Laboratory of the Department of Thermodynamics and Energy Engineering was officially opened and put into operation. The project was implemented together with the Regional Energy Agency Kvarner in the framework of the EMILIE project and with the financial assistance of the Primorsko-Goranska County.

To improve the quality of life of students at the Faculty, in cooperation with the Student Centre in Rijeka, the premises of our cafeteria have

Izuzetno mi je zadovoljstvo istaknuti kako naš časopis Engeenering Review, u suzdvavaštu s Građevinskim fakultetom, već drugu godinu zaredom bilježi rast faktora utjecaja na listi vrlo cijenjene bibliometrijske baze SCImago, čime se svršao u gornji dom svjetskih časopisa u svojoj kategoriji. Stoga čestitke Uredništvu: prof. dr. sc. Josipu Brniću, glavnem uredniku, izv. prof. dr. sc. Marinu Franulović, izv. prof. dr. sc. Aleksandri Deluka-Tibljaš, prof. dr. sc. Kristianu Leniću, doc. dr. sc. Tihani Galinac-Grbac i doc. dr. sc. Dubravku Frankoviću.

Čestitke idu i dobitnicima vrlo vrijednih nagrada: doc. dr. sc. Jonatanu Lergi, dobitniku Godišnje nagrade Grada Rijeke za znanstveni doprinos i ostvarena postignuća u području digitalne obrade signala, dr. sc. Vedranu Kirinčiću, dobitniku Nagrade za mlade znanstvenike Vera Johanides Hrvatske akademije tehničkih znanosti i dr. sc. Svenu Maričiću, dobitniku Godišnje nagrade Primorsko-goranske županije za poseban doprinos popularizaciji i primjeni 3D tehnologija u kirurgiji.

Radnoj skupini za izradu Godišnjaka, s glavnim urednikom dr. sc. Svenom Maričićem, a koju su uz njega činili dr. sc. Sanjin Krščanski kao pomoćnik glavnog urednika, dr. sc. Loredana Simčić, dr. sc. Ozren Bukovac, studentica Wendy Herceg i studentica Ljubica Pavlović, zahvaljujem na naporu uloženom u pripremu i uređenje cjelokupne građe.

Svim djelatnicima i studentima Tehničkoga fakulteta čestitam pedeset i petu obljetnicu!

U Rijeci, 14. listopada 2015. g.

*Dekan
Prof. dr. sc. Goran Turkalj*



been restored and reopened, thus providing also services of subsidized student meals.

I am pleased to point out that our journal Engeenering Review, which we publish in association with the Faculty of Civil Engineering, raised the impact factor on the list of the highly appreciated SCImago bibliometric database for the second year in a row, making it one of the top world's journals in its category. I congratulate its Editorial Board: Prof. Josip Brnić, D. Sc., editor in chief, Assoc. Prof. Marina Franulović, D. Sc., Assoc. Prof. Aleksandra Deluka-Tibljaš, D. Sc., Prof. Kristian Lenić, D. Sc., Assoc. Prof. Tihana Galinac-Grbac, D. Sc., and Assoc. Prof. Dubravko Franković, D. Sc..

Moreover, I extend my congratulations to the winners of valuable awards: Assist. Prof. Jonatan Lerga, D. Sc., awarded the Annual Prize of the City of Rijeka for his scientific contribution and achievements in the field of digital signal processing; Vedran Kirinčić, D. Sc., awarded the Vera Johanides Award for young scientists of the Croatian Academy of Engineering Sciences, and Sven Maričić, D. Sc., awarded the Annual Prize of the Primorsko-Goranska County for his distinctive contribution to the popularization and application of 3D technologies in surgery.

For the effort invested in preparing the material for this issue of the Yearbook, I express my gratitude to the working group of the Yearbook, with the editor in chief Sven Maričić, D. Sc., Sanjin Krščanski, D. Sc., assistant to the editor in chief, Loredana Simčić, D. Sc., Ozren Bukovac, D. Sc., as well as students Wendy Herceg and Ljubica Pavlović.

I congratulate all the Faculty staff and students on our Faculty's fifty-fifth anniversary!

Rijeka, 14 October 2015

*Dean
Prof. Goran Turkalj, D. Sc*

1 opće informacije general information

Tehnički fakultet Sveučilišta u Rijeci stožerma je visokoškolska i znanstveno-istraživačka institucija na području tehničkih znanosti ne samo na Sveučilištu u Rijeci nego i u regiji u kojoj djeluje, konkurentna na europskom i svjetskom tržištu znanja. Fakultet objedinjuje djelatnost 11 zavoda, i to:

- Zavoda za automatiku i elektroniku
Department of Automation and Electronics
- Zavoda za brodogradnju i inženjerstvo morske tehnologije
Department of Naval Architecture and Ocean Engineering
- Zavoda za elektroenergetiku
Department of Electrical Power Engineering
- Zavoda za industrijsko inženjerstvo i management
Department of Industrial Engineering and Management
- Zavoda za konstruiranje u strojarstvu
Department of Mechanical Engineering Design
- Zavoda za matematiku, fiziku, strane jezike i kinezijologiju
Department of Mathematics, Physics, Foreign Languages and Kinesiology
- Zavoda za materijale
Department of Materials Science and Engineering
- Zavoda za mehaniku fluida i računarsko inženjerstvo
Department of Fluid Mechanics and Computational Engineering
- Zavoda za računarstvo
Department of Computer Engineering
- Zavoda za tehničku mehaniku
Department of Engineering Mechanics
- Zavoda za termodinamiku i energetiku
Department of Thermodynamics and Energy Engineering

U sklopu zavoda djeluje 38 katedri i 50 laboratorijskih jedinica, a na Fakultetu djeluju i Računalni centar, Knjižnica, te Financijska služba, Služba nabave i komercijale, Služba općih i kadrovskih poslova, Služba studentske evidencije i Tehnička služba. Od 171 zaposlenika 69 ih je u znanstveno-nastavnim, 9 u nastavnim i 25 u suradničkim zvanjima, 18 je znanstvenih novaka, tri su zaposlenika na projektima Hrvatske zaklade za znanost, a 38 je djelatnika u administrativnim i stručnim službama. Sedam je zaposlenika izvan sustava MZOŠ te dva na stručnom osposobljavanju. Na Fakultetu radi i veći broj vanjskih suradnika. Fakultet

The Faculty of Engineering of the University of Rijeka is a leading higher education, scientific and research institution in the field of engineering sciences not only at the University of Rijeka, but also in the region where it is situated. It is competitive on the European and the world knowledge market. The Faculty encompasses 11 departments, namely:



The departments include 38 sections and 50 laboratories, and the Faculty also has a Computing Centre, a Library as well as an Accounting Division, Procurement Office, the General and Personnel Office, the Student Affairs Office and the Technical Service. Of the total number of 171 employees, 69 are in teaching-research, 9 in teaching and 25 in associate positions, 18 junior researchers, 3 members of staff work on projects funded by the Croatian Science Foundation, and 38 work in the administrative and professional services. 7 employees are outside of the system of the Ministry of Science, Education and Sports,

izvodi sveučilišne preddiplomske i sveučilišne diplomske studijske programe na području strojarstva, brodogradnje, elektrotehnike i računarstva te stručne preddiplomske studijske programe na području strojarstva, brodogradnje i elektrotehnike, kao i trogodišnji treći ciklus obrazovanja koji omogućava stjecanje doktorata znanosti na području tehničkih znanosti, i to na polju strojarstva, brodogradnje, elektrotehnike, temeljnih tehničkih znanosti te interdisciplinarnih tehničkih znanosti.

Do sada je na Tehničkom fakultetu u Rijeci diplome steklo 128 doktora znanosti, 95 magistara znanosti, 2899 diplomiranih inženjera (od čega 2335 strojarstva, 311 brodogradnje i 253 elektrotehnike), 691 magistra inženjera (od čega 282 strojarstva, 75 brodogradnje, 303 elektrotehnike i 31 računarstva), 1536 inženjera (od čega 717 strojarstva, 108 brodogradnje i 711 elektrotehnike), 1061 sveučilišnih prvostupnika inženjera (od čega 480 strojarstva, 82 brodogradnje, 360 elektrotehnike i 139 računarstva) te 335 stručna prvostupnika inženjera (od čega 122 strojarstva, 32 brodogradnje i 181 elektrotehnike). Danas tu studira više od 2000 studenata.

Tehnički fakultet ima dugu tradiciju izdavanja znanstvenih i stručnih radova. Tiskanje Zbornika radova započinje još 1970. godine, a 1988. godine spomenuta edicija mijenja naziv u Zbornik Tehničkog fakulteta Rijeka. Naziv se ponovo mijenja 1995. godine u Engineering Review, a pod tim nazivom časopis se tiska i danas. Osim znanstvenih i stručnih radova, djelatnici Fakulteta objavili su i mnogobrojne knjige i udžbenike.

Na Fakultetu je od 24. studenog 2000. godine aktivan Alumni klub Tehničkoga fakulteta Sveučilišta u Rijeci (skraćeno ALUMNI TFR) osnovan s primarnim ciljem izgradnje i jačanja veza i suradnje između bivših studenata i Tehničkoga fakulteta, ali i osobne suradnje između bivših studenata. Predsjednik ALUMNI TFR je prof. dr. sc. Zoran Mrša, a na dan 30. 9. 2014. godine ukupan broj registriranih članova kluba ALUMNI TFR iznosi 1336.

Dobrovoljno darivanje krvi na Fakultetu provodi se još od 1980. godine. U novije doba ta hvalevrijedna aktivnost provodi se organizirano od 2002. godine. U prošloj smo godini održali 3 akcije (16.10.2014., 22.1.2015. i 19.5.2015.) pri čemu je sakupljeno preko 150 doza ove dragocjene tekućine. Proteklih godina glavni

and 2 on professional training, but the Faculty engages a large number of external associates. The Faculty offers undergraduate and graduate university study programmes in mechanical engineering, naval architecture, electrical engineering and computer engineering as well as undergraduate vocational study programmes in mechanical engineering, naval architecture and electrical engineering. It also offers a three-year doctoral study in the area Engineering Sciences, in the fields of Mechanical Engineering, Naval Architecture, Electrical Engineering, Fundamental Engineering Sciences and Interdisciplinary Engineering Sciences.

So far, the Faculty of Engineering in Rijeka has delivered 128 PhD and 95 Master of Science degrees. Of the former 2899 Graduate Engineer Diplomas 2335 were in Mechanical Engineering, 311 in Naval Architecture and 253 in Electrical Engineering; and of 1536 Engineer Diplomas 717 were in Mechanical Engineering, 108 in Naval Architecture and 711 in Electrical Engineering. The Bologna programme has produced 691 Master Engineers (282 Mechanical Engineering, 75 Naval Architecture, 303 Electrical Engineering and 31 Computer Engineering), 1061 University Bachelor Engineers (480 Mechanical Engineering, 82 Naval Architecture, 360 Electrical Engineering and 139 Computer Engineering) as well as 335 Vocational Bachelor Engineers (122 Mechanical Engineering, 32 Naval Architecture and 181 Electrical Engineering). At present more than 2000 students study at the Faculty.

The Faculty of Engineering has a long tradition of publishing scientific and technical papers. Proceedings were first published as far back as in 1970, and as of 1988 under the name Proceedings of the Faculty of Engineering in Rijeka. In 1995, this was renamed into Engineering Review, which is still in use today. In addition to scientific and technical papers, the faculty staff has published numerous books and textbooks.

The Alumni Club of the Faculty of Engineering in Rijeka (ALUMNI TFR) was founded on 24th November 2000 with the primary aim of establishing and strengthening ties and cooperation not only between alumni and the Faculty but also among the alumni themselves. The chair of the ALUMNI TFR is Prof. Zoran Mrša, D. Sc., and on 30th September 2014 the Club had a total of 1336 registered members.



organizator darivanja krvi je prof. dr. sc. Roberto Žigulić, a pomažu mu i članovi Kluba 25. Krv u podjednakom broju daruju i zaposlenici i studenti. U vrijeme Dana Tehničkog fakulteta, po prvi puta nakon dužeg vremena, održano je druženje članova Aktiva Darivatelja Fakulteta. Na druženje se odazvao veći broj studenata i zaposlenika, a osim evociranja uspomena na starije darivatelje i na raniji rad Aktiva, podijeljena su i zaslužena priznanja jubilarcima.

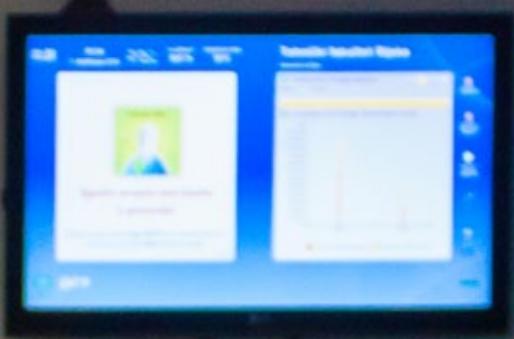
Na TFR od 1990. godine djeluje i podružnica Nezavisnog sindikata znanosti i visokog obrazovanja. Osim zaštite prava svojih članova, sindikalna podružnica na Fakultetu obavlja i zadatke iz djelokruga rada Zaposleničkoga vijeća koje na fakultetu nije konstituirano. Sindikalni povjerenici Podružnice su prof. dr. sc. Roberto Žigulić iz redova nastavnoga osoblja i Žarko Burić iz redova nenastavnoga osoblja.

Voluntary blood donation at the Faculty has been carried out since 1980. So in the last year, three such events were organized (on 16th October 2014, 22nd January 2015 and 19th May 2015), where more than 150 doses of this precious liquid were collected. In recent years, the main organizer of the blood donation has been Prof. Roberto Žigulić, D. Sc., assisted by members of Club 25, the blood being donated by equal number of staff and students. The Faculty Donor's Club organized a gathering on the latest Faculty Day in which a large number of students and staff took part. Awards of merit were handed to jubilarians and older Club donors and activities were remembered.

Since 1990, a subsidiary of the Independent Union of Science and Higher Education Employees of Croatia has been active at the Faculty of Engineering. Apart from protecting the rights of its members, the union branch carries out tasks within the scope of Workers's Council, which has not been organized at the Faculty. The Union representatives of the Subsidiary are Prof. Roberto Žigulić, D. Sc., representing the teaching staff, and Žarko Burić the non-teaching staff.







GLAVNI TANIK	1	VSS	1	DEKANAT	1	PROJEKANI	1	POMOĆNI	1	VSS	
ĐEKAN	1			PROJEKANI	1			POMOĆNI	1		
Tomo Verbić				Prof. Goran TURKALJ		Prof. Anka TRP		Prof. Jasna PRPIĆ-ORŠIĆ		Prof. Vlastimir MEDICA	
						Prof. Jasna PRPIĆ-ORŠIĆ Izv. prof. Lato KRAJČEVIĆ Noven Bušić		Prof. Đaško PAVLETIĆ			
ZAVOD ZA AUTOMATIKU I ELEKTRONIKU	1	ZAVOD ZA BRODGAZDANU TEHNOLOGIJU	1	ZAVOD ZA INDUSTRIJSKO INŽINJERSTVO I MANAGEMENT	1	ZAVOD ZA KONSTRUKCIJE U STROJARSTVU	1	ZAVOD ZA MATEMATIKU FIZIKU, STR. IZJ. I KINEZOLOGIJU	1	ZAVOD ZA MEHANIČKE SUSTAVE	1
PREDSTOJNIK	1			PREDSTOJNIK	1			PREDSTOJNIK	1		
Izv. prof. Saša VLAHINIĆ				Izv. prof. Milan KONCIĆ		Prof. Neven LOVRIN		Prof. Božo ŠMOLJAN		Prof. Željko JERIČEVIĆ	
Katedra za mjerne tehnike i sustave	1	Katedra za elektročne strojeve i pogone	1	Katedra za optičnu i propulzijsku brodu	1	Katedra za stručne i projektične elektronike	1	Katedra za izradu i konstrukciju i precizno inženjerstvo	1	Katedra za mehaničku i hidrauličku strojeve	1
VODITELJ	1			VODITELJ	1			VODITELJ	1		
Izv. prof. Nino STOJKOVIC				Izv. prof. Roko ĐEHALLA		Prof. Duško PAVLETIĆ		Prof. Gordana MARUŠIĆ		Prof. Domagoj KUBESA	
Katedra za signalne sisteme	1	Katedra za organizacijski i operativski management	1	Katedra za upravljanje i objektala	1	Katedra za stručne i operativne organizacije	1	Katedra za izradu i konstrukciju i precizno inženjerstvo	1	Katedra za dinamiku i svojstva materijala	1
VODITELJ	1			VODITELJ	1			VODITELJ	1		
Izv. Prof. Viktor SLUČIĆ				Izv. prof. Juraj ŠMUNIĆ		Prof. Tonči MMKAC		Prof. Julijan DOBRINČ		Prof. Robert ŽGULIĆ	
Katedra za elektroniku, robotiku i automatiku	1	Katedra za elektromehaničke sisteme	1	Katedra za elektrotehniku i brdegardiju	1	Katedra za elektroenergetiku i sistemove	1	Katedra za strane jezike	1	Katedra za mehaničku tjeru	1
VODITELJ	1			VODITELJ	1			VODITELJ	1		
Prof. Zoran CAR				Prof. Nikša FAFAĐEL		Prof. Boris OBSIEGER		Izv. prof. Zoran JURKOVIĆ		Prof. Marko ČANAJA	
Katedra za tehnologiju, organizaciju i brdegardiju	1	Katedra za prijenosne i komunikacijske elemente	1	Katedra za proizvodne tehnologije	1	Katedra za prijenosne snage i kretanje	1	Katedra za mehaničku i hidrauličku strojarsku	1	Katedra za procesno energetsko i zaštiti okoliša	1
VODITELJ	1			VODITELJ	1			VODITELJ	1		
Prof. Jasna PRPIĆ-ORŠIĆ				Izv. prof. Albert ZAMARN		Prof. Goran CUKOR		V. pred. Ksenija MANCE		Prof. Vladimir MEDICA	
Katedra za konstrukciju plominih objekata	1	Katedra za projektiranje i procesi	1	Katedra za dinamiku pojedinosti	1	Katedra za kretanje	1	Katedra za mehaničku i hidrauličku strojarsku	1	Katedra za procesno energetsko i zaštiti okoliša	1
VODITELJ	1			VODITELJ	1			VODITELJ	1		

Organizacijska struktura Fakulteta - Zavodi i katedre

	DEAN'S OFFICE	1	1	1
SECRETARY GENERAL	VSS	1	1	1
Toma Verić				
DEPARTMENT OF INDUSTRIAL MANAGEMENT	DR	1	1	1
DEPARTMENT HEAD	1	1	1	1
Asst. Prof. Dubravko FRANKOVIC				
Prof. Rođko DEHALLA				
DEPT. OF NAVAL ARCHITECTURE AND OCEAN ENGINEERING	DR	1	1	1
DEPARTMENT HEAD	1	1	1	1
Assoc. Prof. Štefan VLAHINIC				
Assoc. Prof. Boško PAVLETIC				
Chair of Resistance and Propulsion of the Ship	DR	1	1	1
HEAD	1	1	1	1
Prof. Rođko DEHALLA				
Chair of Measuring Systems	DR	1	1	1
HEAD	1	1	1	1
Prof. Nuno STOKOVIC				
Assoc. Prof. Viktor SUČIĆ				
Chair of Signals and Systems	DR	1	1	1
HEAD	1	1	1	1
Prof. Bruno Čelić				
Chair of Technology and Organisation of Naval Architecture	DR	1	1	1
HEAD	1	1	1	1
Prof. Nikša FAJNDEL				
Chair of Electronics, Robotics and Automation	DR	1	1	1
HEAD	1	1	1	1
Prof. Zlatan CAR				
Chair of the Vessel Dynamics	DR	1	1	1
HEAD	1	1	1	1
Prof. Jasna PRPIĆ-ORŠIĆ				
DEPARTMENT OF MATERIALS, PHYSICS, FOREIGN LANGUAGE AND KINESIOLOGY	DR	1	1	1
DEPARTMENT HEAD	1	1	1	1
Prof. Senka Mačič				
Prof. Božo ŽMOLJAN				
Prof. Neven LOVRIN				
Chair of Measurement Techniques and Quality Systems	DR	1	1	1
HEAD	1	1	1	1
Prof. Duško PAVLETIC				
Chair of Electrical Engines and Drives	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Ljubo ŠUŠKUĆ				
Prof. Juraj ŠIMUNIĆ				
Prof. Tomči MIKAC				
Chair of Electrical Engineering	DR	1	1	1
HEAD	1	1	1	1
Prof. Božidar KRŽIN				
Chair of Construction and Precision Engineering	DR	1	1	1
HEAD	1	1	1	1
Prof. Gorana MARUĆIĆ				
Assoc. Prof. Nedja ČRNJANIĆ-ZIĆ				
Chair of Applied Mathematics	DR	1	1	1
HEAD	1	1	1	1
Prof. Domagoj KUBESA				
Chair of Material Engineering	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Jasna PRPIĆ-ORŠIĆ				
Chair of Physics and Environment Protection	DR	1	1	1
HEAD	1	1	1	1
Prof. Ivo RAĐA				
Chair of Structure and Material Properties	DR	1	1	1
HEAD	1	1	1	1
Prof. Domagoj KUBESA				
Chair of Computational Engineering	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Zoran ČARIĆ				
Chair of Fluid Mechanics and Hydraulic Engines	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Božidar KRUŠČIĆ				
Chair of Foreign Languages	DR	1	1	1
HEAD	1	1	1	1
Sen. Lect. Ksenija MANCE				
Chair of Construction Elements	DR	1	1	1
HEAD	1	1	1	1
Prof. Boris OBSIEGER				
Chair of Production Equipment and Robotics	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Zoran JURKOVIC				
Chair of Power Transmissions and Industrial Transport Equipment and Devices	DR	1	1	1
HEAD	1	1	1	1
Prof. Goran ČUKOR				
Chair of Power Transmission and Industrial Transport Equipment and Devices	DR	1	1	1
HEAD	1	1	1	1
Prof. Dubravka SIMINATI				
Sen. Lect. Mirko BAJD				
Chair of Vessel Construction	DR	1	1	1
HEAD	1	1	1	1
Assoc. Prof. Albert ZAMARIN				
Prof. Miladen PIERNIC				

Organisational Structure of the Faculty - Departments and Chairs

TEHNIČKI FAKULTET	I
RJEKA	DR
DEKAN	1

URĐEN ĐEKANA	I
VODITELJ UREDA	VSS
	1
GUAVNITAINIK	VSS
	1
Tomo Vergić	
Sanja PRPIĆ	

KNUJŽNICA	I
VSS	
VODITELJ	1
RAČUNALNI CENTAR	MR
VODITELJ	1
Antun ŠOK	
Marta LONČAREVIĆ	

KNUJŽNICA	I
VSS	
DIPL. KNUJŽNIČAR	1
RAČUNALNI CENTAR	VSS
VODITELJ	1
STRUČNI SURADNIK	3
Tatjana SKORJANC	
Domagoj CRELJENKO	
Dario MAŠENIĆ	
Mario ŠLOŠAK-BRNEVIĆ	

RAČUNALNI CENTAR	I
VSS	
VODITELJ	1
ODSEK BIJAGAINE I LITERATURE	VSS
VODITELJ	1
TEHNIČKI SURADNIK	1
Davorka ČEDANIĆ	
Siniša VUKOTIĆ	

ODSEK FINANSIJSKE OPERATIVE	II
VSS	
VODITELJ	1
Ana ŠUTALO	
Iva ŠPAIĆ	

URĐEN ĐEKANA	I
VODITELJ UREDA	VSS
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GUAVNITAINIK	VSS
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Tomo Vergić	
Sanja PRPIĆ	

KNUJŽNICA	I
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RAČUNALNI CENTAR	MR
VODITELJ	1
ANA MIKROVIĆ-PAVIDIĆ	Robert MOHORIĆ

KNUJŽNICA	I
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VODITELJ	1
RAČUNALNI CENTAR	MR
VODITELJ	1
ANA MIKROVIĆ-PAVIDIĆ	Lenka ŠTAUDIUGHAR

KNUJŽNICA	I
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MIJELA MHALEVIĆ-VUKELIĆ	Robert MOHORIĆ

KNUJŽNICA	I
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MIJELA MHALEVIĆ-VUKELIĆ	Darko VIDUČIĆ

KNUJŽNICA	I
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MIJELA MHALEVIĆ-VUKELIĆ	Ivana BALZANI

KNUJŽNICA	I
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MIJELA MHALEVIĆ-VUKELIĆ	Serđo Mišić

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MIJELA MHALEVIĆ-VUKELIĆ	Janja VELIČIĆ

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MIJELA MHALEVIĆ-VUKELIĆ	Josip JURASIĆ

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MIJELA MHALEVIĆ-VUKELIĆ	Antonela ČALETA

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MIJELA MHALEVIĆ-VUKELIĆ	REFERENT

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RAČUNALNI CENTAR	VSS
VODITELJ	1
MIJELA MHALEVIĆ-VUKELIĆ	REFERENT

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FACULTY OF	
ENGINEERING	DR
DEAN	1

Prof. Goran TURKALI

DEAN'S OFFICE	I	MS
OFFICE HEAD	1	
Secretary General		

Sađja PRPIĆ

Tomo Vergić

DEAN'S OFFICE	I	MS
OFFICE HEAD	1	
Vice-deans		

Prof. Anita TRP

Prof. Jasna RPPIC-ORŠIĆ

Prof. Duško PAVLETIĆ

LIBRARY	I	MS
HEAD	1	
Computer Center		

LIBRARY	I	MS
GRAD. LIBRARIAN	1	
Computer Center		

LIBRARY	I	MS
TECH. ASSOCIATE	1	
Computer Center		

LIBRARY	II	HE
HEAD	1	
Activities Section		

LIBRARY	II	HE
HEAD	1	
Activities Section		

LIBRARY	I	MS
HEAD	1	
Procurement and Commercial Office		

LIBRARY	I	MS
ASSOCIATE	3	
Procurement and Commercial Office		

LIBRARY	I	MS
HEAD	1	
Procurement and Commercial Office		

LIBRARY	I	MS
HEAD	1	
Procurement and Commercial Office		

LIBRARY	II	HE
HEAD	1	
Procurement and Commercial Office		

LIBRARY	I	MS
HEAD	1	
General and Personnel Office		

LIBRARY	I	MS
HEAD	1	
General and Personnel Office		

LIBRARY	I	MS
ASSOCIATE	3	
General and Personnel Office		

LIBRARY	I	MS
HEAD	1	
General and Personnel Office		

LIBRARY	I	MS
HEAD	1	
General and Personnel Office		

LIBRARY	II	HE
HEAD	1	
General and Personnel Office		

LIBRARY	I	MS
HEAD	1	
Students' Registrar and Affairs Office		

LIBRARY	I	MS
HEAD	1	
Students' Registrar and Affairs Office		

LIBRARY	I	MS
ASSOCIATE	3	
Students' Registrar and Affairs Office		

LIBRARY	I	MS
HEAD	1	
Students' Registrar and Affairs Office		

LIBRARY	I	MS
HEAD	1	
Students' Registrar and Affairs Office		

LIBRARY	II	HE
HEAD	1	
Students' Registrar and Affairs Office		

LIBRARY	I	MS
HEAD	1	
Technical Affairs		

LIBRARY	I	MS
HEAD	1	
Technical Affairs		

LIBRARY	I	MS
ASSOCIATE	3	
Technical Affairs		

LIBRARY	I	MS
HEAD	1	
Technical Affairs		

LIBRARY	I	MS
HEAD	1	
Technical Affairs		

LIBRARY	II	HE
HEAD	1	
Technical Affairs		

LIBRARY	I	MS
HEAD	1	
Maintenance Workshops		

LIBRARY	I	MS
HEAD	1	
Maintenance Workshops		

LIBRARY	I	MS
ASSOCIATE	3	
Maintenance Workshops		

LIBRARY	I	MS
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HEAD	1	
Maintenance Workshops		

LIBRARY	I	MS
HEAD	1	
Archive and Mail Services		

LIBRARY	I	MS
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Archive and Mail Services		

LIBRARY	I	MS
ASSOCIATE	3	
Archive and Mail Services		

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HEAD	1	
Archive and Mail Services		

LIBRARY	I	MS
HEAD	1	
Archive and Mail Services		

LIBRARY	II	HE
HEAD	1	
Archive and Mail Services		

LIBRARY	I	MS
HEAD	1	
Housekeepers		

LIBRARY	I	MS
HEAD	1	
Housekeepers		

LIBRARY	I	MS
ASSOCIATE	3	
Housekeepers		

LIBRARY	I	MS
HEAD	1	

2 fakultet u akademskoj godini 2014./2015. the faculty in the academic year 2014/2015

2.1 opće informacije general information

Na Tehničkom fakultetu tijekom akademske godine 2014./2015. u različitim fazama studija aktivno je studiralo 2027 studenata, a svoj studij u tom razdoblju uspješno je završilo 153 magistara inženjera, 196 sveučilišnih prvostupnika i 33 stručna prvostupnika. Prošle je akademske godine na našem fakultetu osmero kandidata obranilo doktorske disertacije.

U akademskoj godini 2014./2015. u nabavku nastave i laboratorijske opreme Fakultet je izdvojio približno milijun kuna vlastitih sredstava. U listopadu 2014. godine Fakultetsko vijeće je temeljem prijedloga Povjerenstva za nastavu prihvatio da se za upis studenata na preddiplomske sveučilišne i stručne studije u ak. god. 2015./2016. traži položen ispit iz Matematike na državnoj maturi na višoj (A) razini.

U ožujku 2015. godine Fakultetsko vijeće je prihvatiло izmjene studijskih programa preddiplomskih sveučilišnih studija Strojarstvo, Brodogradnja, Elektrotehnika i Računarstvo, preddiplomskih stručnih studija Strojarstvo, Brodogradnja i Elektrotehnika i diplomskih sveučilišnih studija Strojarstvo i Brodogradnja te je cijelokupna dokumentacija zatim upućena na daljnji postupak na Sveučilište. Senat Sveučilišta je u travnju 2015. godine donio odluku o izmjenama i dopunama navedenih studijskih programa. Usvojenim izmjenama na preddiplomskim sveučilišnim studijima Strojarstvo i Brodogradnja predmet Elektrotehnika postao je obavezan predmet u 1. semestru, a predmet Uvod u modernu fiziku izborni predmet u 6. semestru studija. Na svim je preddiplomskim sveučilišnim i stručnim studijima predmet Tjelesna i zdravstvena kultura postao izborni predmet u 6. semestru studija. Na diplomskom sveučilišnom studiju Strojarstvo uvedena je nova izborna skupina pod nazivom Računarska mehanika i inženjerstvo nastala spajanjem i modifikacijom izbornih skupina Računarska analiza konstrukcija i strojeva i Računarsko inženjerstvo.

Tijekom akademske godine 2014./2015. na Tehničkom fakultetu se odvijao

In the 2014/2015 academic year 2027 students actively studied at the Faculty of Engineering, of whom 153 earned their master's degree, 196 the university bachelor's degree and 33 the vocational bachelor's degree. Eight candidates defended their doctoral thesis at our Faculty last academic year.

In the 2014/2015 academic year, the Faculty allocated approximately one million kuna from its own funds for the purchase of teaching and laboratory equipment.

In October 2014, the Faculty Council accepted the proposal of the Teaching Commission to require higher level (A) Maths at the National Exam as prerequisite for enrollment in undergraduate university and vocational study programmes as of the 2015/2016 academic year.

In March 2015, the Faculty Council accepted amendments to the study programmes of undergraduate university studies of Mechanical Engineering, Naval Architecture, Electrical Engineering and Computer Engineering, undergraduate vocational studies of Mechanical Engineering, Naval Architecture and Electrical Engineering and graduate university studies of Mechanical Engineering and Naval Architecture, and the whole documentation was sent to the University for further processing. In April 2015, the Senate of the University adopted the amendments to these study programmes. The adopted amendments to the undergraduate university studies of Mechanical Engineering and Naval Architecture made the course of Electrical Engineering compulsory in the 1st semester, and the course Introduction to Modern Physics an elective in the 6th semester of study. Physical and Health Education thereby became an elective course in the 6th semester in all undergraduate university and vocational studies. The graduate university study of Mechanical Engineering incorporated a new elective module named Computational Mechanics and Engineering, created by merging and modifying the elective modules of Computer Analysis of Structures and Machines and Computer Engineering.



znanstvenoistraživački rad u okviru 40 znanstvenih projekata, od čega 5 znanstvenih projekata Hrvatske zaklade za znanost, sedam EU projekata, 20 projekata financiranih od strane Sveučilišta u Rijeci, četiri bilateralna projekta te četiri istraživačka projekta s gospodarstvom.

Nastavilo se s ostvarivanjem mobilnosti studenata i profesora u sklopu programa Erasmus, dijela LLP Programa za cjeloživotno učenje usmjerenog na visokoškolsko obrazovanje. U programu mogu sudjelovati studenti u svrhu studijskog boravka i obavljanja stručne prakse kao i nastavno i nenastavno osoblje Sveučilišta u svrhu održavanja nastave odnosno u svrhu stručnog usavršavanja. Tehnički fakultet trenutno ima 17 bilateralnih ugovora sa Sveučilištima iz Austrije, Cipra, Češke, Francuske, Italije, Mađarske, Poljske, Portugala, Rumunjske, Slovenije i Švedske.

U akademskoj godini 2014./2015. naši studenti su ostvarili šest studijskih mobilnosti i jednu mobilnost za obavljanje stručne prakse, dok smo istovremeno realizirali dvije dolazne studentske mobilnosti i četiri dolazne studentske mobilnosti za stručnu praksu. Jedan naš profesor realizirao je mobilnost u svrhu održavanja nastave, a istovremeno smo u istu svrhu ugostili četiri strana profesora.

U akademskoj godini 2014./2015. dodatno je razvijano umrežavanje i zajednički rad s obrazovnim i znanstvenim ustanovama te gospodarskim subjektima što je rezultiralo sklapanjem više ugovora i sporazuma o znanstvenoistraživačkoj, obrazovnoj i stručnoj suradnji. Kontinuirano se održava i uređuje oprema i prostori Fakulteta te okruženje. Sanirani su dijelovi krovista, uređeno je više predavaonica u kojima su sanirani i zamjenjeni dotrajali podovi te uređeni zidovi, a započete su i aktivnosti oko zamjene vanjskog plastičnog sjeverne zgrade Fakulteta.

During the 2014/2015 academic year, scientific -research work was carried out within the framework of 40 scientific projects, of which five were projects of the Croatian Science Foundation, seven were EU projects, 20 projects were funded by the University of Rijeka, four were bilateral projects and four research projects with industry.

The mobility of students and professors within the framework of the Erasmus programme, part of the LLP Programme for lifelong learning focused on higher education, was further promoted and realized. Students can participate in the programme for the purpose of study sojourn and professional practice, and the university teaching and the non-teaching staff for the purpose of teaching and their professional development. The Faculty of Engineering currently has 17 bilateral agreements with universities from Austria, Cyprus, the Czech Republic, France, Italy, Hungary, Poland, Portugal, Romania, Slovenia and Sweden.

In the 2014/2015 academic year, six of our students used the study mobility programme and one also used it for professional practice, while at the same time we received two incoming students and four mobilities for professional practice. As regards the mobility of the teaching staff, one of our teachers used it to hold classes elsewhere, while we hosted four foreign teachers for the same purpose.

In the 2014/2015 academic year, the Faculty continued its activities on networking and cooperation with educational and scientific institutions as well as with industry, which resulted in several contracts and agreements on scientific-research, educational and professional cooperation. The Faculty continued to maintain and upkeep its equipment and premises. Restoration work performed to-date included parts of the roof, and flooring and walls of several lecture rooms, and work on replacement of the external mantle of the northern building of the Faculty which is still ongoing.



2.2 studenti nagrađeni u ak. godini 2014./2015. awarded students in the 2014/2015 academic year

PREDDIPLOMSKI SVEUČILIŠNI STUDIJ | UNDERGRADUATE UNIVERSITY STUDY

Studij / Study	Godina / Year	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average		ECTS
			godine / year	studija / study	
Strojarstvo / Mechanical Engineering	1.	Renato Picinić	86%	86%	60
	2.	Ante Sikirica	90%	92%	120
Elektrotehnika / Electrical Engineering	1.	David Vozila	84%	84%	60
	2.	Korino Bogović	92%	90%	120
Računarstvo / Computer Engineering	1.	Tomislav Milanović	91%	91%	60
	2.	Igor Pejić	94%	94%	120

SVEUČILIŠNI PRVOSTUPNICI INŽENJERI | UNIVERSITY BACHELOR ENGINEERS

Studij / Study	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average
Strojarstvo / Mechanical Engineering	Fran Ledić	89%
Brodogradnja / Naval Architecture	Mihovil Tomašić	72%
Elektrotehnika / Electrical Engineering	Nikola Lopac	98%
Računarstvo / Computer Engineering	Franko Hržić	93%

DIPLOMSKI SVEUČILIŠNI STUDIJ | GRADUATE UNIVERSITY STUDY

Studij / Study	Godina / Year	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average		ECTS
			godine / year	studija / study	
Strojarstvo / Mechanical Engineering	1.	David Pavlović	95%	95%	60
Brodogradnja / Naval architecture	1.	Lucija Bujan	93%	93%	60
Elektrotehnika / Electrical Engineering	1.	Ivan Jurković	93%	93%	60
Računarstvo / Computer Engineering	1.	Antonio Mileta	92%	92%	60



MAGISTRI INŽENJERI | MASTER ENGINEERS

Studij / Study	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average
Strojarstvo / Mechanical Engineering	Sandra Kvaternik	98%
Brodogradnja / Naval Architecture	Matej Gluščić	94%
Elektrotehnika / Electrical Engineering	Josip Hanak	95%
Računarstvo / Computer Engineering	Diego Sušan	95%

PREDDIPLOMSKI STRUČNI STUDIJ | VOCATIONAL STUDY

Studij / Study	Godina / Year	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average		ECTS
			godine / year	studija / study	
Elektrotehnika / Electrical Engineering	2.	Martin Radošević	81%	81%	120

STRUČNI PRVOSTUPNICI INŽENJERI | BACHELOR ENGINEERS

Studij / Study	Ime i prezime / Name and surname	Prosječna usvojenost znanja, vještina i kompetencija / Knowledge, skills and competences average
Brodogradnja / Naval Architecture	Mihail Primožić	73%
Elektrotehnika / Electrical Engineering	Toni Brenčić	78%

DEKANOVA NAGRADA ZA STUDENTSKI AKTIVIZAM

| DEAN'S AWARD FOR STUDENT ACTIVISM

Studij / Study	Ime i prezime / Name and surname
Preddiplomski stručni studij brodogradnje / Undergraduate Vocational Study of Naval Architecture	Ljubomir Pozder
Diplomski sveučilišni studij strojarstva / Graduate University Study of Mechanical Engineering	Ljubica Pavlović



2.3 časopis "engineering review" the journal "engineering review"



Tehnički fakultet Sveučilišta u Rijeci ima dugu tradiciju izdavanja znanstvenih radova. Publiciranje znanstvenih radova djelatnika Tehničkog fakulteta seže u 1970. godinu kada započinje tiskanje Zbornika radova. Godine 1988. spomenuta edicija mijenja naziv u Zbornik Tehničkog fakulteta Rijeka i konačno, 1995.g. uspostavlja se naziv Engineering Review, pod kojim se nazivom ovaj časopis i danas tiska.



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Sve spomenute edicije bile su na raspolaganju za objavu radova kako nastavnog osoblja samog fakulteta, tako i za sve ostale zainteresirane. Fakultet nastoji zainteresirati znanstvenu javnost za publiciranje znanstvenih radova, radi širenja razmjene znanstvenih postignuća temeljenih na istraživačkom radu. Područja iz kojih se u časopisu mogu objavljivati radovi prvenstveno obuhvaćaju strojarstvo, brodogradnju, temeljne tehničke znanosti, elektrotehniku, računalne znanosti i građevinarstvo. U ovom smislu časopis predstavlja jednu od rijetkih baza za publiciranje radova iz vrlo širokog dijapazona tehničkog područja. Razmatraju se i radovi koji su kvalitetni, a nisu izravno iz tehničkog područja, već mogu biti primjerice iz prirodnih znanosti, ali imaju određenu poveznicu s područjem tehnike. Do sada je u razvijat i uređivanje časopisa uloženo puno truda, posebice u vrijeme pod vodstvom glavnog urednika prof. dr. sc. Branimira Baršića,

The Faculty of Engineering of the University of Rijeka has a long tradition of publishing scientific papers. Significantly, the publication of scientific papers by the employees of the Faculty of Engineering dates back to 1970, when the printing of Proceedings was initiated. In 1988, the mentioned edition was renamed the Proceedings of the Faculty of Engineering Rijeka and finally in 1995, the journal was renamed again Engineering Review and it has been published under this title to this very day.

All these editions have readily published papers written not only by teaching staff of the Faculty but also by all other interested sides. The Faculty makes every effort to arouse interest of the scientific community in the publication of scientific papers, all with the aim of disseminating and sharing scientific achievements based on research work. Fields in which the journal may publish papers primarily include mechanical engineering, naval architecture, electrical engineering, computer engineering and civil engineering. In this sense, the journal is one of the few centres used for publishing papers covering wide range of technical areas. Also, qualitative papers not directly from the engineering area are also taken into consideration. They might be, for instance, from natural sciences but surely with some particular links to the area

1970. započinje tiskanje
Zbornika radova

1970, printing of
Proceedings was initiated

1988. spomenuta edicija mijenja naziv
u Zbornik Tehničkog fakulteta Rijeka

1988, was renamed the Proceedings
of the Faculty of Engineering Rijeka

1995. uspostavlja se naziv
Engineering Review

1995, the journal was renamed
Engineering Review

1970

1988

1995

čija je svestrana aktivnost naglo prekinuta njegovom tragičnom i prernom smrću. Za sve uloženo dugujemo mu iskrenu zahvalnost.

Nakon potписанog ugovora o suzdvavaštvu časopisa Engineering Review između Tehničkog fakulteta Sveučilišta u Rijeci (dekan prof. dr. sc. Goran Turkalj) i Građevinskog fakulteta Sveučilišta u Rijeci (dekanica prof. dr. sc. Aleksandra Deluka Tibljaš), nastavljaju se aktivnosti oko izdavanja.

Izdavanje časopisa Engineering Review nastavlja se pod vodstvom glavnog urednika prof. dr. sc. Josipa Brnića (Editor-in-Chief) te pomoćnih urednika (Associate Editors): izv. prof. dr. sc. Marine Franulović, izv. prof. dr. sc. Kristiana Lenića, prof. dr. sc. Aleksandre Deluka Tibljaš, doc. dr. sc. Tihane Galinac Grbac, doc. dr. sc. Dubravka Frankovića. Rad je prihvaćen za objavu nakon dviju pozitivnih recenzija i obavljene jezične lekturice. Jezičnu lekturu svih radova nakon njihovih pozitivnih recenzija vrlo uspješno obavlja prof. Ksenija Mance. Pomoći aktivnostima vezanim uz računalna rješenja pruža izv. prof. dr. sc. Lado Kranjčević te Tatjana Škorjanc, dipl. ing. Broj članova Editorial Boarda kao i broj članova Advisory Editorial Boarda je proširen. Članovi obaju uredništava su eminentni domaći i inozemni profesori i stručnjaci. Veliku pomoći u pripremi, uređivanju i tiskanju radova pružaju asistenti i znanstveni novaci Tehničkog fakulteta: dr. sc. Sven Maričić, dr. sc. Željko Vrcan, dr. sc. Željka Milanović, dr. sc. Neven Munjas, Boris Delač, Ivan Volarić, te dr. sc. Maja Gaćeša i dr. sc. Leo Škec s Građevinskog fakulteta u Rijeci.

Časopis Engineering Review indeksiran je u: Aluminum Industry Abstracts, Advanced Polymers Abstracts, Cambridge Scientific Abstract (CSA), Ceramic Abstracts/World Ceramics Abstracts, Compendex, Composites Industry Abstracts, Computer and Information Systems Abstracts, Copper Technical Reference Library, Corrosion Abstracts, Electronics and Communications Abstracts, Engineered Materials Abstracts, High Technology Research

of engineering. So far, a lot of effort has been made in developing and editing the journal. More particularly, an immense effort was made under the leadership of editor-in chief, Prof. D. Sc. Branimir Barišić, whose versatile activities were put to an abrupt halt because of his tragic and untimely end of his life. Heartfelt thanks to him for all his contribution.

Having entered into the contract on coditions of the journal Engineering Review, signed by the Faculty of Engineering University Rijeka (dean Prof. D. Sc. Goran Turkalj) and the Faculty of Civil Engineering University Rijeka (female dean Prof. D. Sc. Aleksandra Deluka Tibljaš), publication activities will continue.

It follows that the journal Engineering Review will be published under the guidance of main editor-in chief Prof. D. Sc. Josip Brnić, and Associate Editors: Assoc. Prof. D. Sc. Marina Franulović, Assoc. Prof. D. Sc. Kristian Lenić, Prof. D. Sc. Gordan Jelenić, Assoc. Prof. D. Sc. Viktor Sučić, Assist. Prof. D. Sc. Tihana Galinac Grbac and Assist. Prof. D. Sc. Dubravko Franković. The work has been accepted for publication after two positive reviews and performed linguistic revision. Proofreading of papers after their positive reviews is very successfully carried out by Ksenija Mance, prof. Assistance with computer solutions have been provided by Assoc. Prof. D. Sc. Lado Kranjčević and Tatjana Škorjanc, B.Sc. Furthermore, the member lists of both Editorial Board and Advisory Editorial Board have been enlarged. Certainly, both lists consist of eminent home and abroad professors and experts. An enormous assistance with arrangements for editing and printing has been given by senior assistants and junior researchers of the Faculty of Engineering: D. Sc. Sven Maričić, D. Sc. Željko Vrcan, D. Sc. Željka Milanović, D. Sc. Neven Munjas, Boris Delač, Ivan Volarić and D. Sc. Maja Gaćeša, and D. Sc. Leo Škec from the Faculty of Civil Engineering.

Database Journal Citation has been enlarged and it has hence the following indexing: Aluminum Industry Abstracts, Advanced Polymers Abstracts, Cambridge Scientific Abstract (CSA), Ceramic Abstracts/World Ceramics Abstracts, Compendex, Composites Industry Abstracts, Computer and Information Systems Abstracts, Copper Technical Reference Library, Corrosion Abstracts, Electronics and Communications Abstracts, Engineered Materials Abstracts, High Technology Research Database with Aerospace, Mechanical & Transportation Engineering Abstracts, METADEX, SCImago, SCOPUS, VINITI.



2015



Database with Aerospace, Mechanical & Transportation Engineering Abstracts, METADEX, SCImago, SCOPUS, VINITI.

Zadovoljstvo je istaknuti da je časopis temeljem SCIMAGO kategorizacije – rangiranja časopisa, u 2012. godini svrstan u Q4 (četvrta kvartila), a sada (rangiranje za 2014.) u Q2. SCIMAGO kategorizacija časopisa temeljena je na bazi SCOPUS. Časopis je uređen za elektroničku obradu svih podataka i elektroničku komunikaciju od prijave radova do recenzentskih postupaka i priopćavanja rezultata podnositeljima (autorima) radova. Časopis ima široku bazu domaćih i inozemnih recenzentata i ona se stalno dopunjava. Svaki je rad recenziran od strane (minimalno) dva recenzenta od kojih je najmanje jedan inozemni. Za prihvatanje rada niti jedna recenzija ne smije biti negativna. Časopis se objavljuje na engleskom jeziku u tri broja godišnje, a radovi su dostupni online (Hrčak, Tehnički fakultet u Rijeci) te u tiskanu obliku. Časopis također može objaviti određeni broj kvalitetnih radova s određenog kongresa, s time da njihova kvaliteta bude zagarantirana jednom recenzijom kongresa i jednom novom recenzijom. Spomenuti radovi idu u prijavu istom procedurom kao i svi drugi radovi.

Na kraju valja spomenuti da je zainteresiranost za publiciranjem radova u časopisu prilično velika, a ponude za objavljivanjem dolaze iz inozemstva i iz Hrvatske. Ovakvoj zainteresiranosti svakako doprinosi uređeni sustav prijave, recenzija, indeksiranost i komunikacija s autorima.

We are pleased to point out that our journal according to the SCImago categorization – ranking journals in 2012 was included in Q4 (fourth quartile), and now (the ranking of 2014) in Q2. The SCImago categorization of journals is based on the SCOPUS database.

The journal has transferred to electronic processing of all data so that information on paper application, review procedures and results to the applicants are electronically communicated. The journal has a broad base of national and international reviewers and it is constantly being supplemented. The procedure to review the paper includes at least two referees for each work submitted for publication in the journal, at least one being from abroad. For the acceptance of the paper, it is important to mention that all reviews have to be positive. Provided that adequate numbers of qualitative works are submitted, four numbers annually are expected to be published, but present phase includes three numbers annually.

Finally, lots of authors from Croatia and abroad have shown their interest in publishing their scientific papers in Engineering Review. Communication with authors, review and indexing highly contribute to the importance of the journal.



2.4 alumni tfr alumni fer



Alumni klub Tehničkoga fakulteta Sveučilišta u Rijeci, skraćeni naziv ALUMNI TFR, udruga je osnovana s primarnim ciljem uspostave te jačanja veza i suradnje između bivših studenata i Tehničkoga fakulteta, ali i između bivših studenata međusobno. Udruga je osnovana pod nazivom Akademski klub doktora znanosti, magistara znanosti, diplomiranih inženjera i inženjera Tehničkoga fakulteta Sveučilišta u Rijeci na Osnivačkoj skupštini održanoj u Mramornoj dvorani Pomorskoga i povjesnoga muzeja Hrvatskoga primorja i Rijeke, dana 24. studenoga 2000. godine, u sklopu obilježavanja 40 godina djelovanja Fakulteta.

Svrha ALUMNI TFR je očuvanje tradicije Tehničkoga fakulteta Sveučilišta u Rijeci, promicanje ugleda Fakulteta u Republici Hrvatskoj i inozemstvu, skrb za razvitak i napredak Fakulteta, njegovanje i razvitak etike inženjerskoga poziva, utjecaj na stvaranje javnoga znanstvenog i stručnog mišljenja o svim bitnim pitanjima razvoja struke i znanosti te njihove primjene, utjecaj na razvitak i napredak spoznaje o potrebi očuvanja prirode i čovjekova okoliša, izgradnja i jačanje veza i suradnje između bivših studenata i Fakulteta, poticanje i uspostava veza i suradnje Fakulteta i sličnih obrazovnih, razvojnih i istraživačkih institucija u Republici Hrvatskoj i u svijetu, promicanje ugleda inženjerske struke te uspostava i razvijanje suradnje sa sličnim udrugama kod nas i u svijetu.

The Alumni Club of the Faculty of Engineering, Rijeka University, the abbreviation ALUMNI FER, is an association established with the primary aim of fostering and strengthening liaisons as well as cooperation of the former alumni with the Faculty and each other. The association was founded under the name the Academic Fellowship of all PhDs, Masters of Science, graduate engineers and Bachelors of the Faculty of Engineering, University of Rijeka at the Inaugural Meeting held in the Marble Hall of the Maritime and History Museum of Croatian Littoral and Rijeka, on November 24, in 2000, to mark 40th anniversary of the Faculty.

The purpose of ALUMNI FER is to preserve the tradition of higher education at the Faculty of Engineering of Rijeka University, to promote the reputation of the Faculty in the Republic of Croatia and abroad, to care for the development and progress of the Faculty, to nurture and foster ethics in the engineering profession and calling, to exhibit an influence on the creation of public scientific and professional opinions about all important issues in the development of profession and science, and on the development and advancement of awareness about the need to preserve nature and our environment; the aim is also to strengthen relations and cooperation between the former alumni and the Faculty, to encourage the establishment of links and cooperation



Na dan 30. 09. 2015. godine, ukupni broj registriranih članova ALUMNI TFR je 1336.

U prvom djelu ak. god. 2014./2015. predsjednik ALUMNI TFR je prof. dr. sc. Zmagoslav Prelec, dipl. ing., potpredsjednik prof. dr. sc. Zoran Mrša, dipl. ing., a tajnica je Tatjana Škorjanc, dipl. ing., a u drugom djelu, nakon izborne skupštine održane 23.01. 2015., predsjednik ALUMNI TFR je prof. dr. sc. Zoran Mrša, dipl. ing., potpredsjednici prof. dr. sc. Roko Dejhalla, dipl. ing i Danko Venturini, dipl. ing. i tajnik dr. sc. Vedran Kirinčić, dipl. ing. U Predsjedništvu su: prof. dr. sc. Zmagoslav Prelec, dipl. ing., prof. dr. sc. Roko Dejhalla, dipl. ing., prof. dr. sc. Goran Turkalj, dipl. ing. - dekan Tehničkoga fakulteta, prof. dr. sc. Bernard Franković, dipl. ing., dr. sc. Aleksandar Regent, dipl. ing., prof. dr. sc. Božidar Križan, dipl. ing., Zlatko Komadina, dipl. ing., dr. sc. Serđo Klapčić, dipl. ing., Davor Lukeš, dipl. ing., Ante Maras, dipl. ing., dr. sc. Vedran Kirinčić, dipl. ing., Mladen Merlak, dipl. ing., prof. dr. sc. Zoran Mrša, dipl. ing., prof. dr. sc. Jasna Prpić-Oršić, dipl. ing. i Danko Venturini, dipl. ing. Likvidatorom je imenovan prof. dr. sc. Vladimir Medica, dipl. ing. Nadzorni odbor čine: mr. sc. Slavko Štambuk, dipl. ing., prof. dr. sc. Duško Pavletić, dipl. ing. i Davor Mihovilić, dipl. ing.

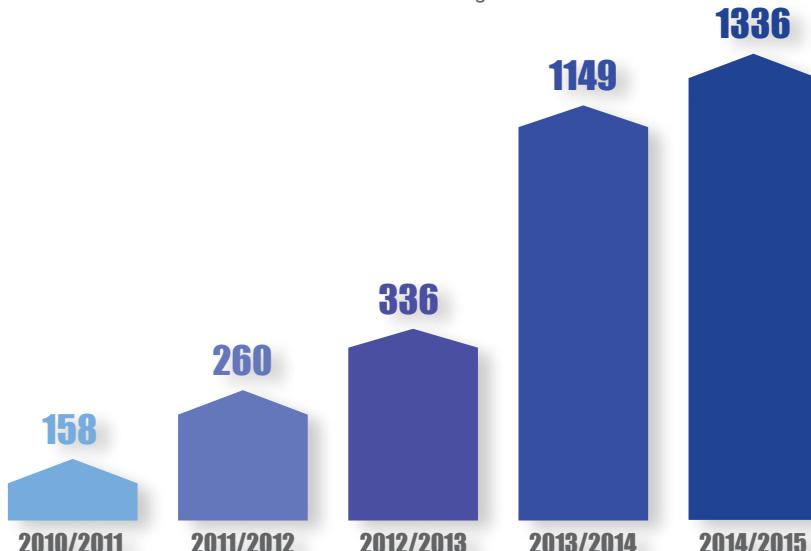
between the Faculty and similar educational, developmental and research institutions in the Republic of Croatia and the world, to promote the reputation of the engineering profession and to establish and develop the cooperation with similar organizations at home and abroad.

As of 30.09. 2015, the total number of registered members ALUMNI TFR is 1336.

In first half of the academic year of 2014/2015, the chairman is of ALUMNI FER was Prof. D. Sc. Zmagoslav Prelec; Vice chairman was Prof. D. Sc. Zoran Mrša and female secretary was Tatjana Škorjanc, M.Eng., and in the second half, after an electoral Assembly on January 23rd 2015., the chairman of ALUMNI FER is Prof. D. Sc. Zoran Mrša, Vice chairmans are Prof. D. Sc. Roko Dejhalla and M.Eng. Danko Venturini, and the secretary is M.Eng. D. Sc. Vedran Kirinčić. The current members of the chairmanship are: Prof. D. Sc. Zmagoslav Prelec; Prof. D. Sc. Roko Dejhalla; Prof. D. Sc. Goran Turkalj - Dean of the Faculty of Engineering and Prof. D. Sc. Bernard Franković; M.Eng. D. Sc. Aleksandar Regent; Prof. D. Sc. Božidar Križan; Zlatko Komadina, M.Eng.; M.Eng. D. Sc. Serđo Klapčić; M.Eng. Davor Lukeš; M.Eng. Ante Maras; D. Sc. Vedran Kirinčić; Mladen Merlak, M.Eng.; Prof. D. Sc. Zoran Mrša; Prof. D. Sc. Jasna Prpić-Oršić; and M.Eng. Danko Venturini. The liquidator is Prof. D. Sc. Vladimir Medica. The current members of the Supervisory Board are: M.Eng. Slavko Štambuk; Prof. D. Sc. Duško Pavletić and M.Eng. Davor Mihovilić.



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prikaz broja članova ALUMNI kluba u razdoblju 2010. - 2015.
overview of ALUMNI members in period 2010 - 2015.

U organizaciji ALUMNI TFR, tijekom ak. god. 2014./2015., realizirane su sljedeće aktivnosti:

During the academic years 2014/2015, the following activities were realized by the ALUMNI FER:

- 31. listopada 2014. organiziran je susret 5. generacije TFR.
On October 31st, 2014, a meeting of the 5th student generation of the Faculty of Engineering was organized
- 07. studenoga 2014. organiziran je susret 10. generacije studenata TFR.
On November 7th, 2014, a meeting of the 10th student generation of the Faculty of Engineering was organized
- 14. studenoga 2014. organiziran je susret 15. generacije TFR.
On November 14th, 2014, a meeting of the 15th student generation of the Faculty of Engineering was organized
- 08. prosinca 2014. organizirano je predavanje pod naslovom „Nove generacije digitalnih uređaja za zavarivanje i robotizirano zavarivanje“
On December 8th, 2014, lecture on "The new generation of digital devices for welding and robotic welding" was organized
- 17. prosinca 2014. potpisani su ugovori o donaciji sudsentskim projektima „RiTeh – Formula student“ i „RiTeh – Waterbike team“
On December 17th, 2014, donation contracts with student projects "RiTeh - Formula student" and "RiTeh - Waterbike team" were signed
- 23. siječnja 2015. održana je Izborna skupština ALUMNI TFR.
On January 23rd, 2015, election session of ALUMNI TFR was held
- 23. siječnja 2015. organiziran je susret 30. generacije TFR
On January 23rd, 2015, a meeting of the 30th student generation of the Faculty of Engineering was organized
- 28. svibnja 2015. organizirano je predavanje Mladena Merlaka dipl. ing., pod naslovom „Projektiranje u brodogradnji – riječki fenomen“
On May 28th, 2015, a lecture on " Design in shipbuilding - Rijeka's phenomenon" was given by Mladen Merlak, PhD



2.5 doktorske disertacije obranjene u akademskoj godini 2014./2015. doctoral dissertations defended in academic year 2014/2015



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IME I PREZIME | NAME AND SURNAME:
Paolo Blecich

PODRUČJE | SCIENTIFIC AREA:
Strojarstvo / Mechanical Engineering

NAZIV RADA | TITLE:
Utjecaj raspodjele zraka na termohidraulička svojstva lamelnog izmjenjivača topline
Effect of airflow distribution on thermal-hydraulic properties of finned tube heat exchanger

MENTOR(I) | SUPERVISOR(S):
prof. dr. sc. / Prof. D. Sc. Bernard Franković
prof. dr. sc. / Prof. D. Sc. Anica Trp

DATUM OBRANE | DATE OF DEFENCE:
14.11. 2014.

Sažetak:

U ovoj doktorskoj disertaciji istražen je utjecaj raspodjele zraka na termohidraulička svojstva lamelnih izmjenjivača topline. Ponuđene su nove analitičke metode za proračun lamelnih izmjenjivača s nejednolikom raspodjelom ulaznih brzina strujanja zraka. Ove metode proračuna mogu predvidjeti izmjenjeni toplinski tok, iskoristivost topline i pad tlaka u lamelnim izmjenjivačima topline s nejednolikom

Summary:

In this doctoral thesis, the influence of airflow distribution on thermal-hydraulic performance of finned tube heat exchangers is investigated. New analytical methods for the rating of finned tube heat exchangers with inlet airflow nonuniformity are proposed. These methods can predict the heat transfer rate, thermal effectiveness and pressure drop in finned tube heat exchangers with airflow nonuniformity and furthermore can

raspodjelom brzina strujanja zraka uzimajući u obzir utjecaj složenog međusobnog smjera strujanja fluida i utjecaj provođenja topline u lamelama. Rezultati proračuna provjereni su eksperimentalnim putem pri čemu su postignuta vrlo dobra poklapanja između predviđenih i izmjerениh vrijednosti.

take into account the influence of complex fluid flow arrangement and the influence of longitudinal heat conduction. The results of the analytical methods are compared against experimental tests and very good agreement between predicted and measured values are obtained.

IME I PREZIME | NAME AND SURNAME:

Stefan Ivić

PODRUČJE | SCIENTIFIC AREA:

Strojarstvo / Mechanical Engineering

NAZIV RADA | TITLE:

Modeliranje i optimizacija polaganja podmorskih cjevovoda

Modeling and optimization of submarine pipe laying

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Senka Maćešić

prof. dr. sc. / Prof. D. Sc. Luka Sopta

DATUM OBRANE | DATE OF DEFENCE:

19.12. 2014.

Sažetak:

U doktorskoj disertaciji obrađena je tema modeliranja i optimizacije polaganja podmorskih cjevovoda. Razmatran je model polaganja temeljen na nelinearnom elastičnom modelu grede uz elastične kontaktne interakcije s krutim strukturama valjkastih oslonaca i morskog dna. Osnovni model polaganja podmorskih cjevovoda te proširenja modela implementirani su i rješavani u softveru Abaqus za različite primjere polaganja cjevovoda. Formuliran je optimizacijski problem određivanja parametara polaganja, za koji je razvijena hibridna specijalizirana optimizacijska metoda temeljena na metodi optimizacije rojem čestica. Razvijeni optimizacijski postupak je testiran i analiziran na više različitih slučajeva polaganja podmorskih cjevovoda.

Summary:

The doctoral thesis deals with the topic of modeling and optimization of the submarine pipe laying. Considered laying model is based on a nonlinear elastic beam model with elastic contact interactions with rigid structures of roller supports and the seabed. The basic model of the submarine pipe laying and its extensions are implemented and solved in the Abaqus software for various pipe laying cases. The optimization problem is formulated to determine the parameters of pipe laying, for which a specialized hybrid optimization method is developed based on a particle swarm optimization method. Developed optimization method was tested and analyzed in several different cases of submarine pipe laying.



IME I PREZIME | NAME AND SURNAME:

Tatjana Ivošević

PODRUČJE | SCIENTIFIC AREA:

Interdisciplinare tehničke znanosti / Interdisciplinary Engineering Sciences

NAZIV RADA | TITLE:

Analiza finih frakcija aerosola u Rijeci pomoću nuklearnih analitičkih tehniki

Analysis of fine fraction of aerosols in Rijeka by Nuclear Analytical Techniques

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Ivica Orlić

DATUM OBRANE | DATE OF DEFENCE:

29.1.2015.

Sažetak:

Multielementni sastav fine frakcije aerosola u rasponu od 20 elemenata za period od sedam mjeseci određen je prvi put u Rijeci pomoći nuklearnih analitičkih tehniki (NAT). Fina frakcija aerosola uzorkovana je u Trpimirovoj ulici od 24. 2. 2012. do 4. 3. 2012. godine (prvi skup, 18 uzoraka) te na području „Luka Rijeka“ od 6. 8. 2013. do 28. 2. 2014. godine (drugi skup, 138 uzoraka). Uzorci su analizirani u tri laboratorija, i to u: Laboratoriju za elementnu mikroanalizu (LEMA) u Rijeci pomoći fluorescencije x-zraka (XRF tehnika), Laboratoriju za interakcije ionskih snopova (LIIS) pri Institutu Ruđer Bošković u Zagrebu te u Institute for Environmental Research pri Australian Nuclear Science and Technology Organisation (ANSTO) pomoći ionskog snopa (IBA).

Razlog suradnje dva laboratorija, LEMA i ANSTO, je prvenstveno u provjeri pouzdanosti multielementne analize aerosola novo postavljenog sustava za XRF tehniku u Rijeci. Dobiveno je vrlo dobro slaganje koncentracija za sve detektirane elemente. Nakon provjere rezultata XRF analize uspostavljena je suradnja s LIIS radi povećanja raspona detektiranih elemenata uporabom akceleratorskih tehnika.

Pomoći XRF metode (LEMA) primjenjene na oba skupa uzoraka određene su koncentracije 18 elemenata od Si do Pb. Pomoći IBA (ANSTO) primjenjene na prvi skup uzoraka određene su koncentracije 19 elemenata od H do Pb, a pomoći IBA (LIIS) primjenjene na drugi skup uzoraka određene su koncentracije 22 elementa od Na do Pb.

Analizirane su pojave izmaglice s povećanim koncentracijama S, K, Mn, Fe i Zn. Pomoći

Summary:

Nuclear analytical techniques (NAT) have been used for first time to characterise fine particle in the city of Rijeka, Croatia. First set of 18 samples were obtained in the City centre between 24 February and 4 March 2012. Second set of 138 samples were obtained in area Luka Rijeka between 6 August 2013 and 28 February 2014. Samples were analysed in three laboratories: the Laboratory for elemental microanalysis (LEMA) Department of Physics in Rijeka by X-Ray Fluorescence (XRF technique), in the Laboratory for ion beam interactions (LIBI) Institut Ruđer Bošković in Zagreb, and in the Institute for Environmental Research Australian Nuclear Science and Technology Organisation (ANSTO) by Ion Beam Analysis (IBA).

To check reliability of new XRF system in Rijeka, results of XRF analysis are compared with the results obtained by the well-established Institute at ANSTO. Very good agreement between techniques is obtained for all detected elements. After checking the results obtained by XRF technique, cooperation has been established with LIBI to increase the range of detected elements by using accelerator techniques.

Concentrations for 18 elements from Si to Pb were obtained by XRF technique for both sets of aerosol samples. First set of samples was also analysed by IBA at ANSTO. Concentrations of 19 elements from H to Pb were obtained. Second set of aerosol samples was analysed by Proton Induced X-Ray Emission (PIXE technique) at LIBI. Concentrations of 22 elements from Na to Pb were obtained.

The periods of haze with higher concentrations of S, K, Mn, Fe and Zn were analysed. Positive



statističke metode, pozitivne matrične faktorizacije, primjenjene na drugi skup uzoraka određeno je sedam izvora fine frakcije aerosola u gradu. Finoj frakciji najviše doprinose sulfati 34,6%, izgaranje goriva u vozilima 21%, izgaranje biomase 17,1% te izgaranje teškog plinskog ulja 10,8%.

matrix factorization was applied to second set of data and 7 pollution sources were identified and their contributions to the total PM_{2.5} mass were determined. The major contributions to the fine fraction come from sulphates (34.5%), vehicles (21%), smoke (17.1%) and heavy oil combustion (10.8%).

IME I PREZIME | NAME AND SURNAME:

Kristina Marković

PODRUČJE | SCIENTIFIC AREA:

Strojarstvo / Mechanical Engineering

NAZIV RADA | TITLE:

Analiza konstrukcijskih parametara rotacijskih podatljivih mehanizama s lisnatim oprugama
Analysis of influencing parameters in the design of cross – spring pivots

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Saša Zelenika

DATUM OBRANE | DATE OF DEFENCE:

20.3. 2015.

