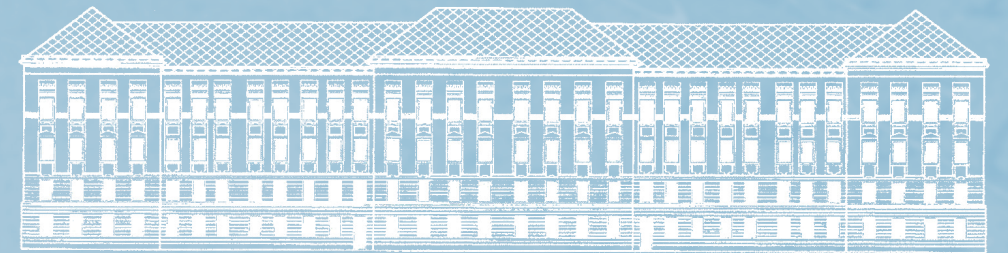




Sveučilište u Rijeci  
TEHNIČKI FAKULTET

University of Rijeka  
FACULTY OF ENGINEERING



**GODIŠNJAK  
TEHNIČKOG  
FAKULTETA  
Sveučilište u Rijeci**

**ANNUAL REPORT  
OF THE FACULTY  
OF ENGINEERING  
University of Rijeka**

**2013./2014.  
2013 /2014**



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**2013./2014.**  
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*Sveučilište u Rijeci  
Tehnički fakultet*

*University of Rijeka  
Faculty of Engineering*

**GODIŠNJAK TEHNIČKOG FAKULTETA SVEUČILIŠTA U RIJECI 2013./2014.**  
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# predgovor dekana dean's preface



*Dragi čitatelji i dragi prijatelji Fakulteta!*

*Pred vama se nalazi najnoviji Godišnjak posvećen, ovaj puta, pedeset i četvrtoj godini postojanja i djelovanja Tehničkoga fakulteta Sveučilišta u Rijeci. U njemu su prikazane aktivnosti svih naših djelatnika i studenata, kao i rezultati ostvareni tijekom akademske godine 2013./14. Sve su one imale cilj ostvariti izvrsnost u istraživačkoj, nastavnoj, stručnoj i svakoj drugoj djelatnosti te održati poziciju prepoznatljive sastavnice našega sveučilišta kao i hrvatske visokoobrazovne i znanstvene scene.*

*Da bismo taj cilj i ostvarili, u svrhu podizanja razine kvalitete nastave, pogotovo one praktične, i ove smo godine, kao i prošle, uložili oko milijun kuna vlastitih sredstava u nabavku odgovarajuće nastavno-laboratorijske opreme, a nadamo se da ćemo sa istom praksom moći nastaviti i sljedeće godine. Radi jačanja istraživačke infrastrukture Fakulteta, radna je skupina (prof. dr. sc. Zlatan Car – voditelj, prof. dr. sc. Roko Dejhalla, prof. dr. sc. Željko Jeričević, izv. prof. dr. sc. Saša Vlahinić i doc. dr. sc. Igor Wolf) uz suradnju svih zavoda pripremila projektni prijedlog čija bi se provedba mogla financirati iz Europskog fonda za regionalni razvoj. Naslov je predloženoga projekta Centar tehničkih znanosti Sjevernoga Jadrana, a vrijednost predviđene opreme nešto je manja od pet milijuna eura.*

*Uz pomoć donatora, ispred Fakulteta je izgrađena i puštena u rad fotonaponska elektrana snage 3,5 kW, a na krovu radioničke hale u tijeku je postavljanje absorpcijskog sustava hlađenja pogonjenog sunčevom energijom rashladnog učinka oko 19 kW.*

*Zajedno smo, s našim Sveučilištem, nastavili s pripremom projekta kojega Sveučilište također kani prijaviti za Europski fond za regionalni razvoj. Njime je predviđeno preseljenje Fakulteta*

*Dear readers and dear friends of the Faculty,*

*What you have in front of you is the latest issue of our Yearbook, which is dedicated to the fifty-fourth year of existence and activity of the Faculty of Engineering of the University of Rijeka. The Yearbook presents the activities of all our staff and students, as well as the results achieved during the 2013/14 academic year. All these activities were aimed at achieving excellence in research, teaching and professional or any other activity at the Faculty, thereby maintaining its position of a recognizable member of our university and of the overall Croatian higher education and scientific scene.*

*To accomplish this goal and primarily raise the quality of teaching, especially of its practical part, this year we have invested about one million kuna of our own funds in purchasing appropriate teaching laboratory equipment; we did so also last year and hope to be able to continue in the same way next year. In order to strengthen the research infrastructure of the Faculty, the working group made up of Prof. D. Sc. Zlatan Car - head, Prof. D. Sc. Roko Dejhalla, Prof. D. Sc. Željko Jeričević, Assoc. Prof. D. Sc. Saša Vlahinić and Assist. Prof. D. Sc. Igor Wolf, in cooperation with all departments, prepared a project proposal, the implementation of which is hoped to be financed by the European Regional Development Fund. The title of the proposed project is The Engineering Sciences Centre of the Northern Adriatic and the value of the equipment is estimated at a little less than five million euros.*

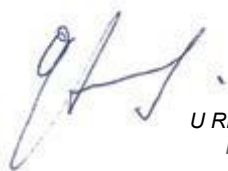
*Moreover, with the help of donors, a photovoltaic power plant of the power of 3.5 kW has been built and put into operation in front of the Faculty, while an absorption system of cooling, driven by solar energy of about 19 kW cooling power, is being mounted onto the roof of the workshop hall.*

na novu lokaciju na Kampusu Trsat. U tu je svrhu radna skupina (prof. dr. sc. Juraj Šimunić – voditelj, prof. dr. sc. Duško Pavlečić, prof. dr. sc. Branimir Pavković, doc. dr. sc. Neven Bulić, v. asist. dr. sc. Anton Turk) izradila Prostorni program Tehničkog fakulteta koji bi trebao poslužiti kao podloga za izradu idejnoga projekta nove zgrade Tehničkoga fakulteta.

Zadovoljstvo mi je istaknuti kako je naš časopis *Engineering Review*, kojega izdajemo zajedno s Građevinskim fakultetom, već nakon prve godine od pojavljivanja na listi vrlo cijenjene bibliometrijske baze SCImago, uspio podići svoj faktor utjecaja (impact factor) i time se svrstati u skupinu svjetskih časopisa iz jedne kvartile više. Stoga zahvala i čestitke Uredništvu (prof. dr. sc. Josip Brnić – glavni urednik, izv. prof. dr. sc. Marina Franulović, prof. dr. sc. Gordan Jelenić, izv. prof. dr. sc. Kristin Lenić, izv. prof. dr. sc. Viktor Sučić, doc. dr. sc. Tihana Galinac Grbac, doc. dr. sc. Dubravko Franković).

Kako sve ono što radimo nije ostalo nezapaženo, potvrđuju i ovogodišnje istaknute nagrade i priznanja našim istraživačima: prof. dr. sc. Juraj Šimunić dobitnik je Priznanja za životno djelo u stvaranju i radu HRO CIGRE-a, v. asist. dr. sc. Sven Maričić dobitnik je Godišnje nagrade Grada Rijeke za izniman i prepoznatljiv doprinos razvoju, unapređenju i popularizaciji znanosti, dok je v. asist. dr. sc. David Blažević dobitnik godišnje Nagrade Zaklade Sveučilišta u Rijeci za područja tehničkih i prirodnih znanosti u kategoriji znanstvenih novaka/asistenata te prve nagrade za inovatore do 30 godina starosti s područja Primorske-goranske županije.

Na kraju ovoga predgovora čestitam svim djelatnicima i studentima Fakulteta pedeset i četvrtu obljetnicu. Radnoj skupini za izradu Godišnjaka, a koju je i ove godine, kao glavni urednik, prevodio naš mladi znanstvenik dr. sc. Sven Maričić, a uz njega su je činili i v. asist. dr. sc. Loredana Simčić, v. asis. dr. sc. Sanjin Krščanski te v. asist. dr. sc. Ozren Bukovac, zahvaljujem na naporu uloženom u pripremu i uređenje cjelokupne građe.



U Rijeci, 17. listopada 2014.  
Rijeka, 17 October 2014

Dekan / Dean  
Prof. dr. sc. / Prof. D. Sc. Goran Turkalj

Together with our University, we have been engaged in the preparation of a project which the University intends to apply for funding from the European Regional Development Fund and which envisions relocation of the Faculty to the new site on the Trsat Campus. For this purpose, the working group (Prof. D. Sc. Juraj Šimunić – head, Prof. D. Sc. Duško Pavlečić, Prof. D. Sc. Branimir Pavković, Assist. Prof. D. Sc. Neven Bulić, Senior Assist. D. Sc. Anton Turk) developed the Spatial Program of the Faculty of Engineering, which should serve as a basis for a conceptual design of the new building of the Faculty of Engineering.

I am pleased to point out that our journal *Engineering Review*, which we publish in association with the Faculty of Civil Engineering, managed to raise its impact factor already after the first year of its appearance on the list of the highly appreciated SCImago bibliometric database, and has thus been included in the group of international journals of a higher quartile. I extend my thanks and congratulations for this achievement to its Editorial Board (Prof. D. Sc. Josip Brnić - Editor in Chief, Assoc. Prof. D. Sc. Marina Franulović, Prof. D. Sc. Gordan Jelenić, Assoc. Prof. D. Sc. Kristian Lenić, Assoc. Prof. D. Sc. Viktor Sučić, Assist. Prof. D. Sc. Tihana Galinac Grbac, Assist. Prof. D. Sc. Dubravko Franković).

That these activities of our staff do not pass unnoticed is confirmed by the fact that this year too our researchers were winners of distinguished awards and recognitions: Prof. D. Sc. Juraj Šimunić, won the Award for lifetime achievement in the creation and activity of HRO CIGRE, Senior Assist. D. Sc. Sven Maričić, was awarded the Annual Prize of the City of Rijeka for the outstanding and distinctive contribution to the development, improvement and popularization of science, while Senior Assist. D. Sc. David Blažević, won the annual Award of the Foundation of the University of Rijeka in the fields of Engineering and Natural Sciences in the category of research fellows/assistants as well as the first prize for innovators under 30 years of age from the Primorsko-Goranska County.

Finally, I congratulate all the Faculty staff and students on our Faculty's fifty-fourth anniversary. For the effort invested in preparing the material for this issue of the Yearbook, I express my gratitude to the working group, which was this year again lead by our young scientist and editor in chief D. Sc. Sven Maričić, and to its members: Senior Assist. D. Sc. Loredana Simčić, Senior Assist. D. Sc. Sanjin Krščanski, and Senior Assist. D. Sc. Ozren Bukovac.

# 1 opće informacije general information

Tehnički fakultet Sveučilišta u Rijeci stožerna 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 danas djelatnost 11 zavoda, i to:

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 is situated. It is competitive on the European and the world knowledge market. The Faculty encompasses today 11 departments, namely:

- 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 kineziologiju  
Department of Mathematics, Physics, Foreign Languages and Kinesiology
- Zavoda za materijale  
Department of Materials Science and Engineering
- Zavoda za mehaniku fluida i računarско 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 laboratorija, 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 174 zaposlenika 69 ih je u znanstveno-nastavnim, 9 u nastavnim i 24 u suradničkim zvanjima, 22 je znanstvena novaka, a 45 je djelatnika u administrativnim i stručnim službama. Pet je zaposlenika izvan sustava MZOŠ. Na Fakultetu radi i veći broj vanjskih suradnika. Fakultet izvodi sveučilišne preddiplomske i sveučilišne diplomske studijske programe na području strojarstva, brodogradnje, elektrotehnike i računarstva te

38 chairs and 50 laboratories operate within the departments, and the Faculty encompasses also a Computer Centre, a Library as well as an Accounting Division, Procurement and Commercial Office, the General and Personnel Office, the Students' Registrar and Affairs Office and the Technical Maintenance Services. Of total number of 174 employees, 69 are professors, 9 lecturers and 24 assistants, 22 junior researchers, 45 work in the administrative and professional staff section and 5 apprentices. External collaborators also work at the Faculty. The Faculty holds undergraduate university, graduate university and undergraduate vocational study programs in mechanical and





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 120 doktora znanosti, 95 magistara znanosti, 2899 diplomiranih inženjera (od čega 2335 strojarstva, 311 brodogradnje i 253 elektrotehnike), 534 magistra inženjera (od čega 214 strojarstva, 56 brodogradnje, 252 elektrotehnike i 12 računarstva), 1536 inženjera (od čega 717 strojarstva, 108 brodogradnje i 711 elektrotehnike), 865 sveučilišnih prvostupnika inženjera (od čega 388 strojarstva, 72 brodogradnje, 307 elektrotehnike i 98 računarstva) te 298 stručna prvostupnika inženjera (od čega 112 strojarstva, 26 brodogradnje i 160 elektrotehnike). Danas tu studira više od 1800 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. Zmagoslav Prelec, a na dan 30. 9. 2014. godine ukupan broj registriranih članova kluba ALUMNI TFR iznosi 1149.

Dobrovoljno darivanje krvi na Fakultetu provodi se još od 1980. godine. U novije doba ta hvalevrijedna aktivnost provodi se organizirano od 2002. godine. Zbog dobre situacije sa zalihama krvi u KB Rijeka u prošloj smo godini bili zamoljeni održati samo dvije akcije darivanja krvi (u veljači i listopadu), na kojima je prikupljeno oko 120 doza krvi. Proteklih godina glavni organizator darivanja krvi je prof. dr. sc. Roberto Žigulić, a pomažu mu i članovi Kluba 25. Krv u podjednako broju daruju i zaposlenici i studenti.

electrical engineering, naval architecture and in computer engineering as well as postgraduate doctoral studies in the fields of mechanical engineering, naval architecture, electrical engineering, basic engineering sciences and other interdisciplinary sciences.

So far, at the Faculty of Engineering in Rijeka, the title of Doctor of Science has been earned by 120 and Master of Science by 95 candidates. Total number of 2899 Graduated Engineers have taken their degree (of whom 2335 in Mechanical Engineering, 311 in Naval Architecture and 253 in Electrical Engineering), 534 Masters (of whom 214 in Mechanical Engineering, 56 in Naval Architecture, 252 in Electrical Engineering and 12 in Computer Engineering), and 1536 Engineers (of whom 717 in Mechanical Engineering, 108 in Naval Architecture and 711 in Electrical Engineering); Total number of 865 students have graduated with University Bachelor's Degree (of whom 388 in Mechanical Engineering, 72 in Naval Architecture, 307 in Electrical Engineering and 98 in Computer Engineering) and also 298 students with Professional Bachelor's Degree (of whom 112 in Mechanical Engineering, 26 in Naval Architecture and 160 in Electrical Engineering). Today, there are more than 1800 students at this Faculty.

The Faculty of Engineering has a long tradition of publishing scientific and technical papers. Proceedings were first published as far back as 1970, and then in 1988, the mentioned edition was renamed into the Proceedings of the Faculty of Engineering Rijeka. In 1995, this title was renamed again into *Engineering Review*, and accordingly, this professional journal is still being published under this title. Except for scientific and technical papers, an array of books and textbooks have been published by teaching staff of our Faculty.

Furthermore, the Alumni Club of the Faculty of Engineering University Rijeka (abbreviated ALUMNI TFR), founded with the primary aim of establishing and strengthening ties and cooperation not only between alumni and the Faculty of Engineering but also among the alumni themselves, has been pursuing various activities at the Faculty since November 24, 2000. On September 30, 2014, with Prof. D. Sc. Zmagoslav Prelec. in the chair, ALUMNI FER has a total of 1149 registered members.

It is also worth pointing out that blood drive has been carried out at the Faculty since early 1980. Lately, in fact since 2002, this praiseworthy voluntary blood donation programme has been



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.



carried out in an organized manner. Due to the good situation with blood supplies in KBC Rijeka, in the past year the Blood donors active was asked to carry out only two actions (in February and October), in which about 120 blood doses were collected. For the past years, the main organizer of blood donation has been Prof. D. Sc. Roberto Žigulić, assisted by the members of the Club 25. Blood has been equally donated by the faculty staff and students.

Since 1990, a subsidiary of the Independent Union of Research 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' Council at the Faculty, which was not actually constituted at the Faculty. The Syndical representatives of Subsidiary are Prof. D. Sc. Roberto Žigulić, representing teaching staff and Žarko Burić non-teaching staff.





SVEUČILIŠTE U RIJECI  
TEHNIČKI FAKULTET

58

REPUBLIKA HRVATSKA  
UNIVERZITET U RIJECI  
TEHNIČKI FAKULTET





DEPARTMENT OF AUTOMATION AND ELECTRONICS	1	DR	Asst. Prof. Saša VLAHINIĆ	DEPARTMENT OF ARCHITECTURE AND OCEAN ENGINEERING	1	DR	Prof. Rojko DEHALLA	DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT	1	DR	Prof. Milan IČONIĆ	DEPARTMENT OF MECHANICAL ENGINEERING DESIGN	1	DR	Prof. Neven LOVINIĆ	DEPT. OF PHYSICS, FOREIGN LANGUAGES AND KINESIOLOGY	1	DR	Prof. Senka MAČEŠIĆ	DEPARTMENT OF FLUID MECHANICS AND THERMAL ENGINEERING	1	DR	Assoc. Prof. Lado KRANJEVIĆ	DEPARTMENT OF COMPUTER ENGINEERING	1	DR	Prof. Željko JERICEVIĆ	DEPARTMENT OF ENGINEERING MECHANICS	1	DR	Prof. Josip BRINIĆ	DEPARTMENT OF THERMODYNAMICS AND ENERGY ENGINEERING	1	DR	Prof. Vladimir MEDICA
DEPARTMENT OF MEASURING SYSTEMS	1	DR	Assoc. Prof. Milivo STOKIČIĆ	Chair of Ship Resistance and Propulsion	1	DR	Prof. Rojko DEHALLA	Chair of Measurement Techniques and Quality Systems	1	DR	Prof. Duško PAVLETIĆ	Chair of Engineering Graphics	1	DR	Prof. Gordana MARUNIĆ	Chair of Applied Mathematics	1	DR	Assoc. Prof. Nelida GRANIČIĆ	Chair of Fluid Mechanics and Hydraulic Engines	1	DR	Prof. Zoran MRŠA	Chair of Communication Systems	1	DR	Assoc. Prof. Miroslav JOJER	Chair of Structural Analysis	1	DR	Prof. Goran TURKALJ	Chair of Thermodynamics and Thermotechnics	1	DR	Prof. Anika TRP
Chair of Measuring Systems	1	DR	Assoc. Prof. Milivo STOKIČIĆ	Chair of Ship Design	1	DR	Prof. Bruno ČALIĆ	Chair of Construction and Precision Engineering	1	DR	Prof. Božidar KRIZAN	Chair of Structure and Material Properties	1	DR	Prof. Lorena POMENIĆ	Chair of Physics and Environment Protection	1	DR	Prof. Julijan DOBRINIĆ	Chair of Computational Engineering	1	DR	Assoc. Prof. Sinša DRUŽETA	Chair of Software Engineering	1	DR	Prof. Željko JERICEVIĆ	Chair of Machine Dynamics	1	DR	Prof. Roberto ŽIGLIČIĆ	Chair of Refrigeration	1	DR	Prof. Branimir PANKOVIĆ
Assoc. Prof. Viktor SUČIĆ	1	DR	Assoc. Prof. Viktor SUČIĆ	Chair of Technology and Organization of Ship Building	1	DR	Prof. NIŠA FAFANDIEL	Chair of Production Elements	1	DR	Prof. Boris OBSIEGER	Chair of Foreign Languages	1	DR	Sen. Lect. Ksenija MANČE	Chair of Intelligent Computing Systems	1	DR	Prof. Ivo IŠIĆ	Chair of Solid Mechanics	1	DR	Prof. Marko ČAHOVIĆ	Chair of Process Energy Engineering and Environment Protection	1	DR	Prof. Vladimir MEDICA	Chair of Process Energy Engineering and Environment Protection	1	DR	Prof. Zmajoslav PRELEC				
Chair of Electrical Facilities and Power Systems	1	DR	Assoc. Prof. Dubravko FRANKOVIĆ	Chair of the Ship Dynamics	1	DR	Prof. JASNA PRIPČIĆ-ORIŠIĆ	Chair of Power Transmissions and Industrial Transport Equipment and Devices	1	DR	Prof. Dubravka SIMINIATI	Chair of Kinestology	1	DR	Sen. Lect. Mirko BABIĆ	HEAD	1	DR	Prof. Ivo IŠIĆ	HEAD	1	DR	Prof. Marko ČAHOVIĆ	HEAD	1	DR	Prof. Vladimir MEDICA	HEAD	1	DR	Prof. Zmajoslav PRELEC				
Prof. Zlatan ČAR	1	DR	Prof. Zlatan ČAR	HEAD	1	DR	Prof. JASNA PRIPČIĆ-ORIŠIĆ	HEAD	1	DR	Prof. Goran ČUKOR	HEAD	1	DR	Sen. Lect. Mirko BABIĆ	HEAD	1	DR	Prof. Ivo IŠIĆ	HEAD	1	DR	Prof. Marko ČAHOVIĆ	HEAD	1	DR	Prof. Vladimir MEDICA	HEAD	1	DR	Prof. Zmajoslav PRELEC				
DEAN'S OFFICE	1	DR	Prof. Goran TURKALJ	DEPARTMENT OF SECRETARY GENERAL	1	VSS	Tomo VENGIĆ	DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT	1	DR	Prof. Milan IČONIĆ	DEPARTMENT OF MECHANICAL ENGINEERING DESIGN	1	DR	Prof. Neven LOVINIĆ	DEPT. OF PHYSICS, FOREIGN LANGUAGES AND KINESIOLOGY	1	DR	Prof. Senka MAČEŠIĆ	DEPARTMENT OF FLUID MECHANICS AND THERMAL ENGINEERING	1	DR	Assoc. Prof. Lado KRANJEVIĆ	DEPARTMENT OF COMPUTER ENGINEERING	1	DR	Prof. Željko JERICEVIĆ	DEPARTMENT OF ENGINEERING MECHANICS	1	DR	Prof. Josip BRINIĆ	DEPARTMENT OF THERMODYNAMICS AND ENERGY ENGINEERING	1	DR	Prof. Vladimir MEDICA
DEAN	1	DR	Prof. Goran TURKALJ	VICE-DEANS	1	DR	Prof. Jasna PRIPČIĆ-ORIŠIĆ Prof. Duško PAVLETIĆ	DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT	1	DR	Prof. Milan IČONIĆ	DEPARTMENT OF MECHANICAL ENGINEERING DESIGN	1	DR	Prof. Neven LOVINIĆ	DEPT. OF PHYSICS, FOREIGN LANGUAGES AND KINESIOLOGY	1	DR	Prof. Senka MAČEŠIĆ	DEPARTMENT OF FLUID MECHANICS AND THERMAL ENGINEERING	1	DR	Assoc. Prof. Lado KRANJEVIĆ	DEPARTMENT OF COMPUTER ENGINEERING	1	DR	Prof. Željko JERICEVIĆ	DEPARTMENT OF ENGINEERING MECHANICS	1	DR	Prof. Josip BRINIĆ	DEPARTMENT OF THERMODYNAMICS AND ENERGY ENGINEERING	1	DR	Prof. Vladimir MEDICA
DEAN'S ASSISTANT	1	VSS	Prof. Jasna PRIPČIĆ-ORIŠIĆ Assoc. Prof. Lado KRANJEVIĆ Asst. Prof. Neven Babić	DEPARTMENT OF SECRETARY GENERAL	1	VSS	Tomo VENGIĆ	DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT	1	DR	Prof. Milan IČONIĆ	DEPARTMENT OF MECHANICAL ENGINEERING DESIGN	1	DR	Prof. Neven LOVINIĆ	DEPT. OF PHYSICS, FOREIGN LANGUAGES AND KINESIOLOGY	1	DR	Prof. Senka MAČEŠIĆ	DEPARTMENT OF FLUID MECHANICS AND THERMAL ENGINEERING	1	DR	Assoc. Prof. Lado KRANJEVIĆ	DEPARTMENT OF COMPUTER ENGINEERING	1	DR	Prof. Željko JERICEVIĆ	DEPARTMENT OF ENGINEERING MECHANICS	1	DR	Prof. Josip BRINIĆ	DEPARTMENT OF THERMODYNAMICS AND ENERGY ENGINEERING	1	DR	Prof. Vladimir MEDICA