Sažetak:

Podatljivi mehanizmi, kod kojih se barem dio pokretljivosti ostvaruje elastičnom deformacijom podatljivih dijelova, su alternativa mehanizmima temeljenim na klizanju i kotrljanju koji služe za prijenos gibanja, snage ili sile. Podatljivi mehanizmi u širokoj su uporabi u konstrukcijskom strojarstvu, preciznom inženjerstvu, tehnologiji mikro- i nanosustava te u svakodnevnom životu. U doktorskoj disertaciji analiziraju se konstrukcijski parametri različitih konfiguracija rotacijskih podatljivih mehanizama s lisnatim oprugama. Osnovni ciljevi koji se postavljaju pri konstruiranju takvih mehanizama su: što veća rotacijska preciznost i točnost, što manja varijabilnost rotacijske krutosti, stabilnost, jednostavnost konstrukcije i pouzdanost. Budući da se razmatrani mehanizmi temelje na lisnatim oprugama, osnova predviđanja njihovog ponašanja upravo je analiza karakterističnih parametara lisnatih opruga. Kako bi se provela analiza konstrukcijskih parametara simetričnih rotacijskih podatljivih mehanizama s lisnatim oprugama opterećenih momentom, u okviru doktorske disertacije razvijen je analitički model lisnatih opruga na polju velikih (geometrijski nelinearnih) deformacija primjenom tzv. Elastica metode kao i numerički model metodom konačnih elemenata. S ciljem utvrđivanja točnosti numeričkog modela pri analizi ponašanja rotacijskih podatljivih mehanizama,

Summary:

Compliant mechanisms, that gain at least part of their mobility from the deflection of flexible members, are an alternative to conventional sliding and rolling mechanisms used to transfer motion, power or force. Compliant mechanisms are nowadays widely used in mechanical engineering design, precision engineering as well as the micro- and nanosystems technologies. Parameters influencing the design of different configurations of cross-spring pivots are analysed in this doctoral thesis. In fact, the main goals in their design are: achieving the highest possible accuracy and precision, achieving the lowest possible variability of rotational stiffness, stability, design simplicity and reliability. Since the considered mechanisms are constituted by spring-strips, the prediction of their behaviour is to be based on the analysis of the characteristic parameters of the strips themselves. In order to analyse the influencing parameters in the design of symmetrical cross-spring pivots loaded by a pure couple, an analytical model of the behaviour of spring-strips in the field of large (geometrically nonlinear) deflections based on the Elastica method, as well as a numerical model based on the finite elements method, are hence developed in the thesis. In order to assess the applicability of the developed numerical model in predicting the stress-strain behaviour of the considered mechanisms, results obtained numerically are



rezultati dobiveni tim modelom uspoređeni su s eksperimentalnim mjerjenjima dostupnima u literaturi. Da bi se pak odredile granice primjenjivosti analitičkih metoda proračuna u ovisnosti o zahtijevanom stupnju točnosti, rezultati analitičke simulacije naprezanja i deformacija razmatranih mehanizama uspoređeni su zatim s rezultatima dobivenim metodom konačnih elemenata. Kako se potom optimizirala konstrukcijska konfiguracija, odnosno identificiralo konstrukcijsko rješenje koje omogućuje minimizaciju parazitnih pomaka i varijabilnosti rotacijske krutosti mehanizma i pri većim kutovima rotacije, metodom konačnih elemenata analizirani su utjecaj kuta među lisnatim oprugama, točke presječišta opruga te početne zakrivljenosti opruga. Na kraju disertacije provedena je i analiza utjecaja vanjskih opterećenja na varijabilnost rotacijske krutosti i na veličinu parazitnih pomaka. Rezultati dobiveni u doktorskoj disertaciji omogućuju ne samo vrednovanje utjecaja konstrukcijskih parametara na ponašanje rotacijskih podatljivih mehanizama s lisnatim oprugama, odnosno utjecaja tih parametara na rotacijsku krutost te točnost mehanizma, nego i stvaraju preduvjete za razvoj nove klase rotacijskih podatljivih mehanizama ultravisokih preciznosti i točnosti sa širokim poljem primjene u industrijskoj i konstrukcijskoj praksi.

compared with experimental data available in literature. With the goal of determining the limits of applicability of the approximated calculation methods depending on the needed accuracy, the results of the analytical calculations of the stress-strain behaviour of the cross-spring pivots are then compared with results obtained by using the finite element method. Numerical calculations are used next to optimise pivots' design by assessing the influence of the angle and the position of the intersection as well as of the initial curvature of the spring-strips.. A design solution allowing the minimisation of the parasitic shifts, as well as the minimisation of variability of the rotational stiffness, even for large rotations of the pivot is thus obtained. At the end of the thesis, an analysis of the influence of external loads on the variability of rotational stiffness and on the entity of the parasitic shifts is also performed. The results obtained in the doctoral thesis allow thus not only assessing the influence of the design parameters in the design of cross-spring pivots (i.e. the influence of these parameters on rotational stiffness and the accuracy of the considered mechanisms), but also creating the preconditions for the development of a new class of ultra-high precision rotational compliant mechanisms with potentially broad applications in industrial and design praxis.

**IME I PREZIME | NAME AND SURNAME:**

Sandro Doboviček

PODRUČJE | SCIENTIFIC AREA:

Strojarstvo / Mechanical Engineering

NAZIV RADA | TITLE:

Optimiranje konceptualnog modela kontrolnog podsustava pri projektiranju proizvodnog sustava
Optimization of control subsystem conceptual model in manufacturing system design

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Tonči Mikac

DATUM OBRANE | DATE OF DEFENCE:

20.3.2015.

Sažetak:

Rekonfigurableni proizvodni sustavi (RPS) pružaju proizvodnim organizacijama mogućnost odgovora na promjenjive zahtjeve tržišta, koji se iskazuju u vidu sve kraćih životnih ciklusa proizvoda i sve veće personalizacije proizvoda, da promjenom konfiguracije proizvodnog sustava na brz i troškovno

Summary:

Reconfigurable manufacturing systems (RMS) are manufacturing systems designed to be able for rapid change in its structure, as well as its hardware and software components, in order to quickly adjust its production capacity and functionality within a certain part family in response to sudden market changes or intrinsic

učinkovit način postignu potrebne promjene značajki proizvodnosti i fleksibilnosti sustava. Tradicionalnim pristupom projektiranja proizvodnih sustava i odabira konfiguracije koja može osigurati potrebne značajke, zanemaruje se kvaliteta proizvoda kao treći, prvim dvama ciljevima često konkurirajući cilj projektiranja. Projektiranje kontrolnog podsustava i određivanje potrebnih napora za kontrolom kvalitete proizvoda takvim se tradicionalnim pristupom vrše tek u kasnim fazama projektiranja proizvodnog sustava ili čak i kasnije, što može dovesti do uvijek nepovoljnih, naknadnih povećanja vrijednosti očekivanih potrebnih investicijskih ulaganja i troškova proizvodnje. Doktorski rad je posvećen rannom karakteriziranju napora pri izvođenju statističke kontrole procesa (SPC), potrebnih za postizanje očekivanog indeksa sposobnosti konfiguracije (ISK) proizvodnog sustava. Rano karakteriziranje takvih napora podrazumijeva njihovo prepoznavanje već u ranoj fazi projektiranja proizvodnih sustava, prije definiranja konačnog koncepta proizvodnog sustava te prije detaljiziranja pojedinih operacija i izrade plana realizacije proizvodnje. U radu je predložena metoda simultanog projektiranja konceptualnih modela proizvodnog sustava i pripadajućeg optimalnog kontrolnog podsustava kojom se u ranoj fazi projektiranja omogućuje određivanje reda veličina dodatnih značajki pojedinih konfiguracija: opterećenosti kontrolnog podsustava i veličine distribucije varijabilnosti kroz proizvodni sustav. Pri procjeni opterećenosti kontrolnog podsustava koriste se modeli neizrazite logike koji su za tu potrebu prilagođeni statističkoj kontroli procesa, kako bi se u ranoj fazi projektiranja odredili redovi veličina parametara kontrolnog podsustava zasnovanog na statističkoj kontroli, a time i potrebni dodatni napor za kontrolu kvalitete proizvoda. Metoda pretpostavlja postojanje baze podataka iskustvenih saznanja o procesima, koje proizvodne organizacije održavaju i koriste u svrhu boljeg predviđanja pogrešaka i njihovih posljedica.

system change. Such abilities of manufacturing systems are achieved in their design processes. Traditional objectives in manufacturing system design are productivity and flexibility but in the early stage of design process quality is usually neglected. Control subsystem design and determination of efforts necessary for product quality control are usually done at later stages of manufacturing system design, which can lead to unfavourable increase in the value of the expected necessary investments and production costs. Since system's configuration does affect product quality significantly, necessary efforts for quality control becomes more important for frequently changed system reconfigurations. This thesis focuses on a quality as a third objective of early manufacturing system design process, considering sometimes complex variability distributions within manufacturing process. Therefore, method for early determination of statistical process control (SPC) efforts required to maintain a favourable configuration capability index (CCI) are proposed. Fuzzy logic model for predicting expected configuration capability index are available in literature, although it is tailored for systems with 100% in process control. Fuzzy variables in this paper are redesigned to fit inspection errors of statistical process control, in order to allow system designer to define required statistical process control efforts for each system configuration and make better choices in the early stages of manufacturing system design. This method assumes the existence of a database of empirical knowledge about the processes that manufacturing companies maintain in order to better predict process capabilities, errors and their effects.



IME I PREZIME | NAME AND SURNAME:
Vedran Mrzljak

PODručje | SCIENTIFIC AREA:
Strojarstvo / Mechanical Engineering

NAZIV RADA | TITLE:
Kvazidimenzijski model za numeričke simulacije brodskoga dvotaktnoga dizelskog motora
Quasidimensional model for numerical simulations of marine two-stroke diesel engine

MENTOR(I) | SUPERVISOR(S):
prof. dr. sc. / Prof. D. Sc. Vladimir Medica
izv. prof. dr. sc. / Assoc. Prof. D. Sc. Tomaž Katrašnik

DATUM OBRANE | DATE OF DEFENCE:
17.4.2015.

Sažetak:

U doktorskoj disertaciji razvijen je kvazidimenzijski (QD) model izgaranja koji je uspješno implementiran u postojeći nultodimenzijski (0D) numerički model. U odnosu na slična znanstvena istraživanja dizelskih motora s unutarnjim izgaranjem, razvijenim kvazidimenzijskim modelom napravljena su brojna poboljšanja u području matematičkog modeliranja.

Prvenstveno, razvijeni numerički model prati radne parametre dizelskog motora u trenutku kada se oni mijenjaju, dakle izračun tlaka i temperature kao osnovnih varijabli svake numeričke simulacije u tom se slučaju vrši izravno, bez primjene iteracijskih postupaka.

Kod numeričkih podmodela koji su sastavni dijelovi kvazidimenzijskog numeričkog modela uočen je veliki broj eksperimentalno određenih konstanti koje vrijede za jedan modelirani dizelski motor odnosno nemaju širu primjenu. U disertaciji je predstavljen ispravak tih konstanti. Konstante sada omogućuju točnije simuliranje promatranih pojava i vrijede za čitav raspon dizelskih motora s unutarnjim izgaranjem.

U ovoj se disertaciji koriste svojstva realnih para i plinova za termodinamičke proračune u cilindru motora, što čini matematički model iznimno kompleksnim. Kako se koriste svojstva realnog, a ne idealiziranog radnog medija, bilo je nužno smanjiti korak integracije unutar uobičajenog koraka integracije, koji koriste ostali autori u istraživanjima na temu kvazidimenzijskog modeliranja. Takav zahtjev stvara dodatnu komplikaciju, jer nužno zahtijeva drugačiji način definiranja kontrolnih volumena (paketa), koji nastaju u cilindru dizelskog motora, prema

Summary:

In doctoral thesis, quasidimensional (QD) combustion model was developed, and successfully implemented in existing zero-dimensional (0D) numerical model. Compared to another similar scientific researches of diesel internal combustion engines, with developed quasidimensional model, a number of improvements in the field of mathematical modeling were made.

Primarily, the developed numerical model monitors the operating parameters of the diesel engine at the moment when they are changing, therefore the calculation of pressure and temperature as the basic variables of each numerical simulation, in this case is performed directly, without using iterative methods.

In numerical sub models which are integral parts of the quasidimensional numerical model, there was observed a large number of experimentally determined constants which are valid for certain modeled diesel engine, respectively, they have a narrow application. In this thesis a correction of these constants was presented. Constants now enable more accurate simulation of the observed phenomena, and they are valid for the whole range of diesel engines.

In this thesis are used properties of real gases and vapors for thermodynamic calculations in the engine cylinder, which makes that the mathematical model is extremely complex. Because of real, not an idealized working fluid properties, it was necessary to reduce the integration step, within usual integration step, used by other authors in their quasidimensional modeling research. This requirement creates an



postavkama kvazidimenzijskog modeliranja. Predstavljeno rješenje tog problema ne samo da čini matematičku shemu stabilnom i robusnom već ne usporava proračun, a dobiveni rezultati simulacija su vrlo točni i precizni u odnosu na provedena mjerjenja istih radnih parametara na realnom motoru.

Kako bi se numerički model validirao, izvedena su mjerjenja na dizelskom motoru MAN D 0826 LOH15 u Laboratoriju za topotne batne stroje Fakultete za strojništvo, Univerze v Ljubljani. Budući da je razvijeni numerički model pokazao dobra poklapanja s izmjerenim vrijednostima, prikazani su i brojni drugi radni parametri ispitivanoga motora koje bi bilo teško ili nemoguće izmjeriti na stvarnome motoru. Numeričko modeliranje omogućuje simulaciju različitih radnih parametara motora, uz prihvatljivu točnost i preciznost, kao i uz prihvatljivi vremenski raspon potreban za izvršenje simulacije.

U konačnici, razvijeni kvazidimenzijski model prilagođen je za simulaciju brodskoga sporohodnoga dvotaktnog motora. Izvršene su simulacije i uspoređene s dostupnim mjerjenjima. I u tom slučaju dobivena su vrlo dobra poklapanja izmjerenih vrijednosti u odnosu na one izračunate simulacijom.

additional complication, because it necessarily requires a different way of defining volumes, for volumes generated in diesel engine cylinder, according to the quasidimensional modeling settings. Presented solution of this problem, not only makes the mathematical scheme stable and robust, but does not slow down the simulations, and the obtained results are very accurate and precise in relation to the measurements of the same operating parameters on a real engine.

For numerical model validation, measurements were performed on diesel engine MAN D 0826 LOH15 in the Laboratory for Internal Combustion Engines, Faculty of Mechanical Engineering, University of Ljubljana. Since the developed numerical model showed good matching with measured values, there are shown a number of other operating parameters of the tested engine which would be difficult or impossible to measure on the real engine. Numerical modeling allows simulation of various engine operating parameters, with acceptable accuracy and precision, and an acceptable time span required for a simulation execution.

Finally, developed quasidimensional model is adapted for simulation of the ship's slow speed two-stroke engine. Simulations were performed and compared with available measurements. Also in this case, very good matching of the measured values compared to those calculated by simulation were obtained.



IME I PREZIME | NAME AND SURNAME:

Karlo Nad

PODRUČJE | SCIENTIFIC AREA:

Interdisciplinare tehničke znanosti / Interdisciplinary Engineering Sciences

NAZIV RADA | TITLE:

Razvoj sustava za pripremu pitke vode primjenom elektrokemijskih metoda i naprednih oksidacijskih procesa

Development of the system for the preparation of drinking water based on the application of electrochemical methods and advanced oxidation processes

MENTOR(I) | SUPERVISOR(S):

zn. savj. dr. sc. / Sc. Adv. D. Sc. Višnja Oreščanin

prof. dr. sc. / Prof. D. Sc. Zmagoslav Prelec

DATUM OBRANE | DATE OF DEFENCE:

10.7.2015.

Sažetak:

Podzemne vode Panonskog bazena predstavljaju složen sustav s kompleksnom strukturom kontaminanata s visokim koncentracijama teških metala i arsena, visokom obojenošću i mutnoćom, visokim koncentracijama suspendiranih tvari, amonija i drugih hranjivih soli te visokim organskim opterećenjem. Uzroci smanjene kvalitete podzemne vode mogu se podjeliti na prirodne i antropogene. S obzirom na kompleksnost sastava podzemne vode, potrebno je primijeniti kombinirani pristup obrade voda da bi se udovoljilo nacionalnim propisima te smjernicama Svjetske zdravstvene organizacije. U ovoj doktorskoj disertaciji razvijena je nova metoda i sustav pročišćavanja podzemne vode koji jamči istodobno uklanjanje širokog spektra zagađivala i visoku kvalitetu pročišćene vode s obzirom na sve mjerene parametre, a neovisan je o temperaturnim promjenama i o ulaznom opterećenju. U tu svrhu korištena je kombinacija elektrokemijskih metoda (elektrokoagulacija, elektroredukcija, elektrooksidacija) i naprednih oksidacijskih procesa (UV+ozon), (UV+H₂O₂). Uzorci podzemnih voda uzeti su s područja istočne Slavonije u Osječko-baranjskoj županiji, na lokaciji Darde te u Vukovarsko-srijemskoj županiji na lokacijama Andrijaševaca, Antina, Komletinaca i Vrbanje (Hrvatska). Uzorci voda iz Vojvodine uzeti su s područja vodociplišta Zrenjanina i Temerina (Srbija). Uzorci voda iz Arizone uzeti su sa 6 lokacija na području grada Cameron/Tuba Cityja (SAD). Laboratorijskim ("jar") testovima optimizirani su parametri kao što su: materijal elektroda, broj elektroda,

Summary:

Groundwater of Pannonian Basin presents a complex system with a complex mixture of contaminants with high concentrations of heavy metals and arsenic, highly staining and turbidity, high concentrations of suspended solids, ammonia and other nutrients, and high organic load. The causes of reduced quality of groundwater can be divided into natural and anthropogenic. Considering the complex structure of groundwater it is necessary to apply a combined approach of water treatment in order to satisfy both national regulations and guidelines of the World Health Organization. In this doctoral thesis, a new method and system of purification of groundwater is developed that guarantees the simultaneous removal of wide range of contaminants and high quality of purified water considering all measured parameters, and is independent of temperature changes and input load. For this purpose a combination of electrochemical methods (electrocoagulation, electroreduction, electrooxidation) and advanced oxidation processes (UV+ozone), (UV+H₂O₂) was used. Groundwater samples were taken in the area of Eastern Slavonia in Osijek-Baranja County on location in Darda, and in Vukovar-Srijem County in locations Andrijaševci, Antin, Komletinci and Vrbanja (Croatia). Samples of water were taken in Vojvodina in the area of cities Zrenjanin and Temerin (Serbia). Samples of water were taken in Arizona on six locations in the city of Cameron/Tuba (USA). By the laboratory ("jar") tests the parameters were optimized such as the material of electrodes, number of electrodes, the overall surface of



ukupna površina reaktorskih elektroda za svaku vrstu materijala, razmak elektroda, jakost struje, trajanje procesa. Cilj je bio postići optimalan odnos stupnja pročišćavanja, utrošene energije i vremena aplikacije, te istodobno generirati što manju količinu otpadnog mulja. Dokazane su prednosti elektrokemijske obrade u odnosu na postojeće metode fizičko-kemijske obrade. Na osnovu dobivenih parametara konstruirano je pilot-postrojenje kapaciteta 1 m³/dan na kojem je bila provjerena učinkovitost razvijene metode. Na osnovu dobivenih rezultata i provedene optimizacije radnih parametara procesa osigurana je tehnološka baza za konstrukciju i proizvodnju nove generacije industrijskih uređaja za pročišćavanje pitkih voda. Uz neznatne prilagodbe metodu je moguće primeniti i za obradu različitih tipova industrijskih efluenata. Dobivena saznanja iskorištena su konkretno kod konstrukcije industrijskog uređaja za pročišćavanje procjednih voda kapaciteta 10 m³/dan, instaliranog na odlagalištu „Viševac“ kod Rijeke.

the reaction plates for each type of material, electrode distance, electric current, duration of the process. The aim was to achieve an optimal ratio of purification, energy and application time, and at the same time generate an even smaller amount of sludge. On the basis of these obtained parameters the pilot plant capacity of 1 m³/day was constructed and the effectiveness of the developed method was proven. Based on the obtained results and performed process optimization of the working parameters, the technology base for the design and fabrication of a new generation of industrial units for purification of drinking water was provided. With some minor adjustments, the method can be applied for the treatment of various types of industrial effluents. The resulting findings are used specifically for the construction of the industrial leachate treatment plant capacity of 10 m³ / day, installed at the landfill "Viševac" near Rijeka.

IME I PREZIME | NAME AND SURNAME:

Neven Munjas

PODRUČJE | SCIENTIFIC AREA:

Strojarstvo / Mechanical Engineering



NAZIV RADA | TITLE:

Računalna termoplastičnost u uvjetima velikih deformacija temeljena na višerazinskim metodama
Computational thermoplasticity of large deformations behavior based on multiscale methods

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Marko Čanadija

DATUM OBRANE | DATE OF DEFENCE:

15.7.2015.

Sažetak:

U radu je prezentirana metoda višerazinskog modeliranja termoplastičnih deformacija heterogenih materijala primjenom računalne homogenizacije prvoga reda. Koncept analize koja se vrši na makro i mikro razini sastoji se od prijenosa naprezanja i varijabli stanja s jedne razine na drugu. Problem se na mikrorazini tretira kao izoterman, dok je na makrorazini isti neizoterman. Korištena je teorija velikih plastičnih deformacija. Razvijen je model reprezentativnog volumenskog elementa (RVE) na koji su primijenjeni periodični rubni uvjeti. Rješavanjem problema rubnog uvjeta (BVP)

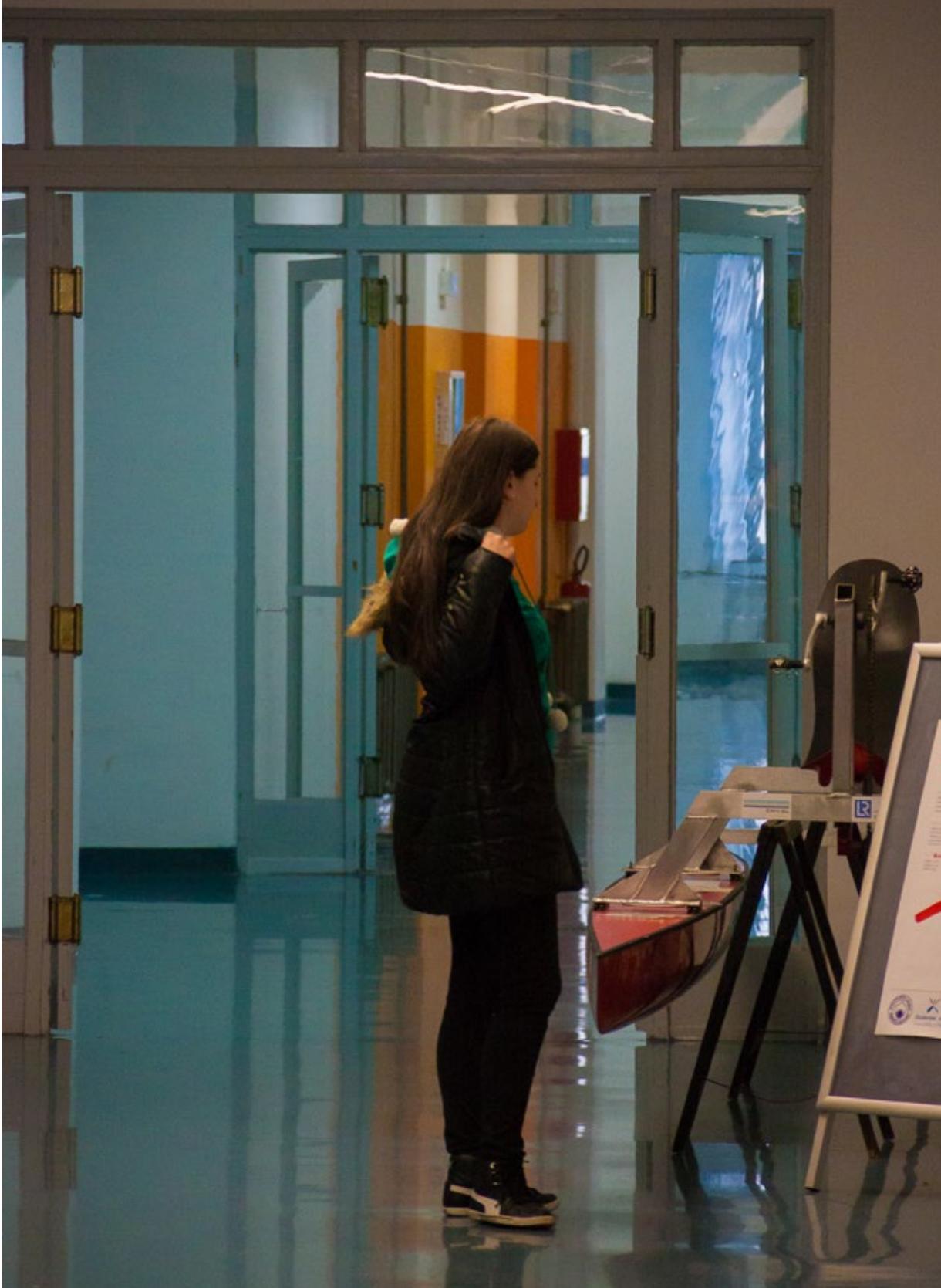
Summary:

This paper presents the multiscale modeling of thermoplastic deformation of heterogeneous materials by using the first-order computational homogenization. The concept of the analysis at the macro and microscale consists of transfer of stress and the state variables from one level to another. The problem at the microscale, is treated as isothermal, while at the macroscale as non-isothermal. The theory of large plastic deformation has been used. A model of a representative volume element (RVE) has been developed, on which periodic boundary conditions have been applied. By solving the

dobiven je numerički konstitutivni zakon koji daje odnos između naprezanja i deformacije u svakoj integracijskoj točki makrorazine. Numerička procedura razvijena je za probleme ravninskog stanja deformacije i temelji se na teoriji prvog reda. Procedura je verificirana na više primjera i doneseni su odgovarajući zaključci.

boundary value problem (BVP), numerical constitutive law was obtained, that gives the relation between stress and strain in every integration point at the macroscale. Numerical procedure was developed for the problems of the plane strain condition and it is based on the theory of the first order. The procedure was verified at several examples and appropriate conclusions were adopted.





2.6 aktivnosti, zbivanja i konferencije

activities, events and conferences

2.6.1 adriatinn



OPIS PROJEKTA

ADRIATInn projekt ostvaruje se u okviru IPA programa Jadranske prekogranične suradnje. Odobren je u studenom 2013. godine kao strateški projekt u kojem sudjeluje ukupno 21 partner iz osam zemalja (Grčka, Albanija, Crna Gora, Bosna i Hercegovina, Srbija, Italija, Slovenija i Hrvatska). Vodeći partner projekta je Jonsko Sveučilište u Krfu, a partneri iz Hrvatske, uz Tehnički fakultet Sveučilišta u Rijeci, su Primorsko-goranska županija i Hrvatska gospodarska komora-Županijska komora Rijeka.

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CILJEVI PROJEKTA

Glavni cilj ADRIATInn projekta je usmjeriti istraživanja prema potrebama gospodarstva, podržavajući razvoj i inovacije u suradnji s partnerima iz privrednog sektora, odnosno povećati konkurentnost malog i srednjeg poduzetništva na području Jadrana, proširiti područje djelovanja i prodrijeti na nova tržišta kroz međugranični ekosistem koji potiče usvajanje ICT-a, inovacije i specijalizacije. Željeni ishod projekta je razvoj i uspostava uspješnog i funkcionalnog modela suradnje između ključnih sudionika u projektu kako bi se ostvarila tehnološka sposobnost i održiva konkurentnost malog i srednjeg poduzetništva.

STRATEGIJA

Strategija projekta temelji se na razvoju novih proizvoda i usluga spajajući kapacitete javnih visokoobrazovnih ustanova, gospodarskih komora, tijela lokalne i regionalne samouprave te malih i srednjih poduzeća u svrhu ostvarenja

PROJECT DESCRIPTION

ADRIATInn project has been realized under the IPA Adriatic Cross-Border Cooperation Programme. It was approved in November 2013 as a strategic project with the participation of 21 partners from eight countries (Greece, Albania, Montenegro, Bosnia and Herzegovina, Serbia, Italy, Slovenia and Croatia). The leading partner of the project is the Ionian University in Corfu, while partners from Croatia are represented by the Faculty of Engineering of Rijeka University, the Primorje-Gorski Kotar County and the Croatian Chamber of Economy – the County Chamber in Rijeka.

OBJECTIVES

The main objective of the ADRIATInn project is to direct research according to the needs of the economy, supporting the development and innovation in collaboration with partners from the business sector, i.e. to increase the competitiveness of SMEs in the Adriatic area, expand the scope of activities and penetrate into new markets through cross-border ecosystem that encourages the adoption of ICT, innovation and specialization.

The desired outcome of the project is development and establishment of a successful and functional model of cooperation among its key participants in order to achieve technological capability and sustainable competitiveness of SMEs.

„trokuta znanja i suradnje“ među njima. U tom će se cilju poticati ostvarenje dostupnosti informacija na jednom mjestu koje će omogućiti poboljšanje i povećanje inovativnosti u poslovnom procesu, s povećanjem dodane vrijednosti proizvoda i usluga.

TRAJANJE I FINANCIRANJE PROJEKTA

Predviđeno trajanje projekta je tri godine – završetak projekta planira se u prvom kvartalu 2016. godine.

Ukupna predračunska vrijednost projekta je oko 4,7 milijuna eura, a Tehnički fakultet u Rijeci u projektu sudjeluje sa 238.282 €, od čega je 85% sredstava bespovratno.

Projekt je financiran iz europskog IPA Programa Jadranske prekogranične suradnje.

KORISNE INFORMACIJE

Sve potrebne informacije o ADRIATinn projektu dostupne su na sljedećim web stranicama:

<http://www.adriatinn.eu/>
<http://www.riteh.uniri.hr/>



STRATEGY

The project strategy is designed to develop new products and services by combining the capacities of public higher education institutions, chambers of commerce, local and regional authorities and SMEs in order to achieve the "triangle of knowledge and cooperation" among them. To this end, availability of information in one place will be encouraged, enabling improvement and enhancement of innovation in the business process with an increase in the added value of products and services.

DURATION AND FINANCING OF THE PROJECT

The anticipated project duration is three years - the completion of the project is planned for the first quarter of 2016.

The total estimated value of the project is about €4.7 million, and the Faculty of Engineering of Rijeka participates in the project with €238,282, 85% of which will be grants.

The project is financed by the European IPA Adriatic Cross-Border Cooperation Programme.

USEFUL INFORMATION

All the information on ADRIATinn project is available on the following websites:

<http://www.adriatinn.eu/>
<http://www.riteh.uniri.hr/>



2.6.2 imam

IMAM 2015 - International Congress of the International Maritime Association of the Mediterranean - Towards Green Marine Technology and Transport



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Otvorenie kongresa, prof. Duško Pavletić, prof. Carlos Guedes Soares, prof. Fernando López Peña, prof. Jasna Prpić-Oršić i prof. Roko Dejhalla

Kongres IMAM 2015 - International Congress of the International Maritime Association of the Mediterranean - Towards Green Marine Technology and Transport održan je od 21. do 24. rujna 2015. godine u Puli u organizaciji Tehničkog fakulteta Sveučilišta u Rijeci, uz podršku Instituto Superior Técnico, Technical University of Lisbon, Portugal. Simpozij je otvorio predsjednik IMAM udruženja, profesor Fernando López Peña sa Sveučilišta u A Coruni, Španjolska. Na otvaranju kongresa, u ime grada Pule skupu se obratila Elvira Krizmanić Marjanović, pročelnica Upravnog odjela za društvene djelatnosti. U ime organizatora skupu se obratio prof. Duško Pavletić, prodekan za poslovne odnose Tehničkog fakulteta, predsjednik znanstvenog savjeta simpozija prof. Carlos Guedes Soares sa Sveučilišta u Lisabonu, te prof. Jasna Prpić-Oršić, predsjednica Organizacijskog odbora i potpredsjednica udruženja IMAM.

Udruženje IMAM osnovano je 1974. godine pod nazivom IMAEM (International Maritime Association of East Mediterranean), a članice su u početku bile zemlje istočnog Mediterana

Congress IMAM 2015 - International Congress of the International Maritime Association of the Mediterranean - Towards Green Marine Technology and Transportation took place 21 to 24 September 2015 in Pula, was organized by the Faculty of Engineering, University of Rijeka, with the support of Instituto Superior Técnico, Technical University of Lisbon, Portugal. The symposium was opened by the President HAVE Association Professor Fernando López Peña from the University of A Coruna, Spain. At the opening of the congress on behalf of the town of Pula ,Elvira Krizmanić Marjanovic, head of the Administrative Department of Social Services addressed the rally. On behalf organizational committee the guests were addressed by prof. Dusko Pavletić, vice dean for business affairs Faculty of Engineering, President of the Scientific Advisory Board of the symposium Prof.. Carlos Guedes Soares from the University of Lisbon, and prof. Jasna Prpić-Oršić, Organising Committee President and Vice-President of Association of IMAM.

(Bugarska, Egipat, Grčka, Italija, Turska i Jugoslavija). Broj država članica Udruženja je s vremenom rastao i danas članstvo čini većina mediteranskih zemalja, kao i dio zemalja iz susjednih područja. 1990. godine Udruženje mijenja naziv u IMAM (International Maritime Association of Mediterranean).

IMAM Association was founded in 1974 under the name IMAM (International Maritime Association of East Mediterranean), and members were initially Eastern Mediterranean countries (Bulgaria, Egypt, Greece, Italy, Turkey and Yugoslavia). Number of member states of the Association eventually grew



Prvo plenarno predavanje, profesor Odd Magnus Faltinsen, Norwegian University of Science and Technology, Trondheim

U svojoj više od trideset godina dugoj povijesti udruženje IMAM zalaže se za unapređenje i širenje znanja vezanih uz izučavanje, projektiranje, gradnju i eksplataciju brodova i drugih pomorskih objekata. Fokus Udruženja je na razvoju pomorstva i iskorištavanju morskih resursa u Sredozemlju, u skladu s načelima održivog razvoja.

Gost simpozija bio je profesor Odd Magnus Faltinsen s norveškog Norwegian University of Science and Technology u Trondheimu. Profesor Faltinsen jedan je od najvećih hidrodinamičara svih vremena. Član je američke, kineske, norveške, a odnedavno i hrvatske Akademije. Njegov rad u području hidrodinamike broda i pomorskih objekata poznat je u cijelom svijetu, a na otvaranju kongresa IMAM 2015 održao je plenarno predavanje o recentnim izazovima u projektiranju broda i pomorskih objekata, a

and today membership makes the most of the Mediterranean countries and the countries in the neighboring areas. In 1990 the Association changed its name to IMAM (International Maritime Association of Mediterranean).

In his more than thirty-year history IMAM Association advocates for the promotion and dissemination of knowledge related to the study, design, construction and operation of ships and other maritime facilities. The focus of the Association is the development of shipping and the exploitation of marine resources in the Mediterranean, in accordance with the principles of sustainable development.

Guest at the symposium was Professor Odd Magnus Faltinsen with Norway Norwegian University of Science and Technology in Trondheim. Professor Faltinsen one of the

s hidrodinamičkog aspekta, Ships And Sea Structures With A Hydrodynamic Perspective.

U sekciji plenarnih predavanja sudjelovao je i gospodin Milovan Perić, CD adapco Group, Nuremberg, Njemačka, s predavanjem The Use of CFD in Design and Optimization of Maritime Structures. Gospodin Željko Šimić, područni menager iz DNV – GL, Hamburg, održao je plenarno predavanje pod nazivom The merger of DNV and GL, a gospodin Dean Vučinić, Vrije Universiteit Brussel, Belgija predavanjem Opportunities For H2020 Projects Applications in the Maritime Sector upoznao je sudionike skupa sa širokim mogućnostima prijave na EU projekte. Gospodin Siniša Reljić iz tvrtke Navis Consult, Rijeka, koja je dio Rolls Royce grupacije, održao je izuzetno zanimljivo pozvano predavanje pod nazivom Management of Ship Design and Engineering Business.

U radu kongresa sudjelovali su mnogi znanstvenici i stručnjaci iz zemlje i svijeta koji su prikazali svoja dostignuća u različitim područjima vezanim uz projektiranje i gradnju brodova i pomorskih objekata. Ukupno 109 radova okupljeno je u Zborniku radova koji je pod naslovom „Towards Green Marine Technology and Transport“ tiskan od strane CRC press/ Balkema iz grupacije Taylor & Francis Group. Urednici Zbornika su Carlos Guedes Soares, Roko Dejhalla i Duško Pavletić. Zbornik je također pripremljen u elektroničkom obliku, kao CD-ROM. Dodatne informacije vezane uz Kongres mogu se dobiti na mrežnoj stranici Kongresa:
<http://www.imamhomepage.org/imam2015/>.

greatest hidrodynamicist of all time. Member of the US, China, Norway, and more recently, Croatian Academy. His work in the field of hydrodynamics of ships and marine facilities is known throughout the world, and the opening of the Congress of 2015 held a plenary lecture on the recent challenges in the design of ships and marine facilities, and hydrodynamic point of view, Ships And Sea Structures With A Hydrodynamic Perspective.

In the plenary lectures participated Milovan Peric, CD adapco Group, Nuremberg, Germany, with the lecture, The Use of CFD in Design and Optimization of Maritime Structures. Mr. Željko Šimić, regional manager of DNV - GL, Hamburg, gave a plenary lecture titled The merger of DNV and GL, and Mr. Dean Vučinic, Vrije Universiteit Brussel, Belgium with his lecture Opportunities For H2020 Projects Applications in the Maritime Sector, informed the participants together with wide possibilities of application for EU projects. Mr. Sinisa Reljić from the company Navis Consult, Rijeka, which is part of Rolls-Royce Group held a very interesting lecture titled Management of Ship Design and Engineering Business.

The Congress was attended by many scientists experts from Croatia and countries around the the world who display their achievements in various areas related to the design and construction of ships and offshore facilities. Total 109 works gathered in the Conference Proceedings, which is entitled „Towards Green Marine Technology and Transport“ published by CRC Press / Balkema from the Taylor & Francis Group. The editors were Carlos Guedes Soares, Roko Dejhalla and Duško Pavletić. it is also available in electronic form as a CD-ROM. Additional information regarding the Congress can be obtained on the website of the Congress: <http://www.imamhomepage.org/imam2015/>.



Towards Green Marine Technology and Transport



Editors:
C. Guedes Soares
R. Djeballa
I. Pavletić

 CRC Press
Taylor & Francis Group
A BALKEMA BOOK

Naslovna stranica Zbornika Kongresa

2.6.3 intech

International Conference on Innovative Technologies IN-TECH 2015 | <http://www.in-tech.info>

Konferenciju In-Tech 2015 organizirala je udruženje World Association for Innovative Technologies (WAIT). Ovogodišnja konferencija održana je u Dubrovniku, u Republici Hrvatskoj, od 09. do 11. rujna 2015. godine.

Ovaj skup promovira razvoj novih tehnologija, te njihovu implementaciju u industriji. Konferencija ne bi bila moguća bez međunarodne suradnje Tehničkog fakulteta u Rijeci i Tehničkog Sveučilišta u Pragu (slika 1). To je bila šesta po redu IN-TECH konferencija; prijašnje su bile po Pragu, Bratislavi, Rijeci, Budimpešti i Leiriji.

In-Tech 2015 was organized by the World Association for Innovative Technologies (WAIT) and was held in Dubrovnik, Croatia, from September 9th to September 11th, 2015. The conference promotes the development of new technologies and their implementation in the industry. This conference would not be possible without the international cooperation of the Faculty of Engineering Rijeka and the Faculty of Mechanical Engineering University in Prague (1). It was the 6th In-Tech conference: the previous ones were held in Prague, Bratislava, Rijeka, Budapest and Leiria.



Slika 1 Konferencija je održana zahvaljujući suradnji Tehničkog fakulteta u Rijeci i Tehničkog fakulteta u Pragu

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Konferencija je održana u prostoru Poslijediplomskog središta Dubrovnik. Sudionici su na raspolaganju imali dvije konferencijske dvorane i dvoranu za poster - sekciju. Na IN-TECH 2015 konferenciji bilo je prisutno oko 160 sudionika iz 45 zemalja sa 160 znanstveno-stručnih referata.

Konferenciju je otvorio predsjednik WAIT organizacije, prof. dr. sc. Zlatan Car, predstavnik Sveučilišta u Rijeci. U uvodnom govoru, prof. dr. sc. Car zahvalio se svim sudionicima, naglasivši važnost međunarodne suradnje zbog povezanosti znanstvenika iz različitih područja čime se povećavaju znanstveni doprinosi.

Dr. J. Kudláček je istaknuo promoviranje razvoja mlađih znanstvenika i njihovu suradnju na međunarodnoj razini, a što je jedna od intencija ovoga skupa. U naredna dva dana u sklopu konferencije održano je šezdesetak prezentacija znanstvenih radova. Također, na konferenciji je bilo izloženo četrdeset postera. Konferencija je završila svečanom večerom kada su dodijeljene nagrade najboljim radovima.

The conference was held at the Postgraduate center Dubrovnik. Participants had had two conference halls for their scientific discussions and one hall for the poster session during the conference. At In-Tech 2015 about 160 participants from 45 countries were present, with 160 scientific and technical papers presented.

The conference was opened by the president of the WAIT organization Prof. D. Sc. Zlatan Car, representative from University of Rijeka. In his opening speech, Prof. D. Sc. Car thanked all the participants and mentioned that international cooperation is important to connect scientists from different areas in order to achieve significant scientific contributions.

Dr. J. Kudláček has highlighted the promotion of the development of young scientists and their cooperation on the international level, which is one of the intentions of this conference. In the next two days, about sixty scientific works and forty papers in the poster section were presented. The conference ended with award ceremony and a gala dinner.



Slika 2 Otvaranje konferencije, prof. Tibor Szalay, prof. dr. sc. Zlatan Car,
Ing. dr. J. Kudláček i prof. João Rafael da Costa Sanches Galvão



2.6.4 riscience



U Riječkoj razvojnoj agenciji PORIN održan je u petak, 19. lipnja 2015. godine, međunarodni kongres RiScience. RiScience je Kongres koji se bavi tematikom uloge 3D interakcija, prvenstveno modeliranja, i 3D printanja kao i njihovom sadašnjom i budućom ulogom. Time se dodiruju poslovni procesi, znanstvena istraživanja i (bio)tehnologija.

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RiScience platforma osmišljena je kao mjesto susreta profesionalaca koji se u svojem poslovnom djelovanju koriste nekim od računalnih alata za 3D modeliranje, ali i zainteresiranih studenata i građana. Putem ove platforme moguće je dobiti kvalitetne informacije o tehnologijama budućnosti i implementirali ih u vlastitu svakodnevnicu.

Mjesto održavanja kongresa prožeto je dubokim simboličkim značenjima - naime, riječ je o prostoru nekadašnje tvornice Torpedo, mjestu proizvodnje prvoga svjetskoga torpeda. Danas prostor traži reosmišljavanje i nove uloge, a upravo aditivne i 3D tehnologije jedan su od potencijala.

Kongres su otvorili direktor Riječke razvojne agencije PORIN mr. sc. Ernest Cukrov, gradonačelnik Rijeke mr. sc. Vojko Obersnel i dr. sc. Sven Maričić, kao organizatori kongresa. Izrazili su vjeru u korisnost informacija koje se na kongresu mogu čuti zahvaljujući gostima predavačima: prof. dr. sc. Nicolae Bulcu (TU Cluj Napoca), prof. dr. sc. Mladenu Šerceru (FSB Zagreb), Rollyju Bugnaru (Rimac Automobili),

In Rijeka Development Agency PORIN, the International Congress RiScience was held on Friday, 19 June 2015. RiScience is a congress that deals with the issue of 3D interaction, primarily modelling, and 3D printing, as well as with their current and future role, thereby integrating business processes, scientific research and (bio) technology.

The RiScience platform is designed as a meeting place between professionals who use in their business activities some of the computer tools for 3D modelling, and interested students and the general public. This platform enables dissemination of quality information on technologies of the future and their implementation in daily life.

The venue of the congress itself has a deep symbolic meaning, namely it is the area of the former Torpedo factory, place of production of the first torpedo of the world. Today, this area is waiting for new incentives and roles, in which additive and 3D technologies definitely offer a viable potential.

The Congress was opened by the director of the Rijeka Development Agency PORIN Ernest Cukrov, MSc, Rijeka's mayor Vojko Obersnel, MSc, and D. Sc. Sven Maričić of the Faculty of Engineering of Rijeka University, as well as by the congress organizers. They expressed their faith

Davoru Mandiću (METRIS Pula), dr. sc. Alessiu Ubertiniju (ENEA Rim), Giorgiu Sola, dipl. ing. (Limes Rim) i Ivanu Tamašoviću (EOS Innovazioni Bratislava).

Prof. dr. sc. Nicolae Bulc predstavio je najveći transilvanijski centar za tehnologiju koji se nalazi u TU Cluj Napoca. Centar izrađuje modele za široki broj korisnika: automobilsku industriju, električnu industriju, komponente za Formula 1, itd. Posebno su uspješni na području biotehnologije gdje su u posljednjih petnaestak godina napravili stotinjak medicinskih/anatomskih modela od kojih je 65 uspješno implantirano.

Uspješnu priču Centra za aditivne tehnologije (CATEh) koji se nalazi na Fakultetu strojarstva i brodogradnje Sveučilišta u Zagrebu predstavio je prof. dr. sc. Mladen Šercer i doc. dr. sc. Ana Pilipović. U kratkom vremenu od svojeg osnivanja, centar je postao prepoznatljivom točkom 3D printanja i modeliranja za potrebe različitih tehničkih rješenja u industriji, ali i nekoliko uspješno implantiranih biomedicinskih implantata i rekonstrukcija. Centar je izvrsno opremljen te raspolaže s nekoliko 3D pisača, pored ostalog i sa pisačem Connex 350, tvrtke Stratasys.



Rolly Bugnar, u suradnji s tvrtkom Rimac Automobili, radi na projektu razvoja invalidskih kolica za pomoć osobama s invaliditetom. Svjetski poznata tvrtka Rimac Automobili

in the usefulness of the information presented at the congress by guest lecturers: Prof. D. Sc. Nicolae Bulc (TU Cluj Napoca), Prof. D. Sc. Mladen Šercer (FSB Zagreb), Rolly Bugnar (Rimac Automobili), Davor Mandić (METRIS Pula), D. Sc. Alessio Ubertini (ENEA Rome), Giorgio Sola, BSc Eng (Limes Rome) and John Tamašović (EOS Innovazioni Bratislava).

Prof. D. Sc. Nicolae Bulc, presented the biggest Transylvanian centre of technology, located in TU Cluj Napoca. The Centre recreates models for a wide number of users: the car and electronic industries, components for Formula 1, etc. They are especially successful in the area of biotechnology, where in the last fifteen years hundreds of medical/anatomical models have been manufactured, of which 65 have been successfully implanted.

The success story of the Centre for Additive Technology (CATEh) located at the Faculty of Mechanical Engineering and Naval Architecture of the University of Zagreb was presented by Prof. D. Sc. Mladen Šercer and Ana Pilipović, Assist.



Prof. In the short time since its establishment, the centre has become a recognizable point of 3D printing and modelling for different technological solutions in industry, but also of several

podupire osobe s posebnim potrebama, stavljući tako primjenu novih tehnologija u sam fokus. Moderna električna kolica svojim karakteristikama nadmašuju rješenja koja se trenutno nalaze na tržištu zahvaljujući inovativnim rješenjima cijelog tima.

Davor Mandić iz Centra za istraživanje materijala Istarske županije (METRIS) predstavio je djelovanje ustanove na primjerima poticanja tehnološkog razvoja kao i razvoja inovacija. METRIS je fokusiran na čvrstu suradnju s partnerima iz metalne i brodograđevne industrije, a nudi i usluge ispitivanja kvalitete proizvoda i materijala, stvaranja novih ili poboljšanja postojećih proizvoda, usluge razvoja inovativnih ideja te istraživanja i razvoja za privatni i javni sektor. Kao dio vizije budućeg razvoja valja spomenuti i budući Tehnološki park Istra, u čiju je realizaciju METRIS također uključen, kao i projekt pripreme budućeg Centra kompetencije što čini logičan strateški korak razvoja METRIS-a te ulaganje u razvoj gospodarstva RH.

Iz talijanske nacionalne agencije za nove tehnologije, energetiku i održivi razvoj (ENEA), čije je sjedište u Rimu, stigao je dr. sc. Alessio Ubertini. Sa svojih 2700 zaposlenih koji rade u 9 regionalnih istraživačkih centara, ENEA je vodeća agencija u Italiji. Dr. Ubertini je prikazao aktivnosti kojima se bave u području zaštite i očuvanja kulturne baštine. Uz pomoć novih tehnologija izrađuju se analize i mapiranja vrijednih arheoloških nalaza. Pronađeni artefakti digitalno se pohranjuju i uz pomoć stručnjaka različitih profila smještaju u povjesni kontekst. Zahvaljujući korištenju novih tehnologija, ali i novom pristupu, deseci artefakata konzervirani su i spremljeni za buduće generacije znanstvenika i studenata.

Denis Jelušić pružio je osvrt na uspješnu suradnju ortopeda i stručnjaka iz područja aditivnih tehnologija. Pacijentu je u rekordnom vremenu, uz veliku uštedu materijala i vremena pri digitalnoj obradi skeniranog dijela, isprintana proteza noge. Zanimljiva je činjenica kako je projekt ostvaren kao suradnja dr. sc. Svena Maričića, Miše Opačića, dr. med. te inkubatora 3D printanja za djecu i mlađe Gradske knjižnice Rijeke, što svemu pruža posebnu dimenziju. Isprintana proteza predstavljena je prvi put u prostoru Riječke razvojne agencije PORIN.

Giorgio Sola, dipl. ing. iz LIMES-a, sudjelovao je kao predstavnik ovog poduzeća iz Rima, a koje se bavi obradom metala, posebno

successfully implanted biomedical implants and reconstructions. The Centre is well-equipped and has several Stratasys 3D printers, among others a Connex 350.

Rolly Bugnar is working on a project developing wheelchairs to help people with disabilities in cooperation with Rimac Automobili, a company of world renown which supports people with special needs, and with a focus on application of new technologies. The characteristics of the modern electric wheelchairs surpass the solutions currently on the market thanks to the innovative solutions of the whole team.

Davor Mandić of the Research Centre for Metal Industry in Istrian County METRIS presented the activities of this institution offering examples of technological development and innovations. Metris focuses on close cooperation with associates from metal and shipbuilding industries, but also offers the services of quality testing of products and materials, creation of new or improvement of the existing products, development of innovative ideas as well as research and development for private and public sector. The vision of future development also includes the future Istria Technology Park, in the implementation of which METRIS also takes part, as well as the draft project of the future Competence Centre, which is a logical strategic step forward of this company's development and investment in the economic development of the Republic of Croatia.

The Rome-based Italian National Agency for New Technologies, Energy and Sustainable Development (ENEA) was represented by D. Sc. Alessio Ubertini. With its 2,700 employees working in 9 regional research centres, ENEA is the leading agency in Italy. Ubertini presented their activities in the protection and preservation of cultural heritage. With the help of new technologies analyses and mapping of valuable archaeological finds are made and the artefacts found are digitally stored and placed in their respective historical context. In this way the new technologies but also such approach have made it possible to preserve and store dozens of artefacts for future generations of scientists and students.

Denis Jelušić commented on the successful cooperation between orthopaedic surgeons and experts in the field of additive technologies. Using digital processing of the scanned parts, a patient had a prosthetic limb printed with great

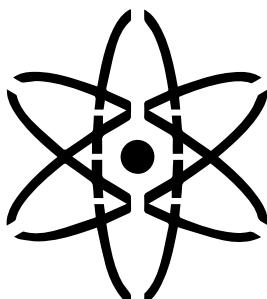


specijaliziranog za CAD/CAM obradu umjetničkih instalacija, kipova i drugih proizvoda obrađivanih strojnom obradom. U svojem radu koriste nove tehnologije i uz pomoć suvremenih alata značajno su podigli razinu proizvodnje. Sola ističe, s obzirom na specifičnost područja kojim se bave, podjednaku suradnju s inženjerima, arhitektima, ali i s umjetnicima - posebno kiparima koji sve više upotrebljavaju CAD/CAM u svakodnevnom radu.

Ivan Tamašović iz tvrtke E.O.S. Innovazioni iz Slovačke predstavio je brojne mogućnosti koje se nude znanstvenicima i hrvatskim malim i srednjim poduzećima pri ostvarivanju uspjeha na različitim natječajima. Jedan od fokusa je svakako i brz transfer znanja između akademskih institucija i poduzetnika na čemu bi se trebao graditi i razvoj inovativnih rješenja.

U pauzi, u prostorima Riječke razvojne agencije PORIN, svirao je kvartet Veljak, a dok je trajalo predavanje, bila je dostupna demonstracija 3D skeniranja kao i aktivnosti vezane uz pripremu modela za ispis na 3D pisaču. Tom prilikom skenirano je dvadesetak značiljnika koji su u spomenu dobili isprintanu bistu svoga lika..

Drugo izdanje RiSciencea nastavilo je stazama prethodnika ostavivši nadu kako će zainteresirani subjekti u središtu Kvarnera nastaviti još snažnije razvijati istraživanja i inovativnu primjenu 3D tehnologija.



savings in material and time. It is interesting that the project has been realized through cooperation between D. Sc. Sven Maričić, D. Sc. Mišo Opačić, and the Rijeka City Library's 3D printing incubator for children and youth. The printed prosthesis was presented for the first time on the premises of Rijeka Development Agency PORIN.

Giorgio Sola, BSc Eng of Limes, participated as a representative of this Rome-based company which deals with metal processing, especially for CAD/CAM processing of art installations, sculptures and other machined products. Using new technologies and contemporary tools, they have significantly increased the volume of their production. Sola specially stressed that given the specific nature of the field of work they have established, the level of their cooperation with engineers and architects is of the same scale as that with artists, especially sculptors, who are increasingly using CAD/CAM technology in their daily work.

Ivan Tomašović from the Slovakian EOS Innovazioni presented numerous opportunities offered to scientists and Croatian SMEs to help them achieve success in various competitions. Certainly, the focus is on fast transfer of knowledge between academic institutions and entrepreneurs, which should serve as the basis for innovative solutions.

During the break, the Veljak Quartet entertained the participants on the premises of the Rijeka Development Agency PORIN. The lectures were accompanied with a demonstration of 3D scanning and activities related to the preparation of a model for 3D printing. On that occasion, about 20 interested congress participants were scanned and received a souvenir 3D print of their figure.

The second edition of RiScience continued the path of its forerunners leaving the hope that interested subjects in the centre of the Kvarner region will continue to further research and innovative use of 3D technologies.



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2.6.5 sorta



SORTA 2014 - XXI. simpozij Teorija i praksa brodogradnje (In memoriam prof. Leopold Sorta) uz međunarodno sudjelovanje.

Simpozij Sorta 2014 održao se od 2. do 4. listopada 2014. godine u hotelu Corinthia u Baški na otoku Krku u organizaciji Tehničkog fakulteta Sveučilišta u Rijeci i Brodogradilišta Viktor Lenac. Predsjednica Organizacijskog odbora bila je prof. Jasna Prpić-Oršić, predsjednik Uredničkog odbora prof. Roko Dejhalla, a rizničar prof. Duško Pavletić. Simpozij SORTA 2014 je 21. simpozij Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta. Predstavlja svojevrsno svjedočanstvo o više od 40 godina kontinuiranog razvoja brodograđevne struke i znanosti na ovim prostorima. Pripreme i održavanje simpozija koincidirale su s izuzetno teškim razdobljem za brodograđevnu zajednicu u Hrvatskoj, ali i šire. Stoga je osnovni i glavni cilj simpozija bio pokazati kako brodograđevna stručna i znanstvena komponenta mogu pomoći brodograđevnoj praksi i obrnuto, "znanje je moć" nije samo parola već najmoćnije oružje u prevladavanju ove krize. Ostvarenju ovog cilja doprinijelo se međunarodnim pozvanim predavanjima, predstavljanjem odgovarajućih znanstvenih i stručnih radova te međunarodnom suradnjom sudionika simpozija.

Simpozij je ugostio planetarno poznatog profesora Odda Magnusa Faltinsena s norveškog Norwegian University of Science and Technology u Trondheimu. Profesor Faltinsen jedan je od najvećih hidrodinamičara svih vremena, a održao je plenarno predavanje o recentnim izazovima u projektiranju broda i pomorskih objekata, a s hidrodinamičkog aspekta.

U sekciji plenarnih predavanja sudjelovali su gospodin Siniša Reljić kao predstavnik norveške tvrtke Rolls-Royce Marine AS koji je dao pregled sadašnjeg i budućeg tržista

SORTA 2014 - XXI. symposium Theory and practice of naval architecture (In memoriam prof. Leopold Sorta) with international participation.

The symposium Sorta 2014. was held from 2.-4. October 2014. in a hotel Corinthia in Baška on the island of Krk, in organization of Faculty of engineering of University of Rijeka, and Shipyard Viktor Lenac. The president of Organizing committee was prof. Jasna Prpić-Oršić, the president of Editorial board was prof. Roko Dejhalla, and treasurer was prof. Duško Pavletić. The symposium SORTA 2014 is 21st symposium Theory and practice of naval architecture, in memoriam prof. Leopold Sorta. It represents some kind of testimony about more than a 40 years of cotinuous development of naval architecture profession and science in this area. Preparations and maintaining of symposium occurred in extremely heavy period for shipbuilding society in Croatia and wider, so basic goal of this symposium was to show how technical and scientific component of naval architecture can help shipbuilding practice and other way around and also that "knowledge is the power" isn't just a quote but the most powerful weapon of surviving in this crisis. To achieve this goal, there were international invited lectures, presenting scientific and professional works/papers and international cooperation by symposium participants.

On the symposium was world wide famous professor Odd Magnus Faltinsen from Norwegian University of Science and Technology in Trondheim. Prof. Faltinsen is one of the greatest name of all time in hydrodynamic world, and he held a plenary lecture about recent challenges in ship projecting and marine objects both from hydrodynamic aspects.

In section of plenary lectures, also attended Mr. Siniša Reljić as representative of norwegian company Rolls-royce Marine AS who gave



pomorskih konstrukcija i gospodin Željko Šimić, područni menager iz DNV – GL, Hamburg koji je predstavio tu novu moćnu tvrtku nastalu nedavnjim udruživanjem klasifikacijskih zavoda Det Norske Veritas (DNV) i Germanischer Lloyd (GL). Iz iste tvrtke dolazi i Dr Gerd-Michael Wuersig, Business Director LNG fuelled ships, koji je dao pregled razvoja i buduće smjernice uvođenja korištenja ukapljenog prirodnog plina (LNG) kao alternativnog brodskog goriva.

U radu simpozija sudjelovali su mnogi znanstvenici i stručnjaci iz zemlje i svijeta koji su prikazali svoja dostignuća u različitim područjima vezanim uz projektiranje i gradnju brodova i pomorskih objekata. Cilj simpozija SORTA 2014 bio je prikazati postojeće obrazovne, znanstvene, istraživačke i razvojne kapacitete hrvatske brodogradnje koji su do sada, a spremni su i u budućnosti, na visokoj svjetskoj razini sudjelovati u razvoju brodogradnje i napretku gospodarstva Hrvatske. Dodatne informacije vezane uz Simpozij mogu se dobiti na mrežnoj stranici: <http://old.riteh.hr/sorta2014/index.php?sLang=1#>.

an overview of current and future market of marine structures, and Mr. Željko Šimić, regional manager from DNV-GI, Hamburg, who represented this new powerful company which was made by recent joining of classification societies Det Norske Veritas (DNV) and Germanischer Lloyd (GL). Dr. Gerd-Michael Wuersig, Business Director LNG fuelled ships from the same company, gave an overview of development and future directions of introducing the use of liquefied natural gas (LNG) as an alternative fuel for ships. The symposium was attended many scientists and experts from Croatia and world who showed their achievements in different areas connected with projecting and building ships and marine constructions. The goal of symposium SORTA 2014 was to show existing educational, scientific, research and development capacity of Croatian shipbuilding industry which are by now and in the future, on high global level ready to participate in development of shipbuilding and in the progress of Croatian economy.

Other information about symposium are on: <http://old.riteh.hr/sorta2014/index.php?sLang=1#>



Sudionici Simpozija



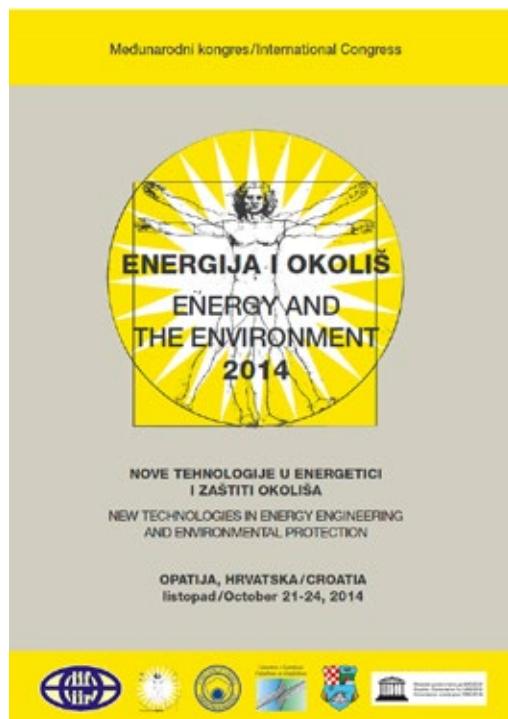
2.6.6 energija i okoliš energy and the environment

Tradicionalni skup znanstvenika i stručnjaka iz područja energetike i zaštite okoliša Međunarodni kongres Energija i okoliš 2014 održan je od 21. do 24. listopada u Opatiji u organizaciji Tehničkog fakulteta i Hrvatskog saveza za sunčevu energiju. Kongres je bio dvadeset i četvrtogokupljanje na kojem su sudjelovali predstavnici iz 18 zemalja. Ovaj trodnevni skup održao se je pod motom Nove tehnologije u energetici i zaštiti okoliša, a tematske sekcije kongresa bile su: Sunčeva energija, Energija vjetra, Energija i klima i Energetska učinkovitost. Održane su i prezentacije energetskih agencija u RH. Zbornik radova prezentiranih na kongresu, na 550 stranica sadrži 65 radova koji čine vrijedan doprinos promicanju učinkovitog korištenja energije, poticanju korištenja obnovljivih izvora energije i brizi o zaštiti okoliša. Dugogodišnje iskustvo u organizaciji ovog skupa pokazuje da su dosadašnja okupljanja doprinijela dobroj suradnji u području energetike i zaštite okoliša u ovom dijelu Europe.

International Congress Energy and the Environment 2014, a traditional meeting of scientists and experts in the field of energy engineering and environmental protection, was held in Opatija from October 21st to October 24th. The Congress was the twenty-fourth such gathering, organized by Faculty of Engineering and Croatian Solar Energy Association, with participation of representatives from eighteen countries. This three-day meeting has been held under the motto New Technologies in Energy Engineering and Environmental Protection. The main topics were: Solar Energy, Wind Energy, Energy and Climate as well as Energy Efficiency. Presentations of Croatian energy agencies have been also held. The Proceedings contain 65 papers on 550 pages, that present a valuable contribution to the promotion of sustainable energy use, renewable energy use as well as environmental protection care. Many years of experience in the organization of this event shows that the previous meetings contributed to good cooperation in the field of energy engineering and environmental protection in the region.



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2.6.7 hrzz projekti

hrzz projects

NAZIV RADA | TITLE:

RAZVOJ EVOLUCIJSKIH POSTUPAKA ZA KARAKTERIZACIJU PONAŠANJA BIOLOŠKIH TKIVA
DEVELOPMENT OF EVOLUTIONARY PROCEDURES FOR CHARACTERIZATION OF
BIOLOGICAL TISSUES BEHAVIOR – BIOMAT

Glavni istraživač

prof. dr. sc. Marina Franulović, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska

Članovi istraživačkog tima

doc. dr. sc. Robert Basan, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
dr. sc. Kristina Marković, poslijedoktorand,
Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
Tea Marohnić, poslijediplomant, Filozofski
fakultet, Sveučilište u Rijeci, Hrvatska
prof. dr. sc. Ivan Prebil, Fakulteta za strojništvo,
Univerza v Ljubljani, Slovenija
dr. sc. Ana Trajkovski, Fakulteta za strojništvo,
Univerza v Ljubljani, Slovenija
Senad Omerović, poslijediplomant, Fakulteta za
strojništvo, Univerza v Ljubljani, Slovenija
dr. sc. Simon Krašna, Fakulteta za strojništvo,
Univerza v Ljubljani, Slovenija

Sažetak projekta

Za proces pravilnog konstruiranja i oblikovanja proizvoda vrlo je značajan optimalan izbor materijala, pri čemu posebnu pažnju treba posvetiti ponašanju materijala u stvarnim uvjetima primjene.

U cilju poboljšanja i unaprijeđivanja značajki proizvoda, u inženjerstvu se sve veća pažnja posvećuje poboljšanju značajki konvencionalnih, a posebice razvoju inovativnih materijala te stvaranju prepostavki za njihovu tehničku primjenu. Iako je područje istraživanja materijala i dalje u značajnoj mjeri usmjereno na metalne, polimerne materijale, staklo, keramiku, kompozite itd., sve veći interes posvećuje se istraživanju bioloških i njima sličnih materijala zbog izvrsnih svojstava i ponašanja pri različitim uvjetima i opterećenjima. Mnogi biološki sustavi imaju mehaničke karakteristike koje uvelike nadvisuju one koje se mogu ostvariti korištenjem konvencionalnih i sintetičkih materijala pa se u tom smislu vrše intenzivna istraživanja mehaničkih svojstava i ponašanja materijala prisutnih u, primjerice, školjkama, mekušcima, kostima, paukovoj svili, mišićima i slično.

Principal investigator

Prof. D. Sc. Marina Franulović, Faculty of
Engineering, University of Rijeka, Croatia

Team members

Assist. Prof. Robert Basan, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Kristina Marković, D. Sc. (postdoc), Faculty of
Engineering, University of Rijeka, Croatia
Tea Marohnić, D. Sc. Student, Faculty of
Humanities and Social Sciences, University of
Rijeka, Croatia
Prof. Ivan Prebil, D. Sc., Faculty of Mechanical
Engineering, University of Ljubljana, Slovenia
Ana Trajkovski, D. Sc., Faculty of Mechanical
Engineering, University of Ljubljana, Slovenia
Senad Omerović, D. Sc. Student, Faculty of
Mechanical Engineering, University of Ljubljana,
Slovenia
Simon Krašna, D. Sc., Faculty of Mechanical
Engineering, University of Ljubljana, Slovenia

Project summary

For the proper product design optimal material selection is very significant, whereby special attention should be paid to the behavior of materials under actual conditions of use.

In order to enhance and improve product features, increasing attention is paid to enhancing the properties of conventional and, especially the development of innovative materials and creating conditions for their technical applications. Although the materials research is still to a large extent focused on metallic, polymeric materials, glass, ceramics, composites, etc., increasing interest is devoted to the study of the biological and the like materials with excellent properties and behavior under different conditions and loads. Many biological systems have mechanical characteristics that are greatly above those that can be achieved using conventional and synthetic materials, so mechanical properties and behavior of materials present in, for example, clams, mussels, bone, spider silk, the muscles and the like are intensely studied.



Ponašanje bioloških materijala vrlo je kompleksno, ali se, kao i modeliranje ponašanja konvencionalnih materijala, bazira na poznavanju njihovih osnovnih mehaničkih karakteristika kao što su međuovisnost naprezanja i deformacije materijala. Neke od ovih karakteristika moguće je odrediti eksperimentalnim postupcima poput vlačnog opterećenja uzoraka na njihovog loma. Pored poznavanja matematičkog, odnosno materijalnog modela kojim je moguće dobro opisati spomenute međuovisnosti, osnovni preduvjet za modeliranje ponašanja bioloških materijala svakako je identifikacija njihovih parametara bazirana na fizikalnim zakonitostima koji se na njih primjenjuju.

Zbog složenosti modela bioloških materijala te velikog broja materijalnih parametara koji se u njima pojavljuju, za njihovo određivanje nisu dostaune konvencionalne računske metode. U okviru prethodnih istraživanja, ustanovljeno je da je za identifikaciju parametara bioloških materijala potrebnih za modeliranje i simuliranje njihovog ponašanja preporučljivo primjeniti evolucijske metode, a posebno genetski algoritam.