Organisational Structure of the Faculty - Departments and Chairs

TEHNIČKI FAKULTET BUEKA	I DR	1
Prof. Goran TURŠKALI		

URED DEKANA VODITELJI UREDA	I VSS	1
Sarija PRIPČ		

GLAVNI TAJNIK VODITELJI	I VSS	1
Tomo VERGIČ		

PROJEKCI VODITELJI	I DR	3
Prof. Anica TRP Prof. Jasna PRPČ-ORŠIČ Prof. Duško PAVLETIČ		

TEHNIČKA SLUŽBA VODITELJI	I VSS	1
Nevla PONIŠ		

SLUŽBA OPĆIH I KADROVSKIH POSLOVA VODITELJI	I VSS	1
Lena ŠTADUŠAR		

SLUŽBA STUDENTSKE EVIDENCIJE VODITELJI	I VSS	1
Žarko BIRIČ		

SLUŽBA NABAVE I KOMERCIJALE VODITELJI	I VSS	1
Robert MOHORIČ		

ODSEK EKONOMIJA I ISKRIPCIJANJE VODITELJI	III VSS	1
Mladen OSTROGOVIČ		

ODSEK STUDENTSKE REFERADE I VODITELJI	III SSS	1
Ivana BALZANI		

ODSEK STUDENTSKE REFERADE II VODITELJI	III SSS	1
Tanja VELOČ		

ODSEK STUDENTSKE REFERADE III VODITELJI	III SSS	1
Antonela CALETA		

ODSEK OPĆIH POSLOVA ADMIN. TAJNICE VODITELJI	III SSS	6
Mira BOBANOVIČ Vesna FRANEJIĆ Dragica ŽUBIĆ Loreta MALINIĆ Natalija FORIČIĆ Radašnja PRAPIROVIĆ		

ODSEK OPĆIH POSLOVA KUPČEPAZITELJI VODITELJI	III SSS	2
Frano BIRDOVIČ Šerifin PACHGER		

ODSEK OPĆIH POSLOVA VODITELJI	III SSS	2
PismoHRANA POŠTA REFERENT Lidija PETRIČIĆ		

ODSEK OPĆIH POSLOVA SPEKMANOŽE VODITELJI	IV NKS	9
Dreva ALEMBIČ Lidija ANTONIČIĆ Srećana BAN Mara GRUZOVIĆ Falka HOROZVIĆ Mijana KOŠPIĆ Nevla LILIC-PEČAS Sema ŽIDREKVIĆ Jana MILOVIĆ		

RAČUNALNI CENTAR STRUČNI SURADNIK VODITELJI	I VSS	3
Tatjana ŠKORIĆ Dorisaj ORLENIĆ Dario MLUČANIĆ		

RAČUNALNI CENTAR TEHNIČKI SURADNIK VODITELJI	III SSS	1
Sreća VIROTIĆ		

ODSEK BLAGAJNE I UKUPNOSTI VODITELJI	I SSS	1
Davora MEDANIĆ		

ODSEK FINANCIOJSKE OPERATIVE VODITELJI	III VSS	2
Ana ŠITALO Ivo SPALIĆ		

ODSEK OPŠTARNA VODITELJI	III SSS	1
Srećo MIŠIĆ		

RAĐIONICE ODRAŽAVANJA VODITELJI	III SSS	1
Josip JURASIĆ		

FACULTY OF ENGINEERING	I	
	DR	1
DEAN		
Prof. Goran TURBAJLI		

DEAN'S OFFICE	I	
	MS	1
OFFICE HEAD		
Sanja PRPČIĆ		

DEAN'S OFFICE	I	
	MS	1
OFFICE HEAD		
Tome VEBIĆ		

VICE-DEANS	I	
	DR	3
Prof. Anica TRIP		
Prof. Jasna PRPČIĆ-ORŠIĆ		
Prof. Duško PAVLETIĆ		

DEAN'S ASSISTANT	I	
	DR	3
Prof. Juraj ŠIMUNIĆ		
Assoc. Prof. Lado KRANKIĆEVIĆ		
Prof. Neven BUIJĆ		

LIBRARY	I	
	MS	1
HEAD		
Marta LONČAREVIĆ		

COMPUTER CENTER	I	
	MR	1
HEAD		
Antun ŠOK		

ACCOUNTING DIVISION	I	
	MS	1
HEAD		
Ana MIROKOVIĆ-PAVLOVIĆ		

PROCUREMENT AND COMMERCIAL OFFICE	I	
	MS	1
HEAD		
Robert MOHDRIĆ		

GENERAL AND PERSONNEL OFFICE	I	
	MS	1
HEAD		
Lenka STALOUHAR		

STUDENTS REGISTAR AND AFFAIRS OFFICE	I	
	MS	3
HEAD		
Zarko BURIĆ		

LIBRARY	I	
	MS	1
GRAD LIBRARIAN		
Mario ŠLOŠAR-BRNEIĆ		

COMPUTER CENTER	I	
	MS	3
ASSOCIATE		
Tajana ŠKORIĆIĆ Domagoj ČILUENKO Davor MAŠIĆIĆ		

ACCOUNTING SECTION	I	
	HE	1
HEAD		
Mirojana MIHALJEVIĆ-VUKELIĆ		

SUPPLIES SECTION	III	
	MS	1
HEAD		
Mladen OSTROGOVIĆ		

PERSONNEL SECTION	III	
	CSE	6
ADMIN. SECRETARIES		
Mira BOBANOVIĆ Vejna FRANKIĆ Dragica JURIN Lovorka MALINIĆ Natalija FORGIĆ Radoljka PAPIROTIKIĆ		

STUDENTS REGISTAR AND AFFAIRS OFFICE	I	
	MS	1
ASSOCIATE		
Darko VIĐUOČ		

COMPUTER CENTER	III	
	CSE	1
TECH. ASSOCIATE		
Sveila VUKOVIĆ		

CASHIER AND LIQUIDATION SECTION	I	
	CSE	1
DEPUTY HEAD		
Davorica MEDANIĆ		

PROCUREMENT SECTION	III	
	HE	1
HEAD		
Bruna MARTINOVIĆ		

GENERAL AFFAIRS SECTION	III	
	CSE	2
JANITOR		
Fruška BIRDOVIĆ Štefan RAČINGER		

STUDENTS REGISTAR SECTION I	III	
	CSE	1
HEAD		
Ivana BALZANI		

MAINTENANCE SECTION	III	
	CSE	1
HEAD		
Srećko MŠIĆ		

FINANCIAL ACTIVITIES SECTION	II	
	HE	2
HEAD		
Ana ŠUTALO Iva SPANIĆ		

PUBLICATION SALES SUBSECTION	III	
	MS	1
HEAD		
Dorothea BURČUL		

GENERAL AFFAIRS SECTION	III	
	CSE	2
REGISTRY CLERK		
Janja ROĐIĆ Lidija PETROVIĆ		

STUDENTS REGISTAR SECTION II	III	
	CSE	1
HEAD		
Tanja VEJLOČ		

STUDENTS REGISTAR SECTION III	III	
	CSE	1
HEAD		
Antonela ČAČETA		

MAINTENANCE WORKSHOPS	III	
	CSE	1
HEAD		
Josip JURASIĆ		

GENERAL AFFAIRS SECTION	IV	
	CEE	8
HOUSEKEEPERS		
Draženka ALEMPIĆ Lidija ANTUNOVIĆ Srećkana IBAN Miroslava GRUŠIĆEVIĆ Fahra HOROVIĆ Mirjana KOŠIĆ Niveska LILIĆ-PEGAŠ Senka JEDRIČIĆ Jana MELONIĆ		



# 2 fakultet u akademskoj godini 2013./2014. the faculty in the academic year 2013/2014

## 2.1 opće informacije general information

Na Tehničkom fakultetu tijekom akademske godine 2013./2014. u različitim fazama studija aktivno je studiralo 1878 studenata, a svoj studij u tom razdoblju uspješno je završilo 139 magistara inženjera, 140 sveučilišnih prvostupnika i 35 stručnih prvostupnika. Prošle je akademske godine na našem fakultetu sedmero kandidata obranilo doktorske disertacije.

U akademskoj godini 2013./2014. Fakultet je nastavio s ulaganjem u nabavku nastavne i laboratorijske opreme i za tu svrhu je ponovno izdvojio približno milijun kuna vlastitih sredstava.