U okviru projekta, za karakterizaciju i modeliranje ponašanja bioloških materijala koristit će se podaci dobiveni eksperimentalnim testiranjem uzoraka vratnih ligamenata ljudske kralježnice. Kao prikladan, odabran je hiperelastični materijalni model koji se može koristiti i za kompresibilne i nekompresibilne materijale. Kako bi se na što efikasniji način dobile što točnije vrijednosti parametara za predloženi nelinearni hiperelastični materijalni model, razvit će se tehnika određivanja parametara ponašanja materijala temeljena na genetskom algoritmu. Radi razvoja što boljeg genetskog algoritma i njegove optimizacije za zadani materijal ili skupinu materijala, odnosno što bržeg ostvarenja traženog rješenja, razvit će se procedura složenog genetskog algoritma te njegovi operatori, uz primjenu adekvatne funkcije cilja optimacijskog postupka. Sam postupak će se automatizirati primjenom adekvatnih matematičkih i numeričkih postupaka.

Predložena metodologija karakterizacije ponašanja materijala već se dosad pokazala vrlo primjenjivom za identifikaciju parametara materijala različite strukture i mehaničkih karakteristika. Očekuje se da će je, zbog njene fleksibilnosti i robusnosti, osim za modeliranje ponašanja bioloških materijala biti moguće primijeniti za karakterizaciju ponašanja i drugih

The behavior of the biological material is very complex, but, as well as modeling of the conventional material it is based on the knowledge of their mechanical properties, such as the interdependence between the stress and strain of the material. Some of these characteristics may be determined by experimental methods such as tensile loading of samples to their cracking.

In addition to knowledge of mathematical and material model which can be well described by the aforementioned interdependence, a basic prerequisite for modeling the behavior of biological materials, is certainly the identification of their parameters, based on physical laws that apply to them.

Due to the complexity of the model of biological materials and a large number of material parameters that appear in them, conventional calculation methods are not sufficient for their determination. In preliminary studies, it was found that for the identification of parameters of biological materials needed for modeling and simulation of their behavior, it is advisable to apply the evolutionary methods, especially genetic algorithm.

Within the project, for the characterization and modeling of biological materials, the data obtained through experimental testing of samples of cervical ligaments of the human spine will be used. Hyperelastic material model that can be used for both compressible and incompressible materials was selected as appropriate. In order to more efficiently obtain the precise values of the parameters for the proposed nonlinear hyperelastic material model techniques for determining the parameters of material behavior based on genetic algorithm will be developed. In order to develop the best genetic algorithm and to optimize it for the given material or group of materials, and to achieve desired solutions as soon as possible, complex genetic algorithm procedures and its operators, will be developed applying the appropriate objective function for the optimization procedure. The procedure will be automated by using the appropriate mathematical and numerical methods.

The proposed methodology of material characterization, has so far proved to be very applicable for parameters identification of material with different microstructure and mechanical properties. It is expected that because of its flexibility and robustness, besides



nekonvencionalnih i inovativnih materijala kompleksnog ponašanja. U tu svrhu predviđeno je prikupljanje i sistematizacija relevantnih rezultata eksperimentalnih ispitivanja naprednih vrsta materijala te informacija o primjenjenim metodologijama i materijalnim modelima. Time će se stvoriti pretpostavke i temelji za daljnje unaprijedivanje razvijenog rješenja te stvaranje jedinstvene metodologije za karakterizaciju velikog broja inovativnih materijala i olakšavanje njihove primjene u inženjerskoj praksi.

Ovaj prijedlog projekta predstavlja postavljanje inovativnih temelja u interdisciplinarnom području tehničkih znanosti i biomedicine te omogućava povezivanje članova predložene znanstvene skupine i osigurava njihovu međunarodnu vidljivost te općenito razvoj znanosti u Hrvatskoj u području istraživanja materijala.

for the modeling of the biological material it can be applied to characterize the behavior and other non-conventional and innovative materials of complex behavior. For this purpose, collection and systematization of relevant results of experimental tests of advanced types of materials and information on the methodology and material models is foreseen and planned. This will create the basis and foundation for the further improvement of the developed solutions and the creation of a unified methodology for the characterization of a large number of innovative materials and facilitate their application in engineering practice.

This project proposes setting innovative foundations in the interdisciplinary field of engineering sciences and biomedicine, allows the connection of members of the proposed scientific groups and ensures their international visibility and contributes to the overall development of the field of material research in Croatia.

NAZIV RADA | TITLE:

PROGRAMSKI SUSTAVI U EVOLUCIJI: ANALIZA I INOVATIVNI PRISTUPI PAMETNOM UPRAVLJANJU

EVOLVING SOFTWARE SYSTEMS: ANALYSIS AND INNOVATIVE APPROACHES FOR SMART MANAGEMENT – EVOSOFT

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Glavni istraživač

doc. dr. sc. Tihana Galinac Grbac, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska

Članovi istraživačkog tima

prof. dr. sc. Per Runeson, Sveučilište u Lundu, Švedska
 prof. dr. sc. Darko Huljenić, Ericsson Nikola Tesla, Hrvatska
 doc. dr. sc. Fabrizio Montesi, Sveučilište južne Danske, Danska
 doc. dr. sc. Ivan Štajduhar, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 Goran Mauša, poslijediplomant, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 Jean Petrić, poslijediplomant, Sveučilište u Hertfordshireu, Velika Britanija

Sažetak projekta

Kompleksni programski sustavi koji se evolucijski razvijaju (EVOSOFT) postali su središnji sve većeg broja aplikacija, proizvoda i usluga, a koji su potpora svakodnevnim ljudskim aktivnostima iz svih gospodarskih sektora. Često su to distribuirani sustavi, heterogeni,

Principal investigator

Assist. Prof. Tihana Galinac Grbac, D. Sc., Faculty of Engineering, University of Rijeka, Croatia

Research team members

Prof. Per Runeson, D. Sc., Lund University, Sweden
 Prof. Darko Huljenić, D. Sc., Ericsson Nikola Tesla, Croatia
 Assist. prof. Fabrizio Montesi, D. Sc., University of Southern Denmark, Denmark
 Assist. Prof. Ivan Štajduhar, D. Sc., Faculty of Engineering, University of Rijeka, Croatia
 Goran Mauša, D. Sc. student, Faculty of Engineering, University of Rijeka, Croatia
 Jean Petrić, D. Sc. student, University of Hertfordshire, UK

Project summary

Evolving complex software systems (EVOSOFT) have become a central part of a rapidly growing range of applications, products and services supporting daily human activities from all economic sectors. As they are often

decentralizirani i međusobno zavisni, koji rade u dinamičnim i nepredvidljivim uvjetima, pa su njihova dostupnost i pouzdanost postale ključna svojstva potrebna za njihov rad i budući razvoj. Novo i još neistraženo područje istraživanja a koje se obrađuje u ovom projektu je razumjeti kako apstraktnе programske strukture i lokalna obilježja sustava utječu na distribuciju neispravnosti, a čime se utječe na kritična svojstva sustava, među kojima je dostupnost i pouzdanost te razvijati inovativne pristupe za pametno upravljanje njihovim izvođenjem i evolucijom. Potrebno je za naglasiti da se ovdje suočavamo s potpuno novim pojавama, sličnim ljudskoj evoluciji, ali koje su proizvedene ljudskim intelektom. Temelji i teorije iz drugih disciplina kojima je cilj razumjeti ponašanje kompleksnih sustava, evolucije te ljudsko razmišljanje mogle bi ovdje biti primjenjive. Novi rezultati otvoriti će nove mogućnosti u mnogim znanstvenim područjima, osobito u teoriji kompleksnih sustava i njenih primjena, te tako međudjelovati sa širokim spektrom znanosti, od prirodnih znanosti kao što su to biomedicina pa sve do društvenih znanosti. Industrijsko iskustvo prikupljeno iz empirijskog pristupa programskom inženjerstvu je iznimno važno za daljnji razvoj discipline programskog inženjerstva. Nove teorije ne mogu biti djelotvorne i primjenjive u industriji, bez temeljnog razumijevanja EVOSOFT ponašanja. Glavni cilj ovog projekta je da će ispuniti taj jaz između empirijskih dokaza i teoretskih modela. Kako bi ostvarili taj cilj kombiniramo empirijska i teoretska znanja tako što ćemo:

- ponoviti studije i potvrditi empirijske principe i metode i na kojima želimo graditi nove teorije,
- definirati strukturalne ovisnosti za primjenu empirijskih principa, metoda,
- definirati formalne modele i inovativne načine pametnog upravljanja.

distributed, heterogeneous, decentralized and inter-dependent, and operating in dynamic and unpredictable environments, availability and reliability become key properties for its operation and future evolution. The novel and still unexplored area of research addressed in this project is to understand how abstract software structures and local system properties influence fault distributions, thus affecting mission critical system properties, among which availability and reliability and to develop innovative approaches for smart management of their operation and evolution. We are facing with completely new phenomena, similar to human evolution, but produced by human intellect. Foundations and theories from other disciplines aiming to understand complex system behavior, evolution and human reasoning could be applied. New findings would open new opportunities in many scientific fields, especially in complex systems theory and its applications, thus interacting with a wide spectrum of sciences, from natural sciences such as biomedicine to social sciences. Industrial experience gathered by systematic Empirical Software Engineering approach is extremely important for further evolution of software engineering discipline. New theories cannot provide effective means for industry without fundamental understanding of EVOSOFT behavior. The main aim of this project is to fulfill this gap between empirical evidence and theoretical models. In that aim we combined empirical and theoretical skills aiming to:

- replicate studies and confirm empirical principles and methods and define a solid base to ground new theories,
- define structural dependencies for applicability of empirical principles, methods,
- define formal models and innovative approaches for smart management

NAZIV RADA | TITLE:

**ZELENIJI PRISTUP PROJEKTIRANJU BRODA I OPTIMALNOM PLANIRANJU RUTE
GREENER APPROACH TO SHIP DESIGN AND OPTIMAL ROUTE PLANNING – GASDORP**

Glavni istraživač

prof. dr. sc. Jasna Prpić – Oršić, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska

Principal investigator

Prof. Jasna Prpić – Oršić, D. Sc., Faculty of Engineering, University of Rijeka

Članovi istraživačkog tima

prof. dr. sc. Odd Magnus Faltinsen, Norveško sveučilište znanosti i tehnologije, Trondheim, Norveška

prof. dr. sc. Roko Dejhalla, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska

prof. dr. sc. Tomislav Mrakovčić, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska

Team members

Prof. Odd Magnus Faltinsen, D. Sc., Norwegian University of Science and Technology, Trondheim, Norway

Prof. Roko Dejhalla, D. Sc., Faculty of Engineering, University of Rijeka, Croatia

Prof. Tomislav Mrakovčić, D. Sc., Faculty of Engineering, University of Rijeka, Croatia



prof. dr. sc. Vladimir Medica, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 prof. dr. sc. Duško Pavletić, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 prof. dr. sc. Igor Rudan, Pomorski fakultet, Sveučilište u Rijeci, Hrvatska
 izv. prof. dr. sc. Nikola Račić, Pomorski fakultet, Sveučilište u Splitu, Hrvatska
 dr. sc. Ozren Bukovac, poslijedoktorand, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 dr. sc. Dunja Matulja, poslijedoktorand, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
 dr. sc. Marko Valčić, poslijedoktorand, Pomorski fakultet, Sveučilište u Rijeci, Hrvatska
 Natalija Vitali, poslijediplomant, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska

Prof. Vladimir Medica, D. Sc., Faculty of Engineering, University of Rijeka, Croatia
 Prof. Duško Pavletić, D. Sc., Faculty of Engineering, University of Rijeka, Croatia
 Prof. Igor Rudan, D. Sc., Faculty of Maritime Studies, University of Rijeka, Croatia
 Assoc. prof. Nikola Račić, D. Sc., Faculty of Maritime Studies, University of Split, Croatia
 Ozren Bukovac, D. Sc. (postdoc), Faculty of Engineering, University of Rijeka, Croatia
 Dunja Matulja, D. Sc. (postdoc), Faculty of Engineering, University of Rijeka, Croatia
 Marko Valčić, D. Sc. (postdoc), Faculty of Maritime Studies, University of Rijeka, Croatia
 Natalija Vitali, D. Sc. student, Faculty of Engineering, University of Rijeka, Croatia

Sažetak projekta

Točan izračun održive brzine broda u stvarnim uvjetima na moru važan je iz ekonomskih i ekoloških aspekata. Pouzdana procjena gubitka brzine broda u stvarnim uvjetima okoliša omogućuje točnija predviđanja povećanja snage i potrošnje goriva kao i emisija plinova. Tehnološka poboljšanja na brodovima kao što su poboljšani dizajn trupa, unapređenje energetskih i pogonskih sustava mogla bi potencijalno smanjiti emisiju CO₂ do 35%. Ove se mjeru djelotvorno može kombinirati s drugim operativnim mjerama, kao što su optimalno planiranje rute.

Predloženo se istraživanje provodi u tri glavna područja: 1. Poboljšanje metodologije procjene brzine broda, potrošnje goriva i emisije stakleničkih plinova u stvarnim vremenskim uvjetima, 2. optimizacija brodskog trupa i brodskog porivnog sustava koji rade u stvarnom vremenskim uvjetima, 3. optimizacija plovidbene rute uzimajući u obzir sve relevantne parametre.

Cilj je poboljšati značajke broda vodeći računa o pitanju zaštite okoliša, stvaranje tzv eko-činkovitog ili "zelenog" broda.

Project summary

The accurate calculation of attainable ship speed at actual sea is essential from economical and also environmental aspects. Reliable ship speed loss estimation under real environmental conditions allows a more accurate prediction of the power increase and fuel consumption as well as gas emissions from ships. Nowadays this second issue becomes very important because of the problem of global warming. Following the increasing awareness of the environmental and human health concerns of shipping, legislative actions have been taken on global and national levels making mandatory (from January 1st 2013) that new ships over 400 gross tonnage, to comply with the regulations, should have emissions of CO₂ under limiting value. Technological enhancement to ships like improved hull designs as well as improvement in power and propulsion systems could potentially reduce CO₂ emission up to 35 %. These measures could effectively be combined with several other operational measures, such as weather routing and voyage planning, in order to ensure that fuel consumption and CO₂ emissions from ships are minimized on every voyage.

The proposed research will be conducted in three main areas: 1. Improvement of the methodology of ship speed, fuel consumption and greenhouse gases (GHG) emissions (especially CO₂) calculation on actual weather conditions, 2. Optimization of the ship hull (bow and stern) and ship propulsion system operating in actual weather condition, 3. Optimization of ship route by taking into account all relevant parameters: weather prediction, attainable ship speed on waves, main engine performance and navigation constrains.



The objective is to improve ship design and performance taking into accounts the environmental issue, creating a so called eco-efficient or "green" ship design. The project team consists of the scientists who are experts in the naval architecture, mechanical engineering and marine engineering field which allow solving this problem multidisciplinary.

NAZIV RADA | TITLE:

OPTIMIZIRANJE I MODELIRANJE TERMALNIH PROCESA MATERIJALA

OPTIMISATION AND MODELLING OF THERMAL PROCESSES OF MATERIALS – OMOTPOM

Glavni istraživač

prof. dr. sc. Božo Smoljan, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska

Članovi istraživačkog tima

prof. dr. sc. Branimir Lela, Fakultet
elektrotehnike, strojarstva i brodogradnje,
Sveučilište u Splitu, Hrvatska
prof. dr. sc. Dražen Živković, Fakultet
elektrotehnike, strojarstva i brodogradnje,
Sveučilište u Splitu, Hrvatska
prof. dr. sc. Domagoj Rubeša, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
prof. dr. sc. Loreta Pomenić, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
prof. dr. sc. Zvonimir Kolumbić, Filozofski
fakultet, Sveučilište u Rijeci, Hrvatska
doc. dr. sc. Dario Ilijkić, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
dr. sc. Sunčana Smokvina Hanza, Adriainspekt
d.o.o. , Hrvatska
Neven Tomašić, poslijediplomant, Hara d.o.o. ,
Hrvatska
Hrvoje Novak, poslijediplomant, NMP Produkt
d.o.o. , Hrvatska
Mauro Maretić, poslijediplomant, Tehnička
škola, Pula, Hrvatska
Goran Salopek, poslijediplomant, Filozofski
fakultet, Sveučilište u Rijeci, Hrvatska
Zvonimir Dadić, poslijediplomant, Fakultet
elektrotehnike, strojarstva i brodogradnje,
Sveučilište u Splitu, Hrvatska
Nikša Čatipović, poslijediplomant, Fakultet
elektrotehnike, strojarstva i brodogradnje,
Sveučilište u Splitu, Hrvatska

Principal investigator

Prof. Božo Smoljan, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia

Team members

Prof. Branimir Lela, D. Sc., Faculty of Electrical
Engineering, Mechanical Engineering and
Naval Architecture, University of Split, Croatia
Prof. Dražen Živković, D. Sc., Faculty of
Electrical Engineering, Mechanical Engineering
and Naval Architecture, University of Split,
Croatia
Prof. Domagoj Rubeša, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Prof. Loreta Pomenić, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Prof. Zvonimir Kolumbić, D. Sc., Faculty of
Humanities and Social Science, Rijeka, Croatia
Assist. Prof. Dario Ilijkić, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Sunčana Smokvina Hanza, D. Sc., Adriainspekt
d.o.o. , Croatia
Neven Tomašić, D. Sc. student, Hara d.o.o. ,
Croatia
Hrvoje Novak, D. Sc. student, NMP Produkt
d.o.o. , Croatia
Mauro Maretić, D. Sc. student, Technical High
School, Pula, Croatia
Goran Salopek, D. Sc. student, Faculty of
Humanities and Social Sciences, University of
Rijeka, Croatia
Zvonimir Dadić, D. Sc. student, Faculty of
Electrical Engineering, Mechanical Engineering
and Naval Architecture, University of Split,
Croatia
Nikša Čatipović, D. Sc. student, Faculty of
Electrical Engineering, Mechanical Engineering
and Naval Architecture, University of Split,
Croatia



Sažetak projekta

Termalni procesi materijala među najvažnijim su čimbenicima u proizvodnji i povećanju pouzdanosti inženjerskih komponenti. Termalni procesi poput toplinske obrade, lijevanja, oblikovanja u vrućem stanju i zavarivanja omogućuju proizvodnju komponenti zahtijevanog oblika i zahtijevanih svojstava. Cilj optimiziranja i modeliranja termalnih procesa materijala je razvoj modela i računalnih simulacija termalnih procesa materijala te primjene alata i kalupa u termalnim procesima.

Tijekom termalnih procesa materijala proučavat će se prijenos topline, mikrostrukturne pretvorbe, mehanička svojstva te distorzije i zaostala naprezanja, za što je potreban ujedinjeni termo-mehaničko-metalurški pristup.

Razvit će se računalni programi za simulaciju prijenosa topline, mikrostrukturnih transformacija, mehaničkih svojstava, distorzija i zaostalih naprezanja. Programi će se razvijati uzimanjem u obzir zahtijevanog oblika obratka, zahtijevane raspodjele mehaničkih svojstava i raspodjele mikrostrukture, a pritom uz zahtjeve izbjegavanja pukotina i minimiziranja distorzija i zaostalih naprezanja.

Project summary

Thermal processing of materials is one of the most important factors in production and reliability of engineering components. All varieties of material thermal processing technology, from heat treatment, casting and hot metal forming, to the welding, not only manufactures workpieces of required shapes but also optimizes their final properties. Objective of the optimisation of thermal processes of materials is development of models and computer simulations of thermal processes of materials and study of optimizing the application of tools and dies in thermal processing of materials.

During the thermal processing, physical processes and material properties such as: heat transfer, microstructure transformations, mechanical properties and distortions and residual stresses will be studied primarily. To solve these tasks, joined thermo-mechanic-metallurgical approach will be required. The computer program for simulation of heat transfer, microstructure transformations, mechanical properties, distortions and residual stresses during the thermal processes will be analyzed.

To meet the needs of industry to control and optimize the thermal process parameters, developed computer programs for simulation of the thermal processes will be accomplished by considering the achievement of: Required workpiece shape; Desired mechanical property distribution; Desired microstructure distribution by: Avoidance of cracking; Reduction of both distortion and residual stresses.

**NAZIV RADA | TITLE:**

OPTIMIZIRANJE I MODELIRANJE TERMALNIH PROCESA MATERIJALA
ASSESSMENT OF STRUCTURAL BEHAVIOUR IN LIMIT STATE OPERATING CONDITIONS -
STRUBECON

Glavni istraživač

prof. dr. sc. Josip Brnić, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska

Principal investigator

Prof. Josip Brnić, D. Sc., Faculty of Engineering,
University of Rijeka, Croatia

Članovi istraživačkog tima

prof. dr. sc. Goran Turkalj, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
prof. dr. sc. Marko Čanadija, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska
izv. prof. dr. sc. Domagoj Lanc, Tehnički
fakultet, Sveučilište u Rijeci, Hrvatska
doc. dr. sc. Marino Brčić, Tehnički fakultet,
Sveučilište u Rijeci, Hrvatska

Team members

Prof. Goran Turkalj, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Prof. Marko Čanadija, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Assoc. Prof. Domagoj Lanc, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia
Assist. Prof. Marino Brčić, D. Sc., Faculty of
Engineering, University of Rijeka, Croatia

doc. dr. sc. Goran Vukelić, Pomorski fakultet, Sveučilište u Rijeci, Hrvatska
dr. sc. Igor Pešić, poslijedoktorand, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
dr. sc. Sanjin Krščanski, poslijedoktorand, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
dr. sc. Neven Munjas, poslijedoktorand, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
Damjan Banić, poslijediplomant, Tehnički fakultet, Sveučilište u Rijeci, Hrvatska
Edin Merdanović, poslijediplomant, Euro Façade Tech, Kuala Lumpur, Malezija

Assist. Prof. Goran Vukelić, D. Sc., Faculty of Maritime Studies, University of Rijeka, Croatia
Igor Pešić, D. Sc. (postdoc), Faculty of Engineering, University of Rijeka, Croatia
Sanjin Krščanski, D. Sc. (postdoc), Faculty of Engineering, University of Rijeka, Croatia
Neven Munjas, D. Sc. (postdoc), Faculty of Engineering, University of Rijeka, Croatia
Damjan Banić, D. Sc. student, Faculty of Engineering, University of Rijeka, Croatia
Edin Merdanović, D. Sc. candidate, Euro Façade Tech, Kuala Lumpur, Malaysia

Sažetak projekta

Konstrukcije se u inžinjerskoj praksi uobičajeno dizajniraju spram svrhe za koju će biti namijenjene, uzimajući pritom u obzir sve zahtjeve koji se na njih odnose tijekom životnog vijeka. Među ove se zahtjeve ubrajuju faktor sigurnosti, svojstva materijala, životni vijek, uvjeti rada te svakako procjena životnog vijeka. Tijekom eksploracije konstrukcija može biti izložena nepoželjnim eksploracijskim uvjetima, koje mogu biti kratkotrajnog ili duljeg vremenskog djelovanja te izazvati različite vrste grešaka koje ju u dalnjem radu mogu onesposobiti za pravilno funkcioniranje. Ove se greške mogu ogledati u prevelikom naprezanju ili/ deformaciji, a što može biti posljedica prevelikog opterećenja, pojave visoke temperature, nepravilnog održavanja ili različitih oblika mehaničkih grešaka. U svakom slučaju, analiza ovakvog kritičnog stanja, odnosno pojava rada konstrukcije u ovakvim graničnim uvjetima zahtijeva odgovarajuću analizu sposobnosti njezine nosivosti i rada kako bi se ustanovilo da li pojava ovakve situacije može biti eliminirana tj. konstrukcija osposobljena za daljnji rad ili je ovom pojmom namijeta nepremostiva greška za njenoj dalnjem funkcioniranju. U ovome smislu procjena ponašanja konstrukcije, odnosno analiza odgovarajućih parametara, kao što su naprezanje, deformacija, pojava pukotine ili slično, a sve izazvano nepoželjnim graničnim stanjem, vrši se spram parametara koji odgovaraju stanju konstrukcije tijekom njezinog ispravnog i kontroliranog rada. U ovom smislu eksperimentalna i numerička analiza primarne su odrednice kontrole stanja konstrukcije u ovakvim specifičnim uvjetima. Naime, najčešće se, u slučaju pojave ovakvog graničnog stanja u kojem se konstrukcija nađe za vrijeme kraćeg ili duljeg vremenskog perioda, njezina analiza vrši numerički te se dobiveni parametri uspoređuju s eksperimentalno dobivenim vrijednostima istih parametara, a za slučaj dizajniranog stanja konstrukcije. Među spomenute parametre

Project summary

The studies in this project relate to the possible limit state operating conditions of the structure and by their nature are experimental and numerical. Structural design is usually based on the requirements relating to its use, safety, functionality and service life and at the same time meeting the requirements for strength, deformation, manufacturing technology and price. Structure may be sometimes exposed to unexpected conditions, let say adverse or hazard conditions. These conditions may cause failures making structure incapable to perform the function for which it has been designed. In such conditions the task is to make an assessment of the structure behavior if the structure is capable for further operation. This means the assessment should provide an answer if the structure has sustained irreparable damage. Therefore, the main objective is to provide an assessment of structure behavior, by comparing of the parameters such as stress, strain, crack occurrence, etc., caused by certain load level and temperature at this unexpected limit state with those allowed by material properties. To assess structural behavior in operation at limit state, the following research sub-objectives should be accomplished: testing of material properties for the different environmental conditions; definition of impact energy as well as the determination of the crack driving force and life assessment of structural elements; evaluation of the semi-rigid structural joints/connections behavior; development of a numerical algorithm for optimization of semi-rigid framed structures; creep buckling simulations of composite beam-type structures; proper constitutive modelling at limit operating conditions (i.e. plasticity, damage, thermomechanical coupling); application of new materials to be used at limit state – nanocomposites. Targeted structures may be single and multi storey steel buildings, high-power electrical transmission towers, ship structures, machines, etc.



materijala (svojstva materijala) o kojima je riječ, prilikom testiranja spadaju: vlačna čvrstoća materijala, čvrstoća tečenja, energija loma, i slično, i to pri sobnoj kao i pri povišenim temperaturama, a neke, kao što je puzanje, kod povиšenih temperatura. Numerička analiza konstrukcija, s druge strane, svakako obuhvaća analizu stanja naprezanja i deformacije te otpornost na propagaciju pukotina, ali svakako i simulaciju otpornosti na puzanje. Od interesa za analizu su različite vrste konstrukcija, kao što su gredne, plošne i slično, a u smislu materijala metalne, kompozitne i slično. Od interesa je također praćanje ponašanja spojeva elemenata konstrukcije u smislu njihovog ponašanja kao krutih, polukrutih ili elastičnih; konstitutivno modeliranja u graničnim uvjetima rada (plastičnost, oštećenje i termomehanička sprega); primjena novih materijala – nanokompozita.





2.6.8 studentski završni i diplomski radovi

student undergraduate and graduate thesis

ZAVRŠNI RADOVI | UNDERGRADUATE THESIS

IME I PREZIME | NAME AND SURNAME:

Robert Nadilo

Preddiplomski sveučilišni studij elektrotehnike / Undergraduate University Study of Electrical Engineering

NAZIV RADA | TITLE:

Regulirani izvori napajanja u teoriji i primjeni
Regulated DC sources in theory and practice

MENTOR(I) | SUPERVISOR(S):

doc. dr. sc. / Assist. Prof. D. Sc. Saša Sladić

Sažetak:

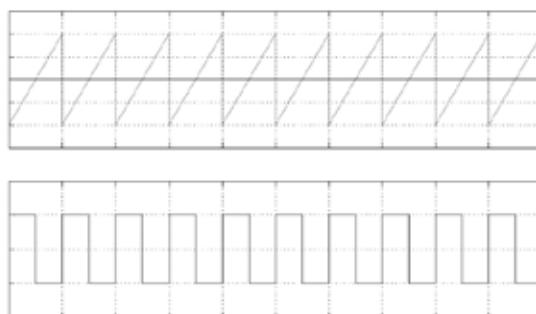
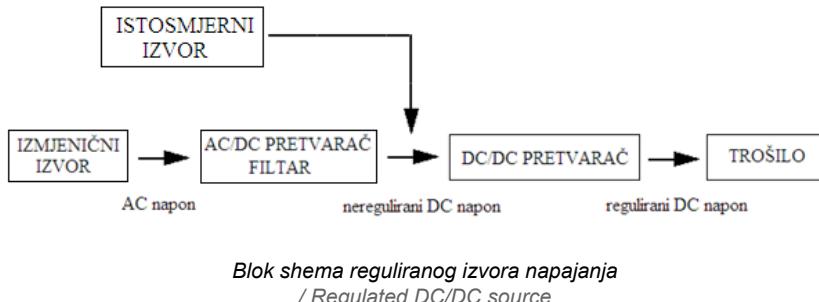
Teorijski su obrađene različite inačice izravnih istosmjernih pretvarača s galvanskim odvajanjem (engl. Forward and related converters) te je opisana njihova mogućnost primjene u reguliranim izvorima napajanja. Razmatranja su potkrijepljena rezultatima simulacija i pripadajućim valnim oblicima.

Summary:

Theoretical approach to Forward converters design was given. Beside classical topology a simulation of full-bridge DC/DC power converter was also given. Possibilities of their applications were described.



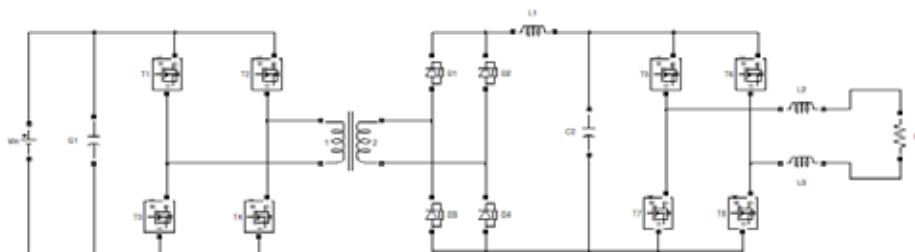
64



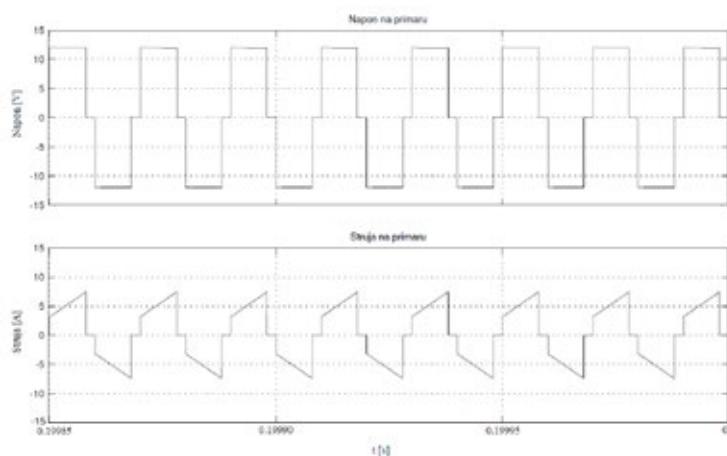
*Simulirani valni oblici PWM signala s konstantnim faktorom opterećenja
/ Simulated waveforms of PWM signal with constant duty cycle*

Topologija pretvarača	Snaga [W]	Iskorištenje transformatora	Broj upravljivih sklopki	Naponsko naprezanje sklopki
forward	50 - 200	nesimetrično	1	$V_{in} \cdot (1+N_1/N_3)$
forward s 2 tranzistora	50 - 200	simetrično	2	V_{in}
Push-pull	100 - 500	simetrično	2	$V_{in} \cdot 2$
Polumosni	100 - 500	simetrično	2	V_{in}
Mosni	> 500	simetrično	4	V_{in}

Tablica: Usporedba svojstava izravnih pretvarača s galvanskim odvajanjem
 / Table : Comparision of forward converter and related converters



Mosni istosmjerni (DC/DC) pretvarač u programu MATLAB/Simulink
 / Bridge DC/DC power converter in MATLAB/Simulink



Simulirani valni oblici napona i struje primarnog namotaja mosnog DC/DC pretvarača uz konstantnu struju trošila

/ Simulated waveforms of voltage and current on primary winding of bridge DC/DC power converter under constant load condition

IME I PREZIME | NAME AND SURNAME:

Fran Ledić

Preddiplomski sveučilišni studij strojarstva / Undergraduate University Study of Mechanical Engineering

NAZIV RADA | TITLE:

Simulacija strujanja fluida u spiralni francisove turbine korištenjem OpenFOAM-a

Francis turbine spiral casing fluid flow simulation using OpenFOAM

MENTOR(I) | SUPERVISOR(S):

izv. prof. dr. sc. / Assoc. Prof. D. Sc. Zoran Čarija

Sažetak:

Završni rad obrađuje strujanje fluida u spiralni Francisove turbine, koristeći OpenFOAM - program otvorenog koda.

Francisova turbina je najznačajnija vrsta vodne turbine, kojom se proizvodi 15% ukupne svjetske električne energije. Ta činjenica ukazuje na važnost pravilnog dizajna pojedinih hidrauličkih dijelova. U uvodnom dijelu rada su prikazana neka od pravila za konstruiranje Francisove turbine te su objašnjene matematičke i fizikalne osnove na strujanja fluida i rada CFD softvera.

Koristeći postojeću geometriju spirale, programom za izradu mreže SnappyHexMesh izrađena je numerička mreža potrebna za proračun. Podešavanjem parametara SnappyHexMesh-a, numerička mreža je dodatno ufinjena u predjelima stijenki spirale, a ostala je gruba u područjima gdje je očekivano ujednačenje ponašanje strujanja fluida. Time je postignut vrlo dobar opis geometrije mrežom i adekvatna točnost rješenja uz zadovoljavajuće vrijeme izračuna.

Objašnjen je princip rada u OpenFOAM-u te postavljanje graničnih uvjeta izračuna. Po završetku proračuna, dobivena rješenja su analizirana koristeći ParaFoam paket za vizualizaciju. Uz vizualnu analizu, rješenja su protumačena i matematički. Kroz niz dijagrama sagledana je konvergencija rješenja kroz iteracije, prikazan je pad residuala tijekom proračuna, proučen je utjecaj gustoće mreže na konačan rezultat i trajanje izračuna. Konačni rezultati su uspoređeni sa primjerima iz prakse, a vrlo dobro poklapanje ukazuje na uspješnost simulacije.

Summary:

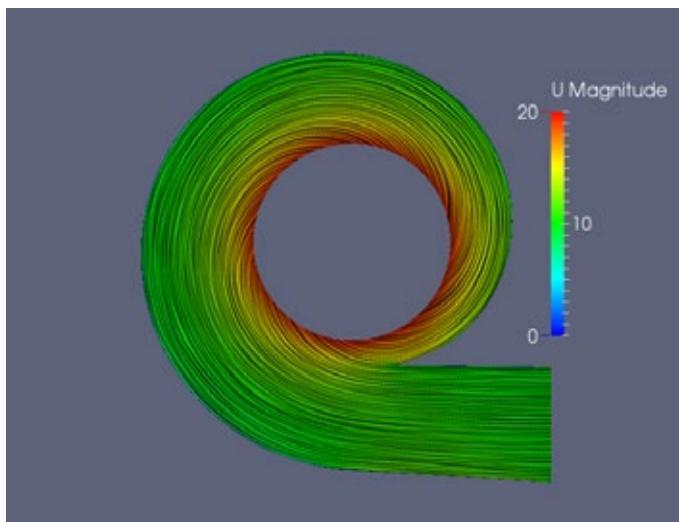
The subject of this final paper is simulating fluid flow within the spiral casing of a Francis turbine by using OpenFOAM – an open source software.

Francis turbine is the most important water turbine type, producing over 15% of the world's electrical energy. This fact emphasizes the importance of its optimal design. The introductory part of this paper shows basic rules for the design of Francis turbines as well as the mathematical and physical principles of fluid flow and CFD software operation.

Starting from the existing spiral casing geometry, a numerical mesh was created using SnappyHexMesh. By adjusting multiple parameters, the numerical mesh was made finer near the casing surfaces and coarser in other areas where fluid flow is more uniform. Such a mesh represents a good compromise between geometry representation and computing time, while maintaining result accuracy.

The paper explains basic OpenFOAM operations and boundary condition setup. After completing the calculation, the results were visualised in ParaFoam visualisation software. In addition to visual analysis, the results have been shown mathematically. Analysis contains a series of graphs including: result convergence, change in residuals, mesh density influence on compute time and final solution. The results were compared to those from engineering practise – a high correlation leads to the conclusion that the simulation was successful.

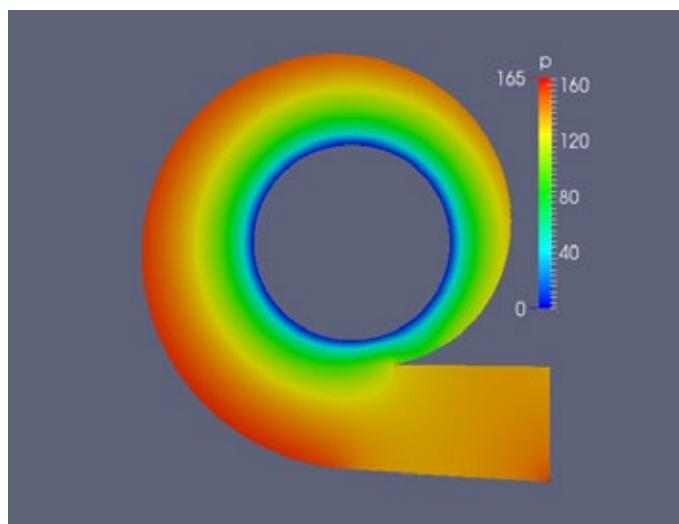




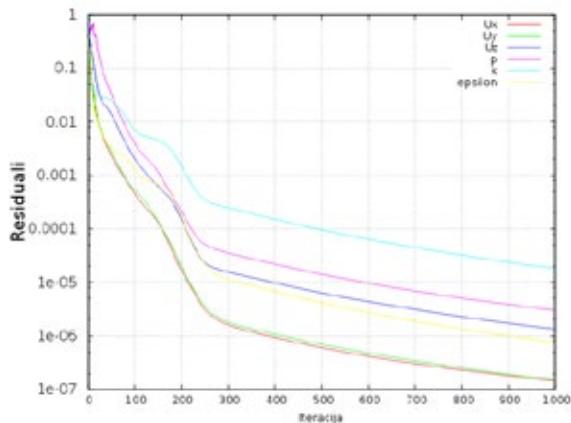
Prikaz strujnica (pomoću LIC) i apsolutnog iznosa brzine na presjeku
/ Slice showing fluid flow (using LIC) and velocity magnitude



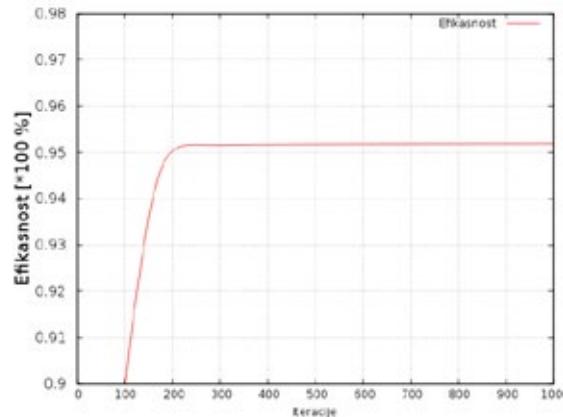
67



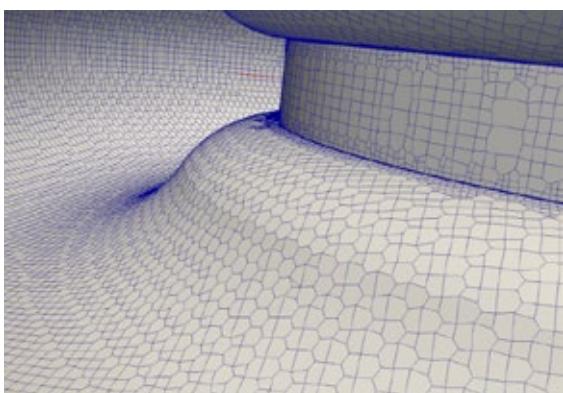
Prikaz tlaka na presjeku spirale
/ Slice showing pressure distribution within the spiral casing



Pad residuala kroz iteracije
/ Drop of residuals through iterations



Konvergencija rješenja prikazana na dijagramu efikasnosti spirale
/ Solution convergence shown on casing efficiency graph



Prikaz numeričke mreže iz unutrašnjosti spirale, vidljiva su područja ufinjenja mreže
/ Numerical mesh viewed from within the spiral casing, showing refinement regions

IME I PREZIME | NAME AND SURNAME:
Hrvoje Kelečić

Preddiplomski sveučilišni studij strojarstva / Undergraduate University Study of Mechanical Engineering

NAZIV RADA | TITLE:
Odabir reznih materijala za proces tokarenja
The selection of cutting-tool materials for turning process

MENTOR(I) | SUPERVISOR(S):
izv. prof. dr. sc. / Assoc. Prof. D. Sc. Zoran Jurković
prof. dr. sc. / Prof. D. Sc. Goran Cukor

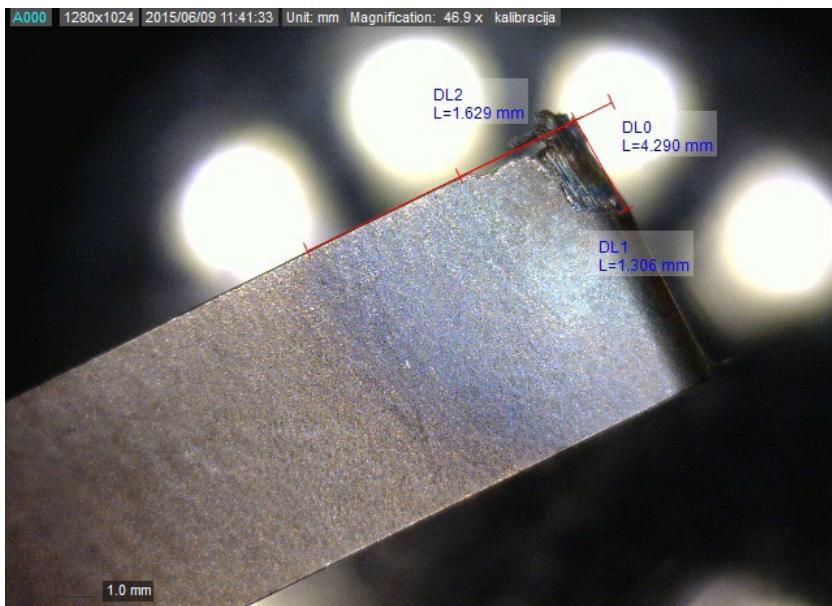
Sažetak:

Tema rada je odabir reznih materijala za proces tokarenja, a sam odabir reznog materijala je ključan u pripremi procesa obrade odvajanjem čestica. U uvodnom dijelu je dan općenit pregled reznih materijala koji se koriste u obradi, njihove karakteristike i područje primjene, te su detaljnije opisani materijali koje su se koristili u eksperimentalnom dijelu. Prije početka eksperimenta, polazni materijal (šipke) na kojem smo ispitivali rezne pločice je zakaljen kako bi dobili veću tvrdoču-tvrdo tokarenje. U eksperimentalnom dijelu su ispitivane pločice od tvrdog metala, keramike i CBN-a. Eksperiment, proveden u Laboratoriju za inteligentne strojeve i obradne sustave, se temeljio na Taguchi planu eksperimenta. Za svaki eksperiment (pločicu) mijenjali su se parametri obrade: dubina obrade a_p , posmak f i brzina rezanja v_c . Mjerene izlazne veličine procesa su: temperatura alata, istrošenje pločice i hrapavost površine. Nakon provedenog eksperimenta (bez SHIP) radila se usporedba rezultata za sve 3 vrste pločica kako bi dobili podatke o tome koja je vrsta pločica najbolja za obradu tvrdim tokarenjem. Rezultati su prikazani tablično i grafički te vrijede samo za promatrane uvjete rezanja, korišteni alat, stroj i materijal.

Summary:

The subject of this work is the selection of cutting-tool materials for turning which is the key parameter in preparation of metal cutting processes. In the introduction chapter the overview of cutting-tool materials, which are used in metal cutting, is given and their characteristics as well as their application area are described. Furthermore, the materials used in the experimental part are particularly described. Before the experiment initial material (bars), on which cutting tools were tested, was hardened so that we would get better hardness – hard turning. In the experiment cutting inserts made of hard metal, ceramics and CBN were tested. The experiment was based on Taguchi method and was conducted in the Laboratory for Intelligent Machine Tools and Machining Systems. For each experiment (cutting insert) the process parameters, which include depth of cut a_p , feed rate f and cutting speed v_c , were changed. The output measurable variables of the process were the tool temperature, the tool wear and surface roughness. After the experiment was carried out (dry cutting) the comparison was made between 3 types of cutting-tool materials. The results are shown in tables and graphically displayed and are valid only for the observed conditions, used cutting tool, machine tool and material.





Mjerenje istrošenja rezne pločice
/ Measurement of cutting insert wear



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Mjerenje temperaturnih polja (termovizijskom infracrvenom kamerom) kod procesa tvrdog tokarenja
/ Temperature fields measurement (infrared camera) by hard turning process

IME I PREZIME | NAME AND SURNAME:
Matea Krišković

Preddiplomski sveučilišni studij brodogradnje / Undergraduate University Study of Naval Architecture

NAZIV RADA | TITLE:

Brodovi za prijevoz teških tereta

Heavy lift vessels

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Bruno Čalić

Sažetak:

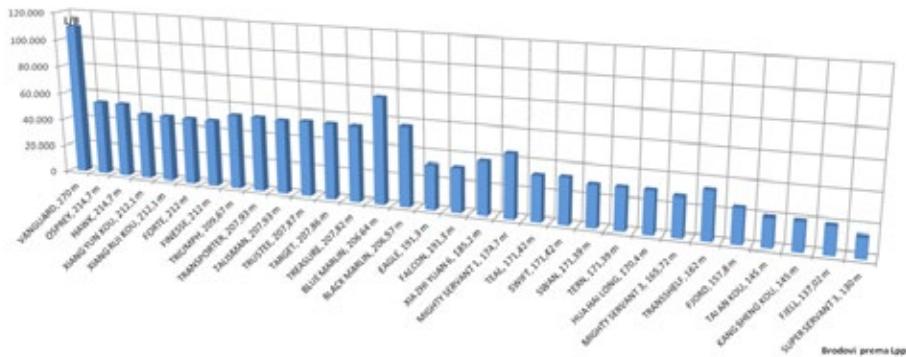
Summary:

Prikupljeni su podaci o značajnijim postojećim brodovima za prijevoz teških tereta i izvršena sistematizacija prikupljenih podataka. Uspoređeni su podaci o: težinama i dimenzijama tereta, dimenzijama terete površine palube, plovnosti i stabilitetu, nosivosti, brzini, gazovima pri ukrcaju i iskrcaju tereta te gazovima u plovidbi pri maksimalnom opterećenju.

Numerous data of significant present heavy lift vessels was collected and serious systematisation of the collected data was made. A comparison was performed and includes: weights and loads main dimensions, dimensions of exposed cargo deck, seaworthiness and stability data, deadweight, speed, draughts during heavy cargo loading/unloading as well as draughts in ship service with maximum load.

Završno treba istaći kvalitetu i opsežnost rada u cjelini te kvalitetu izrađenog idejnog projekta plovila za nepokriveno područje nosivosti postojećih brodova i to na temelju samostalno odabranih tehničkih zahtjeva.

The execution of a new initial ship design for an up to now non researched deadweight range was produced. The quality and overall volume represents a significant contribution to the present knowledge and database of heavy lift vessels.



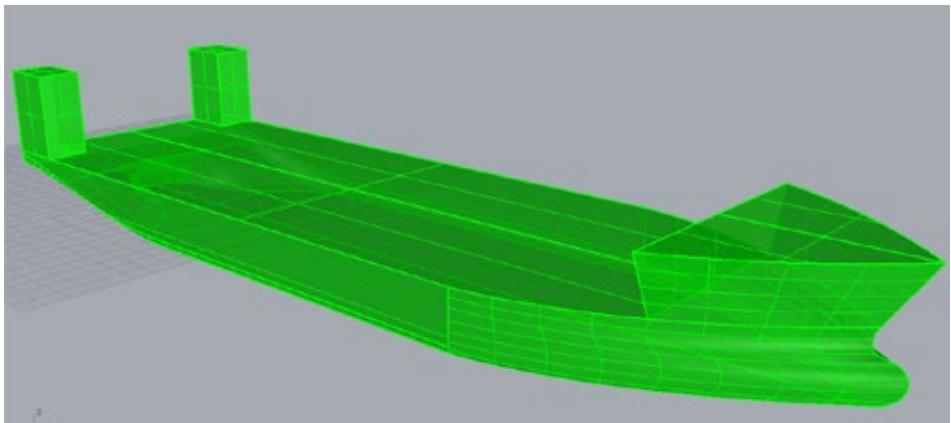
Analiza brodova prema nosivosti / Ship deadweight comparisons



*Ukrcaj teglenica na brod, prvi blok od četiri teglenice centriran
/ Barge loading on ship, first block of four barges adjusted in position*



72



*Forma broda izrađena u programu Rhinoceros
/ Ship's hull form created in Rhinoceros*

DIPLOMSKI RADOVI | GRADUATE THESIS**IME I PREZIME | NAME AND SURNAME:**

Nikola Baćac

Diplomski sveučilišni studij računarstva / Graduate University Study of Computer Engineering

NAZIV RADA | TITLE:

Računalni kod na bazi FDTD metode za analizu širenja zvučnog vala u nehomogenom prostoru

An FDTD-based code for analysis of acoustic wave propagation in an inhomogeneous space

MENTOR(I) | SUPERVISOR(S):

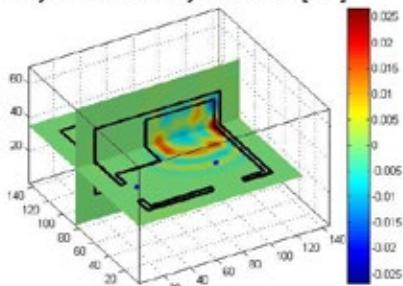
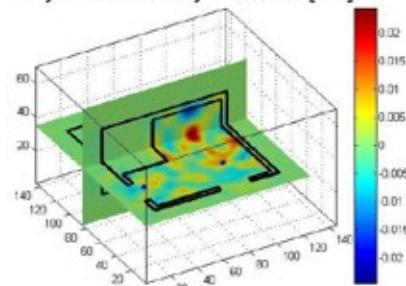
izv. prof. dr. sc. / Assoc. Prof. D. Sc. Miroslav Joler

Sažetak:

U radu je primjenjena Finite Difference Time Domain (FDTD) metoda kao podloga za izradu računalnoga koda u programskom jeziku MATLAB, koji omogućava analizu širenja zvučnoga vala u proizvoljnom nehomogenom prostoru. Prostor je moguće proizvoljno modelirati po geometriji i sastavu materijala, a izvor zvuka također definirati po proizvoljnom rasponu frekvencija i lokaciji unutar prostora. U radu je izvršena i analiza rezultata s obzirom na nekoliko mogućih izbora definicije izvora zvuka, a također je primijenjen i odgovarajući apsorpciski sloj na rubu računalne domene da bi se prigušile umjetne refleksije s ruba domene. Rad koda je testiran na nekoliko scenarija, među kojima i na modelu etaže jednostavnog stambenog prostora.

Summary:

In this thesis, FDTD method is used as a basis for development of a computer code in MATLAB programming language. The code enables analysis of acoustic wave propagation in an inhomogeneous space. The geometry and structure of the given space can be arbitrarily modeled and the sound source can be arbitrarily defined with respect to the desired frequency range i source location within the given space. The results were analyzed with respect to a few definitions of the sound source and an adequate absorption layer was built into the domain boundary, to absorb artificial reflections from the domain boundary. The code was tested on a few scenarios, including a simple floor plan of some building.

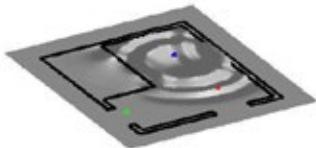
Vrijeme simulacije = 10.34 [ms]**Vrijeme simulacije = 29.79 [ms]**

Širenje zvučnoga vala po jednom horizontalnom presjeku te horizontalni i vertikalni presjek modeliranoga prostora na mjestu pobudnoga signala

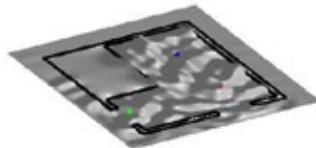
/ Propagation of an acoustic wave over a horizontal cutplane and a horizontal and vertical cutplane of the modeled space at the location of the excitation signal



Vrijeme simulacije = 10.34 [ms]



Vrijeme simulacije = 29.79 [ms]



Reljefni prikaz amplitudne zvučnoga tlaka u prostoriji u dva vremenska trenutka i tri sonde (crvena, zelena i plava točka u prostoru) postavljene za točno očitanje tlaka

/A relief plot of an acoustic wave pressure amplitude in the given room, shown in two time instants and three probes (red, green, and blue dot in the space) that were set for accurate reading of the pressure

IME I PREZIME | NAME AND SURNAME:

Teo Manojlović

Diplomski sveučilišni studij računarstva / Graduate University Study of Computer Engineering



NAZIV RADA | TITLE:

Sustav za optimizaciju portfelja
Portfolio optimisation system

74

MENTOR(I) | SUPERVISOR(S):

doc. dr. sc. / Assist. Prof. D. Sc. Ivan Štajduhar

Sažetak:

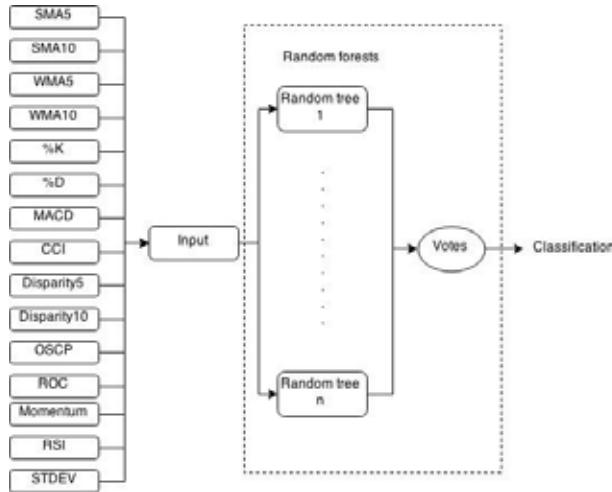
Problematika određivanja budućeg stanja cijena vrijednosnih papira u današnje vrijeme postaje sve aktualnija u poslovnom, ali i u akademskom svijetu. Glavni su razlozi za to da donosi mogućnost profita, a uz to je poprilično izazovna, budući da zahtjeva veoma dobro poznavanje obrade signala i statistike. Popularan način za određivanje budućeg kretanja cijena vrijednosnih papira temelji se na tehničkoj analizi, gdje se primjenom statističkih metoda nastoji procijeniti buduće kretanje cijena dionica. Unatoč hipotezi učinkovitog tržišta, koja tvrdi da je su sve javne informacije već uključene u cijenu dionica te da je samim time nemoguće izgraditi dobre prediktivne modelle temeljene na tehničkoj analizi, svakim danom se sve više zahtjeva za kupovanjem ili prodavanjem dionica izvodi algoritmatski, a primjena metoda strojnog učenja u svrhu učinkovitog trgovanja vrijednosnim papirima postaje sve popularnija. U ovom radu je opisan inteligentan sustav optimiziranja portfelja koji se temelji na algoritmima strojnog učenja koji kao ulaz primaju tehničke indikatore.

Summary:

The issue of determining the future state of stock prices is becoming more and more present in the business and in the academic world. The main reasons for this are that it brings the possibility of a profit, at the same time being quite challenging, since it requires very good knowledge of signal processing and statistics. A popular way to determine future price movements of stocks is based on technical analysis, where we are trying to estimate future stock price trends by applying statistical methods. In spite of the efficient market hypothesis, which states that all public information are already included in stock prices and that therefore it is impossible to build good predictive models based on technical analysis, we are witnessing a rising numbers of requests for buying or selling stocks performed with the help of various algorithms. For such a purpose, application of machine-learning methods for effectively trading stocks is becoming more popular every day. This work describes an intelligent system for portfolio optimisation, which is based on machine-learning algorithms

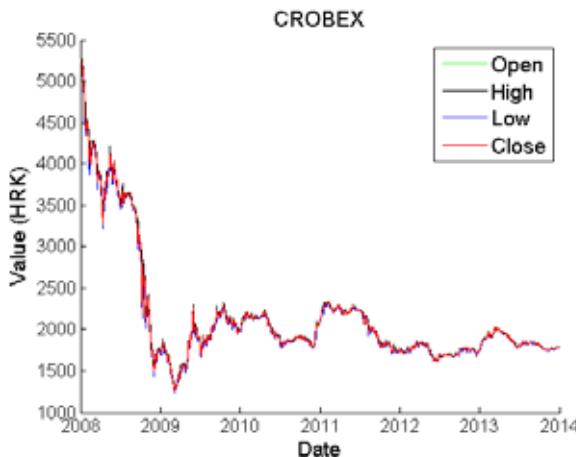
Primjenjena su dva postupka učenja, algoritam slučajne šume i stroj s potpornim vektorima za izgradnju modela predviđanja trenda kretanja vrijednosnica 5 odnosno 10 dana unaprijed. Za testiranje su korištene dionice koje pripadaju indeksu CROBEX Zagrebačke burze (ZSE). U periodu od 250 dana, zaključno s datumom 24.6.2015., ostvarena je dobit od 7.8% što dokazuje da se ova metoda može primijeniti u praksi.

for which technical indicators are taken as input variables. Two learning methods are applied for the construction of predictive models, forecasting the trend of stock prices 5 and 10 days ahead: random forests algorithm and support vector machine. For testing purposes, historical data concerning the CROBEX listed stocks from Zagreb Stock Exchange (ZSE) was used. During a 250 days period, ending with June 24. 2015, a 7.8% profit was achived, which proves that this method can be applied in practice.



Ilustracija postupka učenja: tehnički indikatori iz vremenske serije određuju prikladne značajke koje se koriste za učenje

/ An illustration of the learning process: technical indicators extract adequate features from the time series, which are then used for learning



Povijest indeksa CROBEX Zagrebačke burze (ZSE) u razmatranom vremenskom periodu
/ History of CROBEX index of the Zagreb Stock Exchange (ZSE) for the observed time period



Orders

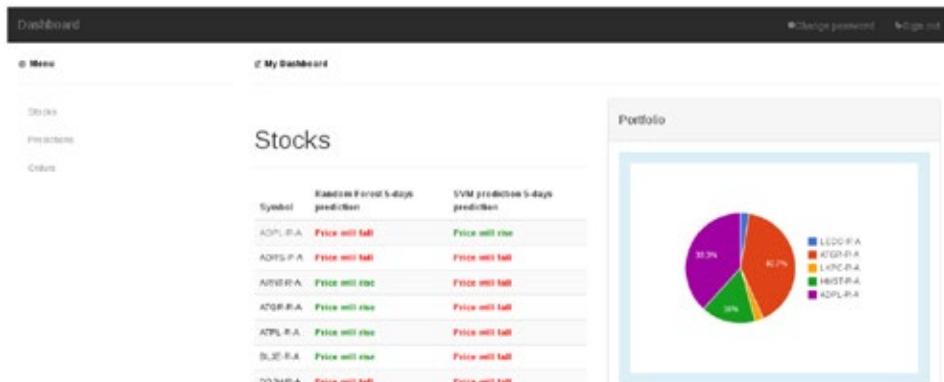
Type	Stock	Money	Quantity	Value	Created at
Buy	HMST-R-A	1	218.0	2015-06-28 05:00:00 UTC	
Buy	LEDO-R-A	2	8150.0	2015-06-28 00:00:00 UTC	
Buy	ATGR-R-A	2	900.0	2015-06-28 00:00:00 UTC	
Buy	LKPC-R-A	2	700.00	2015-06-28 00:00:00 UTC	
Buy	HMST-R-A	12	218.0	2015-06-28 00:00:00 UTC	



Prikaz zaslona aplikacijskog mehanizma narudžbe za kupnju ili prodaju dionica
/A screenshot of the application ordering mechanism for buying or selling stocks



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Prikaz zaslona aplikacijskog izvješćivanja o predviđanju kretanja cijena dionica
/A screenshot of the application predicted stock price movement report

IME I PREZIME | NAME AND SURNAME:
Ivan Pavković

Diplomski sveučilišni studij elektrotehnike / Graduate University Study of Electrical Engineering

NAZIV RADA | TITLE:
Upravljanje izmjenjivačem s utisnutim naponom
Voltage source inverter algorithms

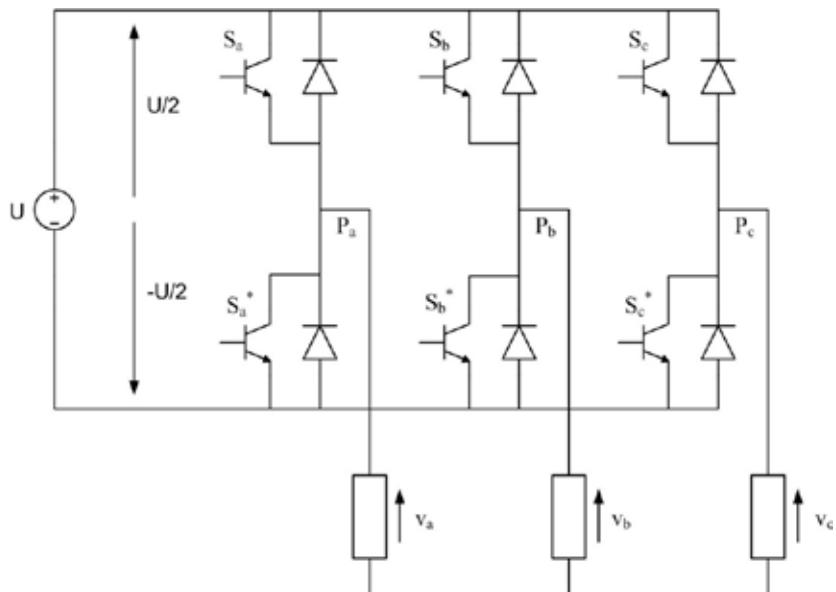
MENTOR(I) | SUPERVISOR(S):
doc. dr. sc. / Assist. Prof. D. Sc. Saša Sladić

Sažetak:

Opisani su i simulirani osnovni upravljački algoritmi kod trofaznog mosnog autonomnog izmjenjivača s utisnutim naponom. Uspoređene su prednosti i nedostaci pojedinih algoritama. Teorijsko razmatranje je upotpunjeno rezultatima simulacija. Analiza je provedvana u cilju odabira algoritma za neautonomne (umrežene) fotonaponske sustave.

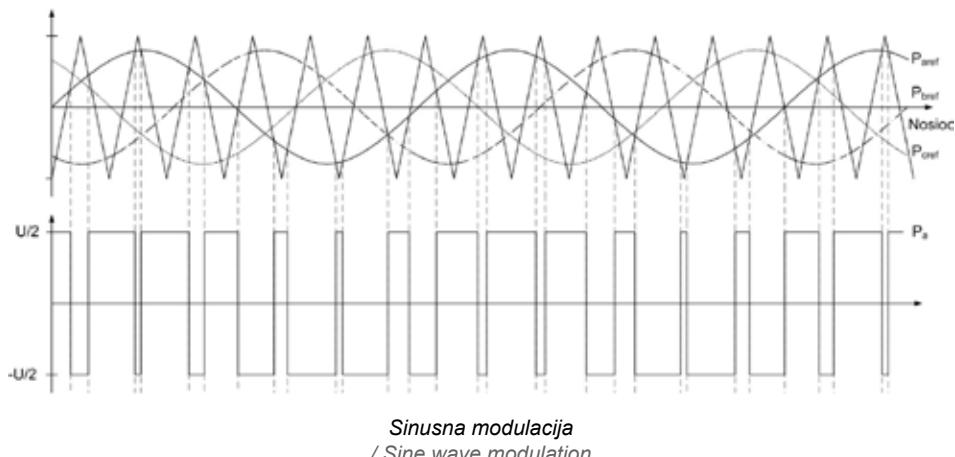
Summary:

Different control algorithms applied in three-phase voltage source inverter has been described. Theoretical approach has been supported by simulated waveforms. Simulation was carried out in order to find appropriate algorithm for electric network connected photovoltaic systems.

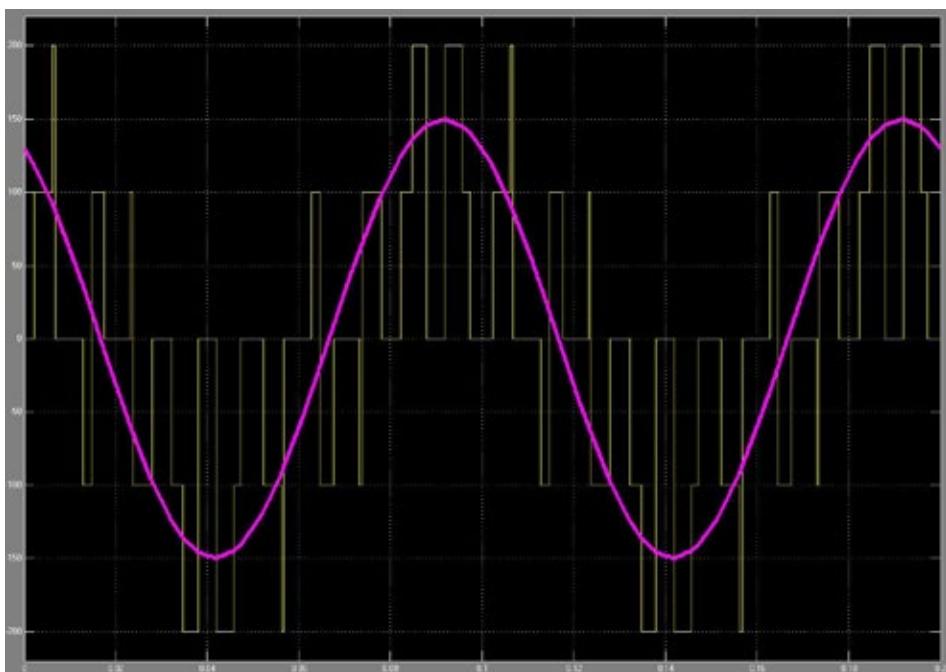


Trofazni izmjenjivač s utisnutim naponom
/ Three-phase voltage fed power inverter





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*Simulirani valni oblici: usporedba faznog napona s referentnim (sinusnim) naponom
u programu MATLAB/Simulink*

/ Simulated waveforms: comparision of phase voltage with referent (sine) voltage
in MATLAB/Simulink

IME I PREZIME | NAME AND SURNAME:
Josip Hanak

Diplomski sveučilišni studij elektrotehnike / Graduate University Study of Electrical Engineering

NAZIV RADA | TITLE:
Otočni pogon mikromreža
Microgrids islanding operation

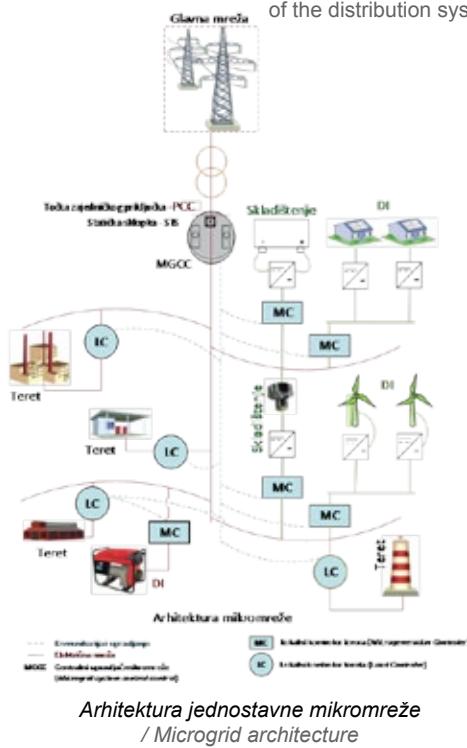
MENTOR(I) | SUPERVISOR(S):
Izv. prof. dr. sc. / Assoc. Prof. D. Sc. Srđan Skok

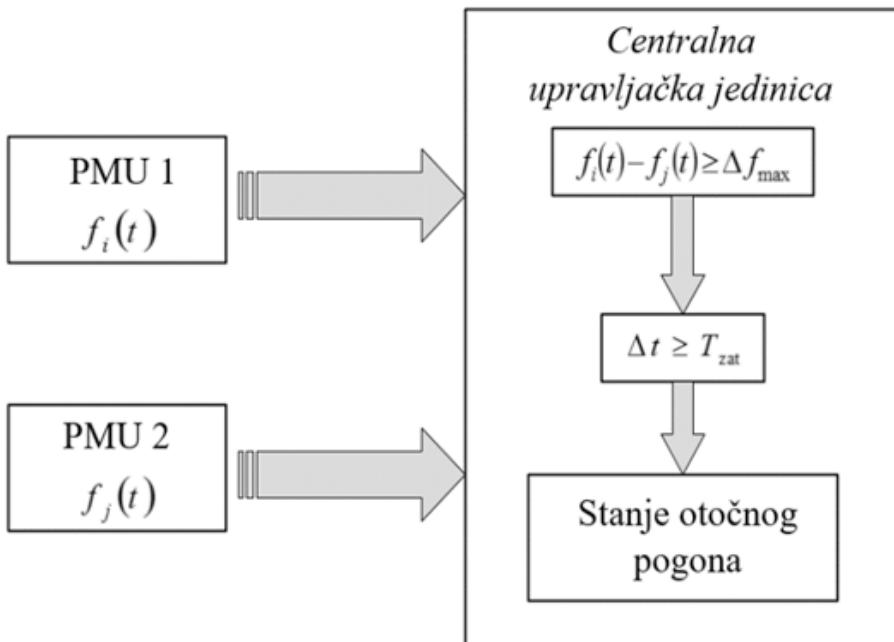
Sažetak:

Dosadašnja praksa, kao i zakonska regulativa u Republici Hrvatskoj ne predviđa otočni pogon distribuiranih izvora energije (DI), često obnovljivih izvora (OIE). U radu su obrađena dosadašnja svjetska iskustva u vođenju mikromreža, prikazani su algoritmi za određivanje granica mikromreža, te je posebna pažnja posvećena prikazu odvajanja mikromreža u otočni pogon i rekonekcija na distribucijski sustav. Sukladno navedenom indirektno su date preporuke za izmjenu važećih Mrežnih pravila Republike Hrvatske u cilju odvajanja DI u otočni pogon, a time i sasvim drugačija koncepcija vođenja distribucijskog sustava.