U prosincu 2013. godine Fakultetsko vijeće je na prijedlog radne skupine prihvatilo izmjene studijskog programa preddiplomskog sveučilišnog studija Računarstvo te je cjelokupna dokumentacija zatim upućena na daljnji postupak na Sveučilište. Senat Sveučilišta je u ožujku 2014. godine donio odluku o izmjeni i dopuni studijskog programa preddiplomskog sveučilišnog studija Računarstvo.

U svibnju 2014. godine izvršeno je ažuriranje ishoda učenja i studijske literature na predmetima sveučilišnih i stručnih studija.

Tijekom akademske godine 2013./2014. na Tehničkom fakultetu se odvijao znanstveno-istraživački rad u okviru 37 znanstvenih projekata, od čega tri znanstvena projekta Hrvatske zaklade za znanost, sedam EU projekata, 19 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 14 bilateralnih ugovora sa Sveučilištima iz Austrije, Cipra, Češke, Francuske, Italije, Kine, Poljske, Portugala, Slovenije i Švedske.

During the 2013/2014 academic year 1878 students actively studied at the Faculty of Engineering, of whom 139 earned their master's degree, 140 the university bachelor's degree and 35 took the vocational bachelor's degree. Seven candidates defended their doctoral thesis at our Faculty last academic year.

In the 2013/2014 academic year, the Faculty continued to invest in the purchase of educational and laboratory equipment and for this purpose the Faculty allocated about one million kuna from its own funds.

In December 2013, at the proposal of the Working Group, the Faculty Council adopted amendments to the study programme of the undergraduate university study of Computer Engineering and the whole documentation was then sent to the University for further processing. In March 2014, the Senate of the University adopted the amendments to the study programme of the undergraduate university study of Computer Engineering.

In May 2014, the learning outcomes and the literature for courses of university and vocational studies were updated.

During the 2013/2014 academic year, scientific-research work was carried out within the framework of 37 scientific projects, of which three were projects of the Croatian Foundation for Science, seven were EU projects, 19 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 14 bilateral agreements with universities from



U akademskoj godini 2013./2014. naši studenti su ostvarili tri studijske mobilnosti i dvije mobilnosti za obavljanje stručne prakse dok smo istovremeno primili pet dolaznih studenata. Jedan naš profesor realizirao je mobilnost u svrhu održavanja nastave, a istovremeno smo u istu svrhu u gostili jednog stranog profesora.

U akademskoj godini 2013./2014. Fakultet je sklopio više ugovora i sporazuma o znanstvenoistraživačkoj, obrazovnoj i stručnoj suradnji s obrazovnim i znanstvenim ustanovama te gospodarskim subjektima.

Nastavilo se i s održavanjem i uređenjem opreme i prostora Fakulteta. Tako je, primjerice, uređena nova prostorija za smještaj servera na Fakultetu, sanirano je sigurnosno stubište, uređene su klupe u predavaonici P4, nabavljena su dva nova obradna stroja, i dr.

Austria, Cyprus, the Czech Republic, France, Italy, PR of China, Poland, Portugal, Slovenia and Sweden. In the 2013/2014 academic year, three of our students used the study mobility program and another two also used it for their professional practice, while at the same time we received five incoming students. As regards the mobility of the teaching staff, one of our teachers used it to hold classes elsewhere, while we hosted a foreign professor for the same purpose.

In the 2013/2014 academic year, the Faculty signed several contracts and agreements on scientific-research, educational and professional co-operation with educational and scientific institutions and economic entities.

The Faculty continued to maintain and upkeep its equipment and premises. Thus, for example, a new room was arranged to accommodate the Faculty server, the emergency staircase was repaired, benches in the lecture room P4 were mended, two new machine tools were acquired, etc.



## 2.2 studenti nagrađeni za postignuti uspjeh u akademskoj godini 2013./2014. students awarded for their success in the 2013/2014 academic year

### PREDDIPLOMSKI SVEUČILIŠNI STUDIJ | UNDERGRADUATE UNIVERSITY STUDY

Ime i prezime /Name and surname	Studij /Study	Godina /Year	Prosjek usvojenosti znanja, vještina i kompetencija /Knowledge, skills and competences average		ECTS
			godine / year (min. 75%)	studija / study (min. 70%)	
Ante Sikirica	Strojarstvo /Engineering	1.	94%	94%	60
Fran Ledić		2.	93%	86%	120
Korino Bogović	Elektrotehnika /Electrical Engineering	1.	88%	88%	60
Nikola Lopac		2.	97%	98%	120
Igor Pejić	Računarstvo /Computer Engineering	1.	93%	93%	60
Franco Hrčić		2.	91%	92%	120



### SVEUČILIŠNI PRVOSTUPNICI INŽENJERI | UNIVERSITY BACHELOR ENGINEERS

Ime i prezime /Name and surname	Studij /Study	Prosjek usvojenosti znanja, vještina i kompetencija /Knowledge, skills and competences average
Stjepan Piličić	Strojarstvo /Mechanical Engineering	90%
Lucija Bujan	Brodogradnja /Naval Architecture	89%
Ivan Jurković	Elektrotehnika /Electrical Engineering	88%
Antonio Mileta	Računarstvo /Computer Engineering	91%

## DIPLOMSKI SVEUČILIŠNI STUDIJ | GRADUATE UNIVERSITY STUDY

Ime i prezime /Name and surname	Studij /Study	Godina /Year	Prosjeak usvojenosti znanja, vještina i kompetencija /Knowledge, skills and competences average		ECTS
			godine / year (min. 75%)	studija / study (min. 70%)	
Sandra Kvaternik	Strojarstvo /Engineering	1.	98%	98%	60
Matej Gijušćić	Brodogradnja /Naval architecture	1.	95%	95%	60
Josip Hanak	Elektrotehnika /Electrical Engineering	1.	95%	95%	60
Diego Sušanj	Računarstvo /Computer Engineering	1.	94%	94%	60

## MAGISTRI INŽENJERI | MASTER ENGINEERS

Ime i prezime /Name and surname	Studij /Study	Prosjeak usvojenosti znanja, vještina i kompetencija /Knowledge, skills and competences average
Toni Sabalić	Strojarstvo /Mechanical Engineering	93%
Dario Maretić	Brodogradnja /Naval Architecture	93%
Nikola Bačac	Elektrotehnika /Electrical Engineering	96%
Jean Petrić	Računarstvo /Computer Engineering	94%



## STRUČNI PRVOSTUPNICI INŽENJERI | BACHELOR ENGINEERS

Ime i prezime /Name and surname	Studij /Study	Prosjeak usvojenosti znanja, vještina i kompetencija /Knowledge, skills and competences average
Krešimir Lanc	Strojarstvo /Mechanical Engineering	87%
Danijel Host	Elektrotehnika /Electrical Engineering	78%

## 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. uspostavlja se naziv *Engineering Review*, pod kojim se nazivom ovaj časopis i danas tiska.

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, a sve sa svrhom 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 razvitak i uređivanje časopisa uloženo puno truda, posebice u vrijeme pod vodstvom glavnog urednika prof. dr. sc. Branimira Barišića, čija je svestrana aktivnost naglo prekinuta njegovom tragičnom i preranom smrću. Za sve uloženo dugujemo mu iskrenu zahvalnost.

Nakon potpisanog ugovora o suizdavaštvu 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.

The Faculty of Engineering of the University of Rijeka has a long tradition of publishing scientific papers. The publication of scientific papers by the employees of the Faculty of Engineering dates back in 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 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 coeditions of the journal *Engineering Review*, signed by the Faculty of Engineering University Rijeka (dean Prof. D. Sc. Goran Turkalj) and the Faculty



Izdavanje časopisa Engineering Review nastavlja se pod vodstvom glavnog urednika prof. dr. sc. Josipa Brnića (Editor-in-Chief) pomoćnih urednika (Associate Editors): izv. prof. dr. sc. Marine Franulović, izv. prof. dr. sc. Kristiana Lenića, prof. dr. sc. Gordana Jelenića, izv. prof. dr. sc. Viktora Sučića, doc. dr. sc. Tihane Galinac Grbac, doc. dr. sc. Dubravka Franković. Pomoć aktivnostima vezanim uz računalna rješenja pružio je izv. prof. dr. sc. Lado Kranjčević. Broj članova Editorial Boarda kao i broj članova Advisory Editorial Boarda je proširen. Članovi obaju uredništva su eminentni domaći i inozemni profesori i stručnjaci. Veliku pomoć u pripremi, uređivanju i tiskanju radova pružaju asistenti i znanstveni novaci Tehničkog fakulteta: dr. sc. Sven Maričić, dr. sc. Željko Vrcan, Željka Milanović, Neven Munjas, Boris Delač, Ivan Volarić, te Maja Gačeša i Leo Škec (Građevinski fakultet u Rijeci).

Proširena je baza citiranosti časopisa, te se ona svodi na sljedeće indeksiranje: *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.*

Časopis je uređen za elektroničku obradu svih podataka i elektroničku komunikaciju, od prijave radova do recenzentskih postupaka priopćavanja rezultata podnositeljima radova. Časopis ima široku bazu domaćih i inozemnih recenzentata i ona se stalno dopunjava. Za svaki su rad u postupak recenzije uključena minimalno dva recenzenta od kojih je najmanje jedan inozemni. Za prihvaćanje rada niti jedna recenzija ne smije biti negativna. Ako broj kvalitetnih radova bude primjeren, za objavu se predviđaju četiri broja godišnje, no u ovoj fazi planirana su tri broja godišnje. 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. U pogledu svrhe i cilja časopisa, preuzima se niže navedeni tekst:

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. Assistance with computer solutions have been provided by Assoc. Prof. D. Sc. Lado Kranjčević. 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, Željka Milanović, Neven Munjas, Boris Delač, Ivan Volarić and Maja Gačeša, Leo Škec (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.*

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. With reference to aims and scope of the journal, the below written text must be considered.



## AIMS AND SCOPE:

Engineering Review is an international journal designed to foster the exchange of ideas and transfer of knowledge between scientists and engineers involved in various engineering disciplines that deal with investigations related to design, materials, technology, maintenance and manufacturing processes. It therefore provides an appropriate resort for publishing the papers covering prior applications – based on the research topics comprising the entire engineering spectrum. Topics of particular interest thus include: mechanical engineering, naval architecture and marine engineering, electrical engineering, computer sciences and civil engineering. Manuscripts addressing other issues may also be considered if they relate to engineering oriented subjects. The contributions, which may be analytical, numerical or experimental, should be of significance to the progress of mentioned topics. Papers that are merely illustrations of established principles or procedures generally will not be accepted. The high standard of excellence for any of published papers will be ensured by peer-review procedure.

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.