Summary:

Previous practice, as well as legislation in the Republic of Croatia does not allow islanding operation of distributed energy sources (DI), often renewable energy sources (RES). This thesis describes the current world experience of control microgrids, also it has been describe algorithms for determining the boundaries of microgrids, and special attention is given to the separation of microgrids in islanding operation mode and reconnection to the distribution system. Accordingly this thesis indirectly proposes recommendation for change of Grid Code of the Republic of Croatian in order to allow separation of DI in islanding operation mode, and thus quite different concept of control of the distribution system.





Algoritam detekcije otočnog pogona na temelju sinkroniziranih mjerena razlike frekvencije
/ Algorithm of islanding operation mode of microgrid based on synchronized measurement of frequency difference

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IME I PREZIME | NAME AND SURNAME:
Davor Mimica

Diplomski sveučilišni studij brodogradnje / Graduate University Study of Naval Architecture

NAZIV RADA | TITLE:
Mapa toka vrijednosti za poboljšanje utovara cementa na brod za rasuti teret
Value stream mapping to improve loading of cement onto a bulk carrier

MENTOR(I) | SUPERVISOR(S):
prof. dr. sc. / Prof. D. Sc. Nikša Fafandje

Sažetak:

Cilj ovog rada je koristiti alate Lean (viktog) pristupa u projektiranju i poboljšavanju proizvodnog procesa, prvenstveno mapiranje toka vrijednosti (Value Stream Mapping – VSM) na poboljšanje proces utovara cementa u brodove za rasuti teret u svrhu omogućavanja predmetnoj tvornici da poveća maksimalni kapacitet broda na koji se cement može puniti a time i proširi prisutnost na svjetskom tržištu.

VSM metoda se koristi u gotovo svim industrijskim u svrhu povećanja proizvodnosti smanjivanjem gubitaka i uvođenjem poboljšanja. Analizom

Summary:

The aim of this thesis is to use a Lean approach to the design and improvement of the production process, which first includes value stream mapping (VSM) in order to improve the loading of cement onto bulk carriers with the purpose of enabling the subject cement factory to increase maximum capacity of vessels that are to be loaded. In this way the presence of the competitiveness of the cement factory in the world cement market will be increased.

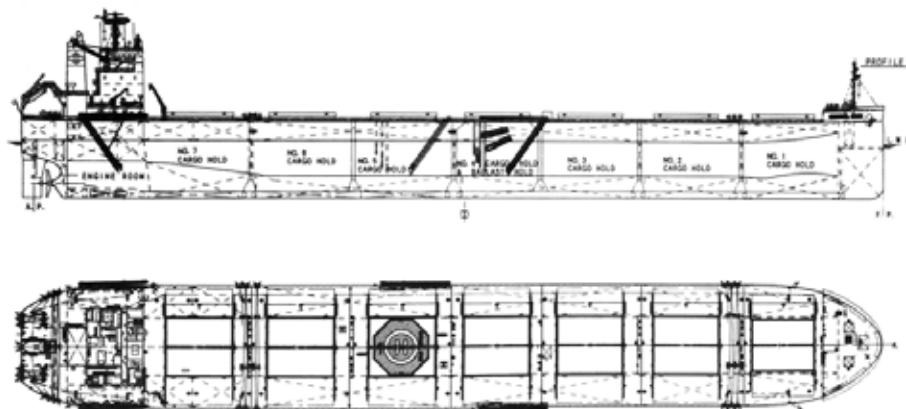
The VSM method is used in virtually all industries with the aim of increasing production efficiency

postojećeg stanja procesa utovara broda mapira se tok vrijednosti te se uvođenjem poboljšanja eliminiraju uska grla i nedostaci te se izrađuje mapa vrijednosti poboljšanog stanja.

U radu ukratko je opisan opći proces proizvodnje cementa i u predmetnoj tvornici te proces utovara i uređaji za utovar cementa na brod zajedno sa osvrtom na najnovijim green (zelenim) tehnologijama korištene u radu. Nakon analize postojećeg stanja napravljena je transformacija u buduće poboljšano stanje koji omogućuje utovar i do četiri puta veći brod, 17% brže od trenutnog stanja, a time se povećava ukupna količina dostavljenog proizvoda – cementa, a time i ukupna dobit.

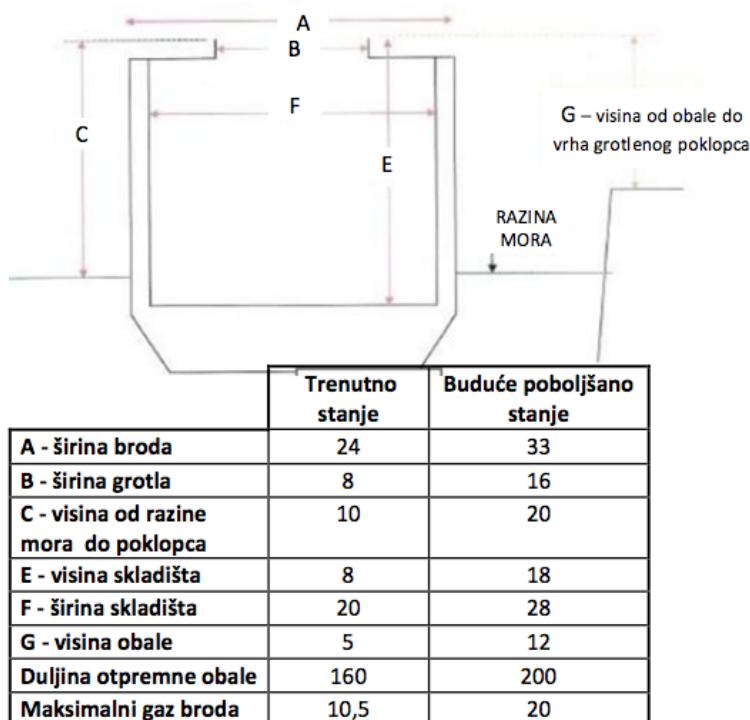
through the elimination of wastes and by introducing improvements. Through the analysis of the present state of cement loading onto ships, a value stream map is drawn, thereby making it evident where bottlenecks and other wastes exist. This allows for the creation of a new and improved future state map.

In the thesis the generic cement production process is discussed, while for the subject factory, the ship loading process and the equipment used to load cement, with an explanation of the green technologies used during the process is deeply covered. After analyzing the present state map, a transformation plan to the future improved state which enables loading onto a vessel with four times greater deadweight capacity, while increasing the loading speed to 17 percent. In this way the total amount of cement being produced and sold is increased, thereby also increasing the company's profits.



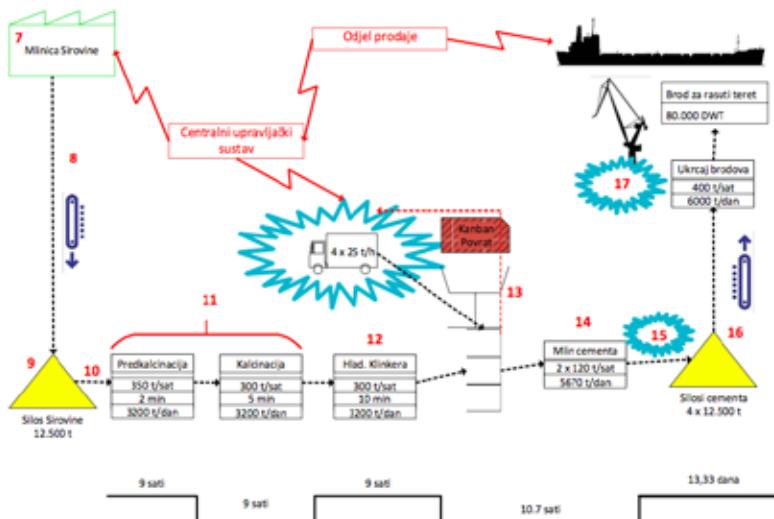
*Opći plan i uzdužni presjek Crystal Star DWT 82.000
/ General arrangement and profile view of the Crystal Star DWT 82.000*





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*Maksimalne dimenzije brod a s obzirom na dimenzije obale
/ Maximum dimensions of the ship with relation to shore dimensions*



*Mapa toka vrijednosti – buduće stanje
/ Value stream map – future state*

IME I PREZIME | NAME AND SURNAME:
Sandra Mikulić

Diplomski sveučilišni studij brodogradnje / Graduate University Study of Naval Architecture

NAZIV RADA | TITLE:
Granična čvrstoća kontejnerskog broda
Ultimate strength of a container ship

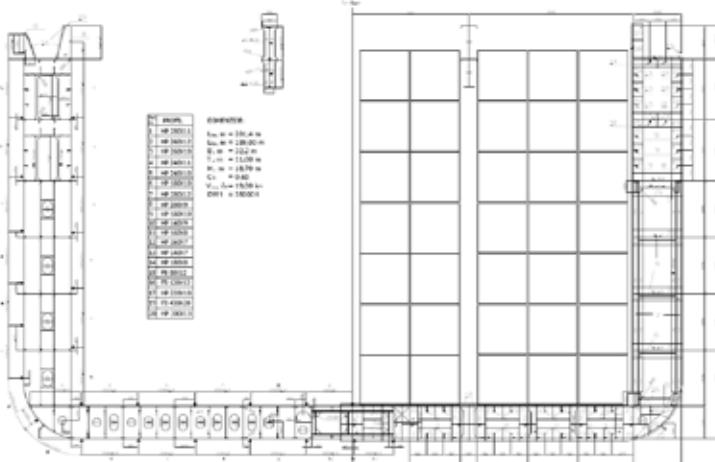
MENTOR(I) | SUPERVISOR(S):
prof. dr. sc. / Prof. D. Sc. Albert Zamarin

Sažetak:

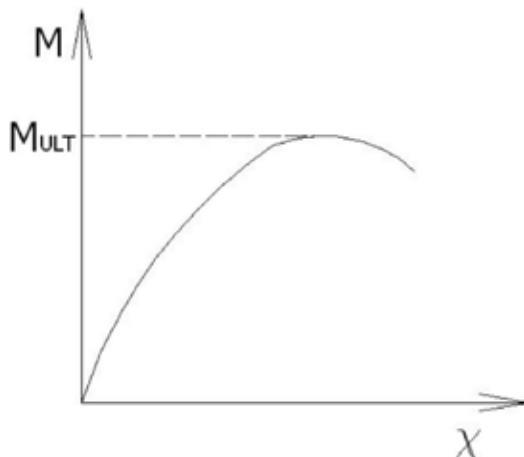
U radu je prikazana analiza granične čvrstoće strukture trupa kontejnerskog broda. Procedura započinje potvrdom uzdužne čvrstoće, tj dimenzioniranjem osnovnih elemenata strukture na glavnom rebru primjenom pravila i propisa Lloyd's Register of Shipping klasifikacijskog društva. U nastavku rada dan je pregled metoda koje se koriste kod proračuna granične čvrstoće, te je ujedno i detaljno prikazana inkrementalno – iterativna metoda. Slijedi proračun granične čvrstoće za predloženi kontejnerski brodsukladno inkrementalno-iterativnoj metodi propisanoj u okviru IACS CSR, a na razini glavnog rebra. U svrhu potvrde dobivenih rezultata provedena je i analiza iste pomoću programskog paketa MARS 2000 klasifikacijskog društva Bureau Veritas. Temeljem proračuna prema pravilima i propisima CSR-a i programskog paketa klasifikacijskog društva Bureau Veritas analizirani su dobiveni rezultati i dane su smjernice za povećanje granične čvrstoće brodskog trupa.

Summary:

This thesis presents an analysis of the ultimate strength of the hull structure of the container ship. The procedure begins with confirmation of longitudinal strength, i.e. the dimensioning of the basic elements of the structure on the midship applying the classification society rules and regulations Lloyd's Register of Shipping. Following the overview of the methods used to calculate ultimate strength and is also represented in detail in incremental - iterative method. The next step is ultimate strength calculation for the proposed container ship according to incremental-iterative method prescribed under the IACS CSR, at the level of the main frame. In order to confirm the results analysis was conducted using the classification society Bureau Veritas software package MARS 2000. Based on calculations by the rules and regulations of CSR and software package of the classification society Bureau Veritas, results were analysed and guidance for increasing ultimate strength of hull is proposed.



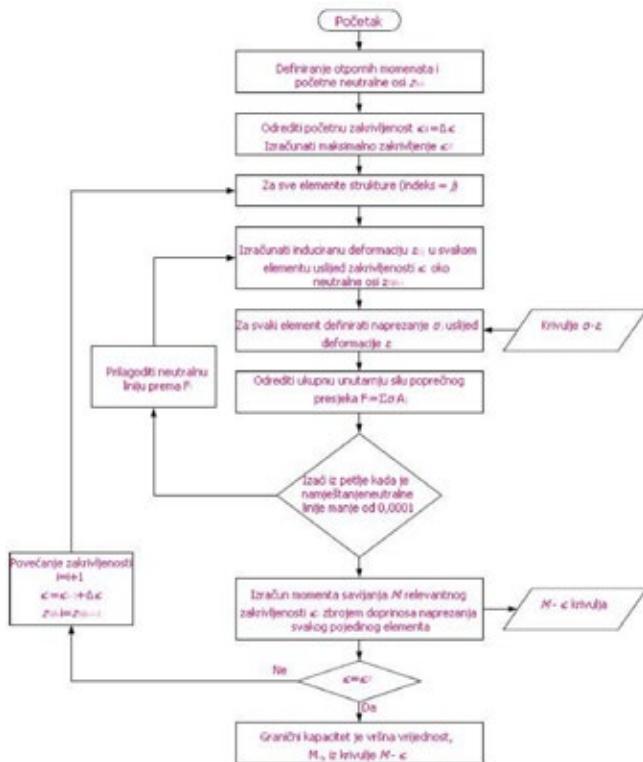
Glavno rebro broda za prijevoz kontejnera
/ Midship of the container ship



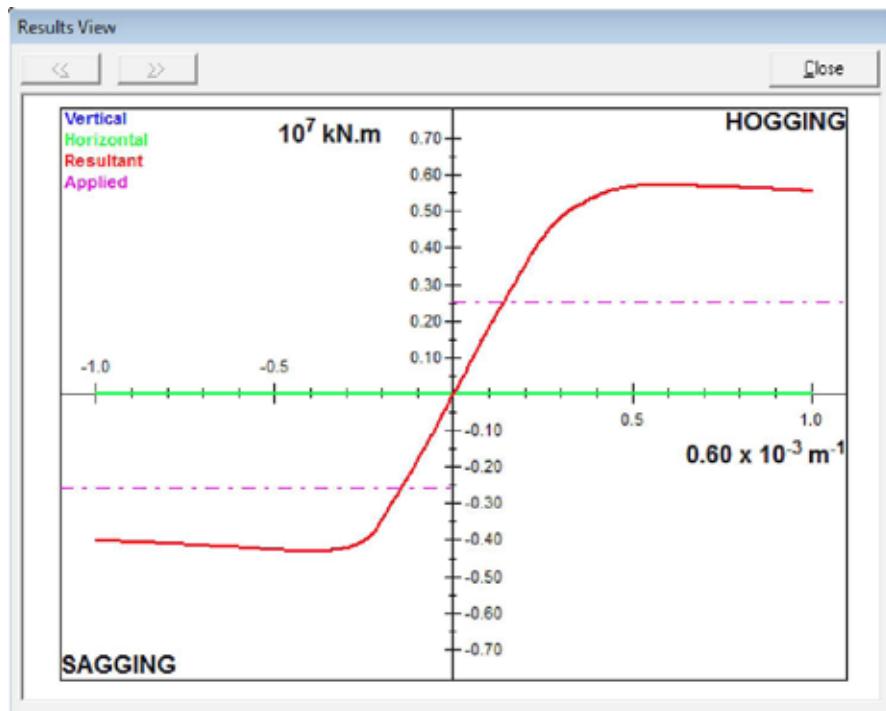
Ovisnost vertikalnog momenta savijanja o zakrivljenosti trupa
/ Bending Moment - Curvature Curve $M-X$



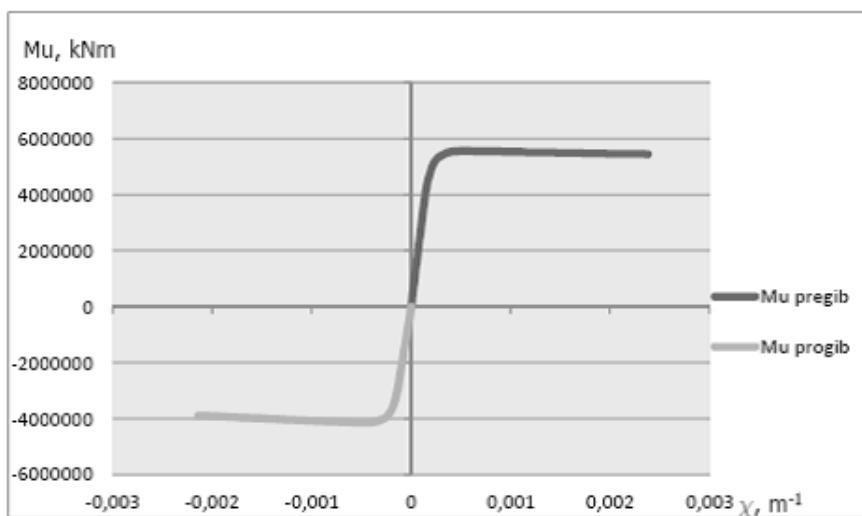
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Dijagram toka algoritma metode analize progresivnog kolapsa
/ Flow Chart of the Procedure for the Evaluation of the Curve $M-X$



Granični momenti savijanja dobiveni prema BV MARS
/ Ultimate bending moment according to BV MARS software



Proračunski granični momenti savijanja prema IACS CSR
/ Calculated ultimate bending moment according IACS CSR

IME I PREZIME | NAME AND SURNAME:
Sebastijan Blažević

Diplomski sveučilišni studij strojarstva / Graduate University Study of Mechanical Engineering

NAZIV RADA | TITLE:
MIMO upravljanje sustava sa aktivnim magnetskim ležajevima
MIMO Control of an active magnetic bearing system

MENTOR(I) | SUPERVISOR(S):
izv. prof. dr. sc. / Assoc. Prof. D. Sc. Sanjin Braut

Sažetak:

U ovom radu opisan je princip rada aktivnih magnetskih ležajeva. Na početku je razrađena je regulacija sustava magnetskih ležajeva sa krutim rotorom pri čemu je opisana razlika između decentralizirane i centralizirane MIMO (Multiple-Input Multiple-Output) regulacije. Zatim je naglasak dan centraliziranoj regulaciji koja, iako složenija, nudi veće mogućnosti posebno kada se radi o elastičnim rotorima sa problemom ne-kolokacije.

Za zadani elastični rotor provedena je modalna analiza te su dobivene vlastite frekvencije i pripadne forme vibriranja. S obzirom na znano područje radnih brzina vrtnje sustava, analiza je fokusirana na frekvenčko područje 0-500 Hz. U tom području dobivene su četiri elastične forme vibriranja.

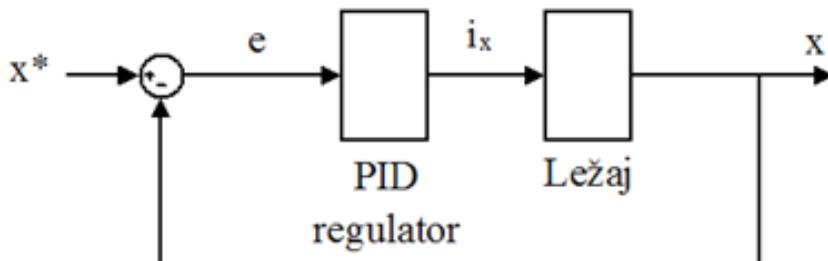
Na kraju rada dane su osnovne ideje hardverske implementacije MIMO sustava upravljanja, tj. način na koji bi postojeći sustav decentralizirane regulacije trebalo preuređiti da bi se primjenila centralizirana regulacija koja pruža više mogućnosti u rješavanju problema ne-kolokacije sustava AML-eva sa elastičnim rotorom.

Summary:

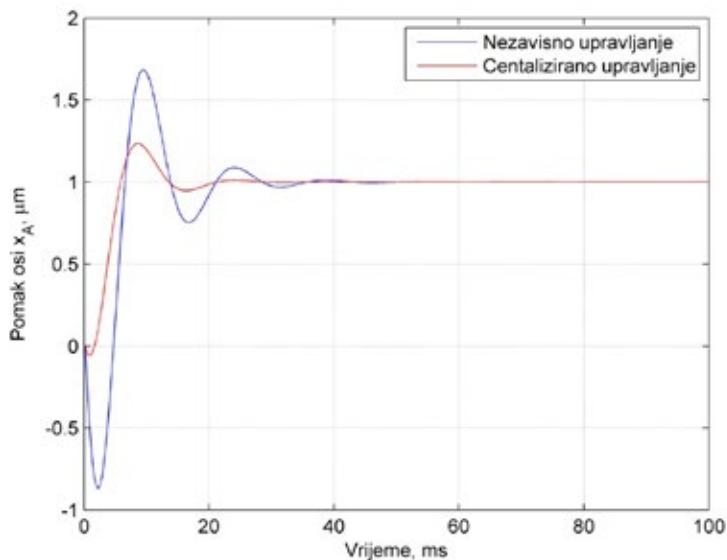
This thesis describes the working principle of active magnetic bearings (AMB). First, a control systems of magnetic bearings with a rigid rotor is elaborated, where difference between decentralized and centralized control is described. Then the emphasis is given to centralized control which, although more complex, offers more opportunities especially in the case of elastic rotors with the problem of non-collocation.

For a given elastic rotor, modal analysis was carried out and natural frequencies and associated mode shapes are obtained. Due to known operating speed of the system, analysis was focuses on the frequency range 0-500 Hz. In this range four elastic mode shapes were obtained.

At the end of the work, some general ideas regarding hardware implementation of MIMO control system are given, i.e. the way to redesign the existing system of decentralized AMB control in order to apply the centralized control that offers more possibilities to solve the problem of non-colocation of the system AMB with elastic rotor.



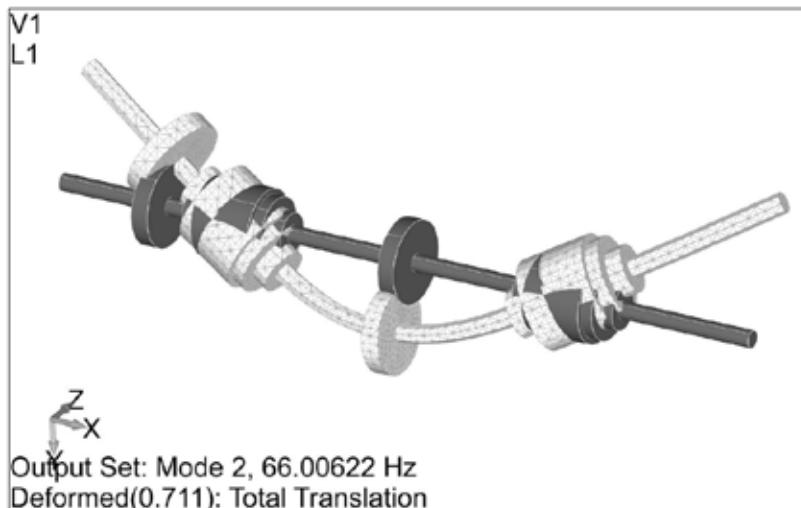
Blokovska shema regulacijske petlje
/ Control loop block diagram



Odziv osi x_A na skokovitu pobudu x_A^*
/ Response of x_A axis on step excitation at x_A^*



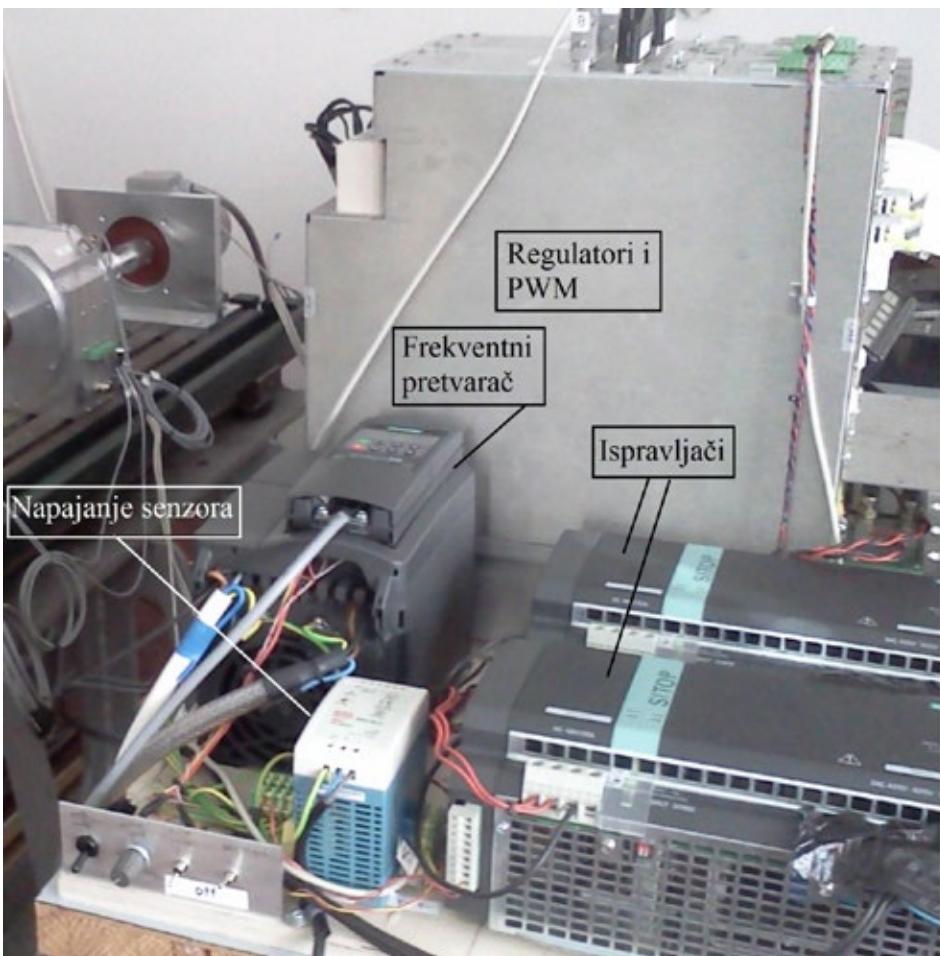
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Prikaz prve forme vibriranja rotora
/ Rotor first mode shape



Ispitni stol
/ Test rig



Električne komponente sustava
/ Electric component of the system

IME I PREZIME | NAME AND SURNAME:

Mel Totman

Diplomski sveučilišni studij strojarstva / Graduate University Study of Mechanical Engineering

NAZIV RADA | TITLE:

Analiza čvrstoće hibridne izvedbe naplatka formule student

Stress analysis of formula student's hybrid wheel

MENTOR(I) | SUPERVISOR(S):

prof. dr. sc. / Prof. D. Sc. Josip Brnić

prof. dr. sc. / Prof. D. Sc. Marko Čanadija

Sažetak:

Rad je obuhvatio analizu čvrstoće hibridne izvedbe naplatka sa obručem izrađenim od karbonskog kompozita i osnovom od aluminijске slitine. Ovakav naplatak namijenjen je za uporabu u Formuli student te je osnovni cilj rada bio smanjenje mase naplatka, a da se pritom ne naruši čvrstoća istoga. Analiza je provedena pomoću metode konačnih elemenata u programskom paketu Femap, a za opterećenja koja su predviđena od strane organizatora natjecanja. Kao osnovni rezultati, dobivene su raspodjele naprezanja i deformacija, ali i indeksi popuštanja pojedinih slojeva karbonskog kompozita. Na taj su način identificirane kritične pozicije, te je ovim vidom provjere utvrđeno da je konstrukcija samoga naplatka zadovoljavajuća. Nапослјетку, autor naglašava da je ova analiza idealizirana, te je zbog neizbjježnih nesavršenosti (npr. mogući zarobljeni mješurici zraka u kompozitu) bilo potrebno raditi s faktorom sigurnosti.

Summary:

This work includes analysis of the strength of hybrid wheel rim made of carbon composite and aluminum alloy base. The wheel is designed for use in Formula Student and the main goal of the study was to reduce the overall weight of the rim without compromising strength. The analysis was conducted using finite element method in the software package Femap, using loads that are provided by the organizers of the competition. The main results obtained were distribution of stresses and strains and failure indices of individual layers of carbon composite. In this way, critical positions are identified. This type of analysis showed that the construction of the wheel is satisfactory. Finally, the author points out that this analysis is idealized, and that, because of the inevitable imperfections (eg. a possible air bubbles trapped in the composite), it was necessary to conduct this analysis with a certain safety factor.



*Model naplatka
/ Rim model*

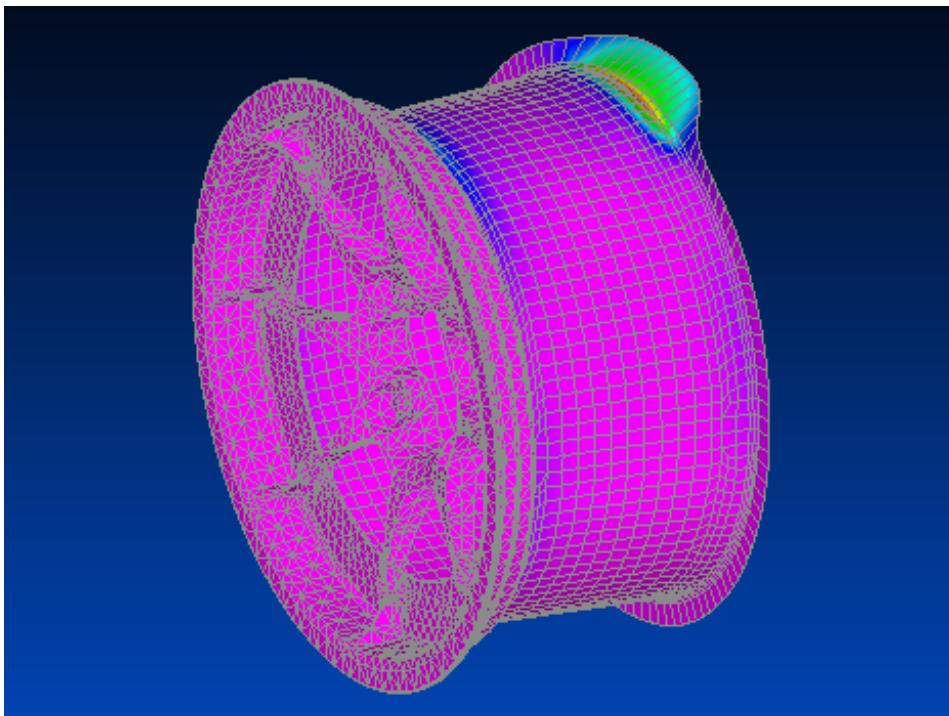




Hibridni naplatak
/ Hybrid rim



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Raspodjela indeksa popuštanja po obruču za opterećenje u zavoju
/ Distribution of failure indices on the rim for a load in the curve



2.6.9 jedriličarski kup FSB sailing cup FSB

Posada Tehničkog fakulteta u sastavu: Dubravko Franković, Vedran Hrvatin, Kristian Lenić, Ivan Pucić, Tomislav Senčić i Marko Šestan (kormilar) osvojila je uvjerljivo prvo mjesto u monotipskom jedriličarskom natjecanju „Jedriličarski kup FSB 2014“ koje se je od 3. do 5. listopada 2014. godine održalo u akvatoriju grada Cresa u organizaciji Sveučilišnog nautičkog kluba Fakulteta strojarstva i brodogradnje Sveučilišta u Zagrebu. Na natjecanju je sudjelovalo ukupno 9 posada s hrvatskih sveučilišta koje su svoje umijeće odmjerili na jakom vjetru u ukupno 8 plovova („štap“), a u svima je posada Tehničkog fakulteta prva prešla ciljnu ravninu. Plovilo se na jedrilicama Jeanneau One Design 35.

Members of the crew: Dubravko Franković, Vedran Hrvatin, Kristian Lenić, Ivan Pucić, Tomislav Senčić and Marko Šestan (helmsman) won a first place in the monotypic sailing competition "Sailing Cup FSB 2014" which was held from the 3rd to 5th October 2014 in aquatorium close to the town of Cres. The competition was organized by the University nautical Club of the Faculty of Mechanical Engineering and Naval Architecture University of Zagreb. The event was attended by a total of 9 crews from Croatian universities that have their skills tested against strong wind in a total of 8 races ("stick"). In all races the crew of the Faculty of Engineering crossed the finish line first. Sailboat Jeanneau One Design 35 was the vessel.



*Posada Tehničkog fakulteta osvojila je prvo mjesto
/ The crew of the Faculty of Engineering won first place*



3 studijski programi na fakultetu

study programs at the faculty

PREDDIPLOMSKI SVEUČILIŠNI STUDIJ 3-godišnji (180 ECTS)		UNDERGRADUATE UNIVERSITY STUDY 3 years (180 ECTS)	
Studij	Naziv	Study	Title
Strojarstvo	Sveučilišni prvostupnik inženjer strojarstva	Mechanical Engineering	University Bachelor of Mechanical Engineering
Brodogradnja	Sveučilišni prvostupnik inženjer brodogradnje	Naval Architecture	University Bachelor of Naval Architecture
Elektrotehnika	Sveučilišni prvostupnik inženjer elektrotehnike	Electrical Engineering	University Bachelor of Electrical Engineering
Računarstvo	Sveučilišni prvostupnik inženjer računarstva	Computer Engineering	University Bachelor of Computer Engineering

DIPLOMSKI SVEUČILIŠNI STUDIJ 2-godišnji (120 ECTS)		GRADUATE UNIVERSITY STUDY 2 years (120 ECTS)	
Studij	Naziv	Study	Title
Strojarstvo	Magistar inženjer strojarstva	Mechanical Engineering	Master of Mechanical Engineering
Brodogradnja	Magistar inženjer brodogradnje	Naval Architecture	Master of Naval Architecture
Elektrotehnika	Magistar inženjer elektrotehnike	Electrical Engineering	Master of Electrical Engineering
Računarstvo	Magistar inženjer računarstva	Computer Engineering	Master of Computer Engineering

POSLIJEDIPLOMSKI SVEUČILIŠNI (DOKTORSKI) STUDIJ 3-godišnji (180 ECTS)		POSTGRADUATE UNIVERSITY (DOCTORAL) STUDY 3 years (180 ECTS)	
Studij	Naziv	Study	Title
Strojarstvo	Doktor tehničkih znanosti	Mechanical Engineering	Ph.D. in the area of Engineering Sciences
Temeljne tehničke znanosti		Basic Engineering Sciences	
Brodogradnja		Naval Architecture	
Druge interdisciplinarnе tehničke znanosti		Other Interdisciplinary Sciences	
Elektrotehnika		Electrical Engineering	

PREDDIPLOMSKI STRUČNI STUDIJ 3-godišnji (180 ECTS)		UNDERGRADUATE VOCATIONAL STUDY 3 years (180 ECTS)	
Studij	Naziv	Study	Title
Strojarstvo	Stručni prvostupnik strojarstva	Mechanical Engineering	Bachelor of Mechanical Engineering
Brodogradnja	Stručni prvostupnik brodogradnje	Naval Architecture	Bachelor of Naval Architecture
Elektrotehnika	Stručni prvostupnik elektrotehnike	Electrical Engineering	Bachelor of Electrical Engineering



Studiji na Tehničkom fakultetu ustrojeni su prema Bolonjskom modelu 3 + 2 + 3, što znači da se obrazovanje provodi kroz preddiplomski sveučilišni studij u trajanju od tri godine kojim se stječe 180 ECTS bodova, zatim diplomski sveučilišni studij u trajanju od dvije godine kojim se stječe 120 ECTS bodova te poslijediplomski sveučilišni (doktorski) studij u trajanju od tri godine kojim se stječe 180 ECTS bodova.

Osim tih studija, obrazovanje se provodi i kroz preddiplomske stručne studije u trajanju od tri godine kojima se stječe također 180 ECTS bodova. Taj je sustav s vrstama pojedinih studija i stečenim nazivima prikazan u sljedećoj tablici. U nastavku su opisane osnovne značajke pojedinog studija.

PREDDIPLOMSKI SVEUČILIŠNI STUDIJ STROJARSTVA

Preddiplomski sveučilišni studij strojarstva priprema studente za diplomski sveučilišni studij strojarstva, ali im pruža i mogućnost zapošljavanja na odgovarajućim stručnim poslovima. Studij ima za cilj osposobljavanje studenata za primjenu temeljnih i specijalističkih znanja iz strojarstva, prepoznavanje, oblikovanje i rješavanje problema iz prakse, primjenu drugih stečenih znanja iz tehnike, matematike i računarstva, korištenje suvremenih inženjerskih alata, razumijevanje timskog rada i učinkovite komunikacije, razumijevanje etičnosti i etičke odgovornosti i razumijevanje utjecaja inženjerskih rješenja na društvo i okolinu. Student koji završi ovaj studij sposoban je uključiti se u kontinuirano obrazovanje i profesionalni razvoj te posjeduje šire obrazovanje.

Studies at the Faculty of Engineering are set according to the Bologna model 3 + 2 + 3, which means that education continues through a three year long undergraduate university study resulting in 180 ECTS credits obtained, followed by a two year graduate university study resulting in 120 ECTS credits obtained and a postgraduate university (doctoral) study which lasts three years and results in 180 ECTS credits obtained.

Apart from these studies, education is accomplished through a three year undergraduate vocational study that results in 180 ECTS credits. The curricula with the respective types of studies and obtained titles are shown in the following table. The basic characteristics of each study are described below.

UNDERGRADUATE UNIVERSITY STUDY OF MECHANICAL ENGINEERING

The undergraduate university study of mechanical engineering prepares the students for graduate university study and provides an opportunity for placement in appropriate professional employment. The aim of the study is to prepare the students for implementing basic and specialist knowledge in the field of mechanical engineering, recognizing, defining and solving practical problems, implementing other acquired engineering knowledge, math and computing, using modern engineering tools, understanding teamwork and efficient communication, understanding ethics and responsibility and the influence of engineering solutions on society and the environment. At the end of study, students are able to continue with education and professional development and possess a broader education.





Prediplomski sveučilišni studij

S	Strojarsvo			S Brodogradnja		S Elektrotehnika		S Računarstvo	
	Predmet	N	B	Predmet	N	B	Predmet	N	B
I	Matematika I	6	7	I Matematika I	6	7	I Matematika I	6	7
	Statika	5	6	Statika	5	6	Fizika I	4	5
	Materijali I	4	4	Watervarij I	4	4	Osnove elektrotehnike I	6	7
	Uvod u modernu fiziku	3	4	Uvod u modernu fiziku	3	4	Uvod u računarstvo	4	6
	Računalne aplikacije u inženjerstvu	3	4	Inženjerstva i računalne aplikacije u inženjerstvu	3	4	Inženjerstva grafička dokumentiranje	4	4
	Inženjerstva grafička	4	4	Inženjerstva grafička	4	4	Tjelesna i zdravstvena kultura	1	1
	Tjelesna i zdravstvena kultura	1	1	Tjelesna i zdravstvena kultura	1	1	Tjelesna i zdravstvena kultura	1	1
II	Matematika II	6	7	II Matematika II	6	7	II Matematika II	6	7
	Kinematika	5	6	Kinematika	5	6	Fizika II	4	5
	Čvrstočka konstrukcija I	6	7	Čvrstočka konstrukcija I	6	7	Osnove elektrotehnike II	6	7
	Materijali II	3	5	Materijali II	3	5	Programiranje	4	6
	Oblikovanje pomoćiču računala	3	4	Oblikovanje pomoćiču računala	3	4	Tehnološki materijala	3	4
	Tjelesna i zdravstvena kultura	1	1	Tjelesna i zdravstvena kultura	1	1	Tjelesna i zdravstvena kultura	1	1
III	Dinamika	4	5	III Dinamika	4	5	III Inženjerstva matematika ET	5	7
	Mehanika fluida	5	5	Mehanika fluida	5	5	Mjerenja u elektrotehnici	5	7
	Naučni i topini I	6	7	Zavarivanje I	3	4	Elektronika I	4	6
	Mjerenja i kontrola kvalitete	3	5	Termodinamika BG	4	5	Električne mreže	4	7
	Računarske metode	4	5	Uvod u plavne objekte	3	4	Strani jezik I	2	3
	Strani jezik I	2	3	Osnove konstrukcijskih elemenata	4	4	Uvod u objektno orij. programiranje	4	6
IV	Inženjerstva statistika	4	5	IV Engleski jezik I	2	3			
	Konstruktivni elementi I	5	7	IV Inženjerstva statistika	4	5	IV Operacijski sustavi	4	7
	Hidraulički strojevi	4	5	IV Brodske forme	5	6	IV Elektronička logika	4	7
	Proizvodni tehnologije	4	5	IV Osnove gradnje broda	3	5	IV Osnove regulacijske tehnike	4	7
	Strani jezik II	2	3	IV Konstrukcija broda I	4	6	IV Izborni kolegiji	4	7
	Stručna praksa I	5	5	IV Engleski jezik II	2	3	IV Stručna praksa I	2	3
V	Konstruktivni elementi II	6	7	V Plovnost i stabilitet broda	6	7	V Elektronički strojevi I	5	6
	Toplofisni strojevi uređaji	4	5	V Oprema broda	4	6	V Energetska elektronika	5	6
	Proizvodni strojevi, alati i naprave	4	5	V Konstrukcija broda II	4	6	V Signalni i sustavni	5	6
	Izborni kolegiji skupine	4	4	V Tehnologija brodogradnje	4	6	V Izborni kolegiji II	4	7
	Tehnološki procesi	4	4	V Izborni projekt	3	5	V Stručna praksa II	3	5
	Izborni projekt	3	5				V Ugrađeni računalni sustavi	5	7
VI	Energetski sustavi	4	4				V Operacijski sustavi	4	7
	Autonomatizacija	3	4				V Bazni portali	4	6
	Izborni kolegiji skupine	4	4				V Računalni web aplikacije	4	7
	Organizacija ekonomika posl. sust.	3	4				V Izborni kolegiji	4	5
	Slobodni kolegiji	3	4				V Slobodni projekti	3	5
	Završni rad	3	4				V Završni rad	10	10

(*Studijski programi pojedinih studija prikazani su na gornjoj i na tablicama koje slijede: sa S semestar u kojem se predmet predaje, s N su označeni sati nastave tјedno, a s B broj ECTS bodova pripadnog predmeta.)*

S	Mechanical Engineering Course	N	B	S	Naval Architecture Course	N	B	S	Electrical Engineering Course	N	B	S	Computer Engineering Course	N	B	S
I	Mathematics I	6	7	I	Mathematics I	6	7	I	Mathematics I	6	7	I	Mathematics I	6	7	I
	Statics	5	6		Statics	5	6		Physics I	4	5		Introduction to Modern Physics	3	4	
	Materials I	4	4		Materials I	4	4		Fundamentals of Electrical Engineering I	6	7		Electrical Engineering R	4	6	
	Introduction to Modern Physics	3	4		Introduction in Modern Physics	3	4		Introduction to Computer Engineering	4	6		Programming I	4	6	
	Applied Computing	3	4		Applied Computing	3	4		Engineering Graphics and Documenting	4	4		Computing skills	2	3	
	Engineering Graphics	4	4		Engineering Graphics	4	4		Physical and Health Education	1	1		English language I	3	3	
	Physical and Health Education	1	1		Physical and Health Education	1	1		Physical and Health Education	1	1		Physical and Health Education	1	1	
II	Mathematics II	6	7	II	Mathematics II	6	7	II	Mathematics II	6	7	II	Mathematics II	6	7	II
	Kinetics	5	6		Kinetics	5	6		Physics II	4	5		Electronics	4	5	
	Strength of Constructions I	6	7		Strength of Constructions	6	7		Fundamentals of Electrical Engineering II	6	7		Programming II	5	6	
	Materials II	3	5		Materials II	3	5		Programming	4	6		Digital logic	4	6	
	Modelling by Computer	3	4		Modelling by Computer	3	4		Technology of Materials	3	4		English language II	3	3	
	Computational Methods	4	5		Computational Methods	4	5		Physical and Health Education	1	1		Physical and Health Education	1	1	
III	Dynamics	4	5	III	Dynamics	4	5	III	Mathematics for Engineers ET	5	7	III	Mathematics for Engineers ET	4	5	III
	Fluid Mechanics	5	5		Fluid Mechanics	5	5		Electrical Measurements	5	7		Algorithms and Data Structures	5	7	
	Thermodynamics I	6	7		Welding Engineering I	3	4		Electronics I	4	6		Computer Structure	4	6	
	Measurements and Control of Quality	3	5		Thermodynamics	4	5		Electrical Circuits	4	7		Signals and Systems	4	6	
	Foreign Language I	2	3		Introduction to Floating Objects	3	4		Foreign Language I	2	3		Introduction to object-oriented program	4	6	
IV	Statistics for Engineers	4	5	IV	Statistics for Engineers	4	5	IV	Digital Logic	4	6	IV	Operating Systems	4	6	IV
	Machine Elements Design I	5	7		Ship Hull Forms	5	6		Electronics II	4	6		Computer Networks	4	7	
	Hydraulic Machines	4	5		Basics of Ship Production	3	5		Basis of Automatic Control	4	6		Computer Graphics	4	7	
	Manufacturing Technologies	4	5		Ship Construction I	4	6		Elective Course	4	4		Elective course I	3	4	
	Foreign Language II	2	3		English Language II	2	3		Foreign Language II	2	3		Professional practice I	5	5	
V	Professional practice I	5	5		Professional practice I	5	5		Professional practice I	5	5		Professional practice I	5	5	
	Welding Elements Design II	6	7	V	Seaworthiness and Stability of the Ship	6	7	V	Electrical Machines	5	6	V	Embedded Computer Systems	5	7	V
	Heat Engines and Devices	4	5		Ship Equipment	4	6		Power Electronics	5	6		Databases	4	6	
	Production Machines, Jigs, Fixtures and Tool	4	5		Ship Construction II	4	6		Signals and systems	4	6		Web Application Development	4	7	
	Electric group course	4	4		Shipbuilding Technology	4	6		Elective group course	4	7		Elective course II	4	5	
	Technological Processes	4	4		Elective Project	3	5		Elective project	3	5		Elective project	3	5	
VI	Elective project	3	5		Organization and Economics of Enterprises	3	4	VI	Electrical Drives	4	5	VI	Software Engineering	5	7	VI
	Energy systems	4	4	VI	Maine Hydrodynamics I	6	8		Organization and Economics of Enterprise	3	4		Organization and Economics of enterprise	3	4	
	Automation	3	4		Free course I	3	4		Elective Group course	5	7		Basics of Science Computing	5	5	
	Electric group course	3	4		Free course II	3	4		Free course	3	4		Free course	3	4	
	Organization and Economics of Enterprises	3	4		Final Work	10	10		Final work	10	10		Final work	10	10	

(Curricula of the described studies are presented above and in the tables below: S signifies the semester in which the subject is placed, with N lecturing hours per week, and B the number representing ECTS credits.)



PREDDIPLOMSKI SVEUČILIŠNI STUDIJ BRODOGRADNJE

Preddiplomski sveučilišni studij brodogradnje priprema studente za diplomski sveučilišni studij brodogradnje, ali im pruža i mogućnost zapošljavanja na odgovarajućim stručnim poslovima. Na preddiplomskom studiju brodogradnje polaznicima se u razumnoj količini i na dovoljno visokoj razini daje znanje iz temeljnih tehničkih sadržaja s jedne strane, te iz glavnih brodograđevnih sadržaja s druge strane, kako bi u svojoj radnoj praksi, kao i u svojem dalnjem stručnom i znanstvenom usavršavanju, uvijek bili na razini postavljenih zadataka. Svojim opsegom i sadržajem ovaj studij polazniku daje potrebnu širinu stručnih znanja koja ga po završetku studija sposobljava za samostalan rad, odnosno za rad u stručnim timovima u bilo kojem segmentu brodograđevne struke. Završeni student ovog studija sposoban je uključiti se u kontinuirano obrazovanje i profesionalni razvoj te posjeduje i šire obrazovanje.

PREDDIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE

Završetkom preddiplomskoga sveučilišnog studija elektrotehnike polaznik posjeduje temeljna znanja iz matematike, fizike, elektrotehnike i primjene računala. Nadalje, zna pripremiti i izvesti eksperiment, odnosno određena mjerena te ih pravilno obraditi i protumačiti rezultate. Sposoban je identificirati, formulirati i rješiti problem. Pri tome se zna koristiti suvremenim inženjerskim alatima i spremam je za rješavanje šireg spektra inženjerskih zadataka uz mogućnost brze specijalizacije u određenom području. Polaznik je također sposoban raditi u (multidisciplinarnoj) grupi, razumije važnost učinkovite komunikacije u rješavanju određenoga inženjerskog problema, a u svojem radu poštjuje profesionalne i etičke norme te zaštitu okoliša. Nakon završetka studija sposoban je uključiti se u kontinuirano obrazovanje i profesionalni razvoj te posjeduje šire obrazovanje.

UNDERGRADUATE UNIVERSITY STUDY OF NAVAL ARCHITECTURE

The undergraduate university study of naval architecture prepares the students for graduate university study and gives them the opportunity for employment in appropriate professional employment positions. The undergraduate study of naval architecture, offers students on the one hand a reasonable quantity and quality of knowledge in basic engineering and, on the other hand, knowledge about the main constructions of shipbuilding so that they can be prepared for professional jobs as well as for further professional education. With its volume and contents, this study gives an adequate width of knowledge so that students can work either in teams or as individuals in any field of the shipbuilding process. At the end of study, students are able to continue with education and professional development and possess broader education.

UNDERGRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING

Upon completion of the undergraduate university study of electrical engineering, the student obtains a basic knowledge of math, physics, basic electrical engineering and applied computer engineering. Furthermore, he knows how to prepare and conduct experiments and appropriate measurement and correctly process and recognize the obtained results. He is capable of identifying, formulating and solving problems. In such a way, he is able to use modern engineering tools and is prepared for solving a wide spectrum of engineering tasks related to the ability of fast specialization in certain fields. He is able to work in teams, he understands the importance of efficient communication in solving particular engineering problems and he acts in accordance with professional and ethical codes, as well as environmental protection standards. At the end of the study, students are able to continue with their education and professional development and they possess broader education.



PREDDIPLOMSKI SVEUČILIŠNI STUDIJ RAČUNARSTVA

Ovaj preddiplomski sveučilišni studij ima za cilj pružiti razinu znanja koje će osigurati profil stručnjaka sposobljenih za samostalno obavljanje poslova sastavljanja, održavanja i posluživanja računalnih sustava kao i njihova korištenja kao alata. Ova znanja obuhvaćaju područja računalne programske i sklopovske opreme te znanja iz područja računalnih mreža i sustava. Time se osigurava razina izobrazbe nužna za svladavanje niza stručnih poslova. Pri tome je polaznik sposoban raditi u (multidisciplinarnoj) skupini, razumije važnost učinkovite komunikacije na rješavanju određenoga inženjerskog problema, a u svojem radu poštuje profesionalne i etičke norme te zaštitu okoliša. Završeni polaznik ovog studija sposoban je uključiti se u kontinuirano obrazovanje i profesionalni razvoj te posjeduje šire obrazovanje.

DIPLOMSKI SVEUČILIŠNI STUDIJ STROJARSTVA

Na ovom studiju omogućena je specijalizacija u jednome od sljedećih područja:

- Konstruiranje i mehatronika
- Računarsko inženjerstvo
- Tehnološko-informatičko inženjerstvo
- Industrijsko inženjerstvo i management
- Računarska analiza konstrukcija i strojeva
- Termotehnika
- Procesno i energetsko strojarstvo
- Brodostrojarstvo
- Inženjerstvo materijala

Diplomskim sveučilišnim studijem strojarstva studenti stječu potrebna uskospesijalistička znanja iz navedenih područja čime su sposobljeni za obavljanje naj složenijih inženjerskih zadaća temeljenih na znanstvenom pristupu rješavanju problema. Stječu se nova specijalistička znanja iz strojarstva i sposobnost njihove primjene, kao i poznavanje i primjena drugih specijalističkih znanja iz tehnike, matematike i računarstva. Studenti razvijaju sposobnost kontinuiranog obrazovanja i samoobrazovanja, sposobnost samostalnog istraživanja, otkrivanja novih znanja, pripreme i izvođenja eksperimentata te tumačenja podataka. Studijem se stječu znanja i kompetencije potrebne za projektiranje novih sustava, komponenata ili procesa te učinkovito djelovanje u ulozi vode tima. Studijski program sličan je programima studija na inozemnim visokim učilištima uz postizanje specifičnih

UNDERGRADUATE UNIVERSITY STUDY OF COMPUTER ENGINEERING

This study program aims at providing a level of knowledge that will yield a profile of experts trained to independently perform tasks of assembling, serving and maintaining computer systems and using the same as tools. This category includes knowledge of computer software and hardware as well as knowledge in the field of computer networks and systems, ensuring the level of training required to master a number of related jobs. The student is also able to work in a group and he understands the importance of effective communication when solving specific engineering problems. His work respects professional and ethical standards and environmental protection. Upon completion of the study program, the student will be able to engage in lifelong learning and professional development and will have acquired broad education.

GRADUATE UNIVERSITY STUDY OF MECHANICAL ENGINEERING

In this study, specialization is enabled in one of the following fields:

- Mechanical design and mechatronics
- Computer engineering
- Technological information engineering
- Industrial engineering and management
- Computer analysis of machine elements and machines
- Thermal Energy Engineering
- Process and energy engineering
- Marine engineering
- Engineering of materials

This study enables students to obtain the necessary specialist knowledge in the mentioned fields and to perform the most complex engineering tasks based on a scientific problem solving approach. Students acquire new specialised knowledge of mechanical engineering and the ability to implement it as well as that of other topics in engineering, maths and computing. Students are able to continue their education and self-education, to autonomously perform research and experimental work, as well as to validate the obtained results. The study extends the knowledge and competencies necessary for designing new systems, components or processes and the efficient management of projects as team leaders. The curriculum is similar to other programs at foreign universities with some specificities tuned to the needs of the surroundings that most of the students will work in.



zahtjeva sredine za koju se prvenstveno školjuju kadrovi na Tehničkom fakultetu Sveučilišta u Rijeci.

U studijski program uvedene su preporuke iz Bolonjske deklaracije koje se odnose na način osiguranja kvalitete studijskog programa te mobilnost pri studiranju i priznavanju diploma. Za upis na diplomski sveučilišni studij strojarstva, kako bi se omogućila horizontalna mobilnost studenata, upis je omogućen i studentima koji su završili istovrsne preddiplomske sveučilišne studije (brodogradnja, elektrotehnika, računarstvo). Na diplomskom sveučilišnom studiju strojarstva sve je veći broj studenata koji su završili preddiplomske stručne studije iz područja tehničkih znanosti te odgovarajući program razlikovne edukacije.

DIPLOMSKI SVEUČILIŠNI STUDIJ BRODOGRADNJE

Na diplomskom sveučilišnom studiju brodogradnje ospozobljavaju se budući stručnjaci koji će raditi na poslovima i zadacima projektiranja i konstruiranja različitih vrsta i tipova plovnih objekata te razvoja i vođenja tehnoloških procesa, poglavito gradnje i održavanja plovnih objekata i objekata morske tehnologije, na poslovima klasifikacijskih i nadzornih institucija i drugim poslovima u širem području brodogradnje i inženjerstva morske tehnologije, odnosno pomorstva. Na ovom studiju moguće je odabrati sljedeće izborne skupine:

- Projektiranje i konstrukcija plovnih objekata
- Tehnologija i organizacija brodogradnje

Studijski je program usklađen s preporukama u Bolonjskoj deklaraciji koje se odnose na način osiguranja kvalitete studijskog programa te mobilnost pri studiranju i priznavanju diploma.

DIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE

Na ovom studiju omogućena je specijalizacija u jednom od sljedećih područja:

- Automatika
- Elektroenergetika

Studenti stječu potrebna specijalistička znanja iz navedenih područja čime su ospozobljeni za obavljanje stručnih, ali i znanstvenih poslova iz domene elektrotehnike. Student po završetku studija mora znati u potpunosti voditi samostalno istraživanje. Njegovi radni zadaci uključuju ne samo rješavanje problema na postojećim sustavima, nego i projektiranje novih sustava,

In the study program, recommendations of the Bologna system are implemented, especially concerning quality assurance, mobility during the study, as well as diploma recognition. For admission to graduate university study of mechanical engineering and in order to ensure horizontal mobility of students, enrollment is allowed to students who have completed equivalent undergraduate university studies (naval architecture, electrical engineering, computer engineering). At graduate study the number of students who have completed professional courses in engineering and an appropriate program of supplementary education is also getting larger.

GRADUATE UNIVERSITY STUDY OF NAVAL ARCHITECTURE

In this study, professional qualifications are acquired for tasks pertaining to the design and construction of various types of vessels, the development and leading of technological processes (mainly in shipbuilding and servicing of vessels and other objects of maritime technology), qualifications pertaining to jobs in classification and supervising institutions, as well as other jobs in the wide field of naval architecture and maritime engineering. In this study, it is possible to choose the following elective groups:

- Design and construction of vessels
- Technology and organization of ship building

The study program has been adjusted to recommendations of the Bologna system, especially concerning quality assurance, mobility during the study as well as diploma recognition.

GRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING

In this study, specialization in one of the following fields is made possible:

- Automatics
- Power engineering

Students acquire the necessary specialististic knowledge in the fields mentioned above so that they are enabled to perform the most complex professional engineering tasks as well as those based on a scientific approach to problem solving in the area of electrical engineering. Students should be able to perform autonomous research. The student's tasks include not only problem solving of existing systems, but also the design of new systems, components and processes based on given specifications.



komponenata procesa uz postavljene uvjete. Pri tome mora biti sposoban djelovati i kao vođa i kao član skupine ili istraživačkog tima. Studijski je program usklađen s preporukama u Bolonjskoj deklaraciji koje se odnose na način osiguranja kvalitete studijskog programa, mobilnost pri studiranju i priznavanju diploma.

DIPLOMSKI SVEUČILIŠNI STUDIJ RAČUNARSTVA

Diplomskim sveučilišnim studijem računarstva studenti stječu potrebna uskospecijalistička znanja iz jednog od navedenih područja:

- Programsко inženjerstvo
- Računalni sustavi

Time su osposobljeni za obavljanje najsloženijih zadataka temeljenih na znanstvenom pristupu rješavanju problema. Studenti usvajaju sposobnost interdisciplinarnog pristupa integraciji sustava, obrade informacija i traženja inovativnih rješenja. Samostalno će projektirati, upravljati, analizirati problem i predlagati rješenja vezana uz razvoj sklopovske i programske podrške i umrežavanja sustava. Znat će učinkovito birati i primjenjivati odgovarajuće suvremene alate i metode iz struke na kompleksne inženjerske aktivnosti. Steći će znanja i vještine za projektiranje sustava, komponenata i procesa koji odgovaraju specifičnim potrebama određenih područja.

Therefore, he is capable of working as a team or research group member or leader. The study program has been adjusted to recommendations of the Bologna system, especially concerning quality assurance, mobility during the study as well as diploma recognition.

GRADUATE UNIVERSITY STUDY OF COMPUTER ENGINEERING

By completing the university graduate programme in computer engineering, students attain the necessary narrowly specialised knowledge in one of the following areas:

- Software engineering
- Computer systems

Students are trained to perform the most complex engineering tasks based on the scientific approach to problem solving. They attain the skills needed for information processing, seeking innovative solutions and performing interdisciplinary approach to systems integration. Students will be able to independently plan, manage, analyse problems and propose solutions related to the development of hardware and software. They will learn how to efficiently select and apply modern tools and procedures from this field on complex engineering activities. They will acquire knowledge and skills for designing systems, components and processes that meet the specific needs of certain domains.





1

Graduate University Studies		S Naval Architecture		S Electrical Engineering		S Computer Engineering	
S	Mechanical Engineering Course	N	B	N	B	N	B
I	Mathematics for Engineers	5	7	1	Mathematics for Engineers	5	6
	Strength of Constructions II	5	7	Ship Strength	4	5	
	Thermodynamics III	5	7	Ships Electrical Engineering	3	4	
	Elective group course	4	5	Methodology of Shipbuilding	4	5	
	Elective group course	4	4	Elective group course	4	6	
	Elective group course	4	4	Elective group course	4	6	
	Free course I	2	5	Ship systems	4	5	
	Project I	4	5	Project I	2	5	
	Professional practice II	5	5	Free course I	4	5	
	Elective course I	4	5	Professional practice II	5	5	
	Elective group course	4	5	Elective group course	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Project II	2	5	Project II	2	5	
	Free course II	4	5	Free course II	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Free course III	4	5	Project III	2	5	
	Elective course III	4	5	Free course III	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Free course IV	4	5	Project IV	2	5	
	Elective group course	4	5	Free course IV	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Elective group course	4	5	Elective group course	4	5	
	Graduation thesis	10	10	Graduation thesis	10	10	
Modules Mechanical Design and Mechatronics		Modules Design and Construction of Vessels		Modules Automatics		Modules Software Engineering	
	Computer Engineering			Technology and Organization of Shipbuilding		Computer Systems	
	Technological Information Engineering						
	Industrial Engineering and Management						
	Computer Analysis of Machine Elements and Machines						
	Thermal Energy Engineering						
	Process and Energy Mechanical Engineering						
	Marine Engineering						
	Engineering of Materials						



**POSLIJEDIPLOMSKI SVEUČILIŠNI
(DOKTORSKI) STUDIJI IZ PODRUČJA
TEHNIČKIH ZNANOSTI, POLJA
STROJARSTVA, BRODOGRADNJE,
TEMELJNIH TEHNIČKIH ZNANOSTI I
INTERDISCIPLINARNIH TEHNIČKIH
ZNANOSTI I ZNANOSTI IZ POLJA ELEKTROTEHNIKE**

Na Tehničkom fakultetu izvode se dva poslijediplomska sveučilišna (doktorska) studija iz tehničkih znanosti - polja strojarstva, brodogradnje, temeljnih tehničkih znanosti i interdisciplinarnih tehničkih znanosti te polja elektrotehnike.

Završetkom ovih studija student stječe stupanj doktora znanosti što podrazumijeva superiorno poznavanje određenog znanstvenog područja unutar tehničkih znanosti i dokazanu sposobnost originalnog znanstvenog istraživanja. Njegove kompetencije obuhvaćaju vršno poznavanje literature i nerazjašnjenih problema iz određenog područja te sposobnost osmišljavanja i provođenja znanstvenoistraživačkog projekta do kraja, objavljivanja rezultata istraživanja te prezentiranja tih rezultata drugim znanstvenicima, izražavanja svojih stavova u prisutnosti eksperta u području (na kongresima, seminarima, gostovanjima na drugim institucijama itd.). Njegove osobine obuhvaćaju i želju za dijeljenjem svojega znanja i iskustva mlađim generacijama studenata, kritičnost, u prvom redu prema vlastitom istraživanju, ali i radu drugih te sposobnost prilagođavanja dolazećim promjenama.

Nakon završetka doktorskog studija otvaraju se brojne mogućnosti nastavka znanstveno-istraživačkog rada na maticnoj instituciji ili srodnim institucijama u Hrvatskoj ili inozemstvu, kao i postdoktorskog usavršavanja. Otvaraju se i mogućnosti zapošljavanja u javnom i privatnom sektoru, posebno u onim gospodarskim subjektima s kojima Fakultet ima razvijenu suradnju, ali i drugdje u Hrvatskoj i inozemstvu.

Doktorski studij sastoji se od:

- provedbe znanstvenoistraživačkog rada pod nadzorom i uz pomoć mentora, odnosno sumentora koja rezultira izradom doktorskog rada (90 ECTS bodova),
- polaganja obveznih i izbornih predmeta propisanih studijskim programom doktorskog studija (42 ECTS bodova),
- boravka na drugim domaćim ili inozemnim

**POSTGRADUATE UNIVERSITY
(DOCTORAL) STUDIES IN THE AREA
OF ENGINEERING SCIENCES, IN THE
FIELDS OF MECHANICAL ENGINEERING,
NAVAL ARCHITECTURE, FUNDAMENTAL
ENGINEERING SCIENCES AND
INTERDISCIPLINARY ENGINEERING
SCIENCES AND IN THE FIELD OF
ELECTRICAL ENGINEERING**

At the Faculty of Engineering there are two postgraduate university (doctoral) studies in the area of Engineering Sciences, first one in the fields of Mechanical Engineering, Naval Architecture, Basic Engineering Sciences and Engineering Sciences and Interdisciplinary Engineering Sciences; and in the field of Electrical Engineering.

With the completion of the studies, the student gains the academic degree of Doctor of Science, has a superior knowledge of a particular scientific field within the engineering sciences and he will have proven to have the capability to and has proven to have original scientific research. His competences cover comprehension of literature and unsolved problems of a particular area and the ability to conduct a scientific project up to its completion, to publish the research results and to present these results to other scientists, the ability to express his opinion in the presence of experts in the research area (at conferences and similar gatherings). His characteristics include the desire to transfer his knowledge to the younger generations, criticism, in the first place towards his own work, but also towards the work of others and the ability to adapt to imminent changes.

Upon completion of the doctoral study, numerous possibilities for the continuation scientific work are present at the Faculty Engineering or other institutions in Croatia and abroad, as well as the possibility to continue education in postdoctoral study. Also, the possibility of finding an occupation in the public as well as in the private business sector becomes available (e.g., entities with whom the Faculty of Engineering has developed collaboration) as well as in other enterprises in Croatia and abroad.

The doctoral study consists of:

- scientific research work under the guidance and help of a mentor and possibly a co-mentor, which results in the completion of a doctoral thesis (90 ECTS credits),



- sveučilišnim ili znanstvenim institucijama u trajanju od najmanje 3 mjeseca (20 ECTS bodova),
- drugih aktivnosti koje obuhvaćaju prezentaciju znanstvenih rezultata na domaćim i međunarodnim znanstvenim skupovima, objavljivanje znanstvenih radova (28 ECTS bodova).

Nastava doktorskog programa iz područja tehničkih znanosti, polja strojarstva, brodogradnje, temeljnih tehničkih znanosti i interdisciplinarnih tehničkih znanosti organizirana je u sedam modula:

1. Proizvodno strojarstvo
2. Termoenergetika
3. Računarska mehanika
4. Projektiranje i gradnja plovnih objekata
5. Konstruiranje u strojarstvu
6. Osiguranje kvalitete i vođenje tehničkih sustava
7. Ekološko inženjerstvo i zaštita okoliša

Nastava doktorskog programa iz područja tehničkih znanosti, polja elektrotehnike organizirana je u dva modula:

1. Elektroničko-informacijski sustavi
2. Elektroenergetika i nove tehnologije

- sitting examinations for all obligatory and elective subjects prescribed by the curriculum of the doctoral study (42 ECTS credits),
- visiting other Croatian or foreign universities or scientific institutions in the duration of at least three months (20 ECTS credits),
- other activities that include the presentation of scientific research results at national or international scientific gatherings or the writing of scientific papers (28 ECTS credits).

The curriculum of the doctoral study in the area of Engineering Sciences, in the fields of Mechanical Engineering, Naval Architecture, fundamental Engineering Sciences and Interdisciplinary Sciences comprises seven modules:

1. Production Technologies in Mechanical Engineering
2. Thermal Energy Engineering
3. Computational Mechanics
4. Design and Building of Naval Vessels
5. Mechanical Engineering Design
6. Quality Assurance and Technical System Management
7. Ecological Engineering and Environmental Protection

The curriculum of the doctoral study in the area of Engineering Sciences, in the field of Electrical Engineering comprises two modules:

1. Electronic and information systems
2. Power Engineering and New Technologies





Poslijediplomski sveučilišni (doktorski) studij Područje tehničke znanosti: polje struštva brodogradnja temeljne tehničke znanosti i interdisciplinarno tehničke znanosti						
Zajednički predmeti						
Moduli	Proizvodno strojarstvo	Tehnoenergetika	Računarska mehanika	Projektiranje i gradnja plovnih objekata	Konstruiranje u strojарству	Osiguranje kvalitete i vodenje tehničkih sustava
Planiranje i vodenje proizvodnje	IP iz topinskih znanosti	Elastomehanička i platomehanika	Metodologija projektiranja plovnih objekata	IP iz hidrostatskih plovnih objekata	Up управljanje kvalitetom	IP za zaštitu okoliša
IP iz konvencionalne obrade odvajanjem čestica topline	Numeričko modeliranje prijelaza MKE i optimizacija konstrukcija	Pomiravanje i upravljanje plovnih objekata	Modeliranje i optimizacija konstrukcija	Nauka o konstruiranju IP iz konstruktivskih elemenata	Planiranje i vodenje proizvodnje	Opća ekologija
Deformabilnost i suvremeno oblikovanje deformiranim	Optimizacija energetskih procesa	Viskoslasticnost i visoplastičnost	IP iz osnova plovnih objekata	Statistička kontrola procesa	Zaštita mora i priroblja	
IP iz nekonvencionalnih postupaka obrade	IP iz brodskih strojnih kompleksa	Integralna tehnologija gradnje broda	Specijalni mehanički prijenosnici	Projektiranje baze podataka	Kemijska okoliša	
Razvojni i proizvodni menadžment	Termodinamička analiza procesa	Nelinearna analiza konstrukcija	Konstrukcija i optimizacija plovnih objekata	Poslovno odlučivanje	Upravljanje odživljivim razvojem i zaštita okoliša	
CAM, CAP, CAD/NC-CIM	Eksperimentalne metode u topinskoj tehnici i temoenergetičkim uređajima	Kontaktna mehanika	IP iz otpora plovnih objekata	Modeli stohastičkih procesa	Zaštita okoliša i energetički i procesnoj industriji	
Robotni manipulatori	Termodinamika, mehanički i termomehaničke poznatosti	IP iz termomehaničke konstrukcije	IP iz transportnih redsava u industriji	Instrumentacija i analitičke tehnike u zaštiti okoliša		
Predmeti po modulima	IP iz fleksibilnih proizvodnih sustava	IP iz tehnike hadere i tehnike niskih temperatura	IP iz dinamike plovnih objekata	Pouzdanost tehničkih sustava	Okoljski i gospodarstvo	
Inteligentni proizvodni sustavi	IP iz izmjenjivača topline	Kinematika i dinamika robota	Projektiranje strukture plovnih objekata	Kontaktni problemi i analizi konstruktivskih elemenata	Zaštita okoliša u tehničici hlađenja	
Metode simulacije i prizvodnji	IP iz grijanja i klimatizacije	Zaštita od buke i vibracija strojeva i konstrukcija	Principi konstrukcija visokih ultraviskoskih prečnosti	Inteligentni sustavi		
Optimizacija tehnoloških procesa	Obnovljivi izvori energije	Dinamika fluida	Podatkovni elementi i mehanizmi	Principi konstrukcija visokih ultraviskoskih prečnosti		
IP iz ispitivanja materijala	Racionala potrošnja energije	Računarska mehanika fluida		Inženjerstvo kvalitete		
Topinska obrada i inženjerstvo površina	Numeričko modeliranje procesa izgaranja	Hidrodinamika turboprotojeva		Sigurnost tehničkih sustava		
Kemijska materijala	IP iz motora s unutarnjim izgaranjem					
Korozija i zaštita metala	Suvremene konstrukcije motora					
Mehanika prijeloma i umorljivost	Trainost i pouzdanost					
Procesi oštetevanja materijala						

Postgraduate University (Doctoral) Study Area of Engineering Sciences: Fluids of Mechanical Engineering, Naval Architecture, Fundamental Engineering Sciences and Interdisciplinary Sciences						
Common subjects		Methodology of Science and Research				
Modules	Optimization Methods Statistical Methods and Stochastic Processes Statistical Methods and Numerical Metho	Production Technologies in Mechanical Engineering	Thermal Energy Engineering	Computational Mechanics	Design and Building of Naval Vessels	Mechanical Engineering Design
	Planning and Processing of Manufacture	Selected Topics on Thermal Sciences	Elastomechanics and Plastomechanics	Methodology of Floating Objects	Hydrostatic and Pneumatic Transmissions	Quality Assurance and Technical Systems Management
	Selected Chapters on Conventional Machining Processes	Numerical Modeling of Heat Transfer Optimization	FEM and Structural Design	Modelling of Engineering Structures	Planning and Processing of Manufacture	Ecological Engineering and Environmental Protection
	Formability and Modern Forming Technology	Optimization of Energy Processes	Viscoelasticity and Viscoplasticity	Seakeeping and Manoeuvrability Design Science	Statistical Process Control	General Ecology
	Selected Chapters on Nonconventional Machining Processes	Selected Topics on Marine Machinery Systems	Structural Stability	Selected Chapter on Floating Objects Design	Design of Data Base	Sea and Coastal Protection
	Production and Development Management	Thermodynamic Analysis of Processes	Nonlinear Structural Analysis	Integrated ship Production	Special Mechanical Transmissions	Environmental Chemistry
	CAM, CAP, CAD/NC-CIM	Experimental Methods in Thermal and Power Engineering	Contact Mechanics Advanced Technology	Mechanical Engineering Design and Optimization Information	Business Decision	Management of Sustainable Industry
	Robots and Manipulators	Thermodynamics of Mixtures and Thermal Devices	Thermomechanics	Selected Topics on Floating Objects Production	Models of Stochastic Processes	Development and Environmental Protection
	Selected Chapters on Flexible Production Systems	Selected Topics in Refrigeration and Low-Temperature Refrigeration	Vibrations and Durability of Machines and Structures	Selected Chapters of Ship Methodology	Reliability of Technical Systems	Environment Protection in Energetics and Process Industry
	Intelligent Manufacturing	Selected Topics on Heat Exchangers Robots	Kinematics and Dynamics of Robots	Advanced Chapters of Ship Resistance	Industrial Transport Equipment and Devices Boundary Elements Method	Instrumentation and Analytical Techniques in Environment Protection
	Simulation Methods in Production	Selected Topics on Heating and Air- Conditioning	Protection Against Noise and Vibrations of Machines and Structures	Advanced Chapters of Ship Propulsion	Intelligent Systems	Environment and Economy
	Processes Plans Optimization	Renewable Energy Sources	Fluid Dynamics	Selected Topics in Marine Dynamics	Contact Problems in Machine Elements Analyses	Microeconomics and Competitiveness
	Selected Chapters on Material testing	Rational Energy Consumption	Computational Fluid Mechanics	Structural Design of Floating Objects	Physics of the atmosphere	Physics of the atmosphere
	Heat Treatment and Surface Engineering	Numerical Modelling of Combustion Process	Hydrodynamics of Turbomachines	Principles of High and Ultra-high Precision Devices		
	Material chemistry	Selected Topics in Internal Combustion Engines	Turbulent Flow	Quality Engineering		
	Corrosion and Metals Protection	Advanced Design of Internal Combustion Engines	Unsteady Pipe Flow / Modeling			
	Fracture	Durability and Reliability of				
	Thermal Energy Systems	Thermal Energy Systems				
	Mechanics and Fatigue of Materials	Selected Topics on Thermal Turbomachines				
	Processes of Damaging of Materials	Selected Topics Marine Energy Systems				



Poslijediplomski sveučilišni (doktorski) studij		
Područje tehničke znanosti, polje elektrotehnika		
Zajednički predmeti	Metodologija znanstvenoistraživačkog rada	
	Matematičko modeliranje i numeričke metode	
	Metode optimizacije	
	Statističke metode i stohastički procesi	
Moduli	Elektroničko-informacijski sustavi	Elektroenergetika i nove tehnologije
Predmeti po modulima	Analiza i obrada nestacionarnih signala	Modeli stohastičkih procesa informacija
	Elektromagnetsko modeliranje	Modeliranje sustava za distribuciju i potrošnju električne energije
	Fotoničke komponente	Pouzdanost tehničkih sustava
	Mjerenje i analiza kvalitete električne energije	Sustavi upravljanja sinkronim generatorima
	Mješovita obrada signala	Teorija informacija s primjenama
	Nelinearni sustavi automatskog upravljanja	Aktivne distribucijske mreže
	Ambijentalna inteligencija	Inteligentni elektroenergetski sustavi – Smart Grids
	Inteligentni sustavi	Izabrana poglavlja iz energetskih komponenti i sustava obnovljivih izvora energije
	Projektiranje digitalnih sustava	Nova energetska paradigma
	Uslužna robotika	
Uvod u meko računarstvo i primjene		

Postgraduate University (Doctoral) Study		
Area of Engineering Sciences, Field of Electrical Engineering		
Common subjects	Methodology of Science and Research	
	Mathematical Modelling and Numerical Method	
	Optimization Methods	
	Statistical Methods and Stochastic Processes	
Modules	Electronic-Information Systems	Electric Power Systems and New Technologies
Module subjects	Nonstationary Signal Analysis and Processing	Stochastic Information's Process Models
	Electromagnetic Modelling	Modelling of Electrical Power Distribution Systems
	Photonic Devices	Reliability of Technical Systems
	Measurement and Analysis of Electric Power Quality	Control of Synchronous Generators
	Mixed Signal Processing	Information Theory with Applications
	Nonlinear Control Systems	Active Distribution Networks
	Ambient Intelligence	Intelligent Power Systems - Smart Grids
	Intelligent Systems	Selected Chapters on Energy Components and Systems of Renewable Energy Sources
	Digital System Design	New Energy Paradigm
	Service Robotics	
Introduction to Soft Computing and Applications		



**PREDDIPLOMSKI STRUČNI STUDIJ
STROJARSTVA**

Preddiplomski stručni studij strojarstva ima za cilj osposobljavanje stručnjaka strojarstva za rad na izvršavanju složenih operativnih poslova kod razrade projekata strojarskih konstrukcija, odnosno složenih operativnih poslova planiranja, pripreme, unapređenja i kontrole tehnoloških i proizvodnih procesa i planiranja, organiziranja i vođenja proizvodnih odnosno energetskih postrojenja.

**PREDDIPLOMSKI STRUČNI STUDIJ
BRODOGRADNJE**

Preddiplomski stručni studij brodogradnje ima za cilj osposobljavanje stručnjaka brodogradnje za rad na izvršavanju složenih operativnih poslova pri razradi projekata plovnih objekata i objekata morske tehnologije i njihovih elemenata, odnosno složenih operativnih poslova planiranja, pripreme, unapređenja i kontrole procesa gradnje plovnih objekata.

**PREDDIPLOMSKI STRUČNI STUDIJ
ELEKTROTEHNIKE**

Preddiplomski stručni studij elektrotehnike ima za cilj osposobljavanje stručnjaka elektrotehnike za sudjelovanje u projektiraju i konstruiranju elemenata elektroenergetskih postrojenja, odnosno telekomunikacijskih uređaja, sustava i mreža, ovisno o odabranoj izbornoj skupini predmeta.

**UNDERGRADUATE VOCATIONAL STUDY OF
MECHANICAL ENGINEERING**

The undergraduate vocational study of mechanical engineering has the aim to prepare the students for their profession as mechanical engineers, performing jobs that include complex operating tasks in mechanical design, planning, preparing, improvement and controlling of technological and production processes as well as planning, organizing and conducting of production or energy processes and plants.

**UNDREGRADUATE VOCATIONAL STUDY OF
NAVAL ARCHITECTURE**

The undergraduate vocational study of naval architecture has the aim to prepare the students for their profession as naval architect engineers, performing jobs that include complex operating tasks in designing vessels and other maritime objects and their elements as well as planning, improvement and controlling vessel building processes.

**UNDERGRADUATE VOCATIONAL STUDY OF
ELECTRICAL ENGINEERING**

The undergraduate vocational study of electrical engineering has the aim, depending upon the chosen elective subject group, to prepare the students for their profession as electrical engineers in jobs which include designing and constructing elements of power plants, as well as telecommunication equipment, systems and networks.





Preddiplomski stručni studij						Elektrotehnika					
Strojarstvo			Brodogradnja			S			Predmet		
S	Predmet	N	B	Predmet	N	B	N	B	N	B	
I	Matematika I	5	7	I	Matematika I	5	7	I	Matematika I	5	7
	Mehanika I	5	7		Mehanika I	5	7		Fizika	4	6
	Materijali	4	6		Materijali	4	6		Osnove elektrotehnike STI	5	8
	Osnove elektrotehnike	3	5		Osnove elektrotehnike	3	5		Materijali i tehnološki postupci	3	4
	Primjena računala ST	3	4		Primjena računala ST	3	4		Primjena računala ST	3	4
	Tjelesna i zdravstvena kultura	1			Tjelesna i zdravstvena kultura	1			Tjelesna i zdravstvena kultura	1	
II	Matematika II	5	7	II	Matematika II	5	7	II	Matematika II	5	7
	Mehanika II	4	6		Mehanika II	4	6		Osnove elektrotehnike ST II	5	7
	Čvrstoča	4	6		Čvrstoča	4	6		Digitalna logika ST	4	6
	Tehničko čitanje	4	6		Tehničko čitanje	4	6		Mehanika i elementi konstrukcija ST	3	5
	Tehnologija obrade I	3	4		Plovni objekti	3	4		Tehničko dokumentiranje	3	4
	Tjelesna i zdravstvena kultura	1			Tjelesna i zdravstvena kultura	1			Tjelesna i zdravstvena kultura	1	
III	Organizacija i ekonomika	3	4	III	Organizacija i ekonomika	3	4	III	Mjerenja u elektrotehnici ST	5	7
	Mehanika fluida ST	3	5		Mehanika fluida ST	3	5		Elektroničke komponente i osnovni s	5	7
	Toplina	4	6		Toplina	4	6		Linearne električne mreže	4	7
	Tehnologija obrade II	4	6		Brodske forme ST	4	7		Mehatronika	4	6
	Elementi strojeva I	4	6		Zavarivanje	3	5		Strani jezik I	2	3
	Strani jezik I	2	3		Strani jezik I	2	3				
IV	Elementi strojeva II	4	6	IV	Hidrostatika broda	4	6	IV	Osnove energetske elektronike	5	7
	Obrađani strojevi	3	5		Strukturni elementi broda	4	6		Osnove automatske regulacije	4	7
	Toplinski strojevi i uređaji I	3	5		Tehnologija brodogradnje I	3	5		Kolegij izborne skupine	5	8
	Strani jezik II	2	3		Elementi strojeva I BG	3	5		Strani jezik II	2	3
	Stručna praksa I	5			Strani jezik II	2	3		Stručna praksa I	5	
V	Mjerna tehnika ST	3	5	V	Mjerna tehnika ST	3	5	V	Organizacija i ekonomika	3	4
	Toplinski strojevi i uređaji II	3	5		Tehnologija brodogradnje II	5	6		Kolegij izborne skupine	5	7
	Hidraulički strojevi	3	5		Tehnološki procesi gradnje i remont	5	6		Kolegij izborne skupine	4	7
	Zavarivanje	3	5		Konstrukcija broda	4	6		Kolegij izborne skupine	4	6
	Kolegij izborne skupine	4	5		Oprema a broda ST	4	7		Kolegij izborne skupine	4	6
	Kolegij izborne skupine	4	5								
VI	Slobodni i kolegij	4	5	VI	Gradnja i održavanje malih plovnih	4	5	VI	Slobodni i kolegij	4	5
	Stručna praksa II	10			Slobodni kolegij	4	5		Stručna praksa II	10	
	Kolegij izborne skupine	4	5		Stručna praksa II	10			Kolegij izborne skupine	4	5
	Završni rad	10			Završni rad	10			Završni rad	10	

Undergraduate Vocational Studies		Mechanical Engineering		Naval Architecture		Course		Electrical Engineering	
S	Course	N	B	S	Course	N	B	S	Course
I	Mathematics I	5	7	I	Mathematics I	5	7	I	Mathematics I
	Mechanics I	5	7		Mechanics I	5	7		Physics
	Materials	4	6		Materials	4	6		Fundamentals of Electrical Engineering I\
	Fundamentals of Electrical Engineering	3	5		Fundamentals of Electrical Engineering	3	5		Materials and Technological Processes
	Applied Computing VS	3	4		Applied Computing VS	3	4		Applied Computing VS
	Physical and Health Education	1	1		Physical and Health Education	1	1		Physical and Health Education
II	Mathematics II	5	7	II	Mathematics II	5	7	II	Mathematics II
	Mechanics II	4	6		Mechanics II	4	6		Fundamentals of Electrical Engineering II\
	Strength of Materials	4	6		Strength of Materials	4	6		Digital Logic VS
	Technical Drawing	4	6		Technical Drawing	4	6		Mechanics and Structural Elements VS
	Manufacturing Technology I	3	4		Floating Objects	3	4		Technical Documenting
	Physical and Health Education	1	1		Physical and Health Education	1	1		Physical and Health Education
III	Organization and Economics	3	4	III	Organization and Economics	3	4	III	Electrical Measurements VS
	Fluid Mechanics VS	3	5		Fluid Mechanics VS	3	5		Electronic Components and Basic Circuits
	Thermodynamics	4	6		Thermodynamics	4	6		Linear Electric Circuits
	Manufacturing Technology II	4	6		Ship Hull Forms VS	4	7		Mechatronics
	Machine Elements I	4	6		Welding Engineering	3	5		Foreign Language I
	Foreign Language I	2	3		Foreign Language	2	3		Professional practice I
IV	Machine Elements II	4	6	IV	Ship Hydrostatics	4	6	IV	Fundamentals of Power Electronics
	Machine Tools	3	5		Ship Structural Elements	4	6		Fundamentals of Automatic Regulation
	Heat Engines and Devices I	3	5		Shipbuilding Technology I	3	5		Elective group course
	Foreign Language II	2	3		Machine Elements I NA	3	5		Foreign Language I
	Professional Practice I	5			Foreign Language II	2	3		Professional practice I
	Elective group course	4	6		Professional practice I	5			5
V	Measuring Technique VS	3	5	V	Measuring Technique VS	3	5	V	Organization and Economics
	Heat Engines and Devices II	3	5		Shipbuilding Technology II	5	6		Elective group course
	Hydraulic Machines	3	5		Technological Processes of Shipbuilding and	5	6		Elective group course
	Welding Engineering	3	5		Ship Construction	4	6		Elective group course
	Elective group course	4	5		Ship Equipment VS	4	7		Elective group course
VI	Free course	4	5	VI	Small Craft Building and Maintenance	4	5	VI	Free course
	Professional practice II	10			Free course	4	5		Professional practice II
	Elective group course	4	5		Professional practice II	10			Elective group course
	Final thesis	10			Final thesis	10			Final thesis



4 dekanat dean's office



DEKAN | DEAN:

prof. dr. sc. / Prof. D. Sc. **Goran Turkalj**

Tehnički fakultet Sveučilišta u Rijeci
Faculty of Engineering, University of Rijeka
Vukovarska 58, 51000 Rijeka
Hrvatska | Croatia



www.riteh.uniri.hr | dekanat@riteh.hr

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PRODEKANI | VICE-DEANS:

prof. dr. sc. / Prof. D. Sc. **Anica Trp**
nastava | academics

prof. dr. sc. / Prof. D. Sc. **Jasna Prpić-Oršić**
znanstvena djelatnost | research activities

prof. dr. sc. / Prof. D. Sc. **Duško Pavletić**
poslovni odnosi | business affairs



POMOĆNICI DEKANA | DEAN'S ASSISTANTS:

prof. dr. sc. / Prof. D. Sc. **Viktor Sučić**

izv. prof. dr. sc. / Assoc. Prof. D. Sc. **Lado Kranjčević**

doc. dr. sc. / Assist. Prof. D. Sc. **Neven Bulić**



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URED DEKANA | DEAN'S OFFICE:

Sanja Prpić, dipl. oec. / grad. economist
voditeljica | head

Tomo Vergić, dipl. iur. / grad. in law.
glavni tajnik | secretary general

ZAVOD ZA
ELEKTRONI
ZAVOD ZA
BRODOGRADNJU
I INŽENIJERSTV
TEHNOLOGIJE
ZAVOD
ELEKTRO

AUTOMATIKU
NIKU
A
RADNJU
ERSTVO MORSKE
LOGIJE
O ZA
TROENERG

ZAVOD ZA
PRODUKT
KINEZIČKE
| ZAVOD

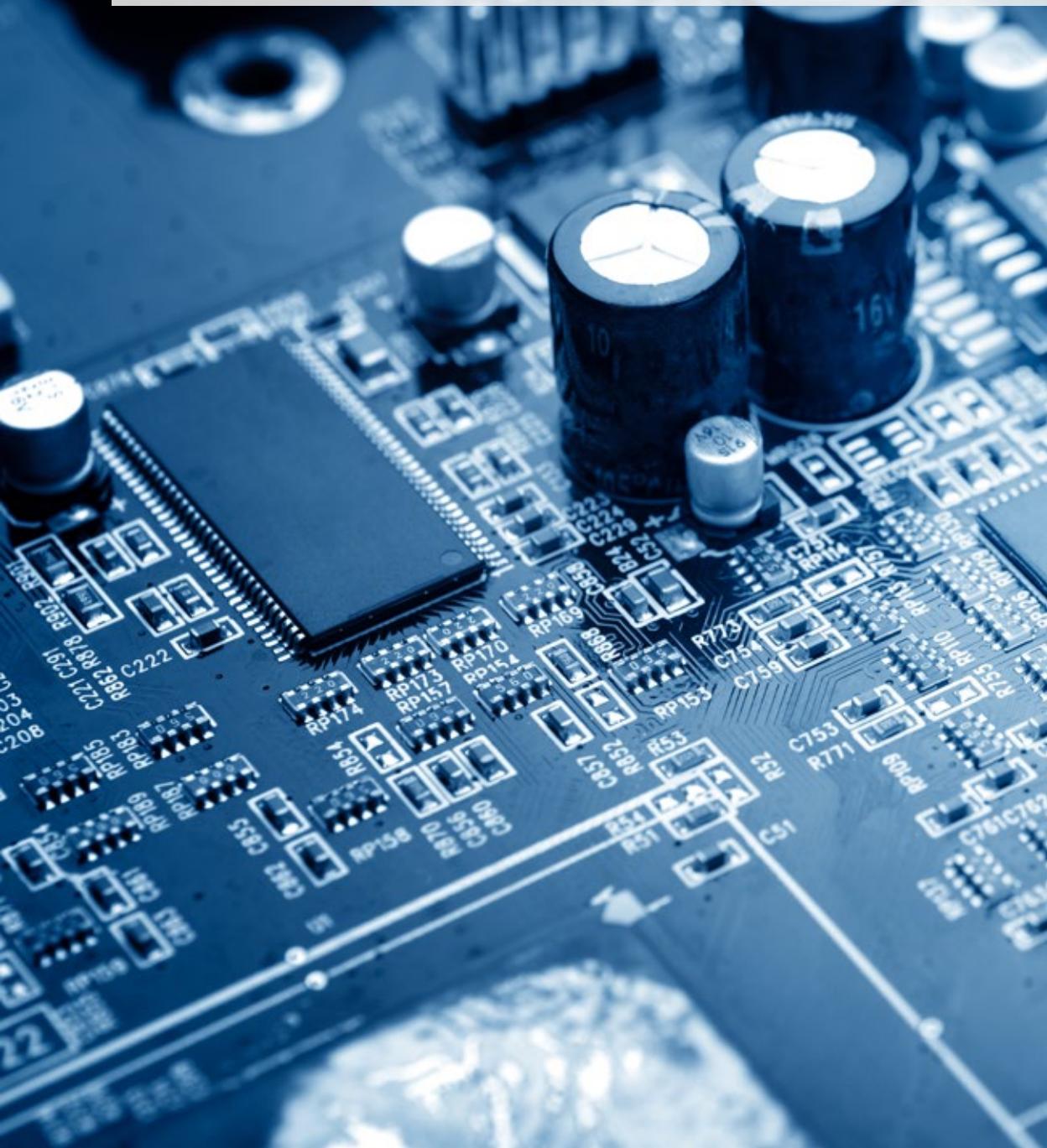
ZAVOD
FILM

5 zavodi departments



5.

zavod za automatiku i elektroniku
department of automation and
electronics



PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Izv. prof. dr. sc. / Assoc. Prof. D. Sc. **Saša Vlahinić**

<http://www.riteh.uniri.hr/ustroj/zavodi/zae/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Zlatan Car

umjetne inteligencije; inteligentni sustavi; robotika; CNC/NC obradni strojevi i robotika; konstrukcija i optimizacija alata i naprava; simulacija i optimizacija rada sustava i strojeva
artificial intelligence; intelligent systems; CNC/NC machines & robotics; design of tools & fixtures; modeling, simulation and optimization of systems and machines



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Nino Stojković

analognna obrada signala; analogni filtri
analog signal processing; analog filters

IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS



Vera Gradišnik

poluvodička elektronika; optoelektronika; poluvodički elementi; fotosenzori iz amorfognog silicija; tankoslojni fotosenzori u biotehnologiji; digitalna logika
semiconductor electronics; optoelectronics; semiconductor devices; amorphous silicon photosensors; thin film photosensors in biotechnology; digital logic



Viktor Sučić

vremensko-frekvencijska i statistička analiza i obrada signala
time-frequency and statistical signal analysis and processing

Saša Vlahinić



mjerena u elektrotehnici; mjerena kvalitete električne energije; elektronička i virtualna instrumentacija
electrical measurements; power quality measurements;
electronic and virtual instrumentation

Miroslav Vrankić



digitalna obrada signala i slike, teorija valića, filtarski slogovi, asistivna tehnologija
digital signal and image processing, wavelets and filter banks, assistive technology

DOCENT | ASSISTANT PROFESSOR

Neven Bulić



automatizacija
automation

VIŠI ASISTENTI | SENIOR ASSISTANTS

Jonatan Lerga



obrada signala; vremensko-frekvencijska obrada signala;
obrada slike i videa
signal processing; time-frequency signal processing;
image and video processing

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Nicoletta Saulig



vremensko-frekvencijska obrada signala
time-frequency signal processing

ASISTENTI | ASSISTANTS

Karlo Radman



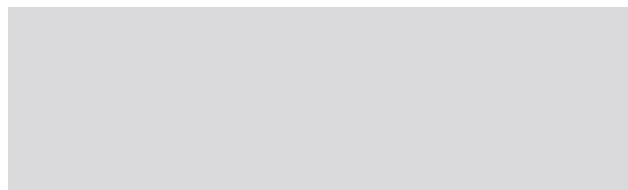
digitalni sustavi upravljanja; upravljanje električnih strojeva; razvoj
bezležajnih motora; automatizacija
digital control systems, control of electrical machines, development
of bearingless drives, automation





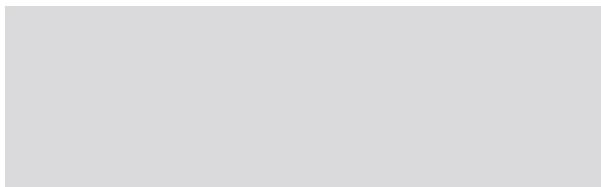
Veljko Jardas

*automatizacija
automation*



Vesna Krajčí

*automatika; robotika
automation; robotics*

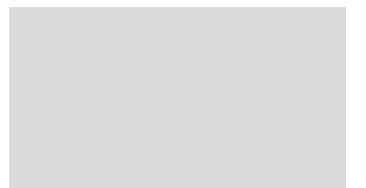


ZNANSTVENI NOVACI | JUNIOR RESEARCHERS



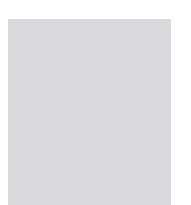
Damir Malnar

*vremensko-frekvencijska obrada signala; ugradbeni
računalni sustavi
time-frequency signal processing; embedded systems*



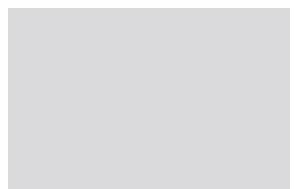
Željka Milanović poslijedoktorand Postdoctoral Research Assistant

*poluvodičke komponente; usmjerena perkolacija; nanostrukture
semiconductor devices; directed percolation; nanostructures*



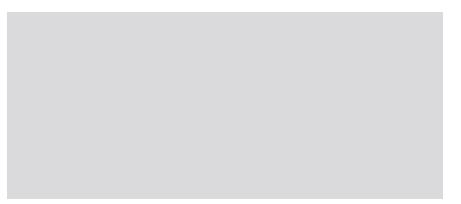
Leon Šikulec

*umjetne inteligencije; inteligentni sustavi; robotika; CNC/NC
obradni strojevi
artificial intelligence; intelligent systems; CNC/NC machines*



Ivan Volarić

*vremensko-frekvencijska obrada signala
time-frequency signal processing*



VANJSKI SURADNICI | ASSOCIATES

Antonio Linić

*poluvodička elektronika; optoelektronika; fotosenzori iz amorfног silicija;
digitalna logika
semiconductor electronics; optoelectronics; amorphous silicon
photosensors; digital logic*

Dario Matika

*automatika
automation*

Nastava se izvodi iz područja automatike, robotike, elektronike, mjerena u elektrotehnici, mjerne instrumentacije te obrade signala.

Lectures in the field of automatic control, robotics, electronics, electrical measurements, instrumentation and signal processing.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Automatizacija
- Automatsko upravljanje
- Digitalna logika
- Električne mreže
- Elektronika
- Elektronika I
- Elektronika II
- Elementi automatizacije postrojenja
- Mjerenja u elektrotehnici
- Modeliranje i simuliranje sustava
- Osnove regulacijske tehnike
- Računalom podržana mjerenja
- Signali i sustavi
- Stručna praksa I

- Automation
- Automatic Control
- Digital Logic
- Electrical Circuits
- Electronics
- Electronics I
- Electronics II
- Elements of Plant Automation
- Electrical Measurements
- System Modelling and Simulation
- Basic of Automatic Control
- Computer Aided Measurement
- Signals and Systems
- Industrial Practice I

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Analogna obrada signala
- Asistivna tehnologija
- Automatizacija postrojenja i procesa
- Automatizirana instrumentacija
- Digitalna obrada signala
- Digitalna obrada slike
- Industrijska robotika
- Mehatronički sustavi
- Optoelektronika
- Osnove robotike
- Primjena umjetne inteligencije
- Sustavi digitalnog upravljanja
- Sustavi kontrole
- Stručna praksa II
- Umjetna inteligencija u robotici

- Analog Signal Processing
- Assistive Technology
- Automation of Plants and Processes
- Automatic Instrumentation
- Digital Signal Processing
- Digital Image Processing
- Industrial robotics
- Mechatronic Systems
- Optoelectronics
- Fundamentals of Robotics
- AI Implementation
- Digital Control Systems
- Control Systems
- Industrial Practice II
- Artificial Intelligence in Robotics

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Automatizacija ST
- Digitalna logika ST
- Elektroničke komponente i osnovni sklopovi
- Linearne električne mreže
- Mehatronika
- Mjerenja u elektrotehnici ST
- Osnove automatske regulacije

- Automation ST
- Digital Logic ST
- Semiconductors Devices and Basic Electronic Circuits
- Linear Electrical Circuits
- Mechatronics
- Electrical Measurements ST
- Fundamentals of Automatic Regulation



KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Analiza i obrada nestacionarnih signala* • *Nonstationary Signal Analysis and Processing*
- *Fotoničke komponente* • *Photonic Devices*
- *Mjerenje i analiza kvalitete električne energije* • *Measurement and Analysis of Electric Power Quality*
- *Mješovita obrada signala* • *Mixed Signal Processing*
- *Nelinearni sustavi automatskog upravljanja* • *Nonlinear Control Systems*
- *Ambijentalna inteligencija* • *Ambient Intelligence*
- *Projektiranje digitalnih sustava* • *Digital System Design*
- *Pouzdanost tehničkih sustava* • *Reliability of Technical Systems*
- *Inteligentni proizvodni sustavi* • *Intelligent Manufacturing Systems*
- *Roboti i manipulatori* • *Robots and Manipulators*

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Automatizacija*
Automation
- *Elektronika*
Electronics
- *Mjerenje kvalitete električne energije*
Power quality measurements
- *Obrada signala*
Signal processing
- *Robotika*
Robotics
- *Umjetna inteligencija*
Artificial intelligence



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PROJEKTI | PROJECTS

- C140.106, *Razvoj posebnih konstrukcija motora sa magnetskim ležajevima, upravljajuće i energetske elektronike te njihove aplikacije u industriji, Područje4 - Pogoni i aktuatori, Neven Bulić, Karlo Radman 2014- (projekt Linz Center of Mechatronics, LCM GmbH), znanstvenoistraživački.*
C140.106, Bearingless Reluctance Slice Motors, Area4 - Drives and Actuators, Neven Bulić, Karlo Radman, 2014- (Linz Center of Mechatronics, LCM GmbH project) Research and scientific project.
- CEEPUS; CIII-CZ-0201-04-1112 - *Knowledge Bridge for Students and Teachers in Manufacturing Technologies; (EU projekt mobilnosti/suradnik na projektu)*
CEEPUS; CIII-CZ-0201-04-1112 - *Knowledge Bridge for Students and Teachers in Manufacturing Technologies; (EU mobility project; associate member)*
- CEEPUS; CIII-HR-0108-06-1112 - *Concurrent Product and Technology Development - Teaching, Research and Implementation of Joint Programs Oriented in Production and Industrial Engineering ; (EU projekt mobilnosti/voditelj projekta)*
CEEPUS; CIII-HR-0108-06-1112 - *Concurrent Product and Technology Development - Teaching, Research and Implementation of Joint Programs Oriented in Production and Industrial Engineering ; (EU mobility project; project manager)*

- CEEPUS; CIII-PL-0007-07-1112 - *Modern Methods of the Constitution and Measurement of Geometrical Surface Structure; (EU projekt mobilnosti/suradnik na projektu)* CEEPUS; CIII-CEEPUS; CIII-PL-0007-07-1112 - *Modern Methods of the Constitution and Measurement of Geometrical Surface Structure; (EU mobility project; associate member)*
- CEEPUS; CIII-RO-0202-05-1112 - *Implementation and utilization of e-learning systems in study area of production engineering in Central European Region; (EU projekt mobilnosti/suradnik na projektu)*
CEEPUS; CIII-RO-0202-05-1112 - *Implementation and utilization of e-learning systems in study area of production engineering in Central European Region; (EU mobility project; associate member)*
- Numeričko modeliranje, simulacija i optimizacija u oblikovanju lima, MZOŠ, Branimir Barišić, 2007 - 2011, Zlatan Car 2011-2014, znanstvenoistraživački.
Numerical modelling, simulation and optimization in sheet metal forming, Ministry of Science, Education and Sport of the Republic Croatia, Branimir Barišić, 2007.-2011., Zlatan Car 2011-2014, research and scientific project.
- Q-grid, znanstveno-istraživački projekt financiran od strane industrije Danieli-Systec, Neven Bulić, 2014-2015.
Q-grid, R&D project financed by industry Danieli-Systec, Neven Bulić, 2014-2015.

PUBLIKACIJE | PUBLICATIONS**KNJIGE | BOOKS**

- Sučić, V., Lerga, J., Rankine, L., Boashash, B., *Time-Frequency Signal Analysis and Processing: A Comprehensive Review* (ch. 10.6, "Components Extraction from TFDs for Multicomponent Signals IF Estimation", pp. 566-573), Academic Press, 2015, 2nd ed.



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RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Milanović Ž., Pivac B., Zulim I., *Nucleation simulation using a model of hard/soft discs, Physica A, Statistical mechanics and its applications*, ISSN: 0378-4371, 417, 86-95, 2015
- Sučić, V., Lerga, J., Boashash, B., *Multicomponent Noisy Signal Adaptive Instantaneous Frequency Estimation Using Components Time Support Information, IET Signal Processing*, ISSN: 1751-9683, 8 (3), 277-284, 2014
- Lerga, J., Grbac, E., Sučić, V., *An ICI Based Algorithm for Fast Denoising of Video Signals, Automatika*, ISSN: 1848-3380, 55 (3), 351-358, 2014
- Lerga, J., Franušić, M., Sučić, V., *Parameters Analysis for the Time-Varying Automatically Adjusted LPA Based Estimators, Journal of Automation and Control Engineering*, ISSN: 2301-3702, 2 (3), 203-208, 2014
- Malnar D., Sučić V., O'Toole J.M., *Automatic Quality Assessment and Optimisation of Quadratic Time-Frequency Representations, IET Electronics Letters*, ISSN: 0013-5194 51, 1029-1031, 2015

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Volarić I., Stojković N., Vlahinić S., *Noise Improvement using SC Filters, Proceedings of MEET - MICROELECTRONICS, ELECTRONICS AND ELECTRONIC TECHNOLOGY 2015, ISSN:1847-3946, 1, 127-132, 2015, Opatija*

- Pivac B., Milanović Ž., Zulim I., *Modeling of surface roughness effects on C-V characteristics of ultra thin MOS capacitors*, Proceedings of International Conference on Thin Films, ICTF16, 1, 175-176, 2014, Zagreb, Croatia
- Rešetar, D., Marchetti – Deschmann, M., Allmaier, G., Lerga, J., Peter Katalinić, J., Kraljević Pavelić, S., *Direct MALDI-TOF Wine Fingerprinting Protocol for Assesment of White Wine Authenticity*, 8th Summer Course for Mass Spectrometry in Biotechnology and Medicine, 1, 2014
- Rešetar, D., Marchetti – Deschmann, M., Allmaier, A., Lerga, J., Peter Katalinić, J., Kraljević Pavelić, S., *Direct MALDI-TOF Wine Fingerprinting Protocol for Assesment of White Wine Authenticity*, 8th International Congress of Food Technologists, Biotechnologists and Nutritionists, 1, 181-181, 2014
- Malnar D., Sučić V., Car Z., *Optimizing the Reference Signal in the Cross Wigner-Ville Distribution Based Instantaneous Frequency Estimation Method*, Procedia Engineering, ISSN:1877-7058, 100, 1657-1664, 2015, Elsevier Ltd, Vienna, Austria
- Radman K., Gruber W., Bulić N., *Geometry Optimization of a Bearingless Flux-Switching Slice Motor IEMDC*, IEEE International Electric Machines and Drives Conference, 2015, Coeur d'Alène, Idaho, USA
- Guruprasad M.J., Vrankić M. and Vlahinić S.; *Monitoring, Cerebral Processing of Gustatory Stimulation and Perception using Emotiv EPOC*, Proceedings of International Conference on Telecommunications and Information (CIT), MIPRO 2015, 38th International Convention, ISSN: 1847-3938, 1, 736-738, 2015, Rijeka, Croatia
- Ogrizović D.; Car Z.; Kovačić B.; *Scientific Applications in Cloud Computing*, The IPSI BgD, Transactions on Advanced Research, 10, 1, 27-33, 2014



124

POZVANA PREDAVANJA | INVITED LECTURES

- Bulić, N., *Sensor design for rotor displacement measurement based on the coupled oscillators theory and possible non motor applications*, Austrian Center of competence in Mechatronics - pozivno predavanje, 2014, Linz, Austria

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- Budapest University of Technology and Economics, Mađarska / Hungary
- Danieli Automation, Italia / Italy
- Elektrotehnički fakultet, Univerzitet Crne Gore, Podgorica, Crna Gora / Montenegro
- Johannes Kepler Universität Linz, Austrija / Austria
- Kielce University of Technology, Polska / Poland
- Linz Center of Mechatronics GmbH, Austrija / Austria
- North University of Baia Mare, Rumunjska / Romania
- Poznan University of Technology, Polska / Poland
- RMIT University, Melbourne, Australija / Australia
- Technical University in Ostrava, Republika Češka / Czech Republic
- Texas Instruments, USA / USA

- *Tomas Bata University in Zlin, Republika Češka / Czech Republic*
- *University in Miskolc, Mađarska / Hungary*
- *University in Prague Faculty Mechanical Engineering University, Republika Češka / Czech Republic*
- *University of Kragujevac, Srbija / Serbia*
- *University of Ljubljana, Slovenija / Slovenia*
- *University of Novi Sad, Srbija / Serbia*
- *University of Queensland, Brisbane, Australija / Australia*
- *University of Žilina, Slovačka / Slovakia*
- *Vienna University of Technology, Austrija / Austria*



5²

**zavod za brodogradnju i inženjerstvo
morske tehnologije
department of naval architecture and
ocean engineering**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. **Roko Dejhalla**

<http://www.riteh.uniri.hr/ustroj/zavodi/zbimt/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Bruno Čalić

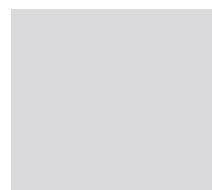
plovnost i stabilitet broda; stabilitet broda u eksploataciji; osnivanje plovnih objekata I i II; objekti morske tehnologije; projektiranje malih plovnih objekata; brodske forme; hidrostatika broda; projektiranje malih plovnih objekata; metodologija projektiranja plovnih objekata; osnivanje plovnih objekata
seaworthiness and stability of the ship; ship hull forms; ship hydrostatics; ship stability in exploitation; ship design I & II; ocean mobile and fixed structures; small craft design; methodology of floating objects design; selected chapter on floating objects design



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Roko Dejhalla

otpor i propulzija plovnih objekata; brodski propulzori; gradnja i održavanje malih plovnih objekata; projektiranje malih plovnih objekata
ship resistance and propulsion; ship propulsion devices; small craft building and maintenance; small craft design



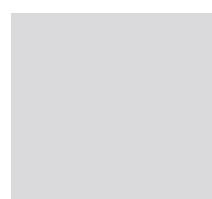
Nikša Fafandjel

gradnja i opremanje plovnih objekata; tehnologija i organizacija brodogradnje; osnivanje brodogradilišta i proizvodnih procesa; oprema broda; upravljanje projektima u brodogradnji; analiza tržišta; tehnološko prognoziranje i ugovaranje plovnih objekata
ship production and outfitting; shipbuilding technology and organisation; shipyard and production process design; ship equipment; project management in shipbuilding; market analysis; technological forecasting and contracting



Jasna Prpić-Oršić

pomorstvenost; njihanje i opterećenje plovnih objekata na morskim valovima; modeliranje okoliša i okolišnih opterećenja; dinamika pomorskih objekata; vibracije broda
seakeeping; motions and sea loads of ships and off-shore structures; modeling of environment and environmental loads; marine structures dynamics; ship vibrations



Albert Zamarin

*konstrukcija broda; čvrstoća broda; strukturalna analiza broda; opterećenje plovnih objekata na morskim valovima; projektiranje strukture plovnih objekata; konstrukcija malih plovnih objekata
ship structure, ship strength; ship structural analysis; ship structural design; sea loads of ships and off-shore structures; small craft construction*



DOCENTI | ASSISTANT PROFESSORS

Marko Hadjina

*gradnja i opremanje plovnih objekata; tehnologija i organizacija brodogradnje; osnivanje brodogradilišta i proizvodnih procesa; simulacijsko modeliranje brodograđevnih procesa; analiza tržišta; ugovaranje i tehnoško prognoziranje
ship production and outfitting; shipbuilding technology and organisation; shipyard and production process design; shipyards' production processes simulation modelling; market analysis; contracting and technological forecasting*



Tin Matulja

*gradnja i opremanje plovnih objekata; tehnologija i organizacija brodogradnje; osnivanje brodogradilišta i proizvodnih procesa; oprema plovnih objekata
ship production and outfitting; shipbuilding technology and organisation; shipyard and production process design; floating objects equipment and outfitting*



VIŠI ASISTENTI | SENIOR ASSISTANTS

Damir Kolić

*tehnologija i organizacija brodogradnje; vitka proizvodnja; tehnoški procesi brodogradnje; ugovaranje; rudarenje podacima; upravljanje projektima
shipbuilding technology and organisation; lean manufacturing; technological processes of shipbuilding; contracts; data mining; project management*



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Anton Turk

*plovnost i stabilitet broda; brodske forme; hidrostatika broda; stabilitet broda u eksploraciji; vibracije broda
seaworthiness and stability; ship hull forms; ship hydrostatics; ship stability in exploitation; ship vibrations*



Dunja Legović

*otpor i propulzija plovnih objekata; dinamika broda; brodski propulzori; pomorstvenost plovnih objekata
ship resistance and propulsion; ship dynamics; ship propulsion devices; seakeeping*



STRUČNI SURADNIK | ASSOCIATES



Natalija Vitali

*na znanstvenom projektu Hrvatske zaklade za znanost
(HRZZ)*

VANJSKI SURADNICI | ASSOCIATES

Robert Grubiša

Brodograđevna industrija 3. MAJ | Shipbuilding industry 3. MAJ

*osnivanje plovnih objekata
ship design*

Željko Monjac

Brodograđevna industrija 3. MAJ | Shipbuilding industry 3. MAJ

*tehnologija brodogradnje
shipbuilding technology*

Davor Sablić

Brodograđevna industrija 3. MAJ | Shipbuilding industry 3. MAJ

*ugovaranje plovnih objekata
ship negotiation process*

Alan Klanac

Jadrolinija

*strukturalna analiza broda
ship structural analysis*

Mirela Marin

M-Inženjer

*osnivanje plovnih objekata
ship design*

Romano Pičuljan

Pičuljan Marine

*gradnja i održavanje malih plovnih objekata
small craft building and maintenance*

Ranka Vukasović Botica

Mardesign

*čvrstoća broda; konstrukcija broda
ship strength; ship structures*

nastava education

Nastava se izvodi iz područja: projektiranje plovnih objekata, tehnologija i organizacija brodogradnje, konstrukcija plovnih objekata, hidromehanika plovnih objekata.

Program razlikovne edukacije za upis na diplomski sveučilišni studij brodogradnje.

Lectures in the field of: marine vessel design, technology and organization of shipbuilding, marine vessel construction, marine hydromechanics.

Program of lifelong learning for admission to the graduate university study of naval architecture.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Brodske forme
- Gradnja i održavanje malih plovnih objekata SV
- Hidrodinamika plovnih objekata I
- Konstrukcija broda I
- Konstrukcija broda II
- Oprema broda
- Osnove dinamike broda
- Osnove gradnje broda
- Plovnost i stabilitet broda
- Stručna praksa I
- Tehnologija brodogradnje
- Tehnološki procesi brodogradnje
- Uvod u plovne objekte
- Ship Hull Forms
- Small Craft Building and Maintenance UN
- Marine Hydrodynamics I
- Ship Structure I
- Ship Structure II
- Ship Equipment
- Basic Ship Dynamics
- Basics of Ship Production
- Seaworthiness and Stability of the Ship
- Industrial practice I
- Shipbuilding Technology
- Technology Processes of Shipbuilding
- Introduction to Marine Vessels

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Brodski propulzori
- Osnivanje brodogradilišta
- Čvrstoća broda
- Dinamika pomorskih konstrukcija
- Hidrodinamika plovnih objekata II
- Konstrukcija malih plovnih objekata
- Metodologija gradnje plovnih objekata
- Objekti morske tehnologije
- Oprema malih plovnih objekata
- Opremanje i remont broda
- Organizacija i poslovanje brodogradilišta
- Osnivanje plovnih objekata I
- Osnivanje plovnih objekata II
- Pomorstvenost plovnih objekata
- Projektiranje malih plovnih objekata
- Stabilitet broda u eksploraciji
- Stručna praksa II
- Strukturna analiza broda
- Tehnološki proces gradnje broda
- Ugovaranje plovnih objekata
- Upravljanje projektima u brodogradnji
- Vibracije broda
- Ship Propulsion Devices
- Shipyard Design
- Ship Strength
- Dynamics of Off Shore Structures
- Marine Hydrodynamics II
- Small Craft Construction
- Methodology of Ship Production
- Ocean Mobile and Fixed Structures
- Small Crafts Equipment
- Ship Outfitting and Repair
- Shipyards Organisation and Management
- Ship Design I
- Ship Design II
- Seakeeping
- Small Craft Design
- Ship Stability in Exploitation
- Industrial practice II
- Ship Structural Analysis
- Technological Process of Shipbuilding
- Ship Negotiation Process
- Project Management in Shipbuilding
- Ship Vibrations

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Brodske forme ST
- Gradnja i održavanje malih plovnih objekata
- Hidrostatika broda
- Konstrukcija broda
- Oprema broda ST
- Osnivanje plovnih objekata
- Plovni objekti
- Stručna praksa I
- Stručna praksa II
- Strukturni elementi broda
- Tehnologija brodogradnje I
- Tehnologija brodogradnje II
- Tehnološki procesi gradnje i remonta broda
- Ship Hull Forms VO
- Small Craft Building and Maintenance
- Ship Hydrostatics
- Ship Construction
- Ship Equipment VO
- Ship Design
- Marine Vessels
- Professional practice I
- Professional practice II
- Ship Structure
- Shipbuilding Technology I
- Shipbuilding Technology II
- Technological Processes of Shipbuilding and Repair



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KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Integralna tehnologija gradnje broda
- Izabrana poglavlja iz metodologije gradnje plovnih objekata
- Metodologija projektiranja plovnih objekata
- Izabrana poglavlja iz osnivanja plovnih objekata
- Pomorstvenost i upravljivost plovnih objekata
- Izabrana poglavlja iz dinamike plovnih objekata
- Izabrana poglavlja iz otpora plovnih objekata
- Izabrana poglavlja iz propulzije plovnih objekata
- Projektiranje strukture plovnih objekata
- Integrated Ship Production Technology
- Selected Topics in Floating Objects Production Methodology
- Methodology of Ship Design
- Selected Topics in Ship Design
- Seakeeping and Manoeuvrability
- Selected Topics in Marine Dynamics
- Selected Topics in Ship Resistance
- Selected Topics in Ship Propulsion
- Ship Structural Design

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Hidrodinamičko opterećenje i odziv pomorskih objekata na morskim valovima*
Hydrodynamic loads and response of marine objects
- *Otpor i propulzija plovnih objekata, hidrodinamičke optimizacije*
Ship resistance and propulsion, hydrodynamic optimizations
- *Primjena naprednih tehnologija i metoda gradnje i opremanja plovnih objekata; organizacija brodograđevnog poslovnog i proizvodnog procesa; osnivanje i unapređenje brodogradilišta i proizvodnih procesa, primjena simulacijskog modeliranja, višekriterijskog odlučivanja i LEAN metodologije za unapređenje brodograđevnog procesa, analiza tržišta; ugovaranje i tehnološko prognoziranje*
Application of advanced technology and methods in ship construction and outfitting; organization of shipbuilding business and production process, the establishment and improvement of the shipyards and manufacturing processes, the application of simulation modeling, multicriteria decision making and LEAN methodologies to improve the shipbuilding process, market analysis, contracting and technological forecasting
- *Projektiranje strukture broda, nove tehnologije kod projektiranja i preinaka brodskih konstrukcija, tehnologičnost kod projektiranja i izrade brodskih konstrukcija*
Ship structural design, new technologies in ship structural design and conversions, technologicality in ship structure design and construction

PROJEKTI | PROJECTS

- *Numeričko modeliranje hidrodinamičkog opterećenja i odziva pomorskih objekata, 13.09.1.1.05,*
Sveučilište u Rijeci, Jasna Prpić-Oršić, 2013., znanstvenoistraživački
Numerical modeling of hydrodynamic loads and response of marine objects, 13.09.1.1.05,
University of Rijeka, Jasna Prpić-Oršić, 2013., research and scientific project.
- *Energetski učinkovita i sigurna eksploracija broda (SHOPERA), FP7 projekt, Apostolos Papanikolaou (Jasna Prpić-Oršić), 2013., znanstvenoistraživački*
Energy Efficient Safe SHip OPERAtion (SHOPERA), FP7 project Grant Agreement number 605221, Apostolos Papanikolaou (Jasna Prpić-Oršić), 2013., research and scientific project
- *Ekološki pristup projektiranju broda i planiranju optimalne rute (GASDORP) O-1673-2014,*
Hrvatska zaklada za znanost, Jasna Prpić-Oršić, 2014.-2018., znanstvenoistraživački
Greener Approach to Ship Design and Optimal Route Planning (GASDORP) O-1673-2014,
Croatian Science Foundation, Jasna Prpić-Oršić, 2014-2018, research and scientific project
- *Računalni program za optimiranje brodske rute prema vremenskim uvjetima, 4, Poslovno-inovacijske agencija Republike Hrvatske, BICRO, Dino Mandić (Jasna Prpić-Oršić), 2014, istraživanje*
Weather routing, Business Innovation Agency - BICRO, Dino Mandić (Jasna Prpić-Oršić), 2014, research
- *Unapređenje metodologije projektiranja procesa gradnje broda, Potpora znanstvenim istraživanjima za 2013. g. Sveučilišta u Rijeci, broj potpore: 13.09.1.1.06. Voditelj istraživačkog tima: prof. dr. sc. Nikša Fafandjel, dipl. ing., 2013.-2014.*
Improving the methodology of ship construction process design, Support for scientific research in 2013., University of Rijeka, No.: 13.09.1.1.06. Head of the research team: prof. dr. sc. Niksa Fafandjel, 2013.-2014.



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PUBLIKACIJE | PUBLICATIONS**RADOVI U ČASOPISIMA | JOURNAL PAPERS**

- Kolić, D., Storch, R.L., Fafandjel, N., Transformation of Advanced Contract Types for The Shipbuilding Industry Risk Analysis, *Brodogradnja*, ISSN 0007-215X, 65(4), 51-62, 2014, Zagreb
- Prpić-Oršić, J., Parunov, J., Šikić, I. Operation of ULCS - Real Life International Journal of Naval Architecture and Ocean Engineering 2092-6782, 6, 1014-1023, 2014, Korea
- Hadjina, M., Fafandjel, N., Matulja, T., Shipbuilding Production Process Design Methodology Using Computer Simulation, *Brodogradnja*, ISSN 0007-215X, 66(2), 77-91, 2015, Zagreb
- Valčić, M., Dejhalla, R., Neural Network Prediction of Open Water Characteristics of Ducted Propeller, *Journal of Maritime & Transportation Sciences, Accociation for Research and Development of Maritime Industries*, ISSN 0554-6397, 49-50 (1), 101-114, 2015, Rijeka
- Matulja, T., Zamarin, A., Matulja, R. Boat Equipment Design Methodology Based on QFD and FEA, *Journal of Maritime & Transportation Sciences, Accociation for Research and Development of Maritime Industries*, ISSN 0554-6397, 49-50 (1), 87-100, 2015, Rijeka

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Prpić-Oršić, J., Vettor, R., Faltinsen, O.M., Guedes Soares, C., Influence of Ship Routes on Fuel Consumption and CO₂ Emission, *Maritime Technology and Engineering - MARTECH 2014*, ISBN: 978-1-138-02727-5, 857-864, 2014, Lisabon, Portugal
- Nabergoj, R., Prpić-Oršić, J., Valčić, M., Sensitivity of Thrust Efficiency Loss in Dynamic Positioning Predictions, *Proceedings of the 2nd International Symposium on Naval Architecture and Maritime INT-NAM 2014*, ISBN: 978-605-4123-31-5 (P), 2014, Istanbul, Turkey
- Matulja T., Hadjina M., Nikolić V., Proposed Guidelines for Energy Efficient and Environment Friendly Construction of Small Vessels, *Energy and Environment*, ISBN: 978-3-9814659-2-2, 359-368, 2014, Opatija, Hrvatska
- Prpić-Oršić, J., Faltinsen, O.M., Mrakovčić, T., A Methodology for Estimating the Ship Fuel Consumption at Sea Waves, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN: 978-953-6326-90-7, 237-245, 2014, Baška, Hrvatska
- Valčić, M., Prpić-Oršić, J., Nabergoj, R., Impact of Thruster Interaction Effects on Optimal Thrust Allocation, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN: 978-953-6326-90-7, 347-357, 2014, Baška, Hrvatska
- Zamarin, A., Matulja T., Fafandjel N., Srzentić D., Procjena čvrstoće balastne kobilice regatne jedrilice, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN 978-953-6326-90-7, 493-504, 2014, Baška, Hrvatska
- Rubeša, R., Hadjina, M., Hiržin, M., Implementacija iskustvenih zahtjeva kupca tijekom održavanja i eksploatacije broda u proces gradnje broda, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN 978-953-6326-90-7, 493-504, 2014, Baška, Hrvatska
- Rubeša, R., Hadjina, M., Ostojić, S., Analiza procesa uranjenog opremanja s ciljem poboljšanja razine opremljenosti broda do porinuća, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN 978-953-6326-90-7, 493-504, 2014, Baška, Hrvatska
- Valčić, M., Dejhalla, R., Determination of Hydrodynamic Characteristics of Ducted Propeller Using an Artificial Neural Network, *Simpozij Teorija i praksa brodogradnje, in memorial prof. Leopold Sorta, SORTA 2014*, ISBN 978-953-6326-90-7, 493-504, 2014, Pula, Hrvatska



- Prpić-Oršić, J., Faltinsen, O.D., Parunov, J., *The Effect of Voluntary Speed Reduction Criteria on Attainable Ship Speed*, Proceedings of the 16th Congress IMAM 2015, 2015, Pula, Hrvatska
- Vettor, R., Prpić-Oršić, J., Guedes Soares, C., *The Effect of Wind Loads on Attainable Ship Speed on Seaway*, Proceedings of the 16th Congress IMAM 2015, 2015, Pula, Hrvatska
- Valčić, M., Prpić-Oršić, J., *Wind Loads Estimation Method Based on Elliptic Fourier Descriptors* Proceedings of the 16th Congress IMAM 2015, 2015, Pula, Hrvatska
- Legović, D., Dejhalla, R., *Numerical Hydrodynamic Optimization of a Tanker Hull Form* Proceedings of the 16th Congress IMAM 2015, 2015, Pula, Hrvatska

POZVANA PREDAVANJA | INVITED LECTURES

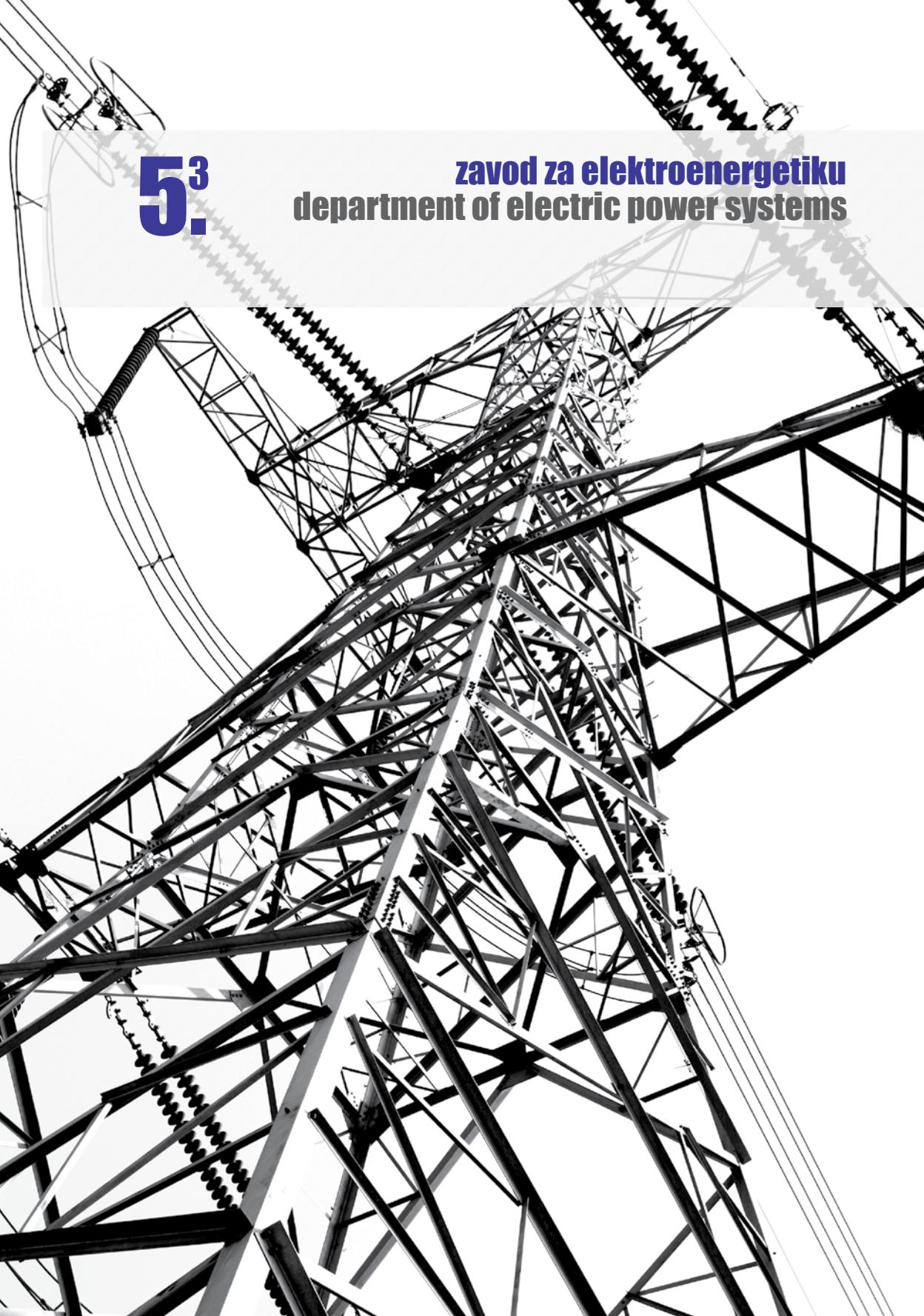
- Prpić-Oršić, J., Parunov, J., Šikić, I., *Ultra veliki kontejnerski brodovi u službi*, Hrvatska akademija znanosti i umjetnosti, Znanstveni skup Suvremena metode projektiranja ultra velikih brodova (EU FP7 TULCS), 2014, Zagreb, Hrvatska
- Prpić-Oršić, J., Faltinsen, O.M., Greener Approach to Ship Design and Optimal Route Planning Centre for Autonomous Marine Operations and Systems (AMOS), Norwegian Center of Excellence, NTNU, 2015, Trondheim, Norveška

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- AALTO University School of Engineering, Helsinki, Finska, Finland
- Columbia University, Department of Mechanical Engineering, New York City, SAD, USA
- Norwegian University of Science and Technology, Center of Ships and Ocean Structures, Norwegian Center of Excellence, Trondheim, Norveška, Norway
- Technical University of Lisbon, Instituto Superior Técnico, Lisabon, Portugal, Portugal
- University of Naples, Naple, Italija, Italy
- University of Technology, Krakow/Krakov, Poljska, Poland
- University of Trieste, Department of Naval Architecture and Ocean Engineering, Trieste, Italija, Italy
- University of Washington, Department of Industrial and Systems Engineering, Seattle, SAD USA

5.³

zavod za elektroenergetiku
department of electric power systems





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Doc. dr. sc. / Assoc. Prof. D. Sc. **Dubravko Franković**

<http://www.riteh.uniri.hr/ustroj/zavodi/zee/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



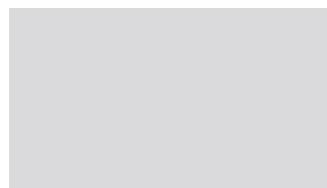
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Juraj Šimunić

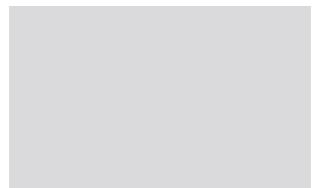
osnove elektrotehnike, elektroenergetska postrojenja, vođenje elektroenergetskog sustava, procesna informatika, istosmjerni razvodi EEP-a

fundamentals of electrical engineering, electrical power plant, electric power management systems, process informatics of electrical power system, DC distribution



Livio Šušnjić

električni strojevi; primjena MKE u području elektromagnetizma
electrical machines; FEM application in the electromagnetics



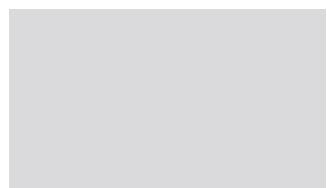
IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS



Srđan Skok

nadzor, zaštita i vođenje elektroenergetskog sustava; napredne mreže; električna postrojenja

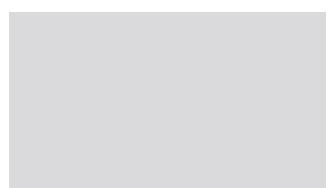
power system monitoring, protection and control; smart grids; electric facilities



Alfredo Višković

elektroenergetski sustavi; tržište električne energije; razvoj energetskih projekata

electric power systems; electricity markets; power generation project development



DOCENTI | ASSISTANT PROFESSORS

Dubravko Franković

elektroenergetski sustavi, elektrane, projektiranje, obnovljivi izvori energije, fotonaponske elektrane
electric power systems, power plants, electrical design,
renewable energy sources, photovoltaic systems



Saša Sladić

energetska elektronika, elektromotorni pogoni, mehatronika, nove tehnologije i obnovljivi izvori energije
power electronic, electric drives, mechatronics, new technologies and renewable energy sources



VIŠI PREDAVAČI | SENIOR LECTURERS

Branka Dobraš

nadzor i vođenje elektroenergetskog sustava; modeliranje procesnih informacija; objektno orijentirano modeliranje
electric power system control; process information modelling; object oriented modeling



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Marijana Živić-Đurović

kvaliteta električne energije, pouzdanost, mikromreže
quality of electricity supply, reliability, microgrids