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 i jačanja veza te suradnje između bivših studenata i 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 povijesnoga muzeja Hrvatskoga primorja i Rijeke, dana 24. studenoga 2000. godine, u sklopu obilježavanja četrdeset 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, utjecaj na razvitak i napredak spoznaje o potrebi očuvanja prirode i čovjekova okoliša, jačanje veza i suradnje između bivših studenata i Fakulteta, poticanje te 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 u 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 between the Faculty





Na dan 30. rujna 2014. godine, ukupni broj registriranih članova ALUMNI TFR je 1149. U ak. god. 2013./2014. predsjednik ALUMNI TFR bio je prof. dr. sc. Zmagoslav Prelec, dipl. ing., potpredsjednik prof. dr. sc. Zoran Mrša, dipl. ing., a tajnica Tatjana Škorjanc, dipl. ing. Članovi Predsjedništva bili 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 te 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. Nadzorni odbor predstavljali su: mr. sc. Slavko Štambuk, dipl. ing.; prof. dr. sc. Duško Pavletić, dipl. ing. i Davor Mihovilić, dipl. ing.

U organizaciji ALUMNI TFR, tijekom ak. god. 2013./2014., realizirane su sljedeće aktivnosti:

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.

On September 30, in 2014, the ALUMNI FER numbers a total of 1149 registered members. In the academic year of 2013/2014, the chairman of the ALUMNI FER was Professor D. Sc. Zmagoslav Prelec; Vice chairman was Professor D. Sc. Zoran Mrša and female secretary was Tatjana Škorjanc, M.Eng. The current members of the chairmanship are: Professor D. Sc. Zmagoslav Prelec; Professor D. Sc. Roko Dejhalla; Professor D. Sc. Goran Turkalj Dean of the Faculty of Engineering and Professor D. Sc. Bernard Franković; M.Eng. D. Sc. Aleksandar Regent; Professor 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.; Professor D. Sc. Zoran Mrša; D. Sc. Professor Jasna Prpić-Oršić; and M.Eng. Danko Venturini. The current members of the Supervisory Board are: M.Eng. Slavko Štambuk; Professor D. Sc. Duško Pavletić and M.Eng. Davor Mihovilić.

During the academic years 2013/2014, the following activities were realized by the ALUMNI FER:

- 11. listopada 2013. organiziran je susret 4. generacije studenata TFR koja je tom prilikom proslavila 50-tu godišnjicu upisa na Fakultet  
On October 11, 2013, a meeting of the 4th generation of students of the Faculty was organized to celebrate 50th anniversary of admission to the Faculty
- 18. listopada 2013. organiziran je susret 9. generacije studenata TFR koja je tom prilikom proslavila 45-tu godišnjicu upisa na Fakultet  
On October 18, 2013, a meeting of the 9th student generation of the Faculty of Engineering was organized to celebrate 45th anniversary of admission to the Faculty
- 25. listopada 2013. organiziran je susret 14. generacije studenata TFR koja je tom prilikom proslavila 40-tu godišnjicu upisa na Fakultet  
On October 25, 2013, a meeting of the 14th generation of students of the Faculty was organized to celebrate 40th admission anniversary
- 04. studenoga 2013. potpisani su ugovori o donacijama po 1.000,00 kuna s kojim je ALUMNI TFR donirao studentske projekte na Fakultetu i to: Formula Student, Riteh Emobil i Riteh Waterbike Team  
On November 4, 2013, contracts on donation of 1.000,00 HRK each, were signed, an amount given by ALUMNI FER to student projects at the Faculty - Formula Student, Riteh Emobil and Riteh Waterbike Team
- 08. studenoga 2013. organiziran je susret 19. generacije studenata TFR koja je tom prilikom proslavila 35-tu godišnjicu upisa na Fakultet  
On November 8, 2013, a meeting of the 19th student generation of the Faculty of Engineering was organized to celebrate 35th anniversary of admission to the Faculty



- **15. studenoga 2013. organiziran je susret 24. generacije studenata TFR koja je tom prilikom proslavila 30-tu godišnjicu upisa na Fakultet**  
On November 15, 2013, a meeting of the 24th student generation of the Faculty of Engineering was organized to celebrate 30th admission anniversary
- **22. studenoga 2013. organiziran je susret 29. generacije studenata TFR koja je tom prilikom proslavila 25-tu godišnjicu upisa na Fakultet**  
On November 22, 2013, a meeting of the 29th generation of students of the Faculty was organized to celebrate 25th admission anniversary
- **06. prosinca 2013. organizirano je predavanje koje je održao Milan Milanović, pomoćnik direktora za CAD/PDM sustave u brodogradilištu Uljanik, pod nazivom „Razvoj proizvoda u grupi Uljanik – izazovi i tehnologije“**  
On December 6, 2013, the lecture „Development of the Products in the Group Uljanik – Challenges and Technologies“ was held by Milan Milanović, Assistant Director of CAD/PDM systems in the shipyard „Uljanik“
- **07. veljače 2014. organizirano je predavanje koje je održao doc. dr. sc. Robert Basan pod nazivom „Razvoj on-line baze podataka o konstrukcijskim materijalima te relevantnim laboratorijima i tvrtkama“**  
On February 7, 2014, the lecture „Development of Online Data Files of Construction Materials and Relevant Laboratories and Companies“ was held by Assist. Prof. D. Sc. Robert Basan
- **11. travnja 2014. organizirano je predavanje koje je održao dr. sc. Nikola Biliškov pod nazivom „Kemijski sustavi za skladištenje vodika“**  
On April 11, 2014, the lecture „Chemical Systems for Hydrogen Storage“ was held by D. Sc. Nikola Biliškov
- **06. lipnja 2014. organizirano je predavanje koje je održao prof. dr. sc. Neven Lovrin pod nazivom „Izazovi inženjerske etike“**  
On June 6, 2014, the lecture „Challenges of Engineering Ethics“ was held by Prof. D. Sc. Neven Lovrin



## 2.5 doktorske disertacije obranjene u akademskoj godini 2013./2014.

### doctoral dissertations defended in academic year 2013/2014



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

**Sanjin Krščanski**

**PODRUČJE** | SCIENTIFIC AREA:

**Strojarstvo / Mechanical Engineering**

**NAZIV RADA** | TITLE:

**Analiza uvjeta nastanka pukotina i model procjene vijeka trajanja konstrukcija**

Analysis of the conditions of crack initiation and model of construction lifetime assessment

**MENTOR(I)** | SUPERVISOR(S):

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

**DATUM OBRANE** | DATE OF DEFENCE:

14. 10. 2013.

Sažetak:

U ovom su radu, u sažetu obliku, prikazani uvjeti nastanka pukotina i identificirani neki od faktora koji utječu na njihov nastanak i rast. Dan je kratki pregled osnova mehanike loma i određenih parametara (ponekad nazvanih parametrima loma ili parametrima žilavosti). Prikazan je kratki pregled osnovnih modela izračuna brzine propagacije pukotine i izračuna nekih od kritičnih parametara. Kratko je izložena metoda konačnih elemenata i njezina primjena u izračunu faktora intenziteta naprezanja. Pojašnjena je metoda virtualnog zatvaranja pukotine kao glavna metoda koja je korištena za izračun faktora

Summary:

This work, in summary form, presents some of the conditions and influential factors that affect cracks initiation and their propagation. A brief overview of the basis of fracture mechanics and certain parameters (sometimes called fracture parameters) is given. Also, some basic models for calculation of crack growth rate are presented, alongside with expressions for the calculation of some of the critical parameters. Finite element method and its application in the calculation of stress intensity factor are briefly explained. Virtual crack closure method is explained, as the main method used to calculate the stress

intenziteta naprezanja u izrađenom računalnom programu. Izrađen je program koji računa faktor intenziteta naprezanja K pomoću metode virtualnog zatvaranja pukotine, a na osnovu čvornih sila i pomaka dobivenih analizom MKE modela, a kasnije te rezultate koristi za izračun propagacije pukotine. Za izračun brzine propagacije pukotine korišten je Formanov model. Vrijednosti faktora intenziteta naprezanja dobivene izrađenim programom uspoređene su s teorijskim rješenjima, te je analiziran utjecaj tipa i veličine konačnih elemenata na dobivene rezultate. Dobiveni rezultati faktora intenziteta naprezanja pokazali su dobru podudarnost s teorijskim rješenjima. Numeričkom simulacijom propagacije pukotine dobiveni su rezultati predviđene trajnosti elementa, odnosno broja ciklusa potrebnih da pukotina naraste do kritične duljine i izazove puknuće, te su isti uspoređeni s eksperimentalnim rezultatima. Izračunata trajnost pokazala je relativno dobru podudarnost s dostupnim eksperimentalnim rezultatima.

intensity factor in the developed computer program. Computer program that calculates the stress intensity factor K on the basis of nodal forces and displacements obtained by FEM analysis model is developed. The program uses calculated stress intensity factors to calculate crack growth rate. For the calculation of crack growth rate Forman model is used. Stress intensity factor range used in Forman model is derived from the results of the FEM model. Stress intensity factor values calculated by the program were compared with theoretical solutions, and influence of the type and size of the finite element is analyzed. Calculated stress intensity factors showed good agreement with theoretical solutions. Results for crack growth and number of cycles to failure were calculated by numerical simulation of crack propagation and obtained results were compared to experimental results. Calculated fatigue life showed relatively good correlation to experimental data.

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

Dunja Matulja

**PODRUČJE | SCIENTIFIC AREA:**

Brodogradnja / Naval Architecture

**NAZIV RADA | TITLE:**

Numerička optimizacija hidrodinamičkih značajki forme broda u mirnoj vodi

Numerical optimization of the ship hull hydrodynamic characteristics in still water

**MENTOR(I) | SUPERVISOR(S):**

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

**DATUM OBRANE | DATE OF DEFENCE:**

20.10. 2013.

**Sažetak:**

U radu se opisuje postupak numeričke optimizacije hidrodinamičkih značajki forme broda u mirnoj vodi. Postupak se temelji na metodi potencijalnog strujanja za proračun optjecanja, te na genetskom algoritmu kao optimizacijskoj metodi. Ideja je da se forma broda optimizira samo izmjenom oblika pramčanog bulba i pramčanog ramena, dok ostale karakteristike forme ostaju nepromijenjene. Realiziran je računalni program koji određuje značajke optjecanja brodske forme metodom potencijalnog strujanja s nelinearnim rubnim uvjetom. Razvijen je i program za automatsko generiranje mreže koji prati i prikazuje trenutni oblik oplakivane i slobodne površine. U radu je prikazana provjera i vrednovanje razvijene metode, te su rezultati numeričkog proračuna uspoređeni s dostupnim eksperimentalnim

**Summary:**

A numerical optimization method of the hydrodynamic hull form characteristics in calm water is presented. The procedure is based on a non-linear potential flow method as flow solver, and the genetic algorithm is used as optimization tool. The idea is to optimize the hull form by just changing the bulbous bow and the fore part shape, while keeping unmodified the other characteristics. A computer program based on the potential flow with nonlinear boundary conditions has been developed to determine the characteristics of the flow. An automatic mesh generator has also been developed, in order to arrange and display the current shape of the wetted surface and the free surface. The verification and the validation of the developed method have been performed, and the results of the numerical calculation have been compared to



rezultatima. Zatim, opisani su tijek i karakteristike optimizacijskog postupka. Razmatrane su dvije različite funkcije cilja: otpor valova i valne elevacije u području oko pramca, a dobiveni rezultati grafički su prikazani i analizirani. Uspoređene su vrijednosti značajki strujanja za početnu i optimiziranu formu kroz određeno područje brzina. U skladu s odabranim parametrima optimizacijskog algoritma, postignute su povoljnije hidrodinamičke značajke forme broda, na temelju kojih se može očekivati i smanjenje sile ukupnog otpora.

the available experimental results. Furthermore, the optimization procedure has been described. Two different objective functions have been considered: the wave resistance and the wave elevation in the bow area, and the obtained results have been analyzed and graphically presented. The flow characteristics of the initial and optimized hull form have been compared over a speed range. Considering the predefined parameters of the optimization algorithm, an improvement of the hydrodynamic characteristics has been achieved, so a total resistance reduction can also be expected.

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

**Željko Vrcan**

**PODRUČJE | SCIENTIFIC AREA:**

**Strojarstvo / Mechanical Engineering**

**NAZIV RADA | TITLE:**

Prilog istraživanju nosivosti unutarnjeg evolventnog ozubljenja s velikim stupnjem prekrivanja profila  
A contribution to the research of the loading capacity of internal involute high contact ratio gears

**MENTOR(I) | SUPERVISOR(S):**

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

doc. dr. sc. / Assist. Prof. D. Sc. Robert Basan

**DATUM OBRANE | DATE OF DEFENCE:**

16.5.2014.

**Sažetak:**

U ovom radu istraženo je naprezanje na boku i u korijenu zuba zupčanika s ravnim unutarnjim evolventnim ozubljenjem s velikim stupnjem prekrivanja profila (UVPP) i geometrijski točnim profilom zuba. Detaljno je istražena geometrija UVPP ozubljenja te su utvrđene vrijednosti parametara geometrije ozubljenja potrebne kako bi se izbjegle smetnje u zahvatu zupčanika te pogreške oblika boka zuba zupčanika nastale tijekom izrade. Istražen je utjecaj parametara geometrije UVPP ozubljenja na nosivost ozubljenja te su dane preporuke za izbor najpovoljnijih vrijednosti parametara geometrije za postizanje što većeg stupnja prekrivanja profila ozubljenja. Prikazan je postupak proračuna naprezanja u korijenu i na boku zuba zupčanika prema normi ISO 6336 te je ustanovljeno da vrijednosti dobivene tim postupkom znatno odstupaju od stvarnih. Razmotren je točniji postupak proračuna naprezanja u korijenu i na boku zuba zupčanika s unutarnjim ozubljenjem. Naprezanja u korijenu i na boku zuba zupčanika UVPP zupčanog para eksperimentalno su ispitana metodom fotoelasticitetije. Rezultati tog ispitivanja upotrijebljeni su za verifikaciju rezultata dobivenih numeričkom analizom

**Summary:**

This work deals with the investigation of tooth root and tooth flank stresses of internal involute spur high contact ratio gears (IHCR) having an geometrically accurate profile. The geometry of IHCR gears has been thoroughly researched in order to avoid meshing errors as well as tooth shape errors created during gear shaping. The influence of IHCR gear geometry on the loading capacity of IHCR gears has been researched and recommendations have been made to make correct selections of gear geometry parameter values in order to achieve a transverse contact ratio as high as possible. An overview of tooth root and tooth flank stress calculations according to ISO 6336 has been given and it was determined that the values obtained by using this calculation considerably differ from actual values. A more accurate procedure for the calculation of tooth root and tooth flank stresses of internal gears has been discussed. Photoelastic investigation has been used to determine the actual tooth root and flank stress of IHCR gears and the results have been used for the verification of the results obtained by means of the finite element method. Numerical analysis by finite element method has been used



putem metode konačnih elemenata. Na temelju rezultata numeričke analize metodom konačnih elemenata utvrđena je raspodjela sile u toku zahvata UVPP zupčanog para. Predložene su izmjene izraza za proračun naprezanja u korijenu i na boku zuba zupčanika navedenih u normi ISO 6336 za slučaj UVPP ozubljenja te je predložen točniji i jednostavniji način proračunavanja naprezanja u korijenu i na boku zuba zupčanika u odnosu na normu ISO 6336.

to determine the actual load distribution during the mesh of a IHCR gear pair. Modifications to the expressions for the calculation of tooth root and tooth flank stresses according to ISO 6336 in the case of IHCR gears have been suggested as well as a simpler and more accurate procedure for the calculation of IHCR gear tooth root and tooth flank stresses in relation to ISO 6336.

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

**Dražen Kostelac**

**PODRUČJE | SCIENTIFIC AREA:**

**Strojarstvo / Mechanical Engineering**

**NAZIV RADA | TITLE:**

**Implementacija projektnoga pristupa planiranja na razini strateškoga planiranja**  
Implementation of project planning at the level of strategic planning

**MENTOR(I) | SUPERVISOR(S):**

prof. dr. sc. / Prof. D. Sc. Milan Ikonić

**DATUM OBRANE | DATE OF DEFENCE:**

16.5.2014.

**Sažetak:**

U radu je istražena, razrađena i utvrđena nova metodologija povezivanja izrade strateškoga i projektnoga planiranja s jedinstvenim i istovremenim pristupom. Temeljem glavnoga cilja tvrtke i strateških tema definiranih od strane vlasnika kao i temeljem informacija o poduzeću i okolini. SWOT analiza je akronim engleskih izraza: strenghts (S), weaknesses (W), opportunities (O) i threats (T), što u prijevodu znači snage, slabosti, prilike i prijetnje. SWOT analizom definirani su SWOT faktori. Za odabrane SWOT faktore definirane su strateške opcije. Odabrane strateške opcije pomoću matrice rizika, matrice dobiti i matrice položaja strateških opcija postaju strateški ciljevi koji se pomoću (engl. Balance Scorecard, BSC) metode kaskadiraju po funkcijama tvrtke i tako je moguće dobiti BSC stratešku mapu tvrtke za određeno strateško razdoblje. Rangiranje, a time i odabir projekata projekata radi se pomoću matrice rizika i matrice prihoda kao i s ocjenom njihovog doprinosa ostvarenju pojedinog cilja. Metodologija je primijenjena na slučaju farmaceutske industrije gdje se pokazala vrlo uspješnom. Za razliku od prijašnjih istraživanja ovaj rad dokazuje da ovaj izbor metoda, postupaka i ključnih pokazatelja izvršenja poslovanja pri strateškom planiranju daje s jedne strane najšire sagledavanje mogućih aktivnosti (projekata) radi izvršenja glavnoga cilja tvrtke,

**Summary:**

This paper explored, developed and established a new methodology of making connections for strategic and project planning with unique and simultaneous access. Based on the overall objective of the company and strategic themes defined by the owner as well as on the basis of information about the business environment and SWOT analysis are defined SWOT factors. For selected SWOT factors are defined strategic options. Selected strategic options by risk matrix, the matrix gain and matrix position of strategic options becomes strategic objectives using the Balance scorecard method cascading by functions of the company and so it is possible to get BSC strategic map company for a certain period of strategic planning. Ranking, and thus the selection of projects projects is done using a risk matrix and the matrix of income as well as the assessment of their contribution to the achievement of individual goals. This methodology is applied to the case of the pharmaceutical industry where it proved very successful. Unlike previous research, this paper proves that the choice of methods, procedures and key performance indicators of business in strategic planning on the one hand gives the widest possible consideration of activities (projects) for the execution of the main objectives of the company, while the other side allows optimal selection of projects (functional goals)



dok s druge strane omogućuje optimalan izbor projekata (funkcijskih ciljeva) sukladan interesima vlasnika, kolektivnim znanjima i iskustvima odgovornih osoba za provođenje strategije. Nadalje, ovaj pristup strateškom planiranju dovodi do kaskadiranja ciljeva sa strateške na projektnu razinu te omogućuje projektnim menadžerima kvalitetnije, projektno planiranje ciljeva kao i izvršenje projekata (ciljeva) koristeći ključne pokazatelje izvršenja koji indiciraju ispunjenje poslovne strategije.

consistent with the interests of the owners, the collective knowledge and experience of the persons responsible for implementing business strategy. Furthermore, this approach to strategic planning leading to cascading strategic objectives with the project level and enables project managers better, project planning objectives as well as the execution of projects (goals) using key performance indicators that indicate the fulfillment of business strategy.

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

Samir Žic

**PODRUČJE | SCIENTIFIC AREA:**

Strojarstvo / Mechanical Engineering

**NAZIV RADA | TITLE:**Optimizacija upravljanja zalihama dobavljačkih lanaca  
Inventory management optimization in supply chains**MENTOR(I) | SUPERVISOR(S):**

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

**DATUM OBRANE | DATE OF DEFENCE:**

30.5.2014.

**Sažetak:**

U ovom doktorskom radu razvijena je integralna metoda optimalnog upravljanja zalihama modernih dobavljačkih lanaca. Klasificirani su utjecajni čimbenici sustava upravljanja zalihama i to: model potražnje za proizvodima, sinkroniziranost radnog vremena, takt dobave proizvoda, minimalna veličina narudžbe i stav poslovnog sustava prema nedostatku traženih proizvoda. Temeljem klasificiranih čimbenika sustava upravljanja zalihama, određeni su čimbenici kvantifikacije pokazatelja sustava upravljanja zalihama i to: minimalan potreban broj dobava, prosječna veličina dobave, prosječna dnevna razina zaliha, koeficijent efekta biča, rizik naknadne dobave prvotno neisporučenih proizvoda, propuštena prodaja, troškovi sustava upravljanja zalihama bez popusta i troškovi sustava upravljanja zalihama s popustima. Novorazvijena metoda optimalnog upravljanja zalihama dobavljačkih lanaca dokazana je na 960 simulacijskih eksperimenata sustava upravljanja zalihama kojima su potvrđene sve tri hipoteze odnosno, (I) odabir strategije upravljanja zalihama dobavljačkog lanca može značajno utjecati na poslovne pokazatelje dobavljačkog lanca s potencijalno velikim prednostima prilikom odabira optimalne strategije, (II) da će se uz jednaku prosječnu potražnju, povećanjem kaotičnosti potražnje povećati i opterećenje

**Summary:**

An integral method for optimal modern supply chain management has been developed in this thesis. Influential factors of supply chain management have been classified as: model of product demand, synchronicity of working time, delivery time, minimal order quantity and implementation of backlogging procedures. Based on classified factors of inventory management, quantified factors of inventory management have been determined as: minimal number of deliveries, average size of delivery, average inventory level, coefficient of bullwhip effect, risk of delivery of backlogged products, lost sales, inventory management costs without discounts and inventory management costs with discounts. The new method of optimal inventory management in supply chains has been tested on 960 simulation experiments of inventory management system which confirmed all three hypotheses: (I) selection of supply chain inventory management strategy can have a significant influence on business performance indicators of the supply chain with potentially significant benefits when choosing an optimal strategy, (II) with the same average demand, increased demand uncertainty will increase the load on inventory management system and supply chain as a whole and (III) existing models, equations and algorithms for determining

sustava upravljanja zalihama i dobavljačkog lanca u cijelosti, te (III) da postojeći modeli, jednadžbe i algoritmi za određivanje potrebnih zaliha nisu dovoljno točni čime se smanjuje učinkovitost i povećavaju troškovi dobavljačkog lanca vezani za upravljanje zalihama.

required inventory levels are not sufficiently accurate thereby, by using them companies risk reduced efficiency and increased supply chain costs related to inventory management.