VIŠI ASISTENT | SENIOR ASSISTANT

Vedran Kirinčić

nadzor, zaštita i vođenje elektroenergetskog sustava;
napredne mreže; Električna postrojenja
power system monitoring, protection and control;
smart grids; electric facilities



ZNANSTVENI NOVAK | SENIOR ASSISTANT

Andrea Andrijašević poslijedoktorand Postdoctoral Research Assistant

digitalna obrada signala govora, akustika prostora, elektroakustički pretvarači
digital processing of speech signals, room acoustics, electroacoustic transducers



VANJSKI SURADNICI | ASSOCIATES

Marin Antunović

Vladimir Franki

Goran Klobučar

Vitomir Komen HEP ODS | HEP DSO

Ranko Lončarić

Ivan Mužić Hrvatski registar brodova | Croatian ship register

Neven Pavlović T-HT grupa | T-HT group

Vladimir Valentić HEP OPS | HEP TSO

Zoran Zbunjak HEP OPS | HEP TSO

nastava education

Nastava se izvodi iz područja osnova elektrotehnike, elektroenergetike i elektrostrojarstva

Lectures in the field of electrical engineering fundamentals, power engineering and electrical machines and drives.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Električna postrojenja
- Električni strojevi
- Elektroenergetske mreže
- Elektromotorni pogoni
- Elektrotehnika R
- Energetska elektronika
- Modeliranje procesnih informacijskih sustava
- Osnove elektrotehnike I
- Osnove elektrotehnike II
- Electric Facilities
- Electrical Machines
- Electric Power Networks
- Electrical Drives
- Electrical Engineering R
- Power Electronics
- Modeling of process information systems
- Fundamentals of Electrical Engineering I
- Fundamentals of Electrical Engineering II



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KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Brodska elektrotehnika
- Elektrane
- Elektroenergetski sustavi
- Modeliranje procesne informatike električnih postrojenja
- Numerička analiza u elektromagnetizmu
- Prijenos i distribucija električne energije
- Projektiranje električnih postrojenja
- Teorijska elektrotehnika
- Vođenje elektroenergetskog sustava
- Zaštita i automatika električnih postrojenja
- Procesni informacijski sustavi u elektroenergetici
- Tržište električne energije
- Ships Electrical Engineering
- Power Plants
- Electric Power Systems
- Modeling of Process Informatics in Power System
- Numerical Analysis in Electromagnetism
- Transmission and Distribution of Electrical Energy
- Electric Power Substation Design
- Theoretical Electrical Engineering
- Power System Control
- Protection and Automation of Electrical Installations
- Process Information Systems in Power Engineering
- Electricity Market

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- *Električne energetske mreže* • *Electrical Power Networks*
- *Elektroenergetska postrojenja* • *Electroenergetic Facilities*
- *Elementi elektroenergetskih postrojenja* • *Electric Power Station Equipment*
- *Izgradnja i održavanje elektroenergetskih postrojenja* • *Electric Power Plant Building and Maintenance*
- *Osnove električnih strojeva* • *Fundamentals of Electrical Machines*
- *Osnove elektrotehnike* • *Fundamentals of Electrical Engineering*
- *Osnove elektrotehnike ST I* • *Fundamentals of Electrical Engineering ST I*
- *Osnove elektrotehnike ST II* • *Fundamentals of Electrical Engineering ST II*
- *Osnove energetske elektronike* • *Fundamentals of Power Electronics*
- *Osnove projektiranja elektroenergetskih postrojenja* • *Fundamentals of Electric Power Substation Design*
- *Stručna praksa I* • *Professional practice I*
- *Stručna praksa II* • *Professional practice II*
- *Zaštita električnih postrojenja* • *Protective System in Electrical Power System*

KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Modeli stohastičkih procesa informacija* • *Models of Stochastic Information Processes*
- *Modeliranje sustava za distribuciju i potrošnju električne energije* • *Modeling of Electrical Power Distribution Systems*
- *Aktivne distribucijske mreže* • *Active Distribution Networks*
- *Inteligentni elektroenergetski sustavi – Smart Grids* • *Intelligent Power Systems - Smart Grids*
- *Izabrana poglavља iz energetskih komponenti i sustava obnovljivih izvora energije* • *Selected Chapters on Energy Components and Systems of Renewable Energy Sources*
- *Nova energetska paradigma* • *New Energy Paradigm*



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ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Automatsko vođenje elektroenergetskog sustava; Napredne mreže; Mikromreže; Modeliranje elektroenergetskog sustava u stvarnom vremenu; Nadzor, zaštita i upravljanje elektroenergetskog sustava u stvarnom vremenu; Sinkronizirana mjerena*
System Integrity protection Scheme; Smart Transmission Grid; Microgrids; Power System Modelling in Real Time; Wide Area Monitoring, Protection and Control of the Power System in Real Time; Synchronized Measurement
- *Estimacija stanja elektroenergetskog sustava; Nadzor, zaštita i upravljanje elektroenergetskog sustava u realnom vremenu; Tehnologija sinkroniziranih mjerena fazora*
Power System State Estimation; Wide Area Monitoring, Protection and Control of the Power System in Real Time; Synchronized Measurement Technology
- *Razvoj suvremenih učinskih DC/DC i DC/AC pretvarača*
Design of modern power DC/DC and DC/AC converters
- *Obnovljivi izvori energije, Fotonaponski sustavi, Napredne mreže*
Renewable energy systems, Photovoltaic systems, Smart grid

PROJEKTI | PROJECTS

- Numeričko modeliranje složenih elektromagnetskih pojava u transformatorima, Hrvatska zaslada za znanost, kolovož 2014. - srpanj 2018., voditelj: Željko Štih, znanstveno-istraživački projekt
Numerical modelling of complex electromagnetics phenomena in transformers, Croatian Science Foundation, August 2014 - July 2018, project leader: Željko Štih, research and scientific project

PUBLIKACIJE | PUBLICATIONS

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Mikac, E., Kirinčić, V., Skok, S., Smart Protection Scheme for the Power Subsystem of Istria Region, *The International Journal of Contemporary Energy*, 2363-6440, 1, 13-23, 2015, Njemačka
- Prenc R., Škrlec D., Živić Đurović M., The implementation of capital budgeting analysis for distributed generation allocation problems, SPRINGER: *Journal of Electrical Engineering* 0948-7921 (Print) 1432-0487 (Online), 97, 3 - 15, 2015, Berlin
- Višković, A., Franki, V., Status of Croatia's energy sector framework: progress, potential, challenges and recommendations, *Thermal Science*, ISSN 2334-7163, 3, 2015
- Višković, A., Franki, V., Coal Based Electricity Generation in South East Europe: A Case Study for Croatia, *International Journal of Energy Economics and Policy*, ISSN: 2146-4553, 5, 206-230 2015
- Višković, A., Franki, V., Valentić, V., CCS (carbon capture and storage) investment possibility in South East Europe: A case study for Croatia, *Energy*, ISSN: 0360-5442, 70, 325-337, 2014
- Višković, A., Franki, V., Valentić, V., Effect of regulation on power-plant operation and investment in the South East Europe market: an analysis of two cases, *Utilities Policy*, ISSN: 0957-1787 30, 8-17, 2014
- Franković, D., Energetska efikasnost u sustavima unutarnje rasvjete, *Korak u prostor*, ISSN:1334-1340 50, 44-51, 2015, Zagreb



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MEDUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Mavroeidis, P., Kyriakides, E., Kirinčić, V., The effect of branch parameter errors on voltage stability enhancement schemes, *50th International Universities Power Engineering Conference (UPEC 2015)*, 1, 4, 2015, Staffordshire, UK
- Skok, S., Filipović, M., Kirinčić, V., The control of microgrids based on synchronized measurements, *MIPRO*, ISBN 978-953-233-083-0, 1, 6, 2015, Opatija, Hrvatska
- Mikac, E.; Kirinčić, V.; Skok, S., Smart Protection Scheme for the Power Subsystem of Istria Region, *The 4th International Conference and Workshop, REMOO*, ISBN: 978-3-9816624-3-6, 1, 9, 2015, Ljubljana, Slovenija
- Kirinčić, V., Aspriou, M., Mavroeidis, P., Kyriakides, E., The Effect of Branch Parameter Errors to Voltage Stability Indices, *International Conference on Critical Information Infrastructures Security (CRITIS)*, 1, 12, 2014, Limassol, Cipar
- Sladić, S., Brajdić, M., Rakar, D., Luo Super Lift Multilevel DC/DC/AC Power Electronic Converter Analysis, *Energy and Environment 2014*, ISBN 978-953-6886-18-0 1, 7, 2014, Opatija, Hrvatska

- Andrijašević, A., Vrankic, M., Šimunić, J., *An Improved Algorithm for Maximum-Likelihood-based Blind Estimation of Reverberation Time*, Proceedings of the 6th Congress of Alps-Adria Acoustics Association, ISBN: 978-3-200-03921-6, 1, 4, 2014, Graz, Austria

POZVANA PREDAVANJA | INVITED LECTURES

- Kirinčić, V., *Napredne elektroenergetske mreže i održivi razvoj*, Riječki energetski tjedan, Grad Rijeka, Tehnički Fakultet u Rijeci, REA Kvarner d.o.o., Hrvatski savez za sunčevu energiju, Hrvatska komora inženjera strojarstva, Energo d.o.o. i Udruga Cezar, 2015, Rijeka, Hrvatska
- Kirinčić, V., *Održivost kao preduvjet razvoja*, Festival znanosti, Udruga Zlatni rez, Sveučilište u Rijeci 2015, Rijeka, Hrvatska
- Kirinčić, V., *Energija i održivi razvoj*, 5. škola održivog razvoja, Udruga EU Klub, Sveučilište u Rijeci 2014, Rijeka, Hrvatska
- Skok, S., *Mikromreže - budućnost distribucijske mreže ili utopija?*, 7. Dani inženjera elektrotehnike, 2014, Zadar, Hrvatska
- Skok, S., *Centralni kontroler za nadzor i automatsko vođenje prijenosnog elektroenergetskog sustava*, CIGRE - 11. simpozij o sustavu vođenja EES-a, 2014, Opatija, Hrvatska
- Franković, D., *Fotonaponska elektrana Riteh-1, od ideje do realizacije*, Istraživački seminar o energetski učinkovitim zgradama u sklopu projekta ENHEMS-BUILDINGS, FER, Zagreb 2015 Rijeka, Hrvatska

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- KIOS Research Center for Intelligent Systems and Networks, Cipar, Cyprus
- University of Cyprus, Electrical and Computer Engineering Department, Cipar, Cyprus
- The University of Manchester, The School of Electrical and Electronic Engineering, Velika Britanija, United Kingdom
- Quanta Technology, Sjedinjene Američke Države, United States of America



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**zavod za industrijsko inženjerstvo i
management**
**department of industrial engineering
and management**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. **Milan Ikonijć**

<http://www.riteh.uniri.hr/ustroj/zavodi/ziim/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Goran Cukor

*napredni obradni sustavi i tehnologije; modeliranje i optimiranje obradnih procesa
advanced manufacturing systems and technology; modelling and optimisation of machining processes*



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Milan Ikonijć

*proizvodno strojarstvo; projektiranje proizvodnih sustava; CIM; planiranje i upravljanje proizvodnjom; proizvodni management; projektni management; organizacija i ekonomika poslovnih sustava
production engineering; designing of manufacturing systems; CIM; production planning and control; production management; project management; organization of manufacturing and business systems*



Tonči Mikac

*proizvodno strojarstvo; projektiranje proizvodnih sustava; CIM; planiranje i upravljanje proizvodnjom; proizvodni management; projektni management; organizacija i ekonomika poslovnih sustava
production engineering; designing of manufacturing systems; CIM; production planning and control; production management; project management; organization of manufacturing and business systems*



Duško Pavletić

*upravljanje kvalitetom; osiguranje i nadzor kvalitete; sustavi kvalitete; zavarivačko inženjerstvo; spajanje materijala; mjeriteljstvo; mjerjenje i kontrola kvalitete
quality management; quality assurance and control; quality systems; welding engineering; joining of materials; metrology; measurements and quality control*

Mladen Perinić

*projektiranje tehnoloških procesa; CAM, CAP, CAD/NC-CIM;
modeliranje, simulacija i optimizacija tehnoloških procesa
process planning; CAM, CAP, CAD/NC-CIM; modeling,
simulation and processes plans optimization*



IZVANREDNI PROFESOR | ASSOCIATE PROFESSOR

Zoran Jurković

*alatni strojevi i oprema; CAD/CAM/CAE; dizajn alata i naprava;
modeliranje, simulacija i optimizacija procesa obrade;
planiranje eksperimenta
machine tools & equipment; CAD/CAM/ CAE; design of tools
and fixtures; modeling, simulation and optimization of machining
processes; design of experiments*



VIŠI ASISTENTI | SENIOR ASSISTANTS

Sandro Doboviček

*proizvodno strojarstvo; projektiranje proizvodnih sustava; fleksibilni i
inteligentni sustavi; organizacija proizvodnje; proizvodni management;
projektni management; CIM
production engineering; manufacturing system design; flexible and
intelligent systems; organization of production; project management;
production management; CIM*



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Sven Maričić

*projektiranje tehnoloških procesa; CAM, CAP, CAD/NC-CIM; modeliranje,
simulacija i optimizacija tehnoloških procesa
process planning; CAM, CAP, CAD/NC-CIM; modeling, simulation and
processes plans optimization*



Samir Žic

*proizvodno strojarstvo; planiranje i upravljanje proizvodnjom;
organizacija i ekonomika poslovnih sustava; management i
organizacijski razvoj
production engineering; production planning and control;
organization and economics of business systems; management
and organizational development*



ASISTENTI | ASSISTANTS

Maja Forempoher Škuver

*upravljanje kvalitetom; osiguranje i nadzor
kvalitete; mjerenje i kontrola kvalitete
quality management; quality assurance and
control; measurements and quality control*





Hrvoje Radelja

*proizvodno strojarstvo; projektiranje proizvodnih sustava; CIM; planiranje i upravljanje proizvodnjom; proizvodni management; projektni management; organizacija i ekonomika poslovnih sustava
production engineering; designing of manufacturing systems; CIM; production planning and control; production management; project management; organization of manufacturing and business systems*



Graciela Šterpin

*upravljanje kvalitetom; osiguranje i nadzor kvalitete; mjerjenje i kontrola kvalitete
quality management; quality assurance and control; measurements and quality control*



Jasmina Žic

*organizacija i ekonomika; projektiranje proizvodnih sustava
organization and economics; manufacturing system design*



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VANJSKI SURADNICI | ASSOCIATES

Marko Favić

3. MAJ Brodogradilište d.d., Rijeka | 3. MAJ Shipyard JSC, Rijeka

*održavanje
maintenance*

Dorjan Jermaniš

Istarski vodovod d.o.o. Buzet

*održavanje
maintenance*

Elo Kuljanić
HAZU

*obrada skidanjem čestica
machining processes*

Mauro Štefančić

Alpron, Jurdani

*mjeriteljstvo
metrology*

Aleksandar Vuković

NAVIS CONSULT d.o.o., Rijeka

proizvodno strojarstvo; proizvodni sustavi; CIM; planiranje i upravljanje proizvodnjom; proizvodni management; organizacija i ekonomika poslovnih sustava

production engineering; manufacturing systems; CIM; production planning and control; production management; organization of manufacturing and business systems

Toni Vidolin

3. MAJ Brodogradilište d.d., Rijeka | 3. MAJ Shipyard JSC, Rijeka

*tehnologija zavarivanja
welding technology*

nastava education

Nastava se izvodi iz područja: mjerne tehnike i sustava kvalitete, organizacije i operacijskog menadžment, proizvodne tehnologije, proizvodne opreme i robotike, projektiranja procesa.

Lectures in the field of: measuring technique and quality systems, organization and operational management, manufacturing technologies, manufacturing equipments and robotics, process planning.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- *Proizvodne tehnologije*
- *Mjerenja i kontrola kvalitete*
- *Osiguranje kvalitete*
- *Inženjerstvo kvalitete*
- *Zavarivanje I*
- *Proizvodni strojevi, alati i naprave*
- *Organizacija i ekonomika poslovnih sustava*
- *Planiranje i upravljanje proizvodnjom*
- *Tehnološki procesi*
- *Manufacturing Technologies*
- *Measurements and Quality Control*
- *Quality Assurance*
- *Quality Engineering*
- *Welding Engineering I*
- *Production Machines, Tools, Jigs and Fixtures*
- *Organization and Economics of Business Entity*
- *Production Planning and Management*
- *Technological Processes*

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- *Ljevarstvo*
- *Napredni proizvodni postupci*
- *Obrada odvajanjem čestica*
- *Tehnologija oblikovanja*
- *Mjerenje u proizvodnji*
- *Upravljanje kvalitetom*
- *Zavarivanje II*
- *Spajanje materijala*
- *CNC/NC obradni strojevi*
- *Organizacija proizvodnje*
- *Projektiranje proizvodnih sustava*
- *Računalom integrirana proizvodnja*
- *Proizvodni management*
- *Tehnička logistika*
- *Management i organizacijski razvoj*
- *Projektni management*
- *CAD/CAPP/CAM*
- *Projektiranje tehnoloških procesa*
- *Računalna simulacija proizvodnih procesa*
- *Održavanje*
- *Foundry*
- *Advanced Manufacturing Processes*
- *Metal Cutting Processes*
- *Metal Forming Technology*
- *Measurement in industry*
- *Quality Management*
- *Welding Engineering II*
- *Joining of materials*
- *CNC/NC Machine Tools*
- *Production Organization*
- *Designing of Production Systems*
- *Computer Integrated Manufacturing*
- *Production Management*
- *Technical Logistics*
- *Management and Organizational Development*
- *Project Management*
- *CAD/CAPP/CAM*
- *Process Planning*
- *Computer Simulation of Production Processes*
- *Maintenance*

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- *Tehnologija obrade I*
- *Tehnologija obrade II*
- *Mjerna tehnika ST*
- *Osiguranje kvalitete ST*
- *Zavarivanje*
- *Alati i naprave*
- *Obradni strojevi*
- *Organizacija i upravljanje proizvodnjom*
- *Proizvodni sustavi*
- *Organizacija i ekonomika*
- *Tehnološki procesi ST*
- *Manufacturing Technology I*
- *Manufacturing Technology II*
- *Measuring Technique ST*
- *Quality Assurance ST*
- *Welding Engineering*
- *Tools, Jigs and Fixtures*
- *Machine Tools*
- *Production Organization and Management*
- *Production systems*
- *Organization and Economics*
- *Technological Processes ST*



KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA
| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Deformabilnost i suvremeno oblikovanje deformiranjem*
- *Izabrana poglavja iz nekonvencionalnih postupaka obrade*
- *Izabrana poglavja iz konvencionalne obrade odvajanjem čestica*
- *Upravljanje kvalitetom*
- *Metode simulacije u proizvodnji*
- *Planiranje i vođenje proizvodnje*
- *IP iz fleksibilnih proizvodnih sustava*
- *Razvojni i proizvodni management*
- *CAM, CAP, CAD/NC-CIM*
- *Optimizacija tehnoloških procesa*
- *Formability and Modern Forming Technology*
- *Selected Chapters on Nonconventional Manufacturing Processes*
- *Selected Chapters on Conventional Metal Cutting Processes*
- *Quality Management*
- *Simulation Methods in Production*
- *Planning and Processing of Manufacture*
- *Selected Chapters from flexible production system*
- *Development and Operational Management*
- *CAM, CAP, CAD/NC-CIM*
- *Processes Plans Optimization*

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Napredni obradni sustavi i tehnologije, tehnologija oblikovanja deformiranjem, modeliranje i optimiranje obradnih procesa, računalna simulacija proizvodnih procesa*
Advanced manufacturing systems and technology, forming technology, modelling and optimisation of machining processes, computational simulation of production processes
- *Modeliranje, simulacija i optimizacija procesa obrade. Primjena umjetne inteligencije u upravljanju procesima obrade*
Modeling, simulation and optimization of manufacturing processes. Application of artificial intelligence in control of manufacturing processes
- *Industrijsko inženjerstvo, upravljanje i osiguranje kvalitete, mjerenja i kontrola kvalitete, mjerenja u proizvodnji, spajanje materijala, zavarivanje*
Industrial engineering, quality management, quality assurance, measurements and quality control, industrial measurements, joining of materials, welding
- *Proizvodno strojarstvo; proizvodni sustavi; CIM, planiranje i upravljanje proizvodnjom, proizvodni management, organizacija poslovnih sustava*
Production engineering, manufacturing systems, CIM, production planning and control, production management, organization of manufacturing and business systems

PROJEKTI | PROJECTS

- *Razvoj naprednih metoda za modeliranje i optimizaciju obradnih postupaka i sustava, Ministarstvo znanosti, obrazovanja i sportske Republike Hrvatske i Ministarstva obrazovanja, znanosti i sportske Republike Slovenije, Zoran Jurković, 2014-2015, bilateralni Hrvatska – Slovenija znanstvenoistraživački projekt.*
Development of advanced methods for modeling and optimization of manufacturing processes and systems, Ministry of Science, Education and Sports of the Republic of Croatia and Ministry of Education, Science and Sport of the Republic of Slovenia, Zoran Jurković, 2014-2015, bilateral Croatia-Slovenia research and scientific project.



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PUBLIKACIJE | PUBLICATIONS

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Fabić, M., Pavletić, D., Batelić, J., *Elementi složenosti projekata remonta rafinerija nafte, Održavanje i eksploatacija*, 4, 2-6, 2014, Zagreb
- Sekulić, M., Kovač, P., Gostimirović, M., Hadžistević, M., Jurković, Z., *Prediction of the Main Cutting Force in Drilling by Kienzle Equation*, *Journal of Trends in the Development of Machinery and Associated Technology*, 2303-4009, 18, 27-30, 2014, Zenica
- Jurković, M., Jurković, Z., Cukor, G., Brezočnik, M., Sekulić, M., *Application of Modeling and Simulation in Reengineering of Manufacturing Processes* *Journal of Trends in the Development of Machinery and Associated Technology*, 2303-4009, 18, 63-66, 2014, Zenica
- Jurković, M., Jurković, Z., Obad, M., Buljan, S., Mustafić, E., *An Investigation of the Force and Torque at Profile Sheet Metal Rolling – Input Data for the Production System Reengineering*, *Tehnički vjesnik/Technical Gazette*, 1330-3651, 22, 1029-1034, 2015, Slavonski Brod
- Sekulić, M., Pejić, V., Spaić, O., Gostimirović, M., Jurković, Z., *Optimization of Machining Parameters in Ball-End Milling using Taguchi Method*, *Journal of Trends in the Development of Machinery and Associated Technology*, 2303-4009, 19, 17-20, 2015, Zenica
- Puh, F., Jurković, Z., Cukor, G., Perinić, M., Brezočnik, M., Sekulić, M., *Multi-Response Optimization of Turning Parameters using the Grey-Based Taguchi Method*, *Journal of Trends in the Development of Machinery and Associated Technology*, 2303-4009, 19, 13-16, 2015, Zenica

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Kostadin T., Cukor G., *An overview of the development and use of coolant and lubricant systems in machining*, 15th International Scientific Conference on Production Engineering CIM 2015, ISBN 978-953-7689-03-2, 153-160, 2015, Zagreb
- Šterpin G., Cukor G., Jurković Z., Brezočnik M., *Simple shearing and ploughing cutting force model in turning operation with nose radius tool*, 15th International Scientific Conference on Production Engineering CIM 2015, ISBN 978-953-7689-03-2, 231-234, 2015, Zagreb
- Batelić, J., Matika, D., Pavletić, D., *Model za provedbu statističke analize sposobnosti procesa pri iskrcaju ugljena iz brodova*, XXI. simpozij Teorija i praksa brodogradnje in memoriam prof. Leopold Sorta, ISBN 978-953-6326-90-7, 523-532, 2014, Baška
- Bukša, T., Pavletić, D., Bukša, J., *Unapređivanje kvalitete korištenjem planova preuzimanja na prijelazu organizacijskih kompetencija*, XXI. simpozij Teorija i praksa brodogradnje in memoriam prof. Leopold Sorta, ISBN 978-953-6326-90-7, 573-582, 2014, Baška
- Klanjac, D., Vidolin, T., Vučković, Ž., Pavletić, D., *Utjecaj pripreme i izvedbe spoja na troškove zavarivanja*, XXI. simpozij Teorija i praksa brodogradnje in memoriam prof. Leopold Sorta, ISBN 978-953-6326-90-7, 183-192, 2014, Baška
- Randić, M., Pavletić, D., Sedmak, F., *Analiza pogrešaka u zavarenim spojevima na novogradnjama s gledišta postupka zavarivanja i vrste pogreške*, XXI. simpozij Teorija i praksa brodogradnje in memoriam prof. Leopold Sorta, ISBN 978-953-6326-90-7, 193-204 2014, Baška
- Bukša, T., Pavletić, D., Forempoher-Škuver, M., *Approach to Quality Assurance of Repetitive Projects in Shipbuildign Industry*, 2nd International Conference on Maritime Technology and Engineering, MARTECH 2014, ISBN 9781138027275, 255-260, 2014, Lisbon, Portugal
- Fabić, M., Pavletić, D., Batelić, J., *Faktori vrednovanja uspješnosti projekata remonta rafinerija nafte* 3. konferencija „ODRŽAVANJE-MAINTENANCE 2014“, ISSN 1986-583X, 2014, Zenica, BiH
- Fabić, M., Pavletić, D., Batelić, J., *Elementi složenosti projekata remonta rafinerija nafte*



20. međunarodno savjetovanje – Održavanje 2014., 2014., Zagreb

- Deluka-Tibljaš, A., Karleša, B., Pavletić, D., Analiza kompetencija završenih studenata – primjer sa Građevinskog fakulteta Sveučilišta u Rijeci, Međunarodna stručna konferencija ME4CATALOGUE, ISBN 978-953-6048-76-2, 59-64, 2014, Slavonski Brod
- Forempoher Škuver, Maja; Šterpin, Graciela, Vale, Filip, Praktična provjera ishoda učenja - primjer diplomskog rada, Međunarodna stručna konferencija ME4CATALOGUE, ISBN 978-953-6048-76-2, 102-108, 2014, Slavonski Brod
- Šterpin, Graciela, Jurković, Zoran, Perinić, Mladen, Implementacija suvremenih metoda optimizacije proizvodnih procesa u inženjerskoj nastavi, Međunarodna stručna konferencija ME4CATALOGUE, ISBN 978-953-6048-76-2, 310-316, 2014, Slavonski Brod
- Sekulić, M., Pejić, V., Spaić, O., Gostimirović, M., Jurković, Z., Optimization of Machining Parameters in Ball-End Milling using Taguchi Method, 19th International Research/Expert Conference - Trends in the Development of Machinery and Associated Technology TMT 2015, ISSN 1840-4944, 17-20, 2015, Zenica-Barcelona-Istanbul
- Puh, F., Jurković, Z., Cukor, G., Perinić, M., Brezočnik, M., Sekulić, M., Multi-Response Optimization of Turning Parameters using the Grey-Based Taguchi Method, 19th International Research/Expert Conference - Trends in the Development of Machinery and Associated Technology TMT 2015, ISSN 1840-4944, 13-16, 2015, Zenica-Barcelona-Istanbul
- Žic S., Mikac T., Kos I., Žic J., Bullwhip effect analysis by simulation experiments in echelon under (R, s, S) inventory policy 2nd Logistics International Conference - LOGIC 2015, ISBN 978-86-7395-339-7, 204-209, 2015, Beograd
- Marićić S., Jelušić D., Opačić M., 3D print transtibijalnog ležišta, 16th ISPO – International Society for Prosthetics and Orthotics, Zadar, Croatia, 2015.



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MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- Università degli Studi di Udine, Facoltà di Ingegneria, Dipartimento di Ingegneria Elettrica, Gestionale e Meccanica (DIEGM), Italia, Italia, Italy
- University of Maribor, Faculty of Mechanical Engineering, Production Engineering Institute Slovenia, Slovenia
- University of Kragujevac, Faculty of Engineering, Department for Production Engineering Srbija, Serbia
- University of Novi Sad, Faculty of Technical Sciences, Department of Production Engineering Srbija, Serbia
- University of Montenegro, Faculty of Mechanical Engineering, Podgorica, Crna Gora, Montenegro
- University of Banja Luka, Faculty of Mechanical Engineering, Bosna i Hercegovina, Bosnia & Herzegovina
- Ss. Cyril and Methodius University in Skopje, Faculty of Mechanical Engineering, Institute of Production Engineering and Management, Republika Makedonija, Republic of Macedonia
- Faculty of Mechanical Engineering, University of Zilina, Slovačka, Slovakia
- Poznan Politechnic, Technical University of Poznan, Polska, Poland
- Technical University of Ostrava, Faculty of Mechanical Engineering, Department of Machining and Assembly, Češka, Czech republic

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**zavod za konstruiranje u strojarstvu
department of mechanical engineering
design**



PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. **Neven Lovrin**

<http://www.riteh.uniri.hr/ustroj/zavodi/zks/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS

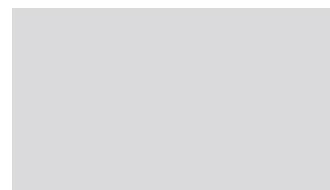


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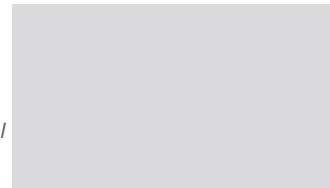
Božidar Križan

*konstrukcijski elementi; konstruiranje i oblikovanje proizvoda
machine elements; systematic product design*



Neven Lovrin

*konstrukcijski elementi; mehanički prijenosnici snage;
transportna sredstva u industriji; brodski palubni strojevi;
tehnička logistika; inženjerska etika
machine elements; mechanical power transmissions; industrial
transport equipment and devices; ship's deck machinery;
technical logistics; engineering ethics*



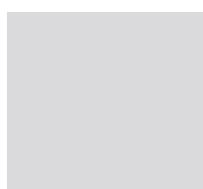
Gordana Marunić

*inženjerska grafika; dokumentiranje; tehničko crtanje;
oblikovanje pomoću računala; inženjerska vizualizacija
engineering graphics; documenting; technical drawing;
modelling by computer; engineering visualization*



Boris Obsieger

*konstrukcijski elementi; konstrukcijski elementi robota; prijenosnici snage;
tribologija; metoda rubnih elemenata; numeričke metode u konstruiranju
machine elements; design elements of robots; power transmission;
tribology; boundary elements method; numerical methods in mechanical
engineering design*



Dubravka Siminiati

*konstrukcijski elementi; hidraulički i pneumatski sustavi;
kontaktni problemi
machine elements; hydraulic and pneumatic systems;
contact problems*



Saša Zelenika

*precizno inženjerstvo; tehnologija mikrosustava;
MEMS i NEMS; sustavi žetve energije; mjerni sustavi;
konstrukcijski elementi
precision engineering; microsystems technologies;
MEMS and NEMS; energy scavenging devices;
measurement systems; machine elements*



IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS

Marina Franulović

*konstrukcijski elementi; konstruiranje
machine elements; design in mechanical engineering*



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DOCENT | ASSISTANT PROFESSOR

Robert Basan

*konstrukcijski elementi; mehatronika; CAE; zamor materijala
machine elements; mechatronics; CAE; material fatigue*



VIŠI ASISTENTI | SENIOR ASSISTANTS

Vladimir Glažar

*inženjerska grafika; dokumentiranje; tehničko crtanje;
oblikovanje pomoću računala; inženjerska vizualizacija
engineering graphics; documenting; technical drawing;
modelling by computer; engineering visualization*



Goran Gregov

*inženjerska grafika; dokumentiranje; tehničko crtanje; oblikovanje
pomoću računala; hidraulički i pneumatski sustavi; mehatronika
engineering graphics; documenting; technical drawing; modelling by
computer; hydraulics and pneumatics; mechatronics*





Branimir Rončević

*konstrukcijski elementi; konstrukcijski elementi robota;
numeričke metode u konstruiranju
machine elements; design elements of robots; numerical
methods in mechanical engineering design*



Sanjin Troha

*inženjerska grafika; dokumentiranje; tehničko crtanje;
oblikovanje pomoću računala; konstrukcijski elementi
engineering graphics; documenting; technical drawing;
modelling by computer; machine elements*



Željko Vrcan

*konstrukcijski elementi; mehanički prijenosnici snage;
transportna sredstva u industriji
machine elements; mechanical power transmissions;
industrial transport equipment and devices*



ZNANSTVENI NOVAK | JUNIOR RESEARCHER



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Ervin Kamenar

*precizno inženjerstvo; tehnologija mikrosustava; mehatronika;
sistemi regulacije i upravljanja; sistemi žetve energije; mjerni sustavi;
inženjerska grafika i dokumentiranje; oblikovanje pomoću računala
precision engineering; microsystems technologies; mechatronics;
control systems; energy scavenging devices; measurement systems;
engineering graphics and documenting; computer aided design*



ASISTENTI | ASSISTANTS



David Blažević poslijedoktorand Postdoctoral Research Assistant

*konstrukcijski elementi; precizno inženjerstvo
machine elements; precision engineering*



Kristina Marković poslijedoktorandica Postdoctoral Research Assistant

*precizno inženjerstvo; tehnologija mikrosustava; sistemi žetve energije;
mjerni sustavi; konstrukcijski elementi
precision engineering; microsystems technologies; energy scavenging
devices; measurement systems; machine elements*





Marko Percić

inženjerska grafika; dokumentiranje; tehničko crtanje; oblikovanje pomoću računala; tehničko dokumentiranje
engineering graphics; documenting; technical drawing; modelling by computer;
technical documenting

VANJSKI SURADNICI | ASSOCIATES

Vladimir Pelić

inženjerska grafika; dokumentiranje; tehničko crtanje
engineering graphics and documenting;
technical drawing

nastava
education

Nastava se izvodi iz područja: konstruiranje u strojarstvu, numeričke metode u konstruiranju, konstrukcijski elementi, mehanički prijenosnici snage, hidrostatski i pneumatski sustavi prijenosa snage i upravljanja, zupčani prijenosnici, tribologija, transportna sredstva u industriji, brodski palubni strojevi, tehnička logistika, mehatronika, precizno inženjerstvo, tehnologija mikrosustava, MEMS i NEMS, mjerni sustavi, inženjerska grafika i dokumentiranje, oblikovanje pomoći računala, inženjerska vizualizacija, metoda rubnih elemenata.

Cjeloživotno obrazovanje: Oblikovanje 3D modela.

Lectures in the field of: design in mechanical engineering, numerical methods in design, machine elements, mechanical power transmissions, fluid power systems and control, gear transmissions, tribology, industrial transport equipment and devices, ship's deck machinery, technical logistics, mechatronics, precision engineering, microsystems technologies, MEMS and NEMS, measurement systems, engineering graphics and documenting, modelling by computer, engineering visualization, boundary element method.

CO: 3D modelling

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Inženjerska grafika
- Inženjerska grafika i dokumentiranje
- Izborni projekt - Konstrukcijski elementi I
- Izborni projekt - Konstrukcijski elementi II
- Konstruiranje i oblikovanje
- Konstrukcijski elementi I
- Konstrukcijski elementi II
- Oblikovanje pomoći računala
- Osnove konstruiranja
- Osnove konstrukcijskih elemenata
- Primjena računala
- Engineering Graphics
- Engineering Graphics and Documenting
- Elective project - Machine Elements Design I
- Elective project - Machine Elements Design II
- Designing and Product Shaping
- Machine Elements Design I
- Machine Elements Design II
- Modelling by Computer
- Fundamentals of Engineering Design
- Fundamentals of Machine Elements Design
- Computer Applications

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Brodski palubni strojevi
- Oblikovanje pomoći računala CO
- CAE u razvoju proizvoda
- Elektroničke komponente mehatroničkih sustava
- Elementi transportne tehnike
- Hidraulika i pneumatika I
- Hidraulika i pneumatika II
- Ship's Deck Machinery
- Modelling by Computer CO
- CAE in Product Development
- Electronic components of mechatronic systems
- Elements of the Transport Technic
- Hydraulics and pneumatics I
- Hydraulics and pneumatics II

- Inženjerska vizualizacija
- Komponente mehatroničkih sustava
- Konstrukcijski elementi III
- Konstrukcijski elementi robota
- Laboratorijske vježbe A
- Laboratorijske vježbe B
- Mehanički prijenosnici snage
- Mehatronički sustavi
- Metodičko konstruiranje
- Mikro i nano elektromehanički sustavi
- Modeliranje mehatroničkih sustava
- Numeričke metode u konstruiranju
- Precizne konstrukcije i tehnologija mikro sustava
- Projekt I - Hidraulika i pneumatika I
- Projekt I - Inženjerska vizualizacija
- Projekt I - Konstrukcijski elementi III
- Projekt I - Konstrukcijski elementi robota
- Projekt I - Mehanički prijenosnici snage
- Projekt I - Numeričke metode u konstruiranju
- Projekt II - Elektroničke komponente mehatroničkih sustava
- Projekt II – Elementi transportne tehnike
- Projekt II - Hidraulika i pneumatika II
- Projekt II - Precizne konstrukcije i tehnologija mikro sustava
- Tehnička logistika
- Trajnost strojeva i konstrukcija
- Transportni sustavi
- Upravljanje mehatroničkim sustavima
- Engineering Visualization
- Components of mechatronic systems
- Machine Elements Design III
- Robot Elements Design
- Laboratory exercises A
- Laboratory exercises B
- Mechanical Power Transmissions
- Mechatronics Systems
- Systematic Engineering Design
- Modelling of mechatronic systems
- Micro and Nano Electromechanical Systems
- Numerical Methods in Mechanical Engineering Design
- Precision Engineering and Microsystems Technologies
- Project I - Hydraulics and pneumatics I
- Project I - Engineering Visualization
- Project I - Machine Elements Design III
- Project I - Robot Elements Design
- Project I - Mechanical Power Transmissions
- Project I - Numerical Methods in Mechanical Engineering Design
- Project II - Electronic components of mechatronic systems
- Project II – Elements of the Transport Technic
- Project II - Hydraulics and pneumatics II
- Project II - Precision Engineering and Microsystems Technologies
- Technical Logistics
- Durability of Machines and Structures
- Transport Systems
- Control of mechatronics systems

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KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Elementi strojeva I
- Elementi strojeva I BG
- Elementi strojeva II
- Hidraulika i pneumatika
- Konstruiranje
- Mehatronika
- Osnove mehatronike
- Tehničko crtanje
- Tehničko dokumentiranje
- Machine Elements I
- Machine Elements I NA
- Machine Elements II
- Hydraulics and pneumatics
- Mechanical Engineering Design
- Mechatronics
- Fundamentals of Mechatronics
- Technical Drawing
- Technical Documenting

KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Izabrana poglavlja iz hidrostatskih i pneumatskih prijenosa
- Izabrana poglavlja iz konstrukcijskih elemenata
- Izabrana poglavlja iz prijenosnika snage
- Izabrana poglavlja iz transportnih sredstava u industriji
- Selected Chapters on Hydrostatic and Pneumatic Transmissions
- Selected Chapters on Machine Elements
- Selected Chapters on Power Transmission
- Selected Chapters on Industrial Transport Equipment and Devices

- *Kontaktni problemi u analizi konstrukcijskih elemenata*
- *Modeliranje inženjerskih konstrukcija*
- *Nauka o konstruiranju*
- *Podatljivi elementi i mehanizmi*
- *Principi konstrukcija visokih i ultravisokih preciznosti*
- *Specijalni mehanički prijenosnici*
- *Contact Problems in Machine Elements Analyses*
- *Modelling of Engineering Structures*
- *Design Science*
- *Compliant Elements and Mechanisms*
- *Principles of High and Ultra-High Precision Devices*
- *Special Mechanical Transmissions*

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Hidraulički hibridni pogoni. Vodeni hidraulički pogoni*
Hydraulic hybrid drives. Water hydraulic systems
- *Karakterizacija i numeričko modeliranje ponašanja materijala*
Characterisation and numerical modelling of material behaviour
- *Konstrukcijsko strojarstvo*
Mechanical engineering design
- *Kontaktni problemi u konstrukcijskim elementima*
Contact problems in machine elements.
- *Modeliranje*
Modelling
- *Precizno inženjerstvo: podatljivi mehanizmi, pozicioniranje ultravisokih preciznosti i točnosti, strukturalna analiza, integracija u mehatroničke sustave, mjerne tehnike, oprema za sinkrotronsko zračenje*
Precision engineering: compliant mechanisms, ultra-high precision positioning, structural analysis, integration into mechatronics devices, measurement techniques, equipment for synchrotron radiation
- *Prijenos energije i informacija u hidrauličkim i pneumatskim sustavima*
The energy and information transmission in hydraulic and pneumatic systems
- *Procjena parametara materijala primjenom klasičnih metoda i neuronskih mreža*
Estimation of material properties by means of classical methods and neural networks
- *Tehnologija mikrosustava: MEMS, manipulacija, montaža i pakiranje, skalirajući učinci, proizvodnja mikrostruktura, prikupljanje niskorazinske energije iz okoline*
Micro-systems technologies: MEMS, handling, assembly and packaging, scaling effects, micro-fabrication, energy scavenging
- *Zamor materijala*
Fatigue of materials
- *Zupčasti prijenosnici, planetarni prijenosi, evolventno ozubljenje s velikim stupnjem prekrivanja profila*
Gear transmissions, planetary gears, high transverse contact ratio gears.
- *Ponašanje materijala*
Behaviour of materials



PROJEKTI | PROJECTS

- *Istraživanje dušikovih efekata u složenim poluvodičkim spojevima, 009-0982886-0542, MZOS, suradnik Saša Zelenika, 2007 - 2014, znanstvenoistraživački.*
Analysis of nitrogen-related defects in compound semiconductors, 009-0982886-0542, Ministry of Science, Education and Sports of the Republic of Croatia, partner Saša Zelenika, 2007-2014, research and scientific project.
- *Podatljivi uređaji ultravisoke preciznosti za uporabu u mikrotehnologiji i nanotehnologiji, 069-0692195-1792, MZOS, Saša Zelenika, 2007 - 2014, znanstvenoistraživački.*
Ultra-high precision compliant devices for micro and nanotechnology applications, 069-0692195-1792, Ministry of Science, Education and Sports of the Republic of Croatia, Saša Zelenika, 2007-2014, research and scientific project.
- *GOLDFISH - Mjerenje onečišćenja u riječnim tokovima u zemljama u razvoju pomoći mreža bežičnih osjetnika, Saša Zelenika, 2013-2015, znanstvenoistraživački FP7 projekt Europske unije.*
GOLDFISH – Detection of Watercourse Contamination in Developing Countries using Sensor Networks - Enlarged, Saša Zelenika, 2013-2015, EU FP7 research and scientific project.
- *Razvoj evolucijskih metoda za identifikaciju parametara materijala, Inicijalna potpora za mlađe istraživače Sveučilišta u Rijeci, voditeljica Marina Franulović, 2014-2016*
Development of evolutionary methods for material parameter identification, Initial scientific support of University of Rijeka, Marina Franulović, 2014-2016
- *ME4CataLOgue - Mechanical Engineering for Catalogue, Voditeljica radne grupe IPA IV projekata (za partnera Tehnički fakultet Sveučilišta u Rijeci) Marina Franulović, 2013-2015*
ME4CataLOgue - Mechanical Engineering for Catalogue, Workgroup leader of IPA IV project (for partner Faculty of Engineering, University of Rijeka) Marina Franulović, 2013-2015
- *Karakterizacija i modeliranje ponašanja materijala za lage i inovativne konstrukcije, MZOS-DAAD, 2014-2015, međunarodni hrvatsko-njemački znanstveni projekt, voditelj Robert Basan*
Characterisation and modelling of material behaviour for lightweight and innovative designs, MZOS-DAAD, 2014-2015, international croatian-german scientific project, Robert Basan
- *Karakterizacija i modeliranje ponašanja materijala i konstrukcija za inovativne primjene, Potpore znanstvenim istraživanjima na Sveučilištu u Rijeci, 2014-2015, Robert Basan, 2014-2016*
Characterization and modelling of materials and structures for innovative applications, Scientific support of University of Rijeka, Robert Basan, 2014-2016



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PUBLIKACIJE | PUBLICATIONS

KNJIGE | BOOKS

- *Zelenika, Saša; Kamenar, Ervin, Precizne konstrukcije i tehnologija mikro- i nanosustava I – Precizne konstrukcije, Tehnički fakultet Sveučilišta u Rijeci, 978-953-6326-90-7, 2015, Hrvatska Prvo izdanje*
- *Obsieger, B., Numerical Methods I - Basis and Fundamentals, Tehnički Fakultet, Create Space the Amazon Company, LightningSource, Autor, 978-953-6326-66-2, ISBN 978-953-57117-1-1, 978-953-7919-65-8, 978-953-7919-20-7, 978-953-7919-02-3, 978-953-7919-03-0, 978-953-7919-05-4, 978-150033405-5, 978-150047569-7, 978-953-7919-96-2, 978-150885642-9 2014/2015, Hrvatska i USA, Prvo tiskano izdanje*

- Obsieger, B., Numerical Methods IV . Interpolation and Shape Functions, Tehnički Fakultet, Create Space the Amazon Company, LightningSource, Autor, 978-953-6326-69-3, 978-953-57117-0-4, 978-953-7919-77-1, 978-953-7919-23-8, 978-953-7919-16-0, 978-953-7919-17-7, 978-953-7919-18-4, 978-150047585-7, 978-953-7919-99-3, 978-151159488-2, 2014, Hrvatska i USA, Prvo tiskano izdanje

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Basan, R.; Rubeša, Domagoj; Franulović, Marina; Marohnić, Tea, Some considerations on the evaluation of methods for the estimation of fatigue parameters from monotonic properties Procedia Engineering, 1877-7058, 101, 18-25, 2015
- Marohnić, Tea; Basan, Robert; Franulović, Marina, Evaluation of the Possibility of Estimating Cyclic Stress-strain Parameters and Curves from Monotonic Properties of Steels, Procedia Engineering, 1877-7058, 101, 277-284, 2015
- Bertović, D.; Gregov, G.; Siminiati, D Modeling and Simulation of a Serial Hydraulic Hybrid Drive for a Forklift Truck, International Journal of Advanced Engineering, 8, 5-12, 2014, Rijeka, Hrvatska
- Marunić, G., Glažar, V., Multimedia Learning and Engineering Students Spatial Ability, The Journal of Faculty of Technical Sciences - Machine Design, 1821-1259, 6 (2), 35-40, 2014, Novi Sad, Srbija
- Glažar, V., Marunić, G., Perčić, M., Butković, Z., Application of glyph-based techniques for multivariate engineering visualization, Engineering optimization, 0305-215X, 10.1080/0305215X.2014.994866, Online, 2015, London, UK
- Glažar, V., Franković, B., Trp, A., Experimental and numerical study of the compact heat exchanger with different microchannel shapes International journal of refrigeration-revue internationale du froid 0140-7007, 51, 144-153, 2015, Paris, France
- Lovrin, N.; Vrcan, Ž., The Influence of Engineering Ethics on Ecology and Sustainable Development, ACTA TECHNICA CORVINIENSIS – Bulletin of Engineering, 2067-3809, 8, 109-114, 2015, Timișoara, Rumanjska
- Kamenar, Ervin; Macešić, Senka; Gregov, Goran; Blažević, David; Zelenika, Saša; Marković, Kristina; Glažar, Vladimir Autonomous solutions for powering wireless sensor nodes in rivers Proceedings of SPIE, the International Society for Optical Engineering, 0277-786X, 9517A 9517-34-1 - 9517-34-13, 2015, Bellingham (WA, USA)
- Blažević, David; Zelenika, Saša, Nonlinear numerical modelling and experimental validation of multilayer piezoelectric vibration energy scavengers, Proceedings of SPIE, the International Society for Optical Engineering, 0277-786X, 9517A, 9517-47-1 - 9517-47-13, 2015, Bellingham (WA, USA)
- Marković, Kristina; Zelenika, Saša, Characterization of cross-spring pivots for micropositioning applications, Proceedings of SPIE, the International Society for Optical Engineering, 0277-786X 9517A, 9517-78-1 - 9517-78-8, 2015, Bellingham (WA, USA)
- Troha, Sanjin; Milovančević, Miloš, Kuchak, Alireza, Software testing of rail vehicle dynamic characteristics, Facta Universitatis, Series: Mechanical Engineering, 0354-2025, 13, 109-121 2015, Niš, Srbija
- Marunić, G.; Glažar, V., Challenges of Blended Learning, International journal for science, technics and innovations for the industry, 1313-0226, 10, 13-16, 2015, Varna, Bugarska



MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Lovrin, N., *Importance of Engineering Ethics in Engineering Education*, Zbornik radova međunarodne stručne konferencije ME4CataLOgue, 978-953-6048-76-2, 199-202, 2014., Slavonski Brod, Hrvatska
- Lovrin, Neven; Vrcan, Željko, *Ethical Questioning Of Using Modern Economic Slavery In Contemporary Industrial Production* 7th International Scientific Conference Management of Technology – Step to Sustainable Production Conference Proceedings, 1849-7586, 2015., Zagreb, Hrvatska
- Franulović, M., Basan, R. *Advanced methods and procedures for parameter identification of complex material models* Proceedings of the 36th International Conference on Mechanics of Materials, 978-3-939195-43-6, Vol. 1, 42-50, 2015, Sensbachtal, Njemačka
- Barle, J., Franulović, M., Jurčević Lulić, T., Kladarić, I., Markučić, D., Radica, G., Izrada kataloga znanja, vještina i kompetencija za studije strojarstva u Republici Hrvatskoj, Zbornik radova međunarodne stručne konferencije ME4CataLOgue, 978-953-6048-76-2, Vol. 1, 21-30, 2014., Slavonski Brod, Hrvatska
- Glažar, V., Perčić, M., Marunić, G., Franković, B., *A Comparative Study of Evolutionary Algorithms for Optimization of Heat Exchanger with Microchannel Coil*, Zbornik radova/Proceedings INTERKLIMA 2015, 1-8, 2015., Zagreb, Hrvatska
- Glažar, V., Franković, B., Blecich, P. *Numerical and Experimental Analysis of Fin and Tube Heat Exchanger*, Energija i okoliš (Energy and Environment) 2014, 978-953-6886-18-0, 291-300, 2014. Opatija, Hrvatska
- Kamenar, Ervin; Gregov, Goran; Zelenika, Saša; Blažević, David; Marković, Kristina, *Miniaturized underwater hydro generator for powering wireless sensor network nodes*, Proceedings of the 24th International Congress "Energy and the Environment" 2014, 978-953-6886-18-0, 171-181 2014. Rijeka, Hrvatska
- Kamenar, Ervin; Maćešić, Senka; Blažević, David; Gregov, Goran; Zelenika, Saša; Marković, Kristina; Glažar, Vladimir, *Piezoelectric eels for powering pollution monitoring wireless sensor networks in watercourses*, Proceedings of the 15th EUSPEN International Conference, 978-0-9566790-7-9, 223-224, 2015., Delft, Nizozemska
- Kamenar, Ervin; Zelenika, Saša, *Modelling and experimental validation of an ultra-high precision positioning system based on the FPGA architecture*, Proceedings of the 15th EUSPEN International Conference, 978-0-9566790-7-9, 247-248, 2015., Delft, Nizozemska
- Blažević, David; Zelenika, Saša, *Finite element modelling and power estimation of multilayer energy scavengers*, Proceedings of the 15th EUSPEN International Conference, 978-0-9566790-7-9, 363-364, 2015., Delft, Nizozemska
- Kamenar, Ervin; Gregov, Goran; Zelenika, Saša; Blažević, David; Marković, Kristina; Glažar, Vladimir, *Experimental characterization of a miniaturized underwater hydro-generator energy harvester*, Proceedings of the 15th EUSPEN International Conference, 978-0-9566790-7-9, 369-370, 2015., Delft, Nizozemska
- Marković, Kristina; Zelenika, Saša, *Design of optimized cross-spring pivots*, Proceedings of the 15th EUSPEN International Conference, 978-0-9566790-7-9, 385-386, 2015., Delft, Nizozemska
- Vrcan, Željko; Lovrin, Neven, *Improvement of Belt Conveyor Capacity by Material Cross Section Optimisation*, Proceedings of the 13th international scientific congres CADAM 2015, 978-953-7919-47-4, 2015., Rijeka, Hrvatska



- Dubravka, Siminiati, *The Basis for Mathematical Modelling of the Hydraulic Hybrid Vehicle*, Proceedings of the 13th international scientific congres CADAM 2015, 978-953-7919-47-4, 2015. Rijeka, Hrvatska
- Marunić, G.; Glažar, V., *Challenges of Blended Learning trans&MOTAUTO, '15, XXIII, International Conference Proceedings, 1310-3946, 61-64, 2015.*, Varna, Bugarska
- Glažar, V.; Trp, A.; Lenić, K.; Franković, B., *Multivariate Optimization of a Heat Exchanger with Microchannel Coil*, The 24th IIR International Congress of Refrigeration - Proceedings, 1-8, 2015. Yokohama, Japan
- Lovrin, N., *Some Ethical Issues in Engineering Design*, Proceedings of the 13th international scientific congres CADAM 2015, 978-953-7919-47-4, 2015., Rijeka, Hrvatska

POZVANA PREDAVANJA | INVITED LECTURES

- Lovrin, Neven, *Some Ethical Issues in Engineering Design*, 13th International Conference on Advanced Engineering, Computer Aided Design and Manufacturing CADAM 2015 Proceedings, 2015. Tučepi, Hrvatska

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- Elettra, Italija, Italy
- Faculty of Industrial Technology, Technical University - Sofia, Bugarska, Bulgaria
- Faculty of Mechanical Engineering, Technical University - Sofia, Bugarska, Bulgaria
- Fakultet strojarstva i brodogradnje, Sveučilište u Zagrebu, Hrvatska, Croatia
- Fakulteta za strojništvo, Univerza v Ljubljani, Slovenija, Slovenia
- Fakulteta za strojništvo, Univerza v Mariboru, Slovenija, Slovenia
- Mašinski fakultet, Univerzitet u Nišu, Srbija, Serbia
- University of Applied Sciences, GrazAustrija, Austria
- University of Chemical Technology and Metallurgy, Bugarska, Bulgaria
- University of Udine, Italija, Italy
- Moscow State Industrial University, Rusija, Russia
- Institut für Stahlbau und Werkstoffmechanik, Technische Universität Darmstadt, Njemačka, Germany



5⁶.

**zavod za matematiku, fiziku, strane jezike
i kineziologiju**
**department of mathematics, physics,
foreign languages and kinesiology**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. **Senka Maćešić**

<http://www.riteh.uniri.hr/ustroj/zavodi/zmfsjk/>

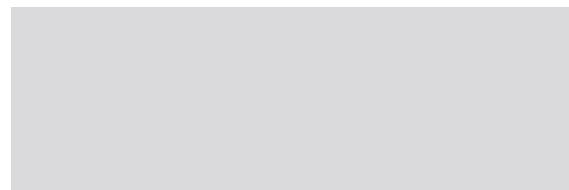
djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Julijan Dobrinić

*fizika; zaštita okoliša
physics; environmental protection*

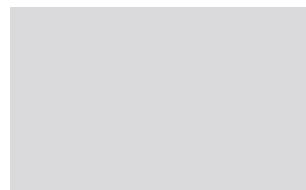


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Senka Maćešić

*numerička matematika; znanstveno računanje; matematičko modeliranje; optimalno upravljanje
numerical mathematics; scientific computing; mathematical modelling; optimal control*

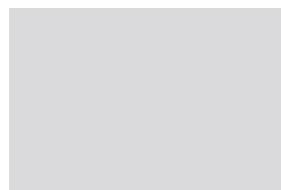


IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS



Nelida Črnjarić-Žic

*numerička matematika; znanstveno računanje; računalne simulacije u tehniči; matematičko modeliranje; analiza podataka
numerical mathematics; scientific computing; computer simulations in engineering; mathematical modelling; data analysis*



VIŠI PREDAVAČI | SENIOR LECTURER

Mirko Badim

kineziologija
kinesiology



Elisa Velčić-Janjetić

njemački jezik i književnost; engleski jezik i književnost;
jezik struke
german language and literature; english language and
literature; professional language



Katica Jurasić

euklidska i neeuklidska geometrija;
metodika nastave matematike
euclidean and noneuclidean geometry;
mathematics education



165

Ksenija Mance

engleski jezik i književnost; njemački jezik i književnost;
jezik struke
english language and literature; german language and
literature; professional language



PREDAVAČI | LECTURERS

Ivan Dražić

parcijalne diferencijalne jednadžbe; mikropolarni fluidi;
numerička analiza; statistička obrada podataka; metodika
nastave matematike
partial differential equations; micropolar fluids; numerical
analysis; statistical analysis; methodology of teaching
mathematics



Melita Štefan-Trubić

numerička matematika
numerical mathematics



VIŠI ASISTENTI | SENIOR ASSISTANTS



Loredana Simčić

*kombinatorna i diskretna matematika
combinatorial and discrete mathematics*



VANJSKI SURADNICI | ASSOCIATES

Nenad Trinajstić

Ivona Novak

Dejan Dešković

Igor Lulić

Marijana Kosturik

Biserka Draščić-Ban

Sanja Vranić

Vanja Čotić

matematika

mathematics

Bojan Crnković

*numerička matematika; matematičko modeliranje; računalne simulacije u tehniči
numerical mathematics, mathematical modelling, computer simulations in engineering*

Marija Čargonja

Tatjana Ivošević

fizika

physics

nastava education

Nastava matematičkih kolegija izvodi se za inženjere s odabranim poglavljima iz područja linearne algebre, matematičke analize, diferencijalnih jednadžbi, vjerojatnosti i statistike te numeričke i stohastičke matematike. Nastava fizičkih kolegija izvodi se za inženjere s odabranim poglavljima iz moderne fizike i zaštite okoliša. Nastava engleskog i njemačkog jezika obuhvaća obrađivanje odabralih poglavja iz područja strojarstva, brodogradnje, elektrotehnike i računarstva te usavršavanje stručnog vokabulara i gramatičkih struktura jezika tehnike. Nastava iz tjelesne i zdravstvene kulture odvija se kroz obvezne programe (atletika, nogomet, košarka, odbojka, rukomet, vaterpolo sa plivanjem i fitness) kao i slobodne programe (skijanje, jedrenje, vesljanje, planinarenje i rafting).

Mathematical lectures for engineers with selected chapters in the fields of: linear algebra, mathematical analysis, differential equations, probability and statistics, numerical and stochastic mathematics. Physics lectures for engineers with selected chapters in modern physics and environment protection. The English and German Language courses of study cover the analysis of selected chapters in the field of Mechanical Engineering, Naval Architecture, Electrical Engineering and Computer Engineering as well as the enhancement of professional-technical vocabulary and grammar. Lectures in physical and health education is relayed through both compulsory programs (athletics, football, basketball, volleyball, handball, waterpolo with swimming and fitness program) and optional programs (skiing, sailing, rowing, mountaineering and rafting).

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Matematika 1
- Matematika 2
- Inženjerska matematika ET
- Inženjerska statistika
- Uvod u modernu fiziku
- Fizika 1
- Fizika 2
- Zaštita okoliša
- Engleski jezik I
- Engleski jezik II
- Njemački jezik I
- Njemački jezik II
- Tjelesna i zdravstvena kultura I
- Tjelesna i zdravstvena kultura II
- Mathematics 1
- Mathematics 2
- Engineering mathematics ET
- Statistics for engineers
- Introduction to modern physics
- Physics 1
- Physics 2
- Environment protection
- English Language I
- English Language II
- German Language I
- German Language II
- Physical and Health Education I
- Physical and Health Education II

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Inženjerska matematika
- Numerička i stohastička matematika
- Stohastička matematika
- Engineering mathematics
- Numerical and stochastic mathematics
- Stochastic mathematics

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Matematika 1
- Matematika 2
- Fizika
- Engleski jezik I
- Engleski jezik II
- Njemački jezik I
- Njemački jezik II
- Tjelesna i zdravstvena kultura I
- Tjelesna i zdravstvena kultura II
- Mathematics 1
- Mathematics 2
- Physics
- English Language I
- English Language II
- German Language I
- German Language II
- Physical and Health Education I
- Physical and Health Education II

KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Statističke metode i stohastički procesi
- Matematičko modeliranje i numeričke metode
- Metode optimizacije
- Metodologija znanstvenoistraživačkog rada
- Izabrana poglavlja iz zaštite okoliša
- Instrumentacija i analitičke tehnike u zaštiti okoliša
- Kemija okoliša
- Zaštita mora i priobalja
- Statistical Methods and Stochastic Processes
- Mathematical Modeling and Numerical Methods
- Optimization Methods
- Methodology of Scientific Work and Research
- Selected Topics on Environment Protection
- Instrumentation and Analytical Techniques in Environment Protection
- Environmental Chemistry
- Protection of Sea and Coastal Zone

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- parcijalne diferencijalne jednadžbe, numerička matematika, matematičko modeliranje, optimizacija, operacijska istraživanja, statističke metode, diferencijalna geometrija, kombinatorna i diskretna matematika



partial differential equations, numerical mathematics, mathematical modeling, optimization, operational research, statistical methods, differential geometry, combinatorial and discrete mathematics

- zaštita okoliša, atomska i nuklearna fizika
environment protection, atomic and nuclear physics
- interdisciplinarno znanstvenoistraživački pristup području antropologije i temama kulture (znanstvena grana anglistika, područje lingvistike); istraživanje pojma tehnike uopće kao i njegove prisutnosti u izabranim romanima njemačke književnosti weimarskog doba (1918.-1933.) (znanstvena grana germanistika, područje književnosti)
interdisciplinary scientific-research approach to the field of anthropology and cultural themes (the scientific branch of English studies, field Linguistics; research of the term technics and its presence in selected novels of the German literature of the Weimar period (1918-1933) (the scientific branch German studies, field Literature)

PROJEKTI | PROJECTS

- GOLDFISH - Detection of Watercourse Contamination in Developing Countries using Sensor Networks, FP7 projekt, kordinator Fernando Solano, Politechnika Warszawska, član istraživačkog tima Fakulteta Senka Mačešić
GOLDFISH - Detection of Watercourse Contamination in Developing Countries using Sensor Networks, FP7 project, coordinator Fernando Solano, Politechnika Warszawska, member of the Faculty research team Senka Mačešić
- Matematičko i numeričko modeliranje kompresibilnog mikropolarnog fluida, istraživanje uz potporu Sveučilišta, voditelj Nermina Mujaković, suradnici Ivan Dražić, Nelida Črnjarić-Žic i Senka Mačešić
Mathematical and numerical modeling of compressible micropolar fluid, research supported by the University, principal investigator Nermina Mujaković, collaborators Ivan Dražić, Nelida Črnjarić-Žic, and Senka Mačešić
- Ekološko modeliranje u obalnom području Riječkog zaljeva, istraživanje uz potporu Sveučilišta, voditelj Lado Kranjčević, suradnice Nelida Črnjarić-Žic i Senka Mačešić
Ecological modeling in the Bay of Rijeka coastal area, research supported by the University, principal investigator Lado Kranjčević, collaborators Nelida Črnjarić-Žic and Senka Mačešić
- Karakterizacija i modeliranje ponašanja materijala i konstrukcija za inovativne primjene, istraživanje uz potporu Sveučilišta, voditelj Robert Basan, suradnica Nelida Črnjarić-Žic
Characterization and modeling of materials and constructions behavior for innovative applications, research supported by the University, principal investigator Robert Basan, collaborator Nelida Črnjarić-Žic
- Reciklirajući endosomalni putevi, istraživanje uz potporu Sveučilišta, voditeljica Gordana Blagojević-Zagorac, suradnik Senka Mačešić
Recycling endosomal paths, research supported by the University, principal investigator Gordana Blagojević-Zagorac, collaborator Senka Mačešić
- TRACCESS - prijenos i kemodinamika elemenata u tragovima u vodi i obalnom sedimentnom sustavu
TRACCESS - Transport and chemodinamics of trace elements in freshwater and coastal sedimentary systems



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PUBLIKACIJE | PUBLICATIONS**RADOVI U ČASOPISIMA | JOURNAL PAPERS**

- Dražić I., Mujaković N., 3-D flow of a compressible viscous micropolar fluid with spherical symmetry: a global existence theorem, *Boundary value problems*, 1687-2770, 98, 1-21, 2015
- Dražić I., Mujaković N., 3-D flow of a compressible viscous micropolar fluid with spherical symmetry: large time behavior of the solution, *Journal of Mathematical Analysis and Applications*, 0022-247X, 431, 545-568, 2015
- Mujaković N., Črnjarić-Žic N., Convergent finite difference scheme for 1D flow of compressible micropolar fluids, *International Journal of Numerical Analysis and Modeling.*, 1705-5105, 12, 94-124, 2015
- Zelenika, S., Kamenar, E., Maćešić, S., Blažević, D., Gregov, G., Marković, K., Glažar V., Complete laboratory functionality of at least one variant of the energy harvester, EU FP7 project "GOLDFISH – Detection of Watercourse Contamination in Developing countries using Sensor Networks - Enlarged" - deliverable 4.5., 2014
- Zelenika, S., Kamenar, E., Maćešić, S., Blažević, D., Gregov, G., Marković, K., Glažar V. Design and specification of the energy harvesters and underwater harvester anchorage, EU FP7 project "GOLDFISH – Detection of Watercourse Contamination in Developing countries using Sensor Networks - Enlarged" - deliverable 4.4., 2014
- Zelenika, S., Kamenar, E., Maćešić, S., Blažević, D., Gregov, G., Marković, K., Glažar V. Performance evaluation of the energy harvester, EU FP7 project "GOLDFISH – Detection of Watercourse Contamination in Developing countries using Sensor Networks - Enlarged" - deliverable 4.4., 2015

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- M. Orlić, Z. Kregar, M. Bišćan, S. Milošević, J. Dobrinić Analysis of ancient metal coin using different experimental techniques and methods of multivariate analysis, Conference proceedings of SGEM Conference on Anthropology, Archaeology, History and Philosophy, 315-322, 2014, Bulgaria
- Dražić I., Mujaković N., 3-D flow of a compressible viscous micropolar fluid with spherical symmetry: stabilization and regularity of the solution, 2015, ICDDEA 2015 – International Conference on Differential & Difference Equations and Applications 2015, Lisabon, Portugal, 18.-22.05.2015.
- Črnjarić-Žic, N., Mujaković N., Finite difference formulation for the model of a compressible viscous and heat-conducting micropolar fluid with spherical symmetry, 2015, ICDDEA 2015 – International Conference on Differential & Difference Equations and Applications 2015, Lisabon, Portugal, 18.-22.05.2015.
- Kamenar, E., Maćešić, S., Blažević, D., Gregov, G., Zelenika, S., Marković, K., Glažar, V., Piezoelectric eels for powering pollution monitoring wireless sensor networks in watercourses Proceedings of the 15th EUSPEN International Conference, 2014, 15th EUSPEN International Conference / Leach, Richard (ed). - Delft, Nizozemska : Sieca Repro - EUSPEN
- Kamenar, E., Maćešić, S., Gregov, G., Blažević, D., Zelenika, S., Marković, K., Glažar, V., Autonomous solutions for powering wireless sensor nodes in rivers Proc., SPIE 9517, Smart Sensors, Actuators, and MEMS VII; and Cyber Physical Systems, 2015, International Society for Optics and Photonics



- Loire, S., Arbab, H., Clary, P., Ivić, S., Črnjarić-Žic, N., Maćešić, S., Crnković, B., Mezić, I., *Search strategy in a complex and dynamic environment* *Bulletin of the American Physical Society*, 2014, American Physical Society

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- University of Santa Barbara, California, SAD, USA



5⁷

**zavod za materijale
department of materials science and
engineering**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. Božo Smoljan

<http://www.riteh.uniri.hr/ustroj/zavodi/zm/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Loreta Pomenić

materijali; tehnologija materijala; materijali i tehnoški postupci; nemetalni materijali; zaštita materijala; karakterizacija materijala; selekcija materijala; kemija materijala; korozija i zaštita metala
materials; technology of material; materials and technological processes; nonmetal materials; materials protection; materials characterisation; materials selection; materials chemistry; corrosion and metals protection



172



Domagoj Rubeša

mehanika materijala; mehanika prijeloma i umorljivost; selekcija materijala; procesi oštećivanja materijala
materials mechanics; fracture mechanics and fatigue of materials; materials selection; processes of damaging of materials



Božo Smoljan

materijali; tehnologija materijala; materijali i tehnoški postupci; metalni materijali; ljevarstvo; karakterizacija materijala; toplinska obrada i inženjerstvo površina; ispitivanje materijala
materials; technology of material; materials and technological processes; metallic materials; casting; materials characterisation; heat treatment and surface engineering; materials testing

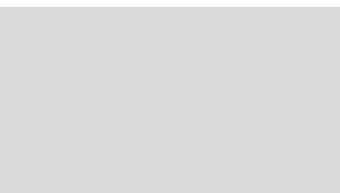
DOCENT | ASSISTANT PROFESSOR



Dario Ilijkić

materijali; tehnologija materijala; materijali i tehnoški postupci; postupci toplinske obrade; metalni materijali; ljevarstvo; ispitivanje materijala
materials; technology of material; materials and technological processes; processes of heat treatment; metallic materials; casting; materials testing

STRUČNI SURADNIK | ASSOCIATE



Lovro Štic

*sustav znanosti i visokog obrazovanja
science and higher education*



VANJSKI SURADNICI | ASSOCIATES

Sunčana Smokvina Hanza

Adriainspekt d.o.o.