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

**Ivica Glavan**

**PODRUČJE | SCIENTIFIC AREA:**

**Strojarstvo / Mechanical Engineering**

**NAZIV RADA | TITLE:**

Modeliranje, simulacija i optimizacija trigeneracijskih energetskih sustava  
Modeling, simulation and optimization trigeneration energy systems

**MENTOR(I) | SUPERVISOR(S):**

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

**DATUM OBRANE | DATE OF DEFENCE:**

30.6.2014.

**Sažetak:**

U radu su definirani i razmatrani tehnokoekonomski modeli trigeneracijskih sustava zasnovani na pogonskom agregatu motor/plinska turbina električne snage od 0,2 do 5 MW s apsorpcijskim/kompresijskim rashladnim uređajima. Analizirane su termodinamičke, ekološke i ekonomske značajke trigeneracijskih sustava pri različitim opterećenjima u odnosu na osnovni model proizvodnje energije s kotlom i kompresijskim rashladnim uređajem. Opisani su različiti modeli, postupci optimizacije te analiza osjetljivosti trigeneracijskih sustava na temelju kojih se može izraziti prednost upotrebe ovakvih sustava kao racionalnih i ekološki prihvatljivih načina pretvorbe energije u stacionarnim i promjenjivim uvjetima pogona. Na temelju podataka dobivenih od proizvođača opreme izrađene su krivulje funkcijske ovisnosti pojedinih komponenti u ovisnosti o omjeru opterećenja koje omogućuju izradu modela sustava sastavljenog od pogonskog agregata (motor/plinska turbina), jednostupanjskoga apsorpcijskoga rashladnog uređaja, dvostupanjskoga apsorpcijskoga rashladnoga uređaja, kompresijskog rashladnog uređaja te kotla odnosno vršnog kotla. Izrađeno je programsko rješenje primjenom objektorijentiranog modeliranja i programskog jezika Modelica koje omogućuje uvid u ponašanje i tehnokoekonomsku opravdanost upotrebe analiziranih sustava u stacionarnim i promjenjivim uvjetima rada. Pokazano je da se primjenom programskog jezika Modelica za modeliranje složenih fizikalnih sustava, kao što su trigeneracijski sustavi, dobivaju

**Summary:**

This dissertation defines and examines the techno-economic models of trigeneration systems based on the power units internal combustion engine / gas turbine of the electric power of 0.2 to 0.5 MW with absorption/compressor refrigeration units. Thermodynamic, ecological and economic features of trigeneration systems are analyzed with different load in relation to the basic model of producing energy with a boiler and a compressor refrigeration unit. Different models, actions of optimization are described together with the analysis of the sensitivity of trigeneration systems, based on which the advantages for using such systems as rational and ecologically acceptable ways of energy transformation in stationary and changeable conditions of power can be expressed. Based on the data gained from the manufacturer of equipment, curves of functional dependency of separate components are made depending on the extent of the load, and they enable the construction of the model of the system composed of a power units (internal combustion engine/gas turbine), a one-degree absorption refrigeration unit, a two-degree absorption refrigeration unit, a compressor refrigeration unit and a boiler i.e. peak boiler. The program solution is made by applying the object-oriented modelling and the programming language Modelica which enables the insight into the behavior and the techno-economic justification for the usage of the analyzed systems in stationary and changeable work conditions. It is shown that using the programming language Modelica for modelling complex physical





rješenja koja u procesu modeliranja, simulacije i optimizacije mogu primjenjivati za znanstvene i stručne analize. U radu su razmatrani različiti energetske modeli te je za utjecajne parametre (cijena električne energije, cijena goriva, troškovi investicije i stupanj rekuperacije topline) definirana optimalna vrijednost ukupnoga stupnja iskoristivosti, vremena povrata investicijskih troškova i smanjenja utjecaja na okoliš. Rezultati optimizacije pokazuju da je sustav pogonjen s plinskim motorom i jednostupanjskim apsorpcijskim rashladnim uređajem optimalan za razmatrane uvjete rada i raspon snage te kao takav najpovoljniji za sustave male i srednje trigeneracije. Strategija vođenja procesa slijeđenjem toplinskog opterećenja pokazala se opravdanim i prihvatljivim rješenjem u odnosu na strategiju maksimalnog električnog opterećenja.

systems, such as trigeneration systems, solutions are gained that can be applied in the process of modelling, simulation and optimization for scientific and expert analysis. This dissertation considers various energy models and defines the optimal value of the overall degree of efficiency, time of equity payback and reducing the impact on the environment for the influential parameters (the price of electric energy, of fuel, costs of the investment and the degree of heat recovery). The results of optimization show that the system powered by a gas engine and a one-degree absorption refrigeration unit is optimal for the considered work conditions, and the range of the power as such is the most convenient for the systems of small and middle trigenerations. The strategy of conducting the process following the thermal load has shown to be a justified and acceptable solution in relation to the strategy of the maximum electricity load.

**IME I PREZIME | NAME AND SURNAME:****David Blažević****PODRUČJE | SCIENTIFIC AREA:****Strojarstvo / Mechanical Engineering****NAZIV RADA | TITLE:**

Analiza mehaničkih čimbenika pri konstrukciji uređaja za prikupljanje niskorazinske energije vibracija iz okoliša

Analysis of mechanical aspects in the design of vibration energy harvesters

**MENTOR(I) | SUPERVISOR(S):**

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

**DATUM OBRANE | DATE OF DEFENCE:**

2.9.2014.

**Sažetak:**

Doktorska disertacija posvećena je karakteriziranju uređaja za pretvorbu niskorazinske kinetičke energije vibracija i eksperimentalnom ispitivanju čimbenika koji utječu na konstrukciju piezoelektričnih uređaja za prikupljanje vibracijske energije iz okoliša i konverziju iste u električnu energiju. Pritom se u radu uzimaju u obzir različite dimenzije uređaja, i frekvencijski raspon odziva radi ostvarivanja što veće izlazne snage. Posebice su opisani i analitički i numerički (MKE) modeli te različiti učinci koji proizlaze iz elektromehaničke sprege piezoelektričnih materijala s vibrirajućim strukturama. Poseban naglasak stavljen je na razvoj eksperimentalnih metoda za klasificiranje navedenih uređaja te na patentirano inovativno konstrukcijsko rješenje uređaja s potencijalnom primjenom na pneumaticima automobilskih vozila.

**Summary:**

The process of collecting low level ambient energy and its conversion into electric energy is commonly termed energy harvesting or energy scavenging. The thesis has as its main goal to develop and experimentally validate numerical models of piezoelectric energy harvesting devices. In order to maximise output power, different configurations and eigenfrequency bands are taken into account. The developed experimental set-up, used to classify the proposed devices, is explained in detail together with a patented solution for future use in automobile pneumatics.





## 2.6 aktivnosti, zbivanja i konferencije activities, events and conferences

### 2.6.1 adria hub



# AdriaHUB

**IPA Adriatic CBC AdriaHUB** projekt se temelji na partnerstvu između 23 partnera/suradnika iz više od 5 zemalja, 8 sveučilišta, 5 javnih institucija i 10 privatnih poslovnih subjekata, poduzeća i konzorcija poduzeća. Ova međunarodna asocijacija ima cilj promovirati i olakšati kontakte između obrazovnog i poslovnog svijeta, stvarajući "ove kanale i metode komunikacije". Ukupna vrijednost projekta iznosi 2.240.775,00 Eura, dok je za aktivnosti Tehničkog fakulteta Sveučilišta u Rijeci predviđeno 176.066,00 Eura.

U sklopu AdriaHUB projekta predloženi su mehanizmi podrške šire suradnje sveučilišta i industrije kroz:

- izgradnju održive baze podataka intelektualnog/ljudskog kapitala koja će povezati diplomante sa 72 sveučilišta iz Italije, Srbije, Hrvatske, Crne Gore te Bosne i Hercegovine s poduzećima iz navedenih zemalja,
- stvaranje održive platforme koja će popuniti komunikacijski jaz između usluga I&R (istraživanja i razvoja) sveučilišta i I&R potreba u proizvodnom sektoru, te kroz
- testiranje nove metodologije suradnje na odabranom osnovnom industrijskom sektoru koji je posebno važan za lokalnu ekonomiju (prerada drva) stvaranjem liste inovativnih poduzeća velikog potencijala i odabirom izvrsnih diplomanata, a s ciljem da se odradi odgovarajuća obuka i olakša transfer tehnologije između sveučilišta i uključenih poduzeća.

**IPA Adriatic CBC AdriaHUB** Project is based on a partnership in between 23 different partners/associates over 5 countries, 8 universities, 5 public institutions and 10 private subjects, enterprises and consortia of enterprises. This transnational association aims to promote and facilitate the contact among Educational and Business galaxies, creating "new channels and methods of communication". Total value of the project is 2.240.775,00 Euro, while for the activities of Faculty of Engineering of University of Rijeka the allocated value is 176.066,00 Euro.

AdriaHUB proposes a mechanism for supporting a wide cooperation of universities and industry by:

- building a sustainable hub of intellectual/human capital. The hub will be based on an innovative ICT platform connecting graduates from 72 universities from Italy, Serbia, Croatia, Montenegro and Bosnia and Herzegovina with companies from those countries,
- creating a sustainable platform, filling the communication gap between the academic R&D offers of services and the R&D needs in productive sector, and by
- testing the new methodology for cooperation on a selected primary industrial sector as target particularly relevant in the local economies (wood processing) by creation of a list of high-potential innovative companies and selection of a panel of graduates, in order to carry out relevant training



Kao socijalni cilj, projekt promovira pravilno pozicioniranje kvalificirane radne snage na Jadranskom tržištu rada, olakšavajući zapošljavanje diplomanata na temelju boljeg podudaranja njihovih sposobnosti s industrijskim potrebama. Povezujući ova dva komplementarna aspekta, potrebne tehnološke vještine i stručnost zaposlenika, u Jadranskoj regiji stvorena je plodna okolina za inovacije te je ista i efikasno ponuđena velikim, srednjim i malim poslovnim subjektima kao podrška za njihove inovacije.

Ciljevi vezani uz projektne rezultate su: povećanje istraživačkih kapaciteta, poticanje prijenosa inovacija, podizanje razine stručnosti, jačanje visokog obrazovanja, olakšavanje zapošljavanja diplomanata, promicanje zajedničkih aktivnosti i fokusiranje na ključnom sektoru.

activities, and facilitate the transfer of technology between University and involved businesses.

As social objective, the project promotes the correct positioning on the Adriatic labor market of qualified human resources, facilitating the employment of graduates by merging personal skills with industrial needs. Joining these two complementary aspects, technological knowhow and human expertise, a prolific environment for innovation is realized on the Adriatic area and efficiently offered to large enterprises and SMEs as support for their innovation.