*materijali; tehnologija materijala; materijali i tehnoški postupci; metalni materijali; ispitivanje materijala
materials; technology of material; materials and technological processes; metallic materials; materials testing*

Neven Tomašić

Hara d.o.o.

*materijali; tehnologija materijala; materijali i tehnoški postupci; postupci toplinske obrade; metalni materijali
materials; technology of material; materials and technological processes; processes of heat treatment; metallic materials*

Leszek Adam

Silesian University of Technology, Gliwice

*materijali; tehnologija materijala; materijali i tehnoški postupci; metalni materijali; nemetalni materijali; zaštita materijala; ljevarstvo; karakterizacija materijala; mehanika materijala; toplinska obrada i inženjerstvo površina; mehanika prijeloma i umorljivost; ispitivanje materijala; selekcija materijala; procesi oštećivanja materijala; kemija materijala; korozija i zaštita metala
materials; technology of material; materials and technological processes; metallic materials; nonmetal materials; materials protection; casting; materials characterisation; materials mechanics; heat treatment and surface engineering; fracture mechanics and fatigue of materials; materials testing; materials selection; processes of damaging of materials; materials chemistry; corrosion and metals protection*

Vojteh Leskovšek

IMT Ljubljana

*karakterizacija materijala; toplinska obrada i inženjerstvo površina; mehanika prijeloma i umorljivost
materials characterisation; heat treatment and surface engineering; fracture mechanics and fatigue of materials*

Robert Danzer

Institut für Struktur- und Funktionskeramik

keramički i kompozitni materijali

ceramics and composite materials

**nastava
education**

Nastava se izvodi iz područja materijala, tehnologije materijala, materijala i tehnoških postupaka, karakterizacije materijala, metalnih materijala, nemetalnih materijala, zaštite materijala, ljevarstva, mehanike materijala, toplinske obrade i inženjerstva površine, mehanike prijeloma i umorljivosti, ispitivanja materijala, selekcije materijala, procesa oštećivanja materijala, kemije materijala, korozije i zaštite metala.

Lectures in the field of materials, technology of material, materials and technological processes, materials characterisation, metallic materials, nonmetal materials, materials protection, casting, materials mechanics, heat treatment and surface engineering, fracture mechanics and fatigue of materials, materials testing, materials selection, processes of damaging of materials, materials chemistry, corrosion and metals protection.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Materijali I
- Materijali II
- Tehnologija materijala
- Izborni projekt - Materijali I
- Izborni projekt - Materijali II
- Karakterizacija materijala
- Postupci topilinske obrade
- Materials I
- Materials II
- Technology of Material
- Elective project - Materials I
- Elective project - Materials II
- Materials Characterisation
- Processes of Heat Treatment

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Metalni materijali
- Nemetalni materijali
- Zaštita materijala
- Ljevarstvo
- Projekt I - Zaštita materijala
- Projekt I - Ljevarstvo
- Mehanika materijala
- Toplinska obrada metala i inženjerstvo površina
- Projekt II - Mehanika materijala
- Projekt II - Toplinska obrada metala i inženjerstvo površina
- Mehanika prijeloma
- Ispitivanje materijala
- Selekcija materijala
- Metallic Materials
- Nonmetallic Materials
- Materials Protection
- Casting
- Project I - Materials Protection
- Project I - Casting
- Materials Mechanics
- Metals Heat Treatment and Surface Engineering
- Project II - Materials Mechanics
- Project II - Metals Heat Treatment and Surface Engineering
- Fracture Mechanics
- Materials Testing
- Materials Selection



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KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Materijali
- Tehnologija obrade I
- Materijali i tehnološki postupci
- Materials
- Manufacturing Technology I
- Materials and Technological Processes

KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Procesi oštećivanja materijala
- Mehanika prijeloma i umorljivost
- Kemijska materijala
- Korozija i zaštita materijala
- Toplinska obrada i inženjerstvo površina
- Izabrana poglavja iz ispitivanja materijala
- Processes of Damaging of Materials
- Fracture Mechanics and Fatigue of Materials
- Materials Chemistry
- Corrosion and Metals Protection
- Heat Treatment and Surface Engineering
- Selected Chapters on Material Testing

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- Znanstvenoistraživački rad iz znanstvenog područja tehničke znanosti, znanstvenih polja strojarstvo i temeljne tehničke znanosti, znanstvenih grana proizvodno strojarstvo i materijali. Research and development activities in the scientific area of Technical Sciences, scientific fields of Mechanical Engineering and Fundamental Engineering Sciences, scientific branches of Mechanical Production Engineering and Materials

PROJEKTI | PROJECTS

- *Optimiranje i modeliranje termalnih procesa materijala, HRZZ - Hrvatska zaklada za znanost, Božo Smoljan, 2014 - 2018, znanstvenoistraživački.*
Optimisation and modelling of thermal processes of materials, HRZZ - Croatian science foundation, Božo Smoljan, 2014 - 2018, research and scientific project.
- *Računalno optimiranje parametara termalnih procesa obrade metala, Sveučilište u Rijeci, Božo Smoljan, 2013 - 2015, znanstvenoistraživački.*
Computer optimization of parameters of thermal processes of metal, University of Rijeka, Božo Smoljan, 2013 - 2015, research and scientific.
- *ARISE – Napredna istraživanja, inovacije i transfer tehnologije u inženjerstvu površina, IPA IIc, 2013 - 2014, znanstvenoistraživački.*
ARISE – Advanced Research, Innovation and technology transfer in Surface Engineering, IPA IIc, 2013 - 2014, research and scientific.

PUBLIKACIJE | PUBLICATIONS**RADOVI U ČASOPISIMA | JOURNAL PAPERS**

- *B. Smoljan, D. Ijkić, N. Tomašić, Computer simulation of microstructure of quenched moulding die, Archives of Materials Science and Engineering, 1897-2764, 68, 81-86, 2014, Gliwice, Poljska*
- *B. Smoljan, D. Ijkić, Z. Kolumbić, Computer modelling of as-quenched hardness and microstructure composition of steel, Int. J. Microstructure and Materials Properties, 1741-8410 10, 86-100, 2015, UK*

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- *B. Smoljan, D. Ijkić, Z. Kolumbić, An approach to computer modelling of steel quenching for industrial purpose, Proceedings of the International Conference "Heat Treatment Congress Poland", 2014, Krakow, Poljska*
- *B. Smoljan, D. Ijkić, N. Tomašić, Computer simulation of microstructure of quenched moulding die, Proceedings of the 15th International Materials Symposium (IMSP'2014), 2014, Denizli, Turska*
- *B. Smoljan, D. Ijkić, I. Katavić, Computer modelling of steel quenching for industrial purpose Proceedings of the 25th National Conference on Heat Treatment, 2014, Jihlava, Češka*
- *D. Ijkić, B. Smoljan, L. Liverić, L. Štic, Računalna simulacija mehaničkih svojstava kaljenog i popuštenog trna za štancanje, Proceedings of the International Conference on Innovative Technologies In Safety Engineering, 2015, Rijeka, Hrvatska*
- *B. Smoljan, D. Ijkić, S. Smokvina Hanza, Computer simulation of mechanical properties of quenched and tempered stamping punch, Proceedings of the European Conference on Heat Treatment 2015 and the 22nd IFHTSE Congress, 2015, Venecija, Italija*
- *B. Smoljan, D. Ijkić, L. Pomenić, Mathematical modelling and computer simulation of steel quenching, Proceedings of the 24th International Conference on Metallurgy and Materials, 2015 Brno, Češka*

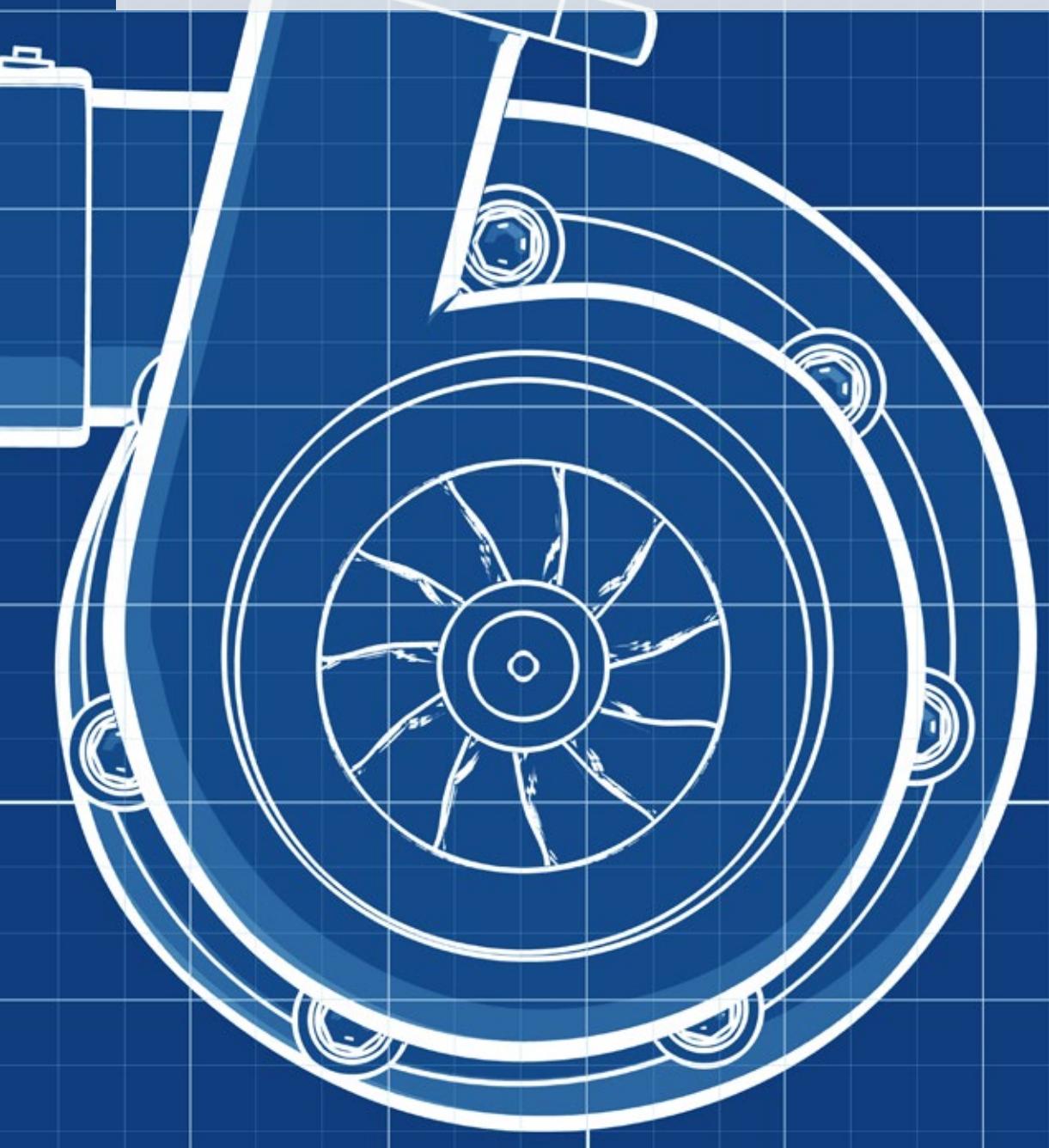


MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- *Faculty of Mechanical Engineering, State University of Campinas, Campinas Brazil, Brasil*
- *Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenija, Slovenia*
- *Institute of Metals and Technology, Ljubljana, Slovenija, Slovenia*
- *John von Neumann Faculty of Informatics, Obuda University, Mađarska, Hungary*
- *Materials Engineering, Silesian University of Technology in Gliwice, Gliwice, Poljska, Poland*
- *Metallurgy and Materials Science Research Institute, Chulalongkorn University, Bangkok Thailand, Thailand*
- *The Institute of Materials, Minerals and Mining, Velika Britanija, UK*

5.⁸

**zavod za mehaniku fluida i računarsko
inženjerstvo**
**department of fluid mechanics and
computational engineering**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Izv. prof. dr. sc. / Assoc. Prof. D. Sc. **Lado Kranjčević**

<http://www.riteh.uniri.hr/ustroj/zavodi/zmfri/>

djelatnici faculty and staff

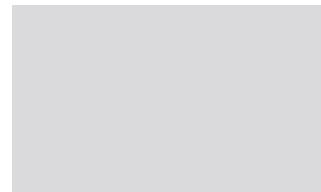
REDOVITI PROFESORI | PROFESSORS



Zoran Mrša

strujanje u priobalnom području; analiza i optimizacija hidrauličkih sustava; analiza i optimizacija strujanja u hidroturbinama

coastal flow; hydraulic systems analysis and optimization; hydroturbine flow analysis and optimization



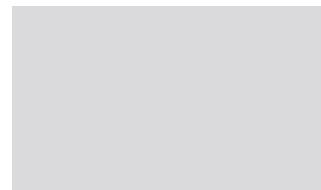
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Luka Sopta

strujanje u priobalnom području; analiza i optimizacija hidrauličkih sustava; strujanje u otvorenim vodotocima; hidraulički tranzijenti

coastal flow; hydraulic systems analysis and optimization; open channel flow; hydraulic transients



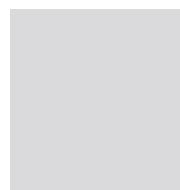
IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS



Zoran Čarija

analiza i optimizacija hidrauličkih sustava; analiza i optimizacija strujanja u hidroturbinama; strujanje sa slobodnom površinom

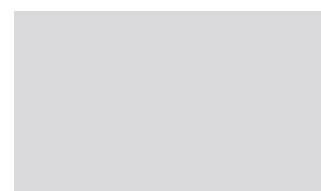
hydraulic systems analysis and optimization; hydroturbine flow analysis and optimization; free surface fluid flow



Lado Kranjčević

numeričko modeliranje strujanja u otvorenim vodotocima; strujanje u mreži cjevovoda; paralelno programiranje, strujanje u priobalnom području

pipe network flow; open channel flow; parallel programming



DOCENTI | ASSISTANT PROFESSORS



Siniša Družeta

*analiza i optimizacija hidrauličkih sustava; strujanje u otvorenim vodotocima; numeričko modeliranje
coastal flow; hydraulic systems analysis and optimization;
open channel flow*



Jerko Škifić

*hidraulički tranzijenti; analiza i optimizacija hidrauličkih sustava;
programiranje tehničkih aplikacija
hydraulic transients; hydraulic systems analysis and
optimization; technical software development*



ZNANSTVENI NOVACI | JUNIOR RESEARCHERS



Stefan Ivić poslijedoktorand Postdoctoral Research Assistant

*programiranje tehničkih aplikacija; polaganje cjevovoda;
optimizacija
technical software development; pipe laying;
optimization*



nastava education

Nastava se izvodi iz područja: mehanika fluida, hidraulički strojevi, računalne metode, numeričko modeliranje, optimizacija.

Primjena računarskih metoda - CO

*Lectures in the field of: fluid mechanics,
hydraulic machines, computational
methods, numerical modeling,
optimization.*

Applied Computational Methods - CO

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- *Računalne aplikacije u inženjerstvu*
- *Uvod u računarstvo*
- *Mehanika fluida*
- *Računarske metode*
- *Hidraulički strojevi*
- *Računalne simulacije u tehniči*
- *Računarsko inženjerstvo*
- *Programiranje*
- *Računalna grafička*
- *Computer Applications in Engineering*
- *Introduction to Computer Science*
- *Fluid Mechanics*
- *Computational Methods*
- *Hydraulic Machines*
- *Computer Simulations in Engineering*
- *Computational Engineering*
- *Programming*
- *Computer Graphics*

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- | | |
|--|---|
| <ul style="list-style-type: none">• <i>Dinamički sustavi</i>• <i>Dinamika fluida</i>• <i>Modeliranje u tehniči</i>• <i>Numeričko modeliranje hidrauličkih strojeva</i>• <i>Optimizacije u tehniči</i>• <i>Primjena paralelenog računanja</i>• <i>Primjena računalne grafike</i>• <i>Programiranje tehničkih aplikacija I</i>• <i>Programiranje tehničkih aplikacija II</i>• <i>Računalom podržano mjerjenje</i>• <i>Računalna mehanika fluida</i>• <i>Upoznavanje industrijskih postrojenja</i>• <i>Računarske metode u brodogradnji</i> | <ul style="list-style-type: none">• <i>Dynamic Systems</i>• <i>Fluid Dynamics</i>• <i>Models in Engineering</i>• <i>Numerical Modeling of Hydraulic Machines</i>• <i>Optimization in Technics</i>• <i>Applied Parallel Computing</i>• <i>Applied Computer Graphics</i>• <i>Programming of Technical Applications I</i>• <i>Programming of Technical Applications II</i>• <i>Computer Aided Measuring</i>• <i>Computational Fluid Dynamics</i>• <i>Insight to Industrial Facilities</i>• <i>Computational Methods in Naval Engineering</i> |
|--|---|

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- *Hidraulički strojevi ST*
- *Mehanika fluida ST*
- *Hydraulic Machines ST*
- *Fluid Mechanics ST*

KOLEGIJI NA POSLIJEDIPLOMSKIM SVEUČILIŠNIM (DOKTORSKIM) STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- | | |
|--|---|
| <ul style="list-style-type: none">• <i>Dinamika fluida</i>• <i>Hidrodinamika turbostrojeva</i>• <i>Turbulentno strujanje</i>• <i>Modeliranje onečišćenja zraka</i>• <i>Računalna mehanika fluida</i>• <i>Modeliranje strujanja sa slobodnom površinom</i>• <i>Modeliranje nestacionarnog strujanja u cjevovodu</i> | <ul style="list-style-type: none">• <i>Fluid Dynamics</i>• <i>Hydrodynamics of Turbomachines</i>• <i>Turbulent Flow</i>• <i>Air Quality Modeling</i>• <i>Computational Fluid Mechanics</i>• <i>Free Surface Flow Modeling</i>• <i>Unsteady Pipe Flow Modeling</i> |
|--|---|

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Strujanje u priobalnom području*
Coastal flow
- *Strujanje u otvorenim vodotocima*
Open channel flow
- *Analiza i optimizacija hidrauličkih sustava*
Hydraulic systems analysis and optimization
- *Hidraulički tranzijenti*
Hydraulic transients
- *Strujanje u cjevovodima*
Pipe flow
- *Numeričko modeliranje*
Numerical modeling
- *Industrial software development*
Razvoj industrijskog softvera



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PROJEKTI | PROJECTS

- L. Septa, S. Družeta, J. Škifić, *Matematički model spoja Rječine i Mrtvog kanala odnosno poplavljivanja donjeg toka Rječine*, Tehnički fakultet Sveučilišta u Rijeci i Vodoprivredno-projektne biro d.d. Zagreb, Rijeka, 2015.
L. Septa, S. Družeta, J. Škifić, *Mathematical model of the channel connecting Rječina and Mrtvi kanal with lower Rječina flooding*, Tehnički fakultet Sveučilišta u Rijeci i Vodoprivredno-projektne biro d.d. Zagreb, Rijeka, 2015.
- M. Čavrak, L. Kranjčević, *Određivanje optimalne lokacije mjerne postaje za praćenje utjecaja TE Plomin na kvalitetu zraka na području Primorsko-goranske županije*, Tehnički fakultet Sveučilišta u Rijeci, 2015.
M. Čavrak, L. Kranjčević, *Optimal positioning of the environmental monitoring station regarding TPP Plomin influence on the air quality in Primorsko-goranska County*, Faculty of Engineering University of Rijeka, 2015.
- Z. Čarija, Z. Mrša, *Studija mogućeg povećanja stupnja korisnosti agregata HE Čakovec*, Tehnički fakultet Sveučilišta u Rijeci, Rijeka , 2015.
Z. Čarija, Z. Mrša, *Possible efficiency increase of HPP Čakovec turbines*, Faculty of Engineering University of Rijeka, 2015.
- L. Kranjčević, Z. Vidučić, *Višefunkcijski studomat i ISVU-RI*, Tehnički fakultet Sveučilišta u Rijeci, 2015.
L. Kranjčević, Z. Vidučić, *Multifunctional STUDOMAT and ISVU-RI*, Faculty of Engineering University of Rijeka, 2015.
- Z. Čarija, Z. Mrša, *Optimizacija ventilacije palubnog prostora livestock carrier-a 522*, Tehnički fakultet Sveučilišta u Rijeci, 2015.
Z. Čarija, Z. Mrša, *Livestock carrier - 522 decks ventilation optimisation*, Faculty of Engineering University of Rijeka, 2015.
- "Septa, L., Škifić, J., Ivić S., Družeta, S., WEATHER STANDBY SOFTWARE RESEARCH AND DEVELOPMENT PROJECT, Research and Development Program for SAIPEM S.p.A. CROATIAN BRANCH"
"Septa, L., Škifić, J., Ivić S., Družeta, S., WEATHER STANDBY SOFTWARE RESEARCH AND DEVELOPMENT PROJECT, Research and Development Program for SAIPEM S.p.A. CROATIAN BRANCH"

PUBLIKACIJE | PUBLICATIONS**RADOVI U ČASOPISIMA | JOURNAL PAPERS**

- Sophie Loire, Hassan Arbab, Patrick Clary, Stefan Ivić, Nelida Črnjarić-Žic, Senka Maćešić, Bojan Crnković, Igor Mezić, *Search strategy in a complex and dynamic environment (the Indian Ocean case)*, *Bulletin of the American Physical Society*, 59, 2014, BAPS.2014.DFD.D17.7, 20, 2014. New York
- Ivić, Stefan, *Modeliranje i optimizacija polaganja podmorskih cjevovoda*, doktorska disertacija, 2014, Rijeka

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- S. Ivić, K. Ćiković, S. Družeta, *Optimalni dizajn nepneumatske gume kotača pomoću genetičkog algoritma*, *Zbornik radova Šestog susreta Hrvatskog društva za mehaniku*, 978-953-7539-19-1, 79-84 2014, Rijeka



5.⁹

**zavod za računarstvo
department of computer engineering**





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. Željko Jeričević

<http://www.riteh.uniri.hr/ustroj/zavodi/zr/>

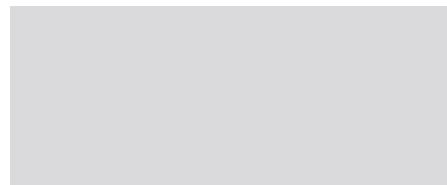
djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS



Ivo Ipšić

*umjetna inteligencija, raspoznavanje uzorka,
govorne tehnologije
artificial intelligence, pattern recognition,
speech technologies*

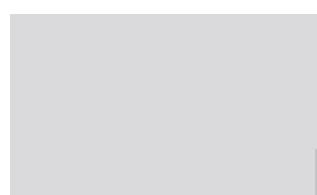


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Željko Jeričević

*znanstveno računanje, bioračunalstvo, razvoj algoritama,
digitalna obrada slike
scientific computing, biocomputing, algorithm development,
digital image processing*

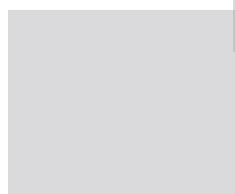


IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS



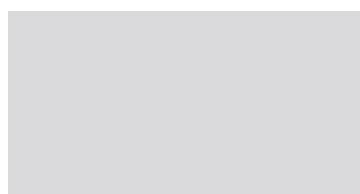
Miroslav Joler

*bežične komunikacije, računalni elektromagnetizam, biomedicinske
aplikacije elektromagnetizma, mobilne aplikacije
wireless communications, computational electromagnetics, biomedical
applications of electromagnetics, applications for mobile*

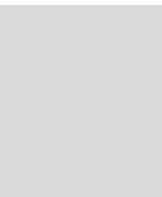


Kristijan Lenac

*mobilna robotika, operacijski sustavi, razvoj algoritama,
ugradbeni sustavi
mobile robotics, operating systems, algorithm
development, embedded systems*

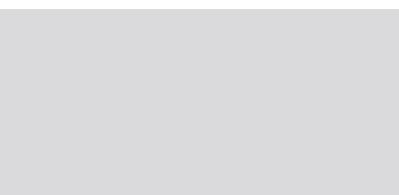


DOCENTI | ASSISTANT PROFESSORS



Tihana Galinac Grbac

*programsko inženjerstvo, meko računarstvo, inženjerski menadžment, informacijsko-komunikacijske tehnologije
software engineering, soft computing, engineering management, information-communication technologies*



Ivan Štajduhar

*umjetna inteligencija, strojno učenje
artificial intelligence, machine learning*



Mladen Tomić

*digitalna obrada signala i slike, teorija valića, fitarski slogovi
digital signal and image processing, wavelets and filter banks*



Jonatan Lerga

*digitalna obrada signala, vremensko-frekvencijska analiza signala
digital signal processing, time-frequency signal analysis*



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ASISTENTI | ASSISTANTS



Sandi Ljubić poslijedoktorand Postdoctoral Research Assistant

*interakcija čovjeka i računala, mobilne aplikacije, inženjerstvo upotrebljivosti
human-computer interaction (HCI), mobile applications, usability engineering*



Damir Arbula poslijedoktorand Postdoctoral Research Assistant

*bežične mreže osjetila, raspodjeljeni algoritmi, lokalizacija
wireless sensor networks, distributed algorithms, localization*



PROFESOR VISOKE ŠKOLE | COLLEGE PROFESSOR



Antun Sok

*računalstvo, informatika, informacijska tehnologija, ICT edukacija
computer science, informatics, information technology, ICT education*





Goran Mauša

umjetna inteligencija, neuronske mreže, meko računarstvo
artificial intelligence, neural networks, soft computing

VANJSKI SURADNICI | ASSOCIATES

Renato Filjar

postupci određivanja položaja,navigacije i vremenskog usklađivanja obrada signala,ionosferski učinci na tehnološke sustave,usluge zasnovane na lokaciji,programski određen radio

positioning, navigation and timing (PNT) methods and systems; signal processing; space weather and ionospheric effects on technological systems; location based services (LBS); software-defined radio (SDR)

Predrag Domijan

građa računala
computer architecture

Damir Nemčanin
Dean Noč
Iva Vlah

Irena Jurdana

svjetlovodne mreže
optical networks

nastava education

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- *Algoritmi i strukture podataka*
- *Baze podataka*
- *Dijagnostičke metode u medicini I*
- *Dijagnostičke metode u medicini II*
- *Građa računala*
- *Informacijski sustavi*
- *Operacijski sustavi*
- *Osnove znanstvenog računanja*
- *Primjena računala R*
- *Programsko inženjerstvo*
- *Programiranje*
- *Računalne mreže*
- *Razvoj web aplikacija*
- *Ugradbeni računalni sustavi*
- *Uvod u objektno orijentirano programiranje*
- *Uvod u računalstvo*
- *Algorithms and Data Structures*
- *Database Systems*
- *Diagnostic Methods in Medicine I*
- *Diagnostic Methods in Medicine II*
- *Computer Architecture*
- *Information Systems*
- *Operating Systems*
- *Foundations of Scientific Computation*
- *Applied Computing R*
- *Software Engineering*
- *Programming*
- *Computer Networks*
- *Web Applications Development*
- *Embedded Systems*
- *Introduction to Object Oriented Programming*
- *Introduction to Computer Engineering*

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- *Bežične mreže osjetila*
- *Bioinformatika*
- *Građa računala*
- *Komunikacija čovjek-stroj*
- *Mobilne komunikacije*
- *Napredni algoritmi i strukture podataka*
- *Napredne računalne mreže*
- *Objektno orijentirano programiranje*
- *Programiranje ugradbenih sustava*
- *Računalna obrada govora i jezika*
- *Radiokomunikacije*
- *Wireless Sensor Networks*
- *Bioinformatics*
- *Computer Architecture*
- *Human-Machine Interaction*
- *Mobile Communications*
- *Advanced Algorithms and Data Structures*
- *Advanced Computer Networks*
- *Object Oriented Programming*
- *Embedded Systems Programming*
- *Computer Speech and Language Processing*
- *Radiocommunications*

- Razvoj mobilnih aplikacija
- Teorija informacija i kodiranja
- Upravljanje u programskom inženjerstvu
- Usluge zasnovane na lokaciji
- Napredna korisnička sučelja
- Programski određen radio
- Analiza računalnih i komunikacijskih sustava
- Strojno učenje
- Mobile Applications Development
- Information Theory and Coding
- Software Engineering Management
- Location-Based Services
- Advanced User Interfaces
- Software-Defined Radio
- Computer and communication system analysis
- Machine Learning

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Informacije i komunikacije
- Primjena računala ST
- Računalne mreže ST
- Radiokomunikacije ST
- Svjetlovodne mreže
- Telekomunikacijski uređaji i mreže
- Information and Communication
- Applied Computing ST
- Computer Networks ST
- Radiocommunications ST
- Optical Networks
- Telecommunication Devices and Networks

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- D. Arbula: bežične mreže osjetila, raspodijeljeni algoritmi
D. Arbula: wireless sensor networks, distributed algorithms
- T. Galinac Grbac: programsko inženjerstvo, informacijsko-komunikacijske tehnologije
T. Galinac Grbac: Software engineering, information-communication technologies
- I. Ipšić: računalna obrada govora i jezika, raspoznavanje uzorka
I. Ipšić: speech processing and pattern recognition
- Ž. Jeričević: razvoj i optimizacija algoritama
Ž. Jeričević: Development and optimization of algorithms
- M. Joler: rekonfigurable i nosive antene, samoadaptivni sustavi, numeričko modeliranje širenja vala
M. Joler: reconfigurable and wearable antennas, self-adaptive systems, numerical modeling of wave propagation
- K. Lenac: mobilna robotika, autonomni sustavi, interakcija čovjeka i računala
K. Lenac: mobile robotics, autonomous systems, human computer interaction
- J. Lerga: digitalna obrada signala, vremensko-frekvencijska analiza signala
J. Lerga: digital signal processing, time-frequency signal analysis
- M. Tomić: digitalna obrada signala, adaptivni wavelet algoritmi
M. Tomić: digital signal processing, adaptive wavelet algorithms
- S. Ljubić: inženjerstvo upotrebljivosti, prediktivno modeliranje i vrednovanje, univerzalni pristup
S. Ljubić: usability engineering, predictive modeling and evaluation, universal access
- I. Štajduhar: analiza slike, računalom potpomognuto dijagnosticiranje, strojno učenje
I. Štajduhar: image analysis, computer aided diagnosis, machine learning



PROJEKTI | PROJECTS

- *Tihana Galinac Grbac: Programske sustav u evoluciji: analiza i inovativni pristupi pametnom upravljanju, Hrvatska Zaklada za Znanost, UIP-2014-09-7945, uspostavni istraživački projekt Tihana Galinac Grbac: Evolving Software Systems: Analysis and Innovative Approaches for Smart Management (EVOSOFT), Croatian Science Foundation, UIP-2014-09-7945, Tihana Galinac Grbac, 2015 - 2018, instalation research grant*
- *Tihana Galinac Grbac: Teorija iz ponašanja tipova za pouzdane velike programske sustave, COST Action IC1201, voditelj za HR: Tihana Galinac Grbac, 2012-2016, znanstveno-istraživački. Tihana Galinac Grbac: Behavioral Types for Reliable Large-Scale Software Systems, COST Action, project no. IC1201, MC Cro: Tihana Galinac Grbac, 2012-2016.*
- *Tihana Galinac Grbac: Pouzdana mreža Internetskih usluga temeljanja na samoupravljanju, COST Action IC 1304, voditelj za HR: Tihana Galinac Grbac, 2013-2017,znanstveno-istraživački. Tihana Galinac Grbac: Autonomous Control for a Reliable Internet of Services, COST Action, project no. IC1304, MC Cro: Tihana Galinac Grbac, 2013-2017.*
- *Tihana Galinac Grbac: Analiza i inovativni pristupi razvoju, upravljanju i primjeni kompleksnih softverskih sustava; Sveučilište u Rijeci; 58.384,02; 2013 - 2016, Tihana Galinac Grbac, znanstveno-istraživački. Tihana Galinac Grbac: Analysis and innovative approaches to management and application of complex software systems, University of Rijeka, 58.384,02;2013-2017, Tihana Galinac Grbac, research and scientific project*
- *Miroslav Joler: Studija utjecaja proreza na ponašanje rezonantnih frekvencija mikrotrakaških antena. Sveučilište u Rijeci, znanstveno-istraživački. Voditelj projekta. Miroslav Joler: A study of the Slot Effects on the Behavior of Resonant Frequencies of Microstrip Antennas. Funded by: University of Rijeka, Croatia. Scientific research. Principal Investigator.*

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- *Ivan Štajduhar: Automatizirana detekcija oblika ozljede ligamenta koljena iz snimke koljena magnetskom rezonancijom. Financirano od strane agencije TÜBITAK. Partneri: Sveučilište Sabanci, Istanbul, Turska i KBC Rijeka. Voditelj projekta. Ivan Štajduhar: Automated Detection of Knee Ligament Injury from Magnetic Resonance Scans. Funded by The Scientific & Technological Research Council of Turkey (TÜBITAK). Partners: Sabanci University, Istanbul, Turkey and Clinical Hospital Center Rijeka. Principal Investigator.*

PUBLIKACIJE | PUBLICATIONS

KNJIGE | BOOKS

- *Budimac Z., Galinac Grbac T., "Proceedings of the Third workshop on Software Quality Analysis, Monitoring, Improvement and Applications", Department of Mathematics and Informatics, Faculty of Sciences, University of Novi Sad, Serbia, 978-86-7031-374-3, 2014, Novi Sad, Serbia dostupno na Internetskoj adresi: http://www.riteh.uniri.hr/SQAMIA/2014/files/SQAMIA2014_proceedings.pdf*
- *V. Sučić, J. Lerga, L. Rankine, and B. Boashash, Components Extraction from TFDs for Multicomponent Signals IF Estimation, Academic Press, In press, 2015, Ch. 10.6 in B. Boashash, ed., "Time-Frequency Signal Analysis and Processing: A Comprehensive Review," 2nd ed.*

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Joler, M., Kučan, J., Impact of Slot Parameters on the Three Resonant Frequencies of a Rectangular Microstrip Antenna: Study of the impact of the slot length, width, and position IEEE Antennas & Propagation Magazine, ISSN: 1045-9243, 57, (4), 48-63, 2015*
- *Galinac Grbac T., Huljenić D., On the Probability Distribution of Faults in Complex Software Systems, Information and Software Technology, ISSN: 0950-5849, Vol.58, 250-258, 2015*
- *Galinac Grbac, T., Car, Ž., Huljenić, D., A quality cost reduction model for large-scale software development, Software quality journal, ISSN: 0963-9314, 23, (2), 363-390, 2014*
- *Galinac Grbac T., Runeson P., Huljenić D., "A Quantitative Analysis of the Unit Verification Perspective on Fault Distributions in Complex Software Systems An Operational Replication" Software quality journal, ISSN: 0963-9314, online first., pp 1-29, 2015*
- *Sučić, V., Lerga, J., Boashash, B., Multicomponent Noisy Signal Adaptive Instantaneous Frequency Estimation Using Components Time Support Information, IET, Signal Processing ISSN: 1751-9683, 8, (3), 277-284, 2014*
- *Lerga, J., Grbac E., Sučić, V., An ICI Based Algorithm for Fast Denoising of Video Signals Automatika, ISSN: 1848-3380, 55, (3), 351-358, 2014*
- *Lerga, J., Franušić, M., Sučić, V., Parameters Analysis for the Time-Varying Automatically Adjusted LPA Based Estimators, Journal of Automation and Control Engineering, ISSN: 2301-3702, 2, (3), 203-208, 2014*

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- *Joler, M., Hodanić, D., Šegon, G., A MATLAB Algorithm for Evaluation of a Rectangular Microstrip Antenna Slot Dimensions Given the Resonant Frequency, IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (IEEE APWC 2015), ISBN: 978-1-4799-7809-0, 2015, Torino, Italy*
- *Joler, M., Štih, B., A 3D Computational Model for Analysis of Wireless Power Transfer System Based on the Magnetic Resonance Coupling Method International, Conference on Electromagnetics in Advanced Applications (ICEAA 2015), ISBN: 978-1-4799-7806-9, 2015, Torino, Italy*
- *Tankovic, N., Galinac Grbac, T., Truong, H.-L., Dustdar S., Transforming vertical Web applications into Elastic Cloud Applications, Proceedings of International Conference on Cloud Engineering (IC2E 2015), ISBN: 978-1-4799-8218-9, 135-144, 2015, Tempe, AZ, USA*
- *Mauša, G., Galinac Grbac, T., Dalbelo Bašić, D., Data Collection for Software Defect Prediction – an Exploratory Case Study of Open Source Software Projects, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 513-519, 2015 Opatija, Croatia*
- *Spahić, D., Mauša, G., Kraljević Pavelić, S., Galinac Grbac, T., Data Storage and Analysis System for Conducting Biotechnological Experiments, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 528-536, 2015, Opatija, Croatia*
- *Mauša, G., Bogunović, N., Galinac Grbac, T., Dalbelo Bašić, B., Rotation Forest in Software Defect Prediction, "Proceedings of Fourth Workshop on Software Quality Analysis, Monitoring, Improvement, and Applications (SQAMIA 2015)", ISBN: 978-961-248-485-9, 35-43, 2015, Maribor, Slovenia*



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- Galinac Grbac, T., Caba, C.M., Soler, J., *Software Defined Networking Demands on Software Technologies*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 507-512, 2015, Opatija, Croatia
- Rubinic, E.; Mauša, G.; Galinac Grbac, T., *Software Defect Classification with a Variant of NSGA-II and Simple Voting Strategies*, Proceedings of 7th International Symposium on Search-Based Software Engineering (SSBSE 2015), ISBN: 978-3-319-22182-3, 347-353, 2015, Bergamo, Italy
- Galinac Grbac, T.; Car, Ž.; Vuković, M., *Software Engineering Education on Requirements and Architecture Modeling*, ECSA Workshops, 2015, ISBN: 978-1-4503-3393-1, 36:1--36:8, 2015, Dubrovnik, Cavtat, Croatia
- Tanković N., Bogunović N., Galinac Grbac T., Žagar M., *Analyzing Incoming Workload in Cloud Business Services*, Proceedings of International Conference on Software, Telecommunications and Computer Networks (Softcom 2015), ISBN: 978-953-290-055-2, 2015, Split, Croatia
- Tanković, N., Galinac Grbac, T., *AGM: A DSL for Mobile Cloud Computing Based On Proceedings of 4th symposium on computer languages, implementations and tools (SCLIT 2015)*, ISBN: 978-0-7354-1287-3, 2015, Rhodes, Greece
- Manojlović, T., Štajduhar, I., *Predicting Stock Market Trends Using Random Forests: A Sample of the Zagreb Stock Exchange*, Proceedings of MIPRO CIS - Intelligent Systems Conference, 2015, ISBN: 978-953-233-083-0, 1436-1440, 2015
- Pavković, I.; Štajduhar, I., *Semantic Approach to Accommodation & Booking Related Web Services*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 459-464, 2015
- Petrović, I., Perković, P., Štajduhar, I., *A Profile- and Community-Driven Book Recommender System*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015 ISBN: 978-953-233-083-0, 724-728, 2015
- Štajduhar, I., Mauša, G., *Using String Similarity Metrics for Automated Grading of SQL Statements*, Proceedings of MIPRO CIS - Intelligent Systems Conference, 2015, ISBN: 978-953-233-083-0, 1497-1502, 2015
- Andelini, M., Štajduhar, I., *Use of Unmanned Aerial Vehicles in Preventing and Extinguishing Fires*, Proceedings of the International Conference on Innovative Technologies in Safety Engineering ITE-SAFETY 2015, ISBN: 978-953-56789-8-4, 63-67, 2015
- Glumac, S., Arbula, D., Kovačić, Z., *Microimmune algorithm for sensor network localization Sensors Applications Symposium (SAS)*, 2015, IEEE, ISBN: 978-147-99611-8-4, 452-457 2015
- Frantal, D., Arbula, D., *Mobile node localization using infrared angle of arrival sensor* Proceedings of MIPRO CIS - Intelligent Systems Conference, 2015, ISBN: 978-953-233-083-0, 626-630 2015
- Rešetar, D., Marchetti – Deschmann, M., Allmaier, G., Lerga, J., Peter Katalinić, J., Kraljević Pavelić, S., *Direct MALDI-TOF Wine Fingerprinting Protocol for Assessment of White Wine Authenticity*, 8th Summer Course for Mass Spectrometry in Biotechnology and Medicine, 1, 2014
- Rešetar, D., Marchetti – Deschmann, M., Allmaier, A., Lerga, J., Peter Katalinić, J., Kraljević Pavelić, S., *Direct MALDI-TOF Wine Fingerprinting Protocol for Assessment of White Wine Authenticity*, 8th International Congress of Food Technologists, Biotechnologists and Nutritionists, 1, 181-181, 2014



- D. Hodanić, N.Vrkić and M. Tomić, *Data Storage and Synchronization in Private Cloud*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 541-545, 2015
- Vega, A., Ljubić, S., *Smartwatch as a Remote Server Monitoring Device: Implementation and Interaction Design*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 647-652, 2015, Opatija, Croatia
- Ljubić, S., Glavinić, V., Kukec, M., *Finger-Based Pointing Performance on Mobile Touchscreen Devices: Fitts' Law Fits*, HCI International / UAHCI. Lecture Notes in Computer Science 9175, ISBN: 978-3-319-20677-6, 318-329, 2015, Los Angeles, USA
- Justin, T., Štruc, V., Dobrišek, S., Vesnica, B., Ipšić, I., Mihelič, F., *Speaker de-identification using diphone recognition and speech synthesis*, 11th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2015), Ljubljana, Slovenia, May 4-8, 2015, ISBN: 978-1-4799-6026-2, dEID, pp. 1-7, 2015
- Vretenar, L., Lenac, K., *People Tracking Using Synthetically Generated Depth Maps*, Proceedings of MIPRO CTI - Telecommunications & Information Conference, 2015, ISBN: 978-953-233-083-0, 739-744, 2015, Opatija, Croatia
- Filipović B., Poljančić D., Lenac K., *On the current state of UAV safety and regulations*, Proceedings of the International Conference on Innovative Technologies in Safety Engineering ITE-SAFETY 2015, ISBN: 978-953-56789-8-4, 2015
- Jeričević, Ž., Kožar, I., *Theoretical and statistical evaluation for approximate solution of large, over-determined, dense linear systems*, Proceedings of MIPRO DC/VIS - Distributed Computing, Visualization & Biomedical Engineering 2015, ISBN: 978-953-233-083-0, 227-229, 2015 Opatija, Croatia
- Sušanj, D., Tuhtan, V., Lenac, L., Gulan, G., Kožar, I., Jeričević, Ž., *Using Entropy Information Measures for Edge Detection in Digital Images*, Proceedings of MIPRO DC/VIS - Distributed Computing, Visualization & Biomedical Engineering 2015, ISBN: 978-953-233-083-0, 368-371 2015, Opatija, Croatia

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- T. Galinac Grbac: *Institute of Informatics, Faculty of electrical engineering and computer science, University of Maribor Slovenia, Slovenija, Slovenia*
- T. Galinac Grbac: *Department of Mathematics and Informatics, Faculty of Sciences, University of Novi Sad, Srbija , Serbia*
- T. Galinac Grbac: *Faculty of Informatics, Eötvös Loránd University, Mađarska, Hungary*
- I. Štajduhar: *Sabancı University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey Turska, Turkey*
- M. Lenac: *University of Trieste, Trieste, Italy, Italija, Italy*
- M. Lenac: *AIBS Lab S.r.l., Trieste, Italy, Italija, Italy*





5.¹⁰

zavod za tehničku mehaniku
department for engineering mechanics





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. Josip Brnić

<http://www.riteh.uniri.hr/ustroj/zavodi/ztm/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS

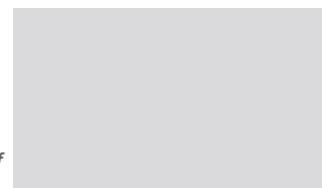


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Josip Brnić

*statika; čvrstoća konstrukcija; teorija elastičnosti i plastičnosti;
metoda konačnih elemenata; eksperimentalna mehanika;
optimizacija konstrukcija; mehanika grešaka i loma
statics; strength of materials; theory of elasticity and plasticity;
finite element method; experimental mechanics; optimization of
structures; failure and fracture mechanics*



Goran Turkalj

*čvrstoća konstrukcija; elasto-plastomehanika; stabilnost
konstrukcija; računarska analiza konstrukcija
strength of materials; elasto-plastomechanics; structural
stability; computational structural analysis*



Marko Čanadija

*termomehanika; eksperimentalna mehanika; statika;
metoda konačnih elemenata; nanomehanika
thermomechanics; experimental mechanics; statics;
finite element method; nanomechanics*



Roberto Žigulić

*kinematika; dinamika; dinamika strojeva i robota; mehatronika;
eksperimentalna ispitivanja u mehanici konstrukcija i strojeva
kinematics; dynamics; dynamics of robots and machines;
mechatronics; experimental testing in mechanics of
structures and machines*



IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS

Domagoj Lanc
čvrstoća; elasto-plastomehanika; stabilnost konstrukcija;
kompozitne konstrukcije
*strength of materials; elasto-plastomechanics; structural
stability; composite structures*



Sanjin Braut
kinematika; dinamika; vibracije; regulacija i upravljanje
dinamičkim sustavima; trajnost strojeva i konstrukcija;
mehatronika
*kinematics; dynamics; vibration; dynamic system control;
durability of machines and structures; mechatronics*



DOCENT | ASSISTANT PROFESSOR

Marino Brčić
statika; čvrstoća konstrukcija; mehanika i elementi konstrukcija,
laboratorijske vježbe; eksperimentalna ispitivanja u mehanici
konstrukcija i strojeva; nanomehanika
*statics; strength of materials; mechanics and structural
elements; experimental methods in mechanics; nanomechanics*



VIŠI ASISTENT | SENIOR ASSISTANT

Ante Skoblar
kinematika; dinamika; vibracije; akustika
kinematics; dynamics; vibration; acoustics



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ZNANSTVENI NOVACI | JUNIOR RESEARCHERS

Igor Pešić viši asistent | senior assistant
statika; čvrstoća konstrukcija; mehanika i elementi
konstrukcija; laboratorijske vježbe
*statics; strength of materials; mechanics and structural
elements; laboratory exercises*



Goranka Štimac Rončević viši asistent | senior assistant
kinematika; dinamika; regulacija; aktivni magnetski ležajevi
kinematics; dynamics; control; active magnetic bearings





Sanjin Krščanski viši asistent | senior assistant

statika; čvrstoća konstrukcija; mehanika i elementi konstrukcija; laboratorijske vježbe
statics; strength of materials; mechanics and structural elements; laboratory exercises



Neven Munjas poslijedoktorand Postdoctoral Research Assistant

statika; čvrstoća konstrukcija; mehanika i elementi konstrukcija; laboratorijske vježbe
statics, strength of materials, mechanics and structural elements, laboratory exercises



Damjan Banić

na znanstvenom projektu Hrvatske zaklade za znanost (HRZZ)



VANJSKI SURADNICI | ASSOCIATES

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Franc Kosek

Fakulteta za Strojništvo, Univerza v Ljubljani, Ljubljana, Slovenija | Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

tehnika mehanika; čvrstoća; elastoplastomehanika
engineering mechanics; strength of materials;
elasto-plastomechanics

Stojan Kravanka

Fakulteta za Strojništvo, Univerza v Ljubljani, Ljubljana, Slovenija | Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

tehnika mehanika; optimizacija konstrukcija
engineering mechanics; structural optimization

nastava education

Nastava se izvodi iz područja primijenjene mehanike što uključuje analitičku, računalnu i eksperimentalnu mehaniku. Prema sadržaju razmatranja ovdje spadaju: statika, čvrstoća konstrukcija, stabilnost konstrukcija, mehanika konstrukcija, optimizacija konstrukcija, konačnoelementna analiza, tankostjene konstrukcije, računalna analiza konstrukcija, kompozitne konstrukcije, eksperimentalna ispitivanja u mehanici konstrukcija i strojeva, termomehanika, kontaktna mehanika, kinematika, dinamika, vibracije; akustika, regulacija i upravljanje dinamičkim sustavima; trajnost strojeva i konstrukcija; mehatronika, itd.

Courses are running in the field of applied mechanics and includes analytical, computational and experimental mechanics. According to the content of consideration, here belong: statics, strength of materials, structural stability, structural mechanics, optimization of structures, finite element analysis, thin-walled structures, computational analysis of structures, composite structures, experimental testing of structures and machines, thermomechanics, contact mechanics, kinematics, dynamics, vibrations, vibroacoustics, dynamic system control, durability of machines and structures, mechatronics, etc.

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA | UNDERGRADUATE UNIVERSITY COURSES

- *Statika*
- *Kinematika*
- *Dinamika*
- *Čvrstoča konstrukcija*
- *Čvrstoča konstrukcija I*
- *Mehanika i elementi konstrukcija*
- *Računarska analiza konstrukcija*
- *Osnove primjene metode konačnih elemenata*
- *Statics*
- *Kinematics*
- *Dynamics*
- *Strength of Materials*
- *Mechanics of Materials I*
- *Mechanics and Structural Elements*
- *Computational Structural Analysis*
- *Introduction to Finite Element Method (FEM)*

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA | GRADUATE UNIVERSITY COURSES

- *Čvrstoča konstrukcija II*
- *Metoda konačnih elemenata čvrstih tijela*
- *Optimalni dizajn konstrukcija*
- *Eksperimentalna ispitivanja u mehanici konstrukcija i strojeva*
- *Termomehanika*
- *Tankostjene konstrukcije*
- *Dinamika strojeva i robota*
- *Eksperimentalna ispitivanja u mehanici konstrukcija i strojeva*
- *Regulacija i upravljanje dinamičkim sustavima*
- *Simulacija dinamičkih sustava*
- *Trajnost strojeva i konstrukcija*
- *Vibracije*
- *Elasto i plastomehanika*
- *Stabilnost konstrukcija*
- *Mehanika kompozita*
- *Mechanics of Materials II*
- *Finite Element Method of Solids*
- *Optimization of Structures*
- *Experimental Testing in Mechanics of Structures and Machines*
- *Thermomechanics*
- *Thin-Walled Structures*
- *Dynamics of Machines and Robots*
- *Experimental Testing in Mechanics of Structures and Machines*
- *Dynamic Systems Control*
- *Simulation of Dynamic System*
- *Durability of Machines and Structures*
- *Vibration*
- *Elasto and Plastomechanics*
- *Structural Stability*
- *Mechanics of Composites*

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA | UNDERGRADUATE VOCATIONAL COURSES

- *Mehanika I*
- *Mehanika i elementi konstrukcija ST*
- *Čvrstoča*
- *Mehanika II*
- *Mechanics I*
- *Mechanics and Structural Elements ST*
- *Strength of Materials*
- *Mechanics II*

KOLEGIJI NA POSLIJEDIPLOMSKIM SVEUČILIŠNIM (DOKTORSKIM) STUDIJIMA | POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Elastomehanika i plastomehanika*
- *MKE i optimizacija konstrukcija*
- *IP iz termomehanike*
- *Kontaktna mehanika*
- *Nelinearna analiza konstrukcija*
- *Stabilnost konstrukcija*
- *Vibracije i trajnost strojeva i konstrukcija*
- *Elastomechanics and Plastomechanics*
- *FEM and Optimization of Structures*
- *Advanced Thermomechanics*
- *Contact Mechanics*
- *Nonlinear Structural Analysis*
- *Structural Stability*
- *Vibrations and Durability of Machines and Structures*
- *Kinematics and Dynamics of Robots*
- *Protection Against Noise and Vibration of Machines and Structures*
- *Viscoelasticity and Viscoplasticity*
- *Kinematics and Dynamics of Robots*
- *Protection Against Noise and Vibration of Machines and Structures*
- *Viscoelasticity and Viscoplasticity*



ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- Primijenjena mehanika: računalna mehanika, eksperimentalna mehanika, mehanika grešaka i loma konstrukcija, optimalni dizajn konstrukcija, stabilnost konstrukcija, vibracije, vibroakustika, dinamika strojeva i konstrukcija, mehatronika, termomehanika, nanomehanika, integritet konstrukcija*

Applied mechanics: computational mechanics, experimental mechanics, failure and fracture mechanics of structures, optimal structural design, structural stability, vibrations, vibroacoustics, dynamics of structures and machines, mechatronics, thermomechanics, nanomechanics, structural integrity.

PROJEKTI | PROJECTS

- Procjena ponašanja konstrukcija u graničnim uvjetima rada, Hrvatska zaklada za znanost, 2014 - 2018, Josip Brnić*
Assessment of structural behaviour in limit state operating conditions, Hrvatska zaklada za znanost, znanstvenoistraživački, 2014 - 2018, Josip Brnić
- Svojstva materijala, ponašanje pri puzaњu, lomna žilavost i mikrostruktura metalnih legura -eksperimentalne analize i numeričke simulacije, bilateralni projekt Hrvatska - Kina, 2014 - 2015, Josip Brnić*
Material properties, creep behavior, fracture toughness and microstructure of metal alloys – experimental analysis and numerical simulations, bilateral project Croatia - China, 2014 - 2015, Josip Brnić
- Utjecaj toplinske zone uzrokovane elektronskim snopom zavarenog martenzitnog čelika GX4CrNi13-4 na čvrstoću materijala pri zamoru, bilateralni projekt Hrvatska - Austria, 2014 - 2015, Josip Brnić*
Influence of Heat Affected Zone of electron beam welded steel casting GX4CrNi13-4 on the fatigue strength, bilateral project Croatia - Austria, 2014 - 2015, Josip Brnić
- Modeliranje i vibracijska dijagnostika rotacijskih strojeva, OJ 221 MT 146, Inicijalna potpora za mlade istraživače, Sveučilište u Rijeci, Sanjin Braut.*
Modeling and vibration diagnosis of rotating machines, OJ 221 MT 146, Initial support for young researchers, University of Rijeka, Sanjin Braut.
- Redukcija vibracija i buke rotacijskih strojeva, OJ 213 MT 118, Potpora za istraživački tim s najmanje 5 istraživača, Sveučilište u Rijeci, Roberto Žigulić.*
Reduction of vibrations and noise of the rotational machines, OJ 213 MT 118, Support for the research team with min. 5 researchers, University of Rijeka, Roberto Žigulić.
- Numerička analiza odziva konstrukcija i eksperimentalna istraživanja svojstava materijala, OJ 203 , Sveučilište u Rijeci, Josip Brnić*
Numerical analysis of structural response and experimental investigations of material properties, OJ 203, University of Rijeka, Josip Brnić.
- Razvoj numeričkih modela za analizu stabilnosti deformacijskih formi grednih konstrukcija, Sveučilište u Rijeci, Goran Turkalj, od 2013.*
Development of numerical models for stability analysis of beam-type structure deformation modes, University of Rijeka, since 2013.
- I. Eksperimentalna istraživanja svojstava materijala portalna i II. Analiza izvedenog stanja i procjena mehaničkog ponašanja dijela rasklopнog postrojenja 110 kV u EVP Vrata,, Brnić, J., Čanađija M., Lanc D., Brčić M., Turkalj G.,*
I. Experimental investigations of the material properties of the portal and II. Structural analysis and estimation of mechanical behaviour of the part of 110 KV plant in EVP Vrata,



- Konačnoelementno modeliranje laminatno kompozitnih konstrukcija grednog tipa, OJ11222, Sveučilište u Rijeci, Domagoj Lanc, od 2014.
Finite element modeling of laminated composite beam-type structures, OJ11222, University of Rijeka, Domagoj Lanc, since 2014.
- IPA Adriatic projekt/2. poziv/127/Premošćivanje tehničkih razlika i socijalnih podozrivosti u svrhu doprinosa transformacije Jadranske regije u stabilno čvorište održivog tehnološkog razvoja
IPA Adriatic CBC/2nd Order/127/Bridge technical differences and social suspicions contributing to transform the Adriatic area in a stable hub for a sustainable technological development/

PUBLIKACIJE | PUBLICATIONS**KNJIGE | BOOKS**

- Brnić, J., Vukelić, G., Krščanski, S. *Mechanical and Materials Engineering of Modern Structure and Component* (ch. 15, "Comparison of Some Structural and Stainless Steels Based on the Mechanical Properties and Resistance to Creep", pp. 189-196), Springer, 2015, Berlin

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Brnić J., Turkalj G., Čanadžija M., *Mechanical Testing of the Behavior of Steel 1.7147 at Different Temperatures*, Steel and composite structures, 1229-9367, 17, 549-560, 2014
- Brnić J., Turkalj G., Čanadžija M., Krščanski S., Brčić M., Lanc D., *Deformation Behavior and Material Properties of Austenitic Heat - Resistant Steel X15CrNiSi25-20 Subjected to High Temperatures and Creep*, Materials & design, 0261-306969, 219-229, 2015
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- Marotti de Sciarra, Francesco; Čanadžija, Marko; Barretta, Raffaele *A gradient model for torsion of nanobeams*, Comptes Rendus Mecanique, 1631-0721, 343, 289-300, 2015
- Ivić S., Čanadžija M., Družeta S., *Static structural analysis of S-lay pipe laying with a tensioner model based on the frictional contact*, Engineering Review, 1330-9587, 9, 223-234, 2014
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- Štimac G., Braut S., Žigulić R., Skoblar A., *Robust control and loop shaping design with the application to flexible rotor levitated with AMBs*, 14th International Symposium on Magnetic Bearings, Amrhein, Wolfgang (ur.), Linz, Austria, 2014, 304-308., 14th International Symposium on Magnetic Bearings, Linz, Austria, 2014, - Book of Abstracts, 304-308, 2014., Austria



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- Pešić I., Lanc D., Turkalj G., *Thermal buckling analysis of thin-walled beam structures*, Twelfth International Conference on Computational Structures Technology, 1759-3433, 254, 2014 Napulj, Italija
- Pešić I., Lanc D., Turkalj G., *Numerical simulation of instability behavior of composite thin-walled beams*, IN-TECH 2014 International Conference on Innovative Technologies, 1849-0662, 205-206, 2014, Leiria, Portugal
- Braut S., Žigulić R., Štimac G., Skoblar, A., *Light rotor-stator partial rub characterization using Instantaneous Angular Speed measurement*, Vibration Engineering and Technology of Machinery - VETOMAC X, ISSN 2211-0984, ISBN 978-3-319-09917-0, 673-682, 2014 Manchester, UK
- Braut, S., Žigulić, R., Štimac, G., Skoblar, A., *Rotor-stator partial rub diagnosis using Hilbert Huang transform*, 9th IFTOMM International Conference on Rotor Dynamics - IFTOMM ICORD ISSN 2211-0984 , ISBN 978-3-319-06589-2, 1945-1953, 2014, Milano, Italija

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

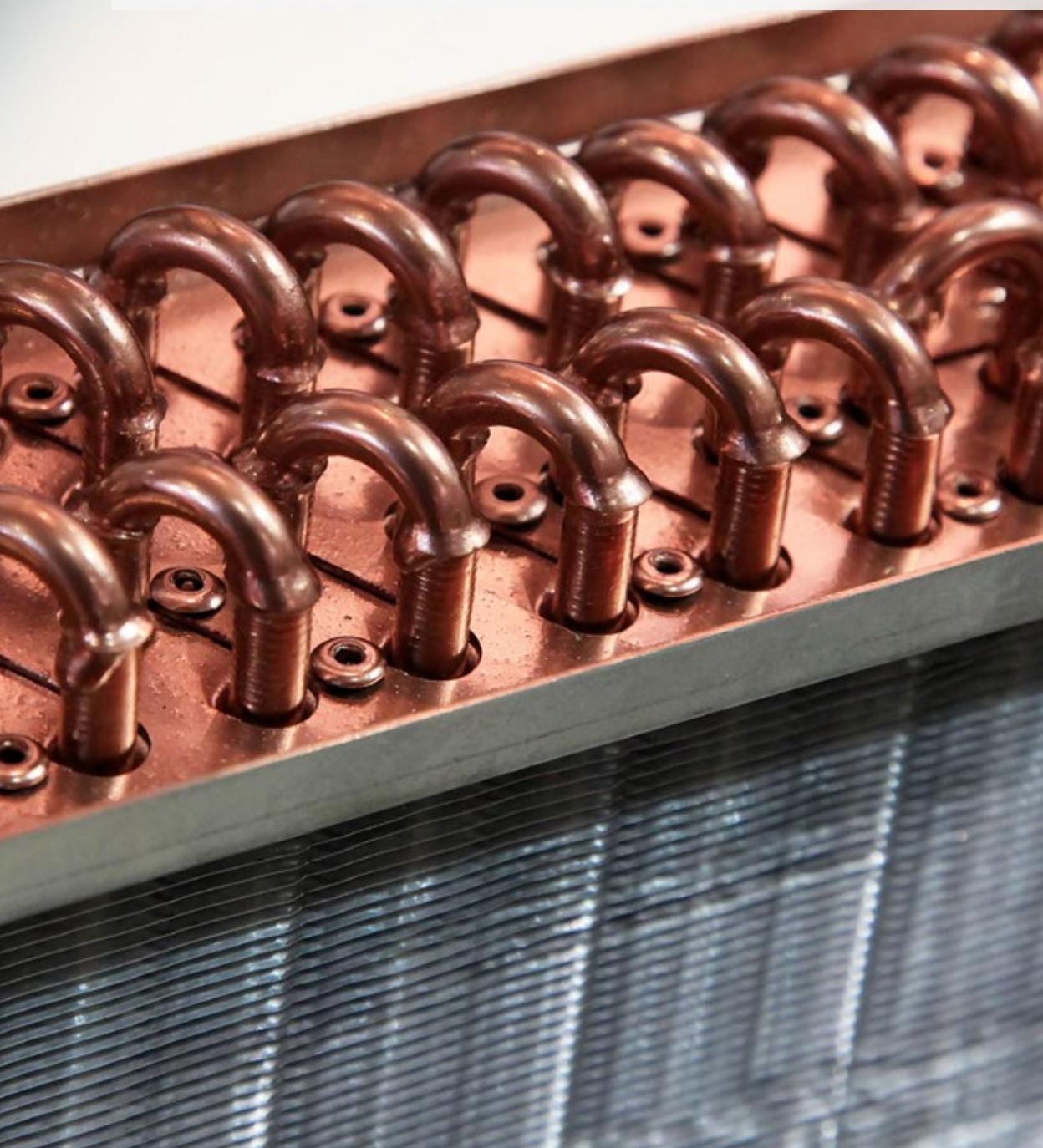
- Civil Engineering Faculty, University of Maribor, Slovenija, Slovenia
- Institute of Mechanics Department of Mechanical Engineering TU Dortmund, Njemačka, Germany
- School of Materials Science and Engineering, Henan Polytechnic University, Kina, China
- Harbin Institute of Technology, School of Materials Science and Engineering, Kina, China
- University of Bologna, Italija, Italia
- Faculty of Engineering - University of Kragujevac, Srbija, Serbia
- Faculty of Mechanical Engineering - University of Montenegro, Crna Gora, Montenegro
- Faculty of Mechanical Engineering, University of Ljubljana, Slovenija, Slovenia
- Institute of Materials and Welding, Graz University of Technology, Austrija, Austria
- Faculty of Engineering and Environment, Northumbria University, Newcastle upon Tyne Velika Britanija, United Kingdom
- L'Università degli Studi di Napoli Federico II, Naples, Italija, Italy



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5¹¹

zavod za termodinamiku i energetiku
department of thermodynamics and
energy engineering





PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:

Prof. dr. sc. / Prof. D. Sc. **Vladimir Medica**

<http://www.riteh.uniri.hr/ustroj/zavodi/zte/>

djelatnici faculty and staff

REDOVITI PROFESORI | PROFESSORS

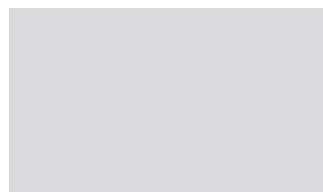


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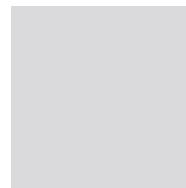
Bernard Franković

termodinamika; prijenos topline i prijenos tvari; izmjenjivači topline; plinska tehnika; obnovljivi izvori energije
refrigeration, thermal measurements, compressors, process equipment, heat pumps, energy efficiency, renewable energy sources



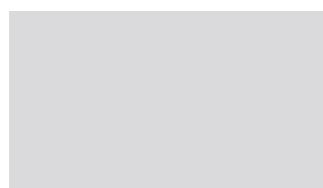
Vladimir Medica

motori s unutarnjim izgaranjem; toplinski strojevi, brodski pogonski strojevi, numeričko modeliranje, numeričke simulacije izgaranja
internal combustion engines, heat engines, ship propulsion machinery, numerical modelling, numerical simulations of combustion



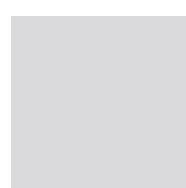
Tomislav Mrakovčić

brodski energetski sustavi, brodski pogonski sustavi, brodski pomoći strojevi, numeričko modeliranje prijenosa topline i tvari
marine energy systems, marine propulsion systems, marine auxiliary machinery, numerical modeling of heat and mass transfer



Branimir Pavković

tehnika hlađenja, mjerjenja u termotehnici, kompresori, procesna oprema, dizalice topline, energetska učinkovitost, obnovljivi izvori energije
refrigeration, thermal measurements, compressors, process equipment, heat pumps, energy efficiency, renewable energy sources



Zmagoslav Prelec

*energetika; generatori pare; energetski sustavi;
zaštita okoliša
energetics, steam generators,
energy systems*



Anica Trp

*termodinamika; izmjenjivači topline; numeričko modeliranje
prijenosa topline i tvari; obnovljivi izvori energije
thermodynamics; heat exchangers; numerical modeling of heat
and mass transfer; renewable energy sources*



IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS

Kristian Lenič

*termodinamika; izmjenjivači topline; numeričko modeliranje
prijenosa topline i tvari; obnovljivi izvori energije
thermodynamics; heat exchangers; numerical modeling of heat
and mass transfer; renewable energy sources*



DOCENTI | ASSISTANT PROFESSORS

Tomislav Senčić

*termoenergetika; toplinski strojevi, goriva i maziva
thermoenergetics, thermal machines, fuels and lubricants*



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Igor Wolf

*termotehnička oprema i sustavi; toplinska ugodnost; kvaliteta
zraka u prostoru; obnovljivi izvori energije; centralni sustavi
nadzora i upravljanja; optimizacija sustava
thermo-technical equipment and systems; thermal comfort;
indoor air quality; renewable energy sources; central
management and control systems; system optimization*



VIŠI ASISTENTI | SENIOR ASSISTANTS

Igor Bonefačić

*termodinamika, numeričko modeliranje procesa izgaranja,
prijenosa topline i tvari, obnovljivi izvori energije
thermodynamics, numerical modelling of combustion, heat and
mass transfer, renewable energy sources*





Viktor Dragičević

*energetski sustavi, energetski i procesni uređaji, inženjerstvo zaštite okoliša
thermodynamics, numerical modelling of combustion, heat and mass transfer, renewable energy sources*

ZNANSTVENI NOVACI | JUNIOR RESEARCHERS



Ozren Bukovac viši asistent | senior assistant

*motori s unutranjim izgaranjem, termodinamika, toplinski strojevi, numeričko modeliranje, neuronske mreže
internal combustion engines, thermodynamics, heat engines, numerical modeling, neural networks*



Paolo Blecich poslijedoktorand Postdoctoral Research Assistant

*termodinamika, numeričko modeliranje prijelaza topline i izmjene tvari, obnovljivi izvori energije
thermodynamics, numerical modelling of heat and mass transfer, renewable energy sources*



Boris Delač

*tehnika hlađenja, mjerjenja u termotehnici, kompresori, procesna oprema, dizalice topline
refrigeration, thermal measurements, compressors, process equipment, heat pumps*



Sanjin Fućak

*termodinamika, numeričko modeliranje prijelaza topline i izmjene tvari, obnovljivi izvori energije
thermodynamics, numerical modelling of heat and mass transfer, renewable energy sources*



Vedran Mrzljak poslijedoktorand Postdoctoral Research Assistant

*motori s unutranjim izgaranjem, termodinamika, toplinski strojevi, toplinske turbine, numeričko modeliranje
internal combustion engines, thermodynamics, heat engines, heat turbines, numerical modeling*

VANJSKI SURADNICI | ASSOCIATES

Nikola Blažević

*procesna industrija, prerada nafte; obrada otpadnih voda
process industry, refineries, waste water treatment*

Katarina Knafelj

*goriva i maziva
fuels and lubricants*

Ivan Jakovljević

toplinske turbine
thermal turbines

Bojan Jurdana | KD Čistoča d.o.o.

plinska tehnika
gas technology

Serđo Klapčić | HEP - TE Plomin d.o.o.

izvori energije
heat sources

Edi Kučan

brodski pomoći strojevi, brodski sustavi
marine auxiliary machinery, marine systems

nastava
education

Nastava se izvodi iz područja znanstvenih polja strojarstva, temeljnih i interdisciplinarnih tehničkih znanosti, znanstvenih grana procesnog energetskog strojarstva, brodskog strojarsva, termodinamike, energetike i inženjerstva okoliša, Energetski sistemi; Energetska postrojenja; Energetska oprema, uređaji i strojevi; Zaštita okoliša; Procesno inženjerstvo.

Program stručnog osposobljavanja osoba koje provode energetske preglede i/ili energetsko certificiranje zgrada s jednostavnim tehničkim sustavom (Modul 1).

Program stručnog osposobljavanja osoba koje provode energetske preglede i/ili energetsko certificiranje zgrada sa složenim tehničkim sustavom (Modul 2).

Lectures in the field of scientific fields of Mechanical Engineering, Fundamental and Interdisciplinary Engineering Sciences, the scientific branches of Process Energy Engineering, Marine Engineering, Thermodynamics, Energy Engineering and Environmental Engineering, Energy systems, Power plants, Energy equipment, facilities and engines, Environmental protection, Process engineering.

Education of persons who are to perform energy audits and/or energy certification of buildings with a simple technical system (Module 1).

Education of persons who are to perform energy audits and/or energy certification of buildings with a complex technical system (Module 2).

KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- Brodski pomoći strojevi
- Energetski sustavi
- Izvori energije
- Nauka o topolini I
- Tehnika grijanja
- Termodinamika BG
- Termodinamika i energetika
- Toplinski strojevi i uređaji
- Marine Auxiliary Machinery
- Energy Systems
- Energy Sources
- Thermodynamics I
- Heating Systems
- Thermodynamics NA
- Thermodynamics and Energy Engineering
- Thermal Engines and Devices

KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Goriva i maziva
- Nauka o topolini II
- Numeričko modeliranje u termodinamici
- Plinska tehnika
- Fuels and lubricants
- Thermodynamics II
- Numerical Modelling in Thermodynamics
- Gas Engineering

- Tehnički izmjenjivači topline
- Termodinamika smjesa
- Energetski i procesni uređaji
- Termoenergetska postrojenja
- Energetska postrojenja
- Inženjerstvo zaštite okoliša
- Procesno inženjerstvo
- Automatizacija i regulacija u sustavima klimatizacije
- Brodski termotehnički sustavi
- Obnovljivi izvori energije
- Toplinska mjerena
- Brodski energetski uređaji
- Brodski sustavi
- Heat Exchangers
- Thermodynamics of Mixtures
- Energy and process facilities
- Thermal energy plants
- Power plants
- Environmental engineering
- Process engineering
- HVAC Control Systems
- Marine HVAC&R Systems
- Renewable Energy Sources
- Thermal Measurements
- Ship Energy Facilities
- Ship Systems

KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Toplinski strojevi i uređaji 2
- Toplina
- Energetika u procesnoj industriji
- Zaštita okoliša i radne sredine
- Tehnološki procesi u procesnoj industriji
- Grijanje i klimatizacija
- Brodski sustavi, pomoći strojevi i uređaji
- Thermal machines and devices 2
- Thermodynamics
- Energetics in process industry
- Environmental and working space protection
- Technological processes in process industry
- Heating and Air-Conditioning Systems
- Ship Systems and Auxiliaries



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KOLEGIJI NA POSLIJEDIPLOMSKIM SVEUČILIŠNIM (DOKTORSKIM) STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Eksperimentalne metode u toplinskoj tehnici i termoenergetici
- Izabrana poglavља iz toplinskih znanosti
- Izabrana poglavља iz izmjenjivača topline
- Numeričko modeliranje prijelaza topline
- Termodynamička analiza procesa
- Termodynamička smjesa i toplinski uređaji
- Izabrana poglavља iz grijanja i klimatizacije
- Obnovljivi izvori energije
- Izabrana poglavља iz brodskih energetskih postrojenja
- Izabrana poglavља iz brodskih strojnih kompleksa
- Experimental Methods in Thermal and Power Engineering
- Selected Topics on Thermal Sciences
- Selected Topics on Heat Exchangers
- Numerical Modeling of Heat Transfer
- Thermodynamic Analysis of Processes
- Thermodynamics of Mixtures and Thermal Devices
- Selected Topics on Heating and Air-Conditioning
- Renewable Energy Sources
- Selected Topics Marine Energy Systems
- Selected Topics of Marine Machinery Systems

ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- Istraživanja na toplinskim aparatima i uređajima, izmjenjivačima topline i toplinskim spremnicima koja obuhvaćaju teorijska i laboratorijska istraživanja prijelaza topline, prijenosa mase te izmjene topline pri promjeni faza; istraživanja i optimizacija sustava grijanja i klimatizacije te sustava za korištenje obnovljivih izvora energije; istraživanja na području rashladne tehnike koja obuhvaćaju kompresijske i apsorpcijske rashladne uređaje i dizalice topline; istraživanja u području energetske učinkovitosti i optimizacija termotehničkih sustava grijanja, hlađenja i klimatizacije; istraživanja

utjecaja parametara vlažne pare na proces erozije rotorskih lopatica toplinskih turbina; istraživanja erozije korozije protočnog dijela parnih turbina; istraživanja mogućnosti smanjenja emisije štetnih tvari motora s unutarnjim izgaranjem uz zadržavanje niske specifične potrošnje goriva te s ciljem povećanja specifične snage i pouzdanosti u preuzimanju naglih opterećenja snage kod motora s prednabijanjem; istraživanja iz brodskog strojarstva s ciljem optimalnog i energetski racionalnog vođenja brodskih pogonskih sustava; istraživanja na području optimizacije energetskih procesa; istraživanja na području smanjenja emisija štetnih sastojaka iz energetskih i procesnih postrojenja. Research on heat devices, heat exchangers and heat storages which encompass theoretical and laboratory research of heat and mass transfer, as well as heat transfer during phase change processes; research and optimization of heating and cooling systems, as well as of renewable energy systems; research into the field of refrigeration which embraces compression and absorption cooling devices and heat pumps; research into energy efficiency and optimization of HVAC&R systems; research into influence of wet steam parameters on the erosion process of rotor turbine blades; research into erosion - corrosion in the flowing part of steam turbines; research into reducing pollution species emission of internal combustion engines while retaining low specific fuel consumption and aiming at increasing specific power and reliability by sudden overload of a super charged engine; research to field of marine engineering aiming at the optimizing ships power plant control; investigation into optimization of energy processes; investigation into the field of emission reduction from energy and process facilities.

- *Optimizacija energetskih sistema; Zaštita okoliša u energetskim postrojenjima*
Optimisation of energy systems; Environmental protection in energy plants

PROJEKTI | PROJECTS

- *Pavković, B., Damjanović, J.: Izrada studije izvodivosti i idejnog projekta za instalaciju fotonaponske elektrane na rashladnom skladištu u okviru GreenBerth Projekta Rijeka, Hrvatska, podizvođač u IPA Med projektu: Promotion of Port Communities SMEs role in Energy Efficiency and GREEN Technologies for BERTHing Operations, Tehnički fakultet u Rijeci 2015., studija opravdanosti i idejni projekt*
Pavković, B., Damjanović, J.: External Services for Development of Feasibility and Preliminary Design for Installing Photovoltaic Cells on Cold Storage Warehouse Within GreenBerth Project Rijeka, Croatia, subcontractor in IPA Med project: Promotion of Port Communities SMEs role in Energy Efficiency and GREEN Technologies for BERTHing Operations, Faculty of Engineering in Rijeka, 2015., feasibility study and preliminary design
- *Pavković, B., Delač, B., Lenić, K., Franković, D.: Istraživanje potencijala za uštedu energije korištenjem složenih kogeneracijskih i trigeneracijskih sustava koji koriste OIE prilikom obnove hotela, Tehnički fakultet u Rijeci 2014., energy study*
Pavković, B., Delač, B., Lenić, K., Franković, D.: Research of the potential for energy savings using complex cogeneration and trigeneration systems fur utilizarion of RES in hotel refurbishment, Faculty of Engineering in Rijeka, 2014., energy study
- *Pavković, B. et al.: Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Kršinićeva 16 u Rijeci, Tehnički fakultet u Rijeci, 2014.*
Pavković, B. et al.: Preliminary energy study and energy audit report for apartment building Kršinićeva 16 in Rijeka, Faculty of Engineering in Rijeka, 2014.
- *Pavković, B. et al.: Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Drage Gervaisa 76 u Rijeci, Tehnički fakultet u Rijeci, 2014., energetska studija*
Pavković, B. et al.: Preliminary energy study and energy audit report for apartment building Drage Gervaisa 76 in Rijeka, Faculty of Engineering in Rijeka, 2014., energy study
- *Pavković, B. et al.: Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Drage Šćitara 3 u Rijeci, Tehnički fakultet u Rijeci, 2014., energetska studija*
Pavković, B. et al.: Preliminary energy study and energy audit report for apartment building Drage Šćitara 3 in Rijeka, Faculty of Engineering in Rijeka, 2014., energy study



- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Krešimirova 16 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Krešimirova 16 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Ante Kovačića 7 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Ante Kovačića 7 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Štivar 9 u Kastvu*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Štivar 9 in Kastav*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Slavka Krautzeka 91 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Slavka Krautzeka 91 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Ivezovićeva 1 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Ivezovićeva 1 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Kršinićeva 20 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Kršinićeva 20 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Karasova 2 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Karasova 2 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Gustava Krkleca 12 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Gustava Krkleca 12 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study
- Pavković, B. et al.: *Preliminarna energetska studija i izvješće o energetskom pregledu za stambenu zgradu na adresi Vinka Benca 10 u Rijeci*, Tehnički fakultet u Rijeci, 2014., energetska studija
Pavković, B. et al.: *Preliminary energy study and energy audit report for apartment building Vinka Benca 10 in Rijeka*, Faculty of Engineering in Rijeka, 2014., energy study



PUBLIKACIJE | PUBLICATIONS

RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Dragičević V., Miletić M., Pavković, B., *Investigation on Possibilities for Biogas Production from Organic Waste on the Croatian Island of Krk*, Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku, ISSN 1330-3651, 22, 755-762, 2015, Osijek
- Glažar V., Franković B., Trp A., *Experimental and Numerical Study of Compact Heat Exchanger with Different Microchannel Shapes* International Journal of Refrigeration, ISSN 0140-7007, 51 144-153, 2015

- Grliušić M., Medica V., Račić, N., *Thermodynamic Analysis of a Ship Power Plant Operating with Waste Heat Recovery through Combined Heat and Power Production*, Energies, ISSN, 1996-1073, 7, 7368-7394, 2014

MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Pavković B., Delač B., Medica-Viola V., *Simulation and Design of Solar Absorption Cooling System*, Proc. 45th International Congress and Exhibition on Heating, Refrigeration and Air-Conditioning, ISBN 978-86-81505-75-5, CD, 2015, Beograd
- Lenić K., Trp A., Pavković, B., *Obrazovanje za energetsku učinkovitost u zgradarstvu*, Zbornik radova međunarodne stručne konferencije ME4CatalOGue, ISBN 978-953-6048-76-2, 178-182 2014, Slavonski Brod
- Lenić K., Kučar N., Trp A., *Usporedba metodologija proračuna vanjskih dobitaka topline u svrhu određivanja energetskog svojstva zgrade*, Proceedings of the International Congress Energy and the Environment 2014, ISBN 978-953-6886-18-0, 331-337, 2014, Rijeka

MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers. California Institute of Technology, SAD, USA
- Dipartimento di fisica tecnica, Universita' degli studi di Padova, Italija, Italy
- Dipartimento di energetica, Universita' degli studi di Trieste, Italija, Italy
- Dipartimento di energetica, Politecnico di Milano, Italija, Italy
- EAEC – European Automobile Engineers Cooperations, Austrija, Austria
- Ente per le Nuove tecnologie, l'Energia e l'Ambiente, ENEA, Roma , Italija, Italy
- EURAMMON - a joint initiative by companies, institutions and individuals committed to increasing the use of natural refrigerants, Frankfurt, Njemačka, Germany
- Faculty of Chemistry and Chemical Engineering, University of Maribor, Slovenija, Slovenia
- Faculty of Mechanical Engineering, University of Ljubljana, Slovenija, Slovenia
- Faculty of Mechanical Engineering, University of Maribor Slovenija, Slovenia
- FH Joanneum, University of Applied Sciences, Graz, Austrija, Austria
- FISITA – International Federation of Automotive Engineering Societies, Ujedinjeno Kraljevstvo United Kingdom
- GRETh, Bâtiment Lynx, SavoieTechnolac, Le Bourget du Lac – Cedex, Francuska, France
- Institute of Energy Technology, ETH Zürich, Švicarska, Switzerland
- Institut für angewandte Thermo- und Fluiddynamik, Fakultät Maschinenbau, Hochschule, Mannheim, Njemačka, Germany
- Institute for Resource Efficient and Sustainable Systems, Graz University of Technology, Austrija, Austria
- International Institute of Refrigeration, Paris, Francuska, France
- ISES – The International Solar Energy Society, Freiburg, World Organisation, Germany/ Njemačka ISES Europe Freiburg, Njemačka, Germany



- *Laboratory for Heating, Sanitary and Solar Technology, University of Ljubljana, Slovenija, Slovenia*
- *REHVA - Federation of European Heating, Ventilation and Air Conditioning Associations, Brussels, Belgija, Belgium*
- *Research and Development Center, Compagnie Industrielle d'Aplications Thermiques (CIAT), Culoz Francuska, France*
- *Szent Istvan University, Gödollo, Mađarska, Hungary*
- *Universität in Kassel, Njemačka, Germany*



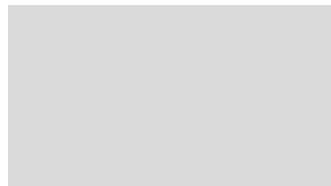


5.12 akademici i profesori emeritusi academics and professors emeritus



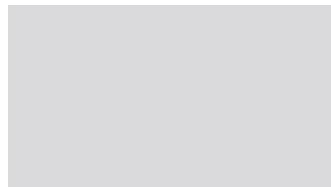
Ivan Katavić

*professor emeritus
professor Emeritus*



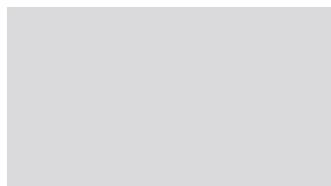
Elso Kuljanić

*professor emeritus, Akademik HAZU
professor Emeritus, HAZU academician*



Špiro Milošević

*professor emeritus
professor Emeritus*



SLUŽBE

DEKANAT, TAJNIŠTVO

RAČUNALNI CENTAR

STUDENTSKA EVIDENCI

KNJIŽNICA

6 stručne službe professional and administrative staff



6. knjižnica library



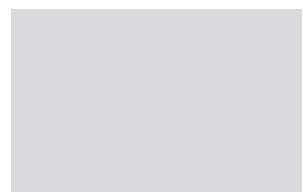
VODITELJICA | HEAD:

Prof. i dipl. knjižničarka / prof., grad. librarian **Marta Lončarević**

<http://www.riteh.uniri.hr/ustroj/knjiznica>



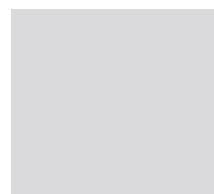
Marta Lončarević prof. i dipl. knjižničarka prof., grad. librarian



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mr. sc. Mario Šlosar-Brnelić dipl. knjižničar grad. librarian



Knjižnica Tehničkog fakulteta Sveučilišta u Rijeci dio je znanstvene, istraživačke i obrazovne djelatnosti Fakulteta. Obavlja poslove oblikovanja i izgradnje knjižničnog fonda (nabava, stručna obrada), pružanja knjižničnih usluga korisnicima (posudba i korištenje građe, informacijsko-edukacijsku djelatnost) te ostale poslove koji proizlaze iz tih procesa.

Korisnici knjižnice su redovni i izvanredni studenti, nastavno osoblje i stručni suradnici Fakulteta, ali i ostali članovi šire društvene zajednice koji se bave znanstvenim i stručnim radom, a u sluge knjižnice koriste po posebnim uvjetima. Knjižnica funkcioniра kao informacijsko, izobrazbeno i komunikacijsko središte. Nalazi se u prizemlju zgrade Fakulteta, gdje su na 403 m², na dvije etaže, smještene čitaonica, računalna čitaonica te otvoreni i zatvoreni fond.

The Library of the Faculty of Engineering, University of Rijeka is a part of the scientific, research and educational activities of the Faculty. It performs tasks of designing and construction of the library collection (procurement, expertise) the provision of library services to users (loan and the use of materials, information and educational activities) and other matters arising from these processes.

The Library is used by full and part-time students, faculty and professional staff of the Faculty but also by other members of the wider community engaged in scientific and professional work who use library facilities under special conditions. Therefore, the library functions as a media, education and communication center. It is located on the ground floor of the Faculty, namely on two floors covering 403 m² where there are situated a Reading Room, computer Reading Room, Open and Closed-End Fund.

Čitaonica se sastoji od trideset i tri mjeseta za učenje i korištenje prijenosnih računala s priključcima na mrežu. Računalna čitaonica ima dvadeset i četiri mjeseta s dvanaest računala namijenjenih istraživanju i učenju; preko njih studenti imaju pristup bazama podataka i katalogozima svih knjižnica. Nedavnom modernizacijom knjižničnoga sustava, Knjižnica je integrirana u knjižnični sustav Sveučilišta u Rijeci, dodano je niz novih funkcionalnosti i usluga i omogućeno je pretraživanje svih baza kroz jedan sustav. Pomoću Discovery servisa, jedinstvenog sučelja za pretraživanje, omogućeno je pretraživanje skupnog kataloga Sveučilišta čime i kataloga svih knjižnica Sveučilišta, pretplaćenih baza podataka dostupnih na Fakultetu i Sveučilištu u Rijeci, portala znanstvenih časopisa RH HRČAK i drugih odabranih znanstvenih izvora u slobodnom pristupu na internetu. Knjižnica je uključena u projekt Centra za online baze podataka čime su znanstveni i stručni časopisi dostupni našim korisnicima

Knjižnični fond Knjižnice je svojim sadržajem i obimom prilagođen znanstveno-istraživačkom programu rada na Fakultetu. Kontinuirano se dopunjava, obnavlja i osvremeniće pri čemu se težište stavlja na nabavu literature iz tehničkih znanosti, elektrotehnike, brodogradnje, računarstva. Početkom 2015. godine, knjižnični fond iznosi oko 22000 svezaka omeđenih publikacija te tridesetak naslova domaćih i stranih periodičkih publikacija. Uz klasičnu posudbu tiskane građe, pridaje se pažnja i pretraživanju i odabiru relevantne građe prema individualnim potrebama korisnika kao i njihovoj edukaciji za samostalno pretraživanje izvora informacija. Knjižnica, prema zahtjevima korisnika, vrši usluge i međuknjnične posudbe.

Uključeni smo u sustav upravljanja kvalitetom ISO 9001.

The Reading Room consists of thirty-three places for learning and using laptop computers with connections to the network. The Computer Reading Room has twenty four places with twelve computers intended for research and learning; through them, students have access to licensed databases and catalogs of all libraries. With recent modernization of the library system, the Library has been integrated into the library system of the University of Rijeka, a number of new features and services have been added and searches over databases through one system enabled. Using the Discovery Service as a unified search interface, it is now possible to search not only over the Union University Catalogue but also over the catalogs of all the libraries of the University, subscribed databases available on the Faculty and the University of Rijeka, the central portal of Croatian scientific journals named RH HRČAK and other selected scientific resources freely accessible on the Internet. The library is also included in the project of the Center for online databases making thus all scientific and professional journals available to our customers.

The library fund of the Library is in its funding sources, contents and scope adjusted to scientific research program at the Faculty. It has been continuously complementing, renewing and modernizing whereby the emphasis has been placed on the acquisition of literature in engineering sciences, electrical engineering, naval architecture and computing. In early 2015 the library fund covered about 22000 volumes of monographs and thirty titles of domestic and foreign periodicals. However, apart from lending the classic printed materials, due attention is also given to the search and selection of relevant material for individual search of sources of information according to the individual needs of users as well as their education. The Library provides services and interlibrary loans meeting thus the requirements of their users.

It is also worth pointing out that the Library and its members are involved in the quality management system ISO 9001 standard.



6.² računalni centar computer center



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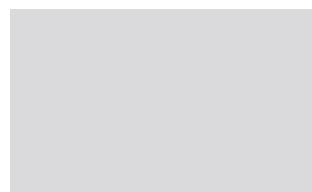
Prof. v. šk. mr. sc. / College Professor M. Sc. **Antun Sok**

<http://www.riteh.uniri.hr/ustroj/rc/>



Prof. v. šk. mr. sc. / College Professor M. Sc. **Antun Sok**

voditelj
head

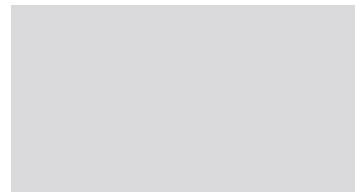


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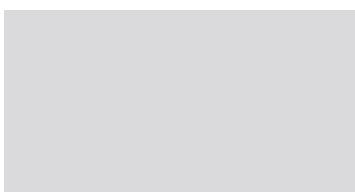
Tatjana Škorjanc, dipl. ing. graduate engineer

stručni suradnik
associate



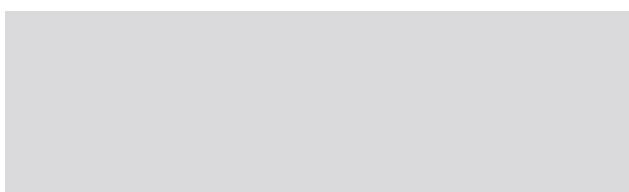
Domagoj Crljenko, dipl. ing. graduate engineer

stručni suradnik
associate



Dario Maršanić, prof.

viši stručni suradnik
senior associate



Siniša Vukotić

operator

computer operator



RAČUNALNI KABINETI

- Računalni kabinet 1: 20 + 1 računalo
- Računalni kabinet 2: 20 + 1 računalo
- Računalni kabinet 3: 20 + 1 računalo
- Računalni kabinet 4: 20 + 1 računalo
- Računalni kabinet 5: 10 računala
- Računalni kabinet 6: 10 računala
- Računalni kabinet 7: 20 + 1 računalo
- Računalni kabinet 8: 20 + 1 računalo

COMPUTER CLASSROOMS

- Computer Classroom 1: 20 + 1 computers
- Computer Classroom 2: 20 + 1 computers
- Computer Classroom 3: 20 + 1 computers
- Computer Classroom 4: 20 + 1 computers
- Computer Classroom 5: 10 computers
- Computer Classroom 6: 10 computers
- Computer Classroom 7: 20 + 1 computers
- Computer Classroom 8: 20 + 1 computers



6.3 finansijska služba accounting division



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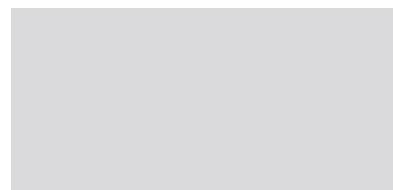
Ana Mirković Pavlović, mag. oec. grad. economist

<http://www.riteh.uniri.hr/ustroj/strucne-sluzbe/fs/>



Ana Mirković Pavlović, mag. oec. grad. economist

voditeljica
head

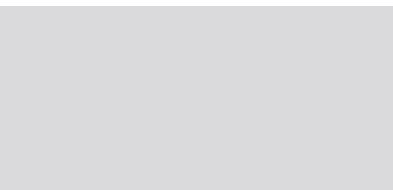


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Mirjana Mihaljević Vukelić, ing. bacc. eng.

voditeljica ostalih ustrojstvenih jedinica
head of other organizational units



Davorka Medanić

finansijski poslovi
financial activities



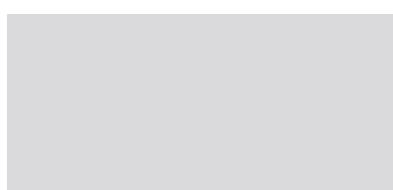
Iva Spajić, dipl. oec. grad. economist

finansijski poslovi
financial activities



Ana Šutalo, struc. spec. oec. spec. grad. economist

finansijski poslovi
financial activities



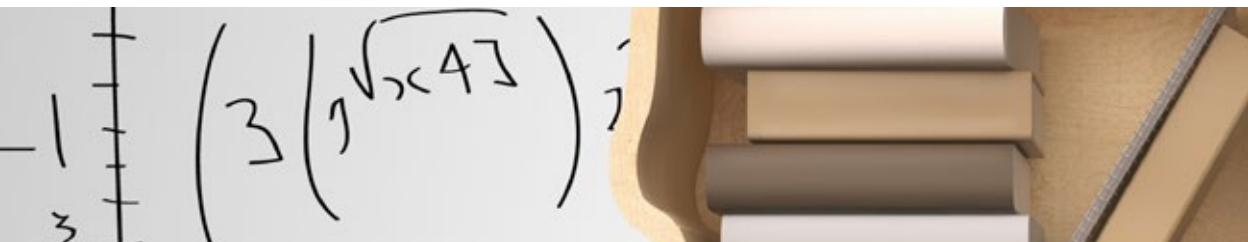
Tijana Ćupurdija

pripravnik-stručno osposobljavanje
apprentice-professional training





6.4 služba nabave i komercijale procurement and commerciale office



VODITELJ | HEAD:

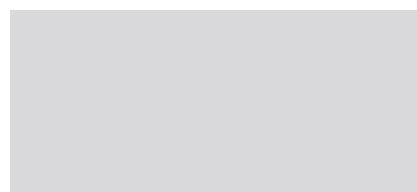
Mohorić Robert, dipl. oec. grad. economist

<http://www.riteh.uniri.hr/ustroj/strucne-sluzbe/skn/>



Robert Mohorić, dipl. oec. grad. economist

voditelj
head



Andrea Korva

pripravnica
apprentice



Bruna Martinović, oec. economist

ekonom za inventar
inventory economist



Mladen Ostrogović

ekonom za potrošni materijal
i prodaju publikacija
economist for consumables
and publications sales

Služba obavlja poslove komercijale, nabave i ekonomata. Vodi poslove u vezi nabave roba, usluga i radova, izradom plana nabave robe, usluga i radova za tekuću godinu, priprema i provodi postupke odabira godišnjih dobavljača, vodi evidenciju nabave male i velike vrijednosti, administrativno provodi postupke nabave prema Zakonu o javnoj nabavi, priprema dokumentaciju ovisno o načinu nabave, kontaktira s dobavljačima, sudjeluje u pripremanju odluka i prijedloga ugovora, pohranjuje cjelokupnu dokumentaciju o nabavi, preuzima naručenu robu, vodi evidenciju o sitnom inventarju, osnovnim sredstvima i potrošnom materijalu, radi na izradi, održavanju i unapređenju baza podataka Službe te održava i unapređuje sustav kontrole kvalitete u Službi.

This office performs commercial, procurement and economic services. It runs services connected with the procurement of goods and services, prepares and implements the procedures for the annual selection of suppliers, contracts with suppliers, receives ordered goods, keeps records of small inventories, basic resources and consumables, works on the office's databases and maintains and improves the system of quality control of its services.

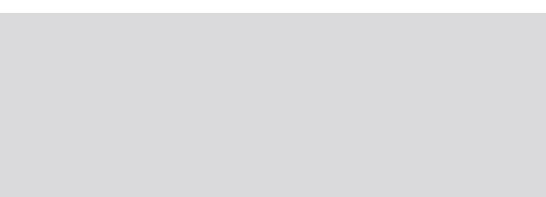
6.5 služba općih i kadrovskih poslova general and personnel office



VODITELJICA | HEAD:

Lenka Štajduhar, oec. economist

<http://www.riteh.uniri.hr/ustroj/strucne-sluzebe/sokp/>



Lenka Štajduhar, oec. economist

voditeljica opće i kadrovske službe
general and personnel office head



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Snježana Mikuličić

voditeljica kadrovskih poslova
personnel operation manager



Lidija Petričić

administrativna tajnica
administrative secretary



TAJNICE ZAVODA | DEPARTMENT SECRETARY:

Mira Bobanović



Vesna Franelić





Natalija Forgić



Lovorka Malinić



Dragica Jurin



Radojka Praprotnik

DOMAR - KUĆEPAZITELJ | MAJOR - DOMO:



Franjo Brozović



Štefan Rancinger

SPREMAČICE | CLEANING STAFF:

224



Dragica Alempić



Marica Gnjatović



Lidija Antunović



Fahira Horozović



Snježana Ban



Jasna Mijolović

Senka Jedrejčić



Mirjana Košpić



Nevenka Lilić - Pekas



Patricija Vukić



6. služba studentske evidencije student's registar and affairs office



VODITELJ | HEAD:

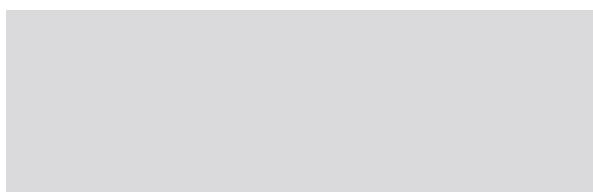
Žarko Burić, mag. ing.

<http://www.riteh.uniri.hr/ustroj/strucne-sluzbe/sse/>



Žarko Burić, mag. ing.

voditelj
office head



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Ivona Balzani

voditelj odsjeka
head of section



Antonela Ćaleta

voditelj ostalih ustrojstvenih jedinica
head other organizational units



Darko Vidučić

stručni savjetnik ISVU
ISVU Advisor



Tanja Veljčić

administrativna tajnica
administrative secretary

Služba studentske evidencije Fakulteta obavlja sve poslove vezane uz potrebe studenata. Zaprima i obrađuje dokumentaciju za razredbeni postupak, obavlja upis studnata u prvu i u više studijske godine, priprema dokumentaciju studenata za završni ili diplomski ispit, organizira promocije završenih studenata, prima i izdaje razne zahtjeve, uverjenja i potvrde, izrađuje izvješća prostručne analize za potrebe Fakulteta te vodi potrebnu korespondenciju i daje izvješća zainteresiranim strankama.

The students' Registar and Affairs Office is in charge of all the issues pertaining to students' needs. It collects and manages documentation for the admission exams, manages the enrolment of students to all the study years, prepares students' documents for the graduation exams, organizes the commencement of graduates, receives and delivers various requests and certificates, produces reports and analyses as per Faculty need, manages the necessary correspondence and gives reports to interested parties.



6⁷. tehnička služba technical and maintenance services



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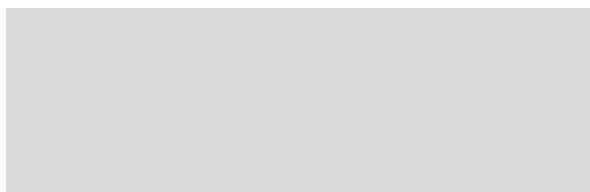
Nevio Poniš, dipl. ing.

<http://www.riteh.uniri.hr/ustroj/strucne-sluzbe/tehnicka-sluzba/>



Nevio Poniš, dipl. ing.

voditelj
office head



Bernardo Badurina



Josip Jurasić



Igor Mihaljević



Serđo Mišić

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Tehnička služba obavlja poslove održavanja, zaštite na radu i zaštite od požara. U sastavu Tehničke službe su i laboranti koji pod nadzorom nastavnika sudjeluju u pripremi, odnosno izvedbi dijela nastave.

The Technical and Maintenance Services perform activities pertaining to maintenance, work safety and fire protection. Involved in the Technical Services are also laboratory technicians that, under supervision of teaching staff, participate in the preparation of performing parts of lectures.

6.8 uredi za IPA projekte IPA project offices

Nikola Anđelić

inženjer-stručnjak
engineer-expert



Vedran Margan

projekt administrator
project admin



Nadja Surać

projekt
administrator
project admin



Jelena Višnić

projekt
administrator
project admin



University of R

Raginex d.o.o.



ALUMNI TFR



Kartodrom
RIJEKA - PRELJUK





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O.N RACING

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7 studentski zbor student council



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7.1 studentski zbor tehničkoga fakulteta student council at the faculty of engineering



Studentski zbor je najviše predstavničko tijelo studenata unutar Fakulteta čiji je rad definiran Statutom. Broj 15 članova predstavnika i isto toliko zamjenika koji se biraju u šest izbornih jedinica, a naknadno se izabire četvrti predstavnik poslijediplomskih studija. Prema Statutu Fakulteta i drugim općim aktima, Studentski zbor izabire 12 predstavnika koji aktivno sudjeluju pri radu Fakultetskoga vijeća Tehničkoga fakulteta. Članovi Studentskoga zbora kroz odbore i povjerenstva sudjeluju u kreiranju politike Fakulteta, studijskih programa te nastave na Fakultetu. Studentski je zbor dužan braniti interese studenata, upozoravati na nepravilnosti i nepravde te sufinacirati i podržavati rad studentskih udruga i organizacija na Fakultetu. U okviru svojih mogućnosti i sufinanciranja od Fakulteta i Sveučilišta u Rijeci, raspolaže određenim sredstvima predviđenim za sudjelovanje u troškovima studentskih projekata te za rad njihovih udruga i organizacija. Preko svojega ovlaštenog predstavnika aktivno sudjeluje i u tijelima odlučivanja unutar Sveučilišnoga zbora Sveučilišta u Rijeci.

Aktivnosti Studentskog Zbora Tehničkog fakulteta za ak. godinu 2014./2015. :

- redovito obavljanje studenata vezano za promjene u nastavi i njihovih prava i obveza
- informiranje o događanjima na Sveučilištu
- okupljanje studenata i organizacija ekipa u sklopu UNISPORT lige na riječkom Sveučilištu
- suradnja s udrugama
- uz potporu Studentskog Zbora Sveučilišta u Rijeci organizirani su stručni posjet Austriji i Njemačkoj od 04.- 06. ožujka 2015. te

The Student Council (SC) is the highest student representative body at the Faculty whose work is defined with the Statute. It has 15 representatives and the same number of deputies that are elected in 6 electoral wards; the 4th representative of postgraduate studies is elected subsequently. According to the Statute of the Faculty and other regulations, the SC elects 12 representatives who will actively participate in the work of the Faculty Council. SC members, through the boards and commissions, participate and collaborate in creating of the Faculty policy, academic programs and teaching at the Faculty. The duty of the SC is to defend the interests of students, draw intention to flaws and injustices, cofinance and support the work of student associations and organizations at the Faculty. Within its capacity and owing to contributions of the Faculty and University of Rijeka, the SC disposes of certain resources that are provided for the cost of student projects, work of their associations and organizations. Through its authorized representative, the SC actively participates in decision-making committees within the University Student Council.

SC activities for year 2014 /2015 :

- informing students on regular basis about changes in education and their rights and duties
- informing about University events
- organizing teams for UNISPORT league at the University
- with financial support from University Student council we organized Scientific visit to Austria and Germany from 04 to 6 March 2015 and to Rimac Automobili, ZIP factory and DokInq 15 of May 2015
- Freshmen Evening of the Faculty of



stručni posjet tvornicama Rimac Automobili, Zagrebačkom inkubatoru poduzetništva i firmi Dok-ing 15. svibnja 2015.

- organizirana Brlicošjada 13.11. 2015, turnir u stolnom nogometu i pikadu u studentskim prostorijama i Riteh zabavu u klubu Bačva 13. ožujka 2015. i party za kraj godine 19. lipnja, gdje su se studenti imali priliku družiti u opuštenoj atmosferi

Za sva pitanja, savjete i pomoć studenti se mogu obratiti preko:

- tel: 051/651-556
- sustava MUDRI
- mailom na sz@riteh.hr
- facebook stranice Studentski zbor Tehničkog fakulteta u Rijeci

Engineering on 13 November on the boat Arka, table soccer and darts tournament at the Faculty and Riteh praty at club Bačva on 13 March 2015 and Finals party on 19 June 2015

For questions, advice and help students can address us:

- call us: 051/651-556
- course on MUDRI
- mail us: sz@riteh.hr
- follow us on Facebook page Studentski zbor Tehničkog fakulteta u Rijeci



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Studenti u posjeti firmi Rimac Automobili

članovi studentskog zbora po izbornim jedinicama members, listed by electoral wards

1. PREDDIPLOMSKI SVEUČILIŠNI STUDIJ STROJARSTVA I BRODOGRADNJE

1. UNDERGRADUATE UNIVERSITY STUDY OF MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE

- *Teodora Milošević*
- *Ena Badžek, zamjenica/deputy*
- *Šimun Rogoznica*
- *Damjan Bogdanović, zamjenik/deputy*
- *Petar Topljak*
- *Stefan Josip Španiček, zamjenik/deputy*

2. PREDDIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE I RAČUNARSTVA

2. UNDERGRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING AND COMPUTER ENGINEERING

- *Matko Smoljan*
- *Deni Turković, zamjenik/deputy*
- *Mario Novak*
- *Ivan Krsnik, zamjenik/deputy*
- *Hrvoje Bobovec*
- *Josip Podnar, zamjenik/deputy*

3. PREDDIPLOMSKI STRUČNI STUDIJ STROJARSTVA, BRODOGRADNJE I ELEKTROTEHNIKE

3. UNDERGRADUATE VOCATIONAL STUDY OF MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING AND NAVAL ARCHITECTURE

- *Ljubomir Pozder*
- *Daniel Morožin, zamjenik/deputy*

4. DIPLOMSKI SVEUČILIŠNI STUDIJ STROJARSTVA I BRODOGRADNJE

4. GRADUATE UNIVERSITY STUDY OF MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE

- *Ljubica Pavlović*
- *Katarina Kapš, zamjenica/deputy*
- *Ivana Hreljac, zamjenica/deputy*

5. DIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE I RAČUNARSTVA

5. GRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING AND COMPUTER ENGINEERING

- *Matej Raguzin*
- *Luka Pejaković, zamjenik/deputy*
- *Emil Rubinić*
- *Diego Sušanj, zamjenik/deputy*

6. POSLIJEDIPLOMSKI SVEUČILIŠNI (DOKTORSKI) STUDIJ

6. POSTGRADUATE UNIVERSITY (DOCTORAL) STUDY

- *Lovro Štic*
- *Vedran Medica, zamjenik/deputy*
- *Ivan Volarić*
- *Ivan Mužić, zamjenik/deputy*
- *Nikola Andelić*
- *Marko Perčić, zamjenik/deputy*



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7.2 ieee sb rijeka



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IEEE, Institute of Electrical Engineers, je stručna neprofitna organizacija koja djeluje širom svijeta. Udruga je nastala 1884. godine na inicijativu nekolicine znanstvenika, radi praćenja razvoja elektrotehnike te je prerasla u najveću svjetsku stručnu udrugu s više od 425 tisuća članova.

Posredstvom svojih članova IEEE je vodeći autoritet na širokom tehničkom području, od računalnih znanosti, biomedicinske tehnologije i telekomunikacija, preko električne energije, potrošačke elektronike i mnogih drugih područja. Svojom djelatnošću IEEE nastoji poticati, organizirati i pomagati tehničke aktivnosti širom svijeta.

Riječki studentski ogranak IEEE trenutno okuplja tridesetak studentskih članova koji sudjeluju na raznim državnim i međunarodnim događajima te daju svoj doprinos u organizaciji raznih događanja u riječkom području.

4. Kongres IEEE Studentskih ograna

Krajem rujna prošle godine, u organizaciji studentskog ogranka iz Rijeke, održan je 4. CroSBC (Croatian Student Branch Congress), na kojem su se okupili predstavnici svih četiriju hrvatskih ograna.

IEEE Institute of Electrical Engineers is a professional non-profit organization that operates in worldwide. The association, which was formed in 1884 at the initiative of several scientists with the aim of monitoring the development of electrical engineering, has grown into the world's largest professional association with more than 425,000 members.

Through its members, IEEE is a leading authority in wide technical areas: from computer science, biomedical technology and telecommunications, electricity, consumer electronics and many other fields. With its activity, IEEE endeavours to encourage, organize and assist technical activities worldwide.

The student branch of Rijeka IEEE currently consists of thirty student members participating in various national and international events, giving its contribution to the organization of various events in the area of Rijeka.

4 th CroSBC

At the end of September last year, a 4 th CroSBC (Croatian Student Branch Congress), organized by the student branch in Rijeka, which brought together representatives from all four Croatian branches.

Guest at the conference was prof Viktor Komen, who, in his presentation, gave nice overview of



Na kongresu se pridružio i profesor Komen je napravivši pregled postojećih tehnologija i mogućnosti njihove upotrebe u raznim uvjetima. Uz to, dotaknuo se tematike pametnih kuća te mogućnosti eksploracije obnovljivih izvora energije. Predavanje je održao i Emil Rubinić opisavši dva projekta u organizaciji IEEE SB Rijeka. Prvi je bio rad na alatu za obradu velikog skupa podataka DGTool čiji je cilj pronalazak uzoraka pojave pogrešaka u programskom kodu. Druga tema je bio hvalevrijedan projekt „Multinamjenska asistivna tehnologija“ čija je svrha olakšati i poboljšati životne uvjete osobama sa invaliditetom.

Nakon odslušanih predavanja uslijedile su kratke prezentacije svakog ogranka i kratka rasprava o mogućnostima poboljšanja komunikacije između ogrankova, projektima koje smo održali ili planiramo održati te svemu što bi moglo doprinijeti boljem funkcioniranju IEEE-a. Puno smo toga naučili, stekli dosta korisnog iskustva te povrh svega upoznali nove ljude s kojima ćemo surađivati tijekom sljedećih godina.

Pripravni seminar iz programiranja

Ove godine po prvi puta je održan pripravni seminar iz programiranja za studente prve godine prediplomskog sveučilišnog studija računarstva. Seminar su održali volonteri ogranka te kroz četiri dana obradili osnove

today existing technologies and their possible uses in different conditions. Besides that, he talked on subject of smart homes and ways of exploiting renewable energy sources. Second guest lecturer was Emil Rubinić who presented two IEEE SB Rijeka's projects. First of them is software "DGTool" whose task is to find error pattern inside program code when processing large datasets. Second was "Multifunctional assistive technology", a praiseworthy project whose aim is to make life easier for persons with disabilities.

Short presentations followed after the lectures given by members of every chapter and later on, discussion was held on possibilities of improving communications among chapters. We learned a lot and gained a lot of useful experience. But above all, we met new people with whom we are going to cooperate during next years.

Introductory programming seminar

For the first time this year an introductory programming seminar was held for all 1st year students of undergraduate university study of computer engineering. During the course of four days, thanks to SB Rijeka chapter volunteers, students learned basics of C programming language. More than half of the enrolled students attended the seminar, which is more



programiranja u programskom jeziku C. Odaziv polovine studenata koji su upisali prvu godinu je i više nego zadovoljavajuć. Također u sklopu seminara održane su prezentacije laboratorija koji djeluju na Tehničkom fakultetu u Rijeci, kao i udruga usko vezanih uz računarstvo.

MIPRO konferencija

Naši su članovi volontirali na promociji udruge i fakulteta na konferenciji MIPRO koja se svake godine održava u Opatiji. Konferencija je prvenstveno namijenjena informacijskim i komunikacijskim tehnologijama a sadrži i promociju studentskih radova iz istih područja.

IEEE day

Kao i svake godine, studenti IEEE ogranka Rijeka su u sklopu proslave svoga dana, 6. listopada, nastojali informirati studente o IEEE udruzi. Tako su u holu fakulteta postavili štand s promotivnim materijalom i pružili zainteresiranim informacije o radu udruge, ujedno su primali nove članove u IEEE udruzi.



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than satisfactory. Next to seminar, volunteers presented Faculty laboratories and computer engineering associations.

MIPRO Conference

Our members volunteered at the conference MIPRO which is held every year in Opatija to promote both association and Faculty. The conference is primarily held with the purpose of presenting information and communication technologies and contains the promotion of student work from the same area.

IEEE day

On the 6th of October, as part of IEEE day, members of IEEE inform the students about their association and give the opportunity to join. Students could sign up and get informations on info booth set up in the Faculty hallway.

7.3 iaeste

IAESTE (The International Association for the Exchange of Students for Technical Experience) najveća je svjetska udruga za razmjenu studenata tehničkih i prirodnih znanosti. Udruga je utemeljena 1948. godine na Imperial College of London i danas organizirano djeluje u više od 80 zemalja svijeta. U Hrvatskoj djeluje još od 1952. godine, a od 1992. kao međunarodna udruga za razmjenu stručnih praksi tehničkih i prirodnih znanosti IAESTE Croatia.

Udruga već godinama uspješno djeluje i na Sveučilištu u Rijeci i to zahvaljujući volonterskom radu svojih članova. Od osnivanja 1952. godine više od 1300 hrvatskih studenata dobilo je priliku svoju stručnu praksu odraditi u inozemstvu dok je u Hrvatsku, na stručnu praksu, primljeno više od 1200 studenata iz cijelog svijeta.

Posljednjih desetak godina više od 400 studenata hrvatskih sveučilišta obavilo je stručnu praksu posredstvom udruge IAESTE, od čega više od 40 studenata Tehničkog fakulteta Sveučilišta u Rijeci. Naši su studenti na stručnom usavršavanju bili u Portugalu, Njemačkoj, Mađarskoj, Velikoj Britaniji, Nizozemskoj, Grčkoj, Finskoj, Švedskoj, Japanu, itd. Pružena im je prilika vidjeti i upoznati nove zemlje i kulture te stjecati ne samo praktična životna iskustva, već i prijateljstva.

U istom je razdoblju lokalni odbor Rijeka ugostio više od 20 stranih studenata koji su na stručnom usavršavanju boravili na riječkom području. Za strane i naše studente svakoga se ljeta organiziraju druženja i putovanja pod nazivom GETT (Get together days). Studenti Tehničkog fakulteta, članovi udruge, također su aktivni sudionici mnogobrojnih međunarodnih susreta, kongresa i seminara.

Lokalni odbor Rijeka je prošle godine pokrenuo humanitarnu akciju prikupljanja sredstva za prihvatilište za beskućnike "Ruže svetog Franje", a tu akciju nastaviti ćemo i narednih godina.

IAESTE (International Association for the Exchange of Students for Technical Experience) is the world's largest association for exchange students studying engineering and natural sciences. The association was founded at the Imperial College of London in 1948 and today it is a well organized association operating in more than 80 countries worldwide. In Croatia, it started operating as far back as 1952, and since 1992 it has been an international association for the exchange of experiences in professional engineering and natural sciences of IAESTE Croatia.

For many years, the Association has been successfully operating at the University of Rijeka as a result of voluntary work of its members. Since its establishment in 1952, more than 1300 Croatian students have had the opportunity to pursue their practical training abroad, while more than 1200 students from across the globe have received practical training here in Croatia.

In last 10 years, more than 400 Croatian university students have pursued professional training through IAESTE, of whom more than 40 students are from the Faculty of Engineering, University of Rijeka. Our students pursued their vocational training in Portugal, Germany, Hungary, Great Britain, the Netherlands, Greece, Finland, Sweden, Japan, etc. They were all given the opportunity to see and learn about new countries and cultures and to gain not only practical life experiences, but also opportunities to make friendships.

In the same period, Rijeka City Council hosted more than 20 foreign students who were getting their practical training in areas of Rijeka. For foreign and our students, meetings and travels called GETT (Get Together days) are organized every summer. Being members of the association, the students of technical colleges are also active participants in numerous international meetings, conferences and seminars.

Last year, Rijeka City Council launched a humanitarian campaign to raise funds for shelters for the homeless "Roses of Saint Francis" and that action will be continued in the coming years.



7.4 eestec



Electrical Engineering Students European Association (EESTEC) je međunarodna internacionalna studentska organizacija koja okuplja studente elektrotehnike i računarstva. Trenutno broji 53 lokalnih odbora u ukupno 26 europskih država i ima više od 1700 članova. Local Committee (LC) Rijeka djeluje pri Tehničkom fakultetu u Rijeci od 1999. godine i broji 100 članova.

Ciljevi su udruge poticanje, pomaganje i razvoj elektrotehnike, informatike i srodnih grana znanosti, ostvarivanje međunarodne suradnje, kontakata i poveznica s europskim zemljama zbog promicanja i vrednovanja cijelovite europske baštine.

Udruga se bavi organizacijom skupova studenata elektrotehnike u Europi radi druženja i stručnoga usavršavanja, održava komunikaciju sa studentima elektrotehnike i računarstva širom Europe, organizira znanstvene manifestacije na području Primorsko-goranske županije, omogućuje izdavanje publikacija, suradnju s drugim organizacijama, organizira međunarodne skupove u svrhu upoznavanja različitih društvenih, kulturnih i jezičnih obilježja te razmjene ideja, ciljeva i stavova, sudjeluje na međunarodnim susretima i tribinama te razvija razne druge kulturne i društvene aktivnosti.

eestec
LC Rijeka

The EESTEC (Electrical Engineering Students European Association) is an international student organization that brings together students of Electrical Engineering and Computer Science. It has currently 53 local committees, in a total of 26 European countries with more than 1700 members. The Rijeka LC (Local Committee) has been working within the Faculty of Engineering since 1999, and counts 100 members.

The objectives of the Association are to encourage and assist the development of electrical engineering, information technology and related branches of the science, achieving international cooperation, contacts and connections with other European countries, with the aim of promoting and appraising European heritage.

The activities of the organizations include: organization of gatherings and training of European electrical engineering students, communication with electrical engineering students across Europe, organization of scientific events in Primorsko - Goranska County, issuing publications, cooperation with other organizations, organization of international conferences aimed at exchange of different social, cultural and linguistic characteristics, ideas, goals and attitudes, participation in international meetings and forums, and developing various other cultural and social activities.



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7.5 riteh racing team



Članovi tima, studenti sa Sveučilišta u Rijeci, već osmu sezonom za redom posvećuju svoje slobodno vrijeme izradi trkačih bolidova. Cilj projekta je pretvaranje znanja stečenog na fakultetu u praksi te rješavanje realnih problema na koje se nailazi tokom cijelog projekta.

Riteh Racing Team je Formula Student tim Tehničkog fakulteta. Formula Student je najpriznatije i najcjenjenije obrazovno automoto natjecanje pod vodstvom Instituta inženjera strojarstva. Podržano industrijom i inženjerima visokog profila, natjecanje inspirira i razvija poduzetne i inovativne mlade inženjere. Cilj projekta je oduševiti mlade te ih ohrabriti da postanu inženjeri. Smisao je poticati studente da osmisle, konstruiraju, izrade, ekonomiziraju, prezentiraju i natječu se kao tim s prototipom malog trkačeg bolida u seriji statičkih i dinamičkih kategorija. Oblik natjecanja pruža studentima idealnu priliku za demonstraciju i poboljšanje vlastitih mogućnosti izrade kompleksnog i integriranog proizvoda u zahtjevnoj okolini automoto natjecanja.

Formula Student natjecanja podijeljena su na statičke i dinamičke kategorije. No, prije svega, potrebno je zadovoljiti detaljan tehnički pregled koji osigurava izradu u skladu s pravilima. U sklopu tehničkog pregleda provjerava se i sposobnost iskakanja svih vozača iz bolida u roku od 5 sekundi u slučaju nužde. Također, postoji Tilt test gdje se bolid nagnije pod kutem od 45° , čime se provjerava da ne cure nikakve tekućine te pod kutem od 60° za provjeru stabilnosti. Noise test osigurava neprelaženje buke motora iznad 110 dB, a Brake testom se provjeravaju kočnice.

Team members, students of Faculty of engineering, for the 8th season in row are dedicating thier free time into making race cars. Project goal is to apply acquired knwoledge into solving real time problems team memebers encounter during the project.

The Riteh Racing Team is the Formula StudentTeam of the Faculty of Engineering. The Formula Student is the most recognized and mostappreciated educational motorsports competition organized by the Institute of Mechanical Engineers. Supported by industry and high-profile engineers, the competition inspires and develops enterprising and innovative young engineers. The project aims to inspire young people and encourage them to become engineers. The idea is to induce students to design, construct, manufacture, economize, present and compete as a team with the prototype of a small racing car in a series of static and dynamic categories. The form of the competition is such that it offers students an ideal opportunity to demonstrate and improve their capabilities of making a complex and integrated product in a demanding environment of automotive competition.

Formula Student competitions are divided into static and dynamic categories. But first it is necessary to satisfy a detailed technical inspectionwhich ensures that everything is made in accordance with the rules. The technical inspection also tests the ability of all the drivers to jump out of the car within 5 seconds in emergency situations. The Tilt test, in which the car is tilted at an angle of 45° , checks that there is no fluids' leakage, while when tilted at an angle of 60° it checks stability. Furthermore, the Noise test ensures that the engine noise does



Nakon zadovoljenog tehničkog pregleda, bolid smije sudjelovati u dinamičkim kategorijama. Dinamičke kategorije podrazumijevaju tri utrke. Skid Pad, odnosno vožnja u „osmice“ gdje je bitna lateralna akceleracija bolida, Autocross utrka koja objedinjuje sposobnost skretanja, akceleraciju i kočenje bez prisutnosti ostalih bolidova, a zadnja utrka je Endurance na kojoj je potrebno odvoziti 22 km uz prisutnost ostalih bolidova i izmjenu vozača nakon 11 km.

U sklopu statičkih kategorija potrebno je prezentirati Business Plan koji predstavlja hipotetsku situaciju u kojoj su suci ulagači u proizvod, zatim Cost Report u kojemu se ocjenjuje vremenska tablica izrade te cijena svakog pojedinog dijela i ukupna cijena bolidova. U Design Reportu se prezentiraju konstrukcijska rješenja te performanse vozila. Kako bi se mogao natjecati, svaki bolid mora biti napravljen u skladu s pravilima instituta SAE (Society of Automotive Engineers). Također, potrebno je svake sezone napraviti novi bolid.

Sezona 2014./2015. započela je u planiranju izrade najboljeg bolidova, ne ponavljajući greške iz prethodne sezone. Ideja je bila uzeti najbolja konstrukcijska rješenja s bolida RRC3 te napraviti promjene na ovjesu, poboljšanje šasije, poraditi na ergonomiji te se po prvi puta pozabaviti i aerodinamikom. Iz svega toga proizašao je bolid pod nazivom RRC4.

not exceed 110 dB and the Brake test checks the brakes.

After a satisfactory technical inspection, the car can participate in dynamic categories. The dynamic categories include three races. The Skid Pad, or ride in the “figure eight”, focuses on the lateral acceleration of the car, while the Auto cross race combines the ability to turn, accelerate and brake without the presence of other cars. The last race is called Endurance, which implies driving 22 km together with other cars with rotation of the drivers after 11 km.

The static category consists of the Business Plan, which is in fact a hypothetical situation in which investors in the product act as arbiters, then the Cost Report, which assesses the time table of manufacturing and the price of each single part, as well as the overall price of the car. And finally there is the Design Report, which presents construction solutions and the vehicle's performance.

In order to compete, each car has to be manufactured according to strict rules of the Institute SAE (Society of Automotive Engineers). Moreover, each season a new car has to be made.

Plan for 2014/2015 season was to produce the best bolid so far without repeating last season mistakes. Best construction solutions were taken from RRC3 bolid. Some changes were made on the suspension, the chassis and ergonomics were improved and for the first time the aerodynamics were taken in consideration. All this resulted in new bolid- the RRC4.



Solidworks- Konstrukcija bolid-a RRC4

U novoj sezoni 2015./2016. Tim planira dovršiti bolid RRC-4, obaviti testiranja i spremati dočekati predstojeća natjecanja u Europi. U planu je poraditi na promociji projekta, tima i fakulteta. Za RRT je sezona već krenula te pod vodstvom novih voditelja studenata Denisa Lončara i Matije Praprovića i dosadašnjeg mentora prof. Sanjina Brauta krenulo se u izvršavanje zadanih ciljeva.

Throughout new 2015/2016 season ,team wolud like to finish RRC4 bolide, run necessary tests and be ready for upcoming european competitions. Team and Faculty promotion are aslo one of this season goals. Season is already on the way and under leadership of new leaders, students Denis Lončar and Matija Prpović and old mentor Prof. Sanjin Braut, team is determined in achieving the set goals.



Jedan od sastanaka Riteh Racing Team-a

Zahvaljujemo se Studentskom zboru Sveučilišta u Rijeci, AVL-u, Ini, Zagrebačkoj banci, Gradu Rijeci, Zakladi Sveučilišta u Rijeci, Tehničkom fakultetu u Rijeci, Alumni klubu TFRI, Rockwool-u, Hep-u, Mtf-u, Polikliniki Medico, Primorsko-goranskoj županiji, Plinari Baderna, Riteh-u te Scripti na financijskoj pomoći.

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Također, velike zahvale Loctiteu, As2conu, Solidworksu, Miletić Design-u, SKF-u, Tiplon-u, Garrett-u, H&R-u, Kordcarbon-u, Newton Equipement-u, Oxeon-u, Bosch-u, Pol-u, Vijcima Kranjec, AMOC Ivičku, Auto-Birtiću, Kelteks-u, Kmd Babić-u, G&K Termiki,

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AC Marinićima, Primotronicu-RS Components i Yacht Center Adriaticu na doniranom materijalu, alatu i dijelovima.

Radio Sovi, portalu Studentski.hr, na medijskom pokroviteljstvu te ostalim medijima koji nas prate: RITV, Kanal Ri, Novi list.

*Poštovani i dragi sponzori te partneri,
ovom Vam se prilikom najljepše zahvaljujemo na
pruženoj velikodušnoj potpori i vremenu
koje ste nam posvetili. Cijeli je projekt moguć
samo uz vašu potporu koja nam znači još više
u ovim teškim ekonomskim vremenima Vi nam
omogućujete vidljivost i promociju našeg rada.
Još jednom, veliko hvala na svesrnoj suradnji
za koju se nadamo da neće i u budućnosti
izostati.*

*Posebno hvala Tehničkom fakultetu kao i svim
njegovim profesorima i djelatnicima koji su
na bilo koji način doprinijeli i podržali projekt
Formule student.*

*Zahvale idu i bivšem voditelju Riteh Racing
Teama i projekta Formula Student, studentu
Ivanu Barbariću, na neizmjernoj podršci i
strpljenju tijekom izrade novog RRC4 bolida.
Svoje znanje nesrebično je podijelio sa svim
novim članovima tima, uvijek spremjan odgovoriti
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in us. This entire project would not have been
possible without your support, which is of even
greater value for us in these tough economic
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and to help out with any problems*

*And finally we would like to thank our project’s
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us.*



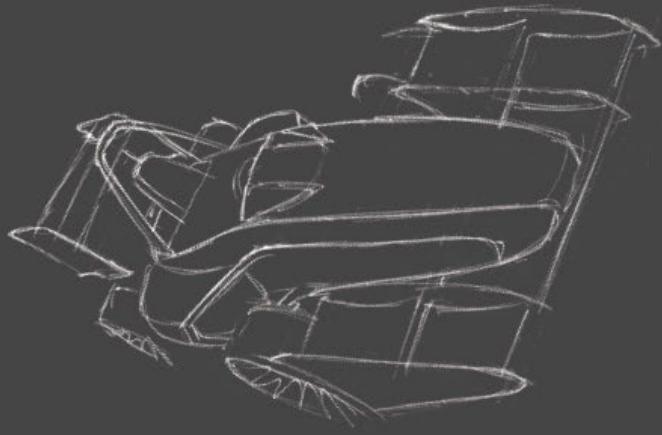
Phoenix

CONCEPT

RitzenRacing
team



Phoenix-concept novog bolida RRC-4



MILETIC DESIGN

7.6 riteh waterbike team

RITEH Waterbike Team riječkog Tehničkog fakulteta osnovali su studenti brodogradnje 1999. godine kako bi se uključili u međunarodnu studentsku regatu vodocikala.

Studenti, sa svojim mentorima, moraju osmisliti, projektirati i napraviti vodocikle, a kasnije, u natjecanju, pokazati kako funkcioniraju. Radi se volonterski, a sredstva za rad studenti prikupljaju samostalno, traženjem sponzorstava i donacija. Pravila regate nalažu pogonjenje vodocikala isključivo snagom ljudskih mišića, i to najviše dvojice natjecatelja. Laički rečeno, vodocikli su sofisticirane pedaline, nalik onima s plaža. No, za razliku od njih, regatni primjeri projektirani su tako da im hidrodinamičke značajke omogućuju postizanje brzine i do 10 čvorova. Prema pravilima regate, vodocikli ne smiju biti duži od 6 metara, širina im ne smije biti veća od duljine, gaz ne smije prelaziti 1,5 metar. Ne postoje ograničenja u dizajnu pa se na regatama susreću svakakva inovativna rješenja koja ponajviše ovise o znanju i finansijskim sposobnostima timova.

Ovogodišnja regata, 35. po redu, održana je u Berlinu od 13. do 17. svibnja. U Njemačkoj se natjecalo 280 članova posada na 33 različitim vodocikala u šest disciplina: sprint na 100 metara, slalom, ubrzanje, naprijed-natrag, maraton, te vuča o stup na kojoj se mjeri sila koju postiže vodocikl.

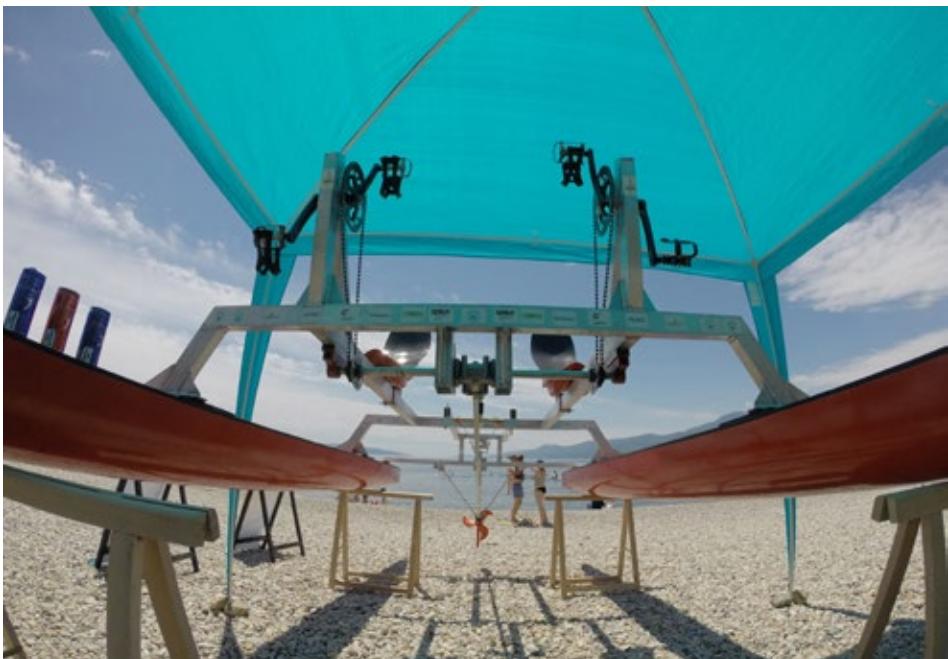
RITEH Waterbike Team of the Technical faculty of Rijeka was founded in 1999 by the naval architecture students. Main reason for the team forming was the competing on the International Waterbike Regatta. Students, together with their mentors have to plan, design, construct waterbikes, and show their functionality in the race on the International Waterbike Regatta. Whole work in the RITEH Waterbike Team is voluntary and all the funds for operation of the team are collected via donations and sponsorships. Those students who are members of the team greatly enhance their practical experience and knowledge.

There are a few rules of the regatta: waterbikes must be powered by the power of human muscles, maximum of two people are allowed on board, dimensions must not extend 6 meters in length, breadth must be minor than length, maximum draft is 1,5 meters. Although there are no specific rules about the look of waterbikes, solutions are innovative and depend only on the team financial capabilities and knowledge. In layman's term, waterbikes are sophisticated pedal boats, like those that can be seen on the beaches, but these waterbikes are designed for the regatta with much better hydrodynamic characteristics so their speeds are often greater than 10 knots. This year, Berlin hosted the 36th International Waterbike Regatta from 13th to 17th of May. There were 280 crew members from 33 different waterbike teams competing in



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Nakon "Zvizde" i "Kajzera", "Šijun" je riječkom timu treći vodocikl. Svi su bili katamaranske forme, ali napredak se očituje i kroz masu i brzinu. "Šijun" ima samo 35 kilograma i plovi brzinom od 11 čvorova, dvostruko bolje od prvih vodocikala! Iako nov, "Šijun" se još može poboljšati. Već su ova poboljšanja donijela bolji plasman od prošlogodišnjega.

Ovakvi projekti iznimno su bitni jer, osim poticanja timskoga rada, podjele zaduženja i odgovornosti, uvode članove tima u realni svijet poslovanja. Tim mora napraviti sve: osmisiliti plan, projektirati, namaknuti sredstva, nabaviti sirovinu i opremu, konstruirati, trenirati i na kraju sve to marketinški zaokružiti. Članovi tima posebno ističu ulogu mentora dr. sc. Roka Dejhalle u organizaciji tima. Ovaj trud prepoznao je i predsjednik RH Ivo Josipović koji je na prijamu ugostio izaslanstvo RITEH Waterbike Team-a i obećao im podršku u budućim projektima.

6 different disciplines: 100 meters sprint, slalom, acceleration, forward-stop-backward, long distance and bollard pull.

After first two waterbikes "Zvizza" and "Kajzer", RITEH Waterbike Team constructed the third one named "Šijun" in 2013. All waterbikes were catamarans, but improvement was showed in mass and speed. "Šijun" has just 35 kilograms and his maximum speed is 11 knots, what is a big improvoment comparably! Although it is new, "Šijun" can be further improved. This year, RITEH Waterbike Team with "Šijun" won 16th place in overall standings. These projects are very important for students because they encourage teamwork, distribution of tasks and responsibilities and also teach them how everything operates in the real world of business. Team has to do everything: make a plan, design waterbike, acquire funds, materials and equipment, construct waterbike, practice for the regatta and in the end make a good work in marketing and promotion. Members of RITEH Waterbike Team stand that the role of their mentor prof. dr. sc. Roko Dejhalla had a great influence on the organization of the team. That good effort was recognized in 2014 by the Croatian president Ivo Josipović who hosted members of RITEH Waterbike Team and promised them support for the future projects.