Objectives related to the project outputs are: improving research capacity, encouraging transfer of innovation, rising competence levels, reinforcing high educational training, facilitating the employment of graduates, promoting joint activities and focusing on a key sector.



## 2.6.2 in-tech

U Leiriji, u Portugalu, od 10. do 13. rujna 2014.g. održana je Međunarodna Konferencija Inovacijskih Tehnologija IN-TECH 2014 u organizaciji World Association for Innovative Technologies (WAIT). Konferencija promovira razvoj novih tehnologija te njihovu implementaciju u industriji. Međunarodnog je karaktera i organizirana je u suradnji Tehničkog fakulteta Rijeka, Tehničkog Sveučilišta u Pragu i Instituta za politehniku Leiria (slika 1).

Peta IN-TECH konferencija organizirana je u Leiriji što nakon konferencije u Pragu, Bratislavi, Rijeci i Budimpešti potvrđuje dobru suradnju pripadajućih sveučilišta čiji je cilj promoviranje međunarodne suradnje.

In Leiria, from 10 to 13 September 2014 by the World Association for Innovative Technologies (WAIT) an International conference of innovative technologies IN-TECH 2014 was held and the latest developments in the field of technical sciences were presented. Conference promotes the development of new technologies and their implementation in the industry. This conference was organized by the Faculty of Engineering Rijeka, in collaboration with the Faculty Mechanical Engineering University in Prague and Polytechnic Institute of Leiria (1).

This fifth in order conference was organized in Leiria that after conferences in Prague, Bratislava, Rijeka and Budapest confirms good cooperation between these Universities that promote international cooperation.





(1) Konferencija je održana u suradnji profesora sa Tehničkom fakulteta u Rijeci, Tehničkom fakulteta u Pragu i Instituta za politehniku Leiria.

(1) Conference was organized by the Faculty of Engineering Rijeka, in collaboration with the Technical University in Prague and Polytechnic Institute of Leiria.

Konferencija je održana na kampusu Instituta za politehniku Leiria koji je smješten dva kilometra od središta Leirije. Sudionici su na raspolaganju imali dvije konferencijske hale (slika 2), a u predvorju konferencijskih hala postavljena je poster sekcija. Na IN-TECH 2014 konferenciji bilo je prisutno oko 150 sudionika iz 45 zemalja. U ovoj, petoj po redu konferenciji, preko 110 znanstveno-stručnih referata je prezentirano u zborniku, od čega 80 radova s verbalnom prezentacijom, a preko 20 u poster sekciji.

Konferenciju je otvorio predsjednik WAIT organizacije prof. Z. Car, predstavnik Sveučilišta u Rijeci. U uvodnom govoru, prof. Car se zahvalio svim sudionicima naglasivši važnost međunarodne suradnje radi povezivanja znanstvenika iz područja različitih tehnologija i postizanja značajnih znanstvenih doprinosa.

U ime Instituta za politehniku Leiria, gostima se, u ime dekana, obratio prof. João Rafael da Costa

The conference was held at the Polytechnic Institute of Leiria which is placed 2 kilometers of Leiria city center. Participants had had two conference halls for their scientific discussions during the conference; the lobby between conference rooms was used for poster section. At IN-TECH 2014 conference about 150 participants from 45 countries were present. In this fifth conference more than 110 scientific and technical papers were presented in the proceedings, and from there 80 papers with oral presentations and 20 papers in the poster section.

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



(2) Otvaranje konferencije, prof. Zlatan Car, prof. João Rafael da Costa Sanches Galvão, Ing. Dr. J. Kudláček i Prof. Luis Miguel Oliveira Pegado de Noronha e Távora  
(2) Opening ceremony, prof. Zlatan Car, prof. João Rafael da Costa Sanches Galvão, Ing. Dr. J. Kudláček and Prof. Luis Miguel Oliveira Pegado de Noronha e Távora

Sanches Galvão koji je ukratko iznio povijest Sveučilišta, trenutnu misiju fakulteta te studije koji se na njemu odvijaju. U svrhu ostvarenja budućih ciljeva, pozvao je prisutne da posjete institut u Leiriji i surađuju na znanstvenim i stručnim projektima.

Zatim je riječ preuzeo ing. dr. J. Kudláček koji je, kao predstavnik Tehničkog Sveučilišta u Pragu, poželio svima prisutnima uspjeh u znanstvenim istraživanjima i službeno otvorio konferenciju. Predavanja su nastavljena prema utvrđenom planu i u dobroj atmosferi. Znanstveni savjet konferencije IN-TECH 2014 održao je tematski sastanak u obliku okruglog stola čiji je cilj bio bolje međunarodno povezivanje znanosti s lokalnim industrijama, a bilo je riječi i o ulozi akademske zajednice u poslovno-inovacijskim projektima. Konferencija je završila svečanom večerom uz dodjelu nagrada najboljim radovima (slika 3).

On behalf of Polytechnic Institute of Leiria prof. João Rafael da Costa Sanches Galvão briefly told guests about the history and heritage of Polytechnic Institute of Leiria the current mission of faculty and presented studies that are taking place at the Polytechnic Institute of Leiria. In his speech he invited all guests to visit Leiria faculties and cooperate with them on scientific projects.

Then Dr. J. Kudláček representatives from the Faculty Mechanical Engineering University in Prague he thanked all present for their contribution wished successful discussions and officially opened the conference. Lectures continued according to a set plan and with a good atmosphere. Scientific council of IN-TECH 2014 hold a round table on the topic of connecting local industries and academics community in business and innovation projects. The conference ended with award ceremony and a gala dinner (3).



(3) Dodjela nagrada za najbolje radove.  
(3) Awarded participants.

## 2.6.3 riteh-1

Prva riječka fotonaponska elektrana s pomičnim sustavom koji omogućava praćenje kretanja Sunca i optimalnu iskoristivost Sunčeva zračenja puštena je u rad na Tehničkom fakultetu 04. srpnja 2014. g. Nazvana Riteh-1, instalirane snage 3,5kW, vrijedna je više od sto tisuća kuna.

Voditelj projekta izgradnje fotonaponske elektrane je docent Dubravko Franković. Ovakva je elektrana jedinstvena na našem području zbog opremljenosti sustavom koji fotonaponske panele zakreće prema smjeru iz kojeg dopire najviše Sunčeva zračenja, čime je učinkovitost u odnosu na uobičajene, fiksne sustave povećana za oko trideset posto.

The first photovoltaic power plant, designed in Rijeka with a flexible rotating system for tracking the movements of the sun and for the optimum utilization of solar radiation, was put into operation at the Engineering Faculty on July 4th 2014. Named Riteh-1, and with 3.5 kWh of installed capacity, it is worth more than a hundred thousand HRK.

Project manager for development of photovoltaic power plant is Assistant Professor Dubravko Franković. Such a plant is unique in our area because it incorporates a system that rotates photovoltaic panels according to the movement of the sun, yielding thus efficiency which is increased by about thirty percent when compared with conventional and fixed systems.

Izgradnja fotonaponske elektrane usklađena je s europskim direktivama i trendovima korištenja energije iz obnovljivih izvora. Istraživačima i studentima Tehničkoga fakulteta ovime se otvaraju nove mogućnosti u znanstveno-istraživačkom radu i edukaciji, a značajna je i za grad Rijeku. Naime, time se bliži cilju zacrtanom planom u Povelji gradonačelnika čiji je potpisnik, a predviđa smanjenje emisije stakleničkih plinova, povećanje korištenja energije iz obnovljivih izvora te povećanje energetske učinkovitosti za dvadeset posto do 2020. godine.

Projekt je pripreman gotovo dvije godine, a u njegovoj je realizaciji, osim stručnjaka Fakulteta, sudjelovao i Grad Rijeka ustupivši zemljište za postavljanje elektrane na korištenje, kao i niz tvrtki koje su svojim donacijama omogućile postavljanje za sad jedinstvene fotonaponske elektrane na riječkom području.

Naziv fotonaponske elektrane Riteh-1 sugerira da bi Tehnički fakultet u skorju budućnosti mogao pokrenuti još sličnih projekata korištenjem i drugih dostupnih tehnologija iskorištavanja obnovljivih izvora energije.

The construction of the photovoltaic power plant is in line with European directives and trends in the use of energy from renewable sources. For researchers and students of the Faculty of Engineering, this project undoubtedly opens up new opportunities in the areas of scientific research and education, which is also of great significance for the city of Rijeka. Namely, this has made us closer to the targets set in the plan in the Charter signed by the mayor, which envisages the expected reduction in greenhouse gas emissions, increased use of renewable energy and increased energy efficiency by twenty percent by 2020.

The project has been prepared for almost two years, and apart from the Faculty experts, the City of Rijeka has participated in its realization by ceding its public land for setting up the power plant, but also a number of companies whose donations enabled the setting of, for the time being, a unique photovoltaic power plant in the area of Rijeka.

As the name - the photovoltaic Riteh-1 suggests, the Faculty of Engineering could in the near future initiate similar projects using possibly some other available solar panel technologies.



## 2.6.4 servus

Servus je elektronički sustav koji korisniku omogućuje upravljanje svojim domom pomoću glasovnih naredbi. Servus (kasnije nazvan Serwantess) je zamišljen kao dobar i vjeran prijatelj koji je uvijek voljan pomoći svome korisniku. Voditelj ovoga projekta na Tehničkom fakultetu je izv. prof. dr. sc. Miroslav Vrankić, a suradnici na projektu su doc. Kristijan Lenac i Damir Arbula.

Servus is an electronic system which enables users to control their home through voice commands. Servus (later called Serwantess) is designed to be a good and loyal companion always willing to assist the user. Head of the Project at the Faculty of Engineering is Assoc. Prof. D. Sc. Miroslav Vrankić, and collaborators on the project are Assist. Prof. D. Sc. Kristijan Lenac, and Damir Arbula.

Projekt je podržan od strane Znanstveno-tehnološkog parka Sveučilišta u Rijeci.

Sa Servusom doslovno možete razgovarati i tako kontrolirati svjetlo, TV, telefon, radio, grijanje, klima-uređaj, otvoriti vrata, pozvati interventne službe, pa čak i surfati internetom. Uz pomoć Servusa sve to možete raditi bez pomoći ruku.

Servus je prvenstveno namijenjen osobama s invaliditetom kako bi postale samostalnije i sigurnije u vlastitom domu. Također, omogućuje starijim i teško pokretnim osobama veću samostalnost u vlastitom domu i odgodu ponekad neželjenog odlaska u dom umirovljenika.

Osobe koje nemaju kontrolu nad svojim tijelom u potpunosti su ovisne o pomoći drugih, trebaju pomoć članova obitelji i drugih njegovatelja pri običnim svakodnevnim radnjama, a često su prisiljeni i plaćati dodatnu pomoć.

Kako i osobama s invaliditetom, i njihovim je obiteljima kvaliteta života narušena. Osobe s invaliditetom neprestano su frustrirane što ne mogu ništa samostalno činiti te su i njihovi bližnji pod stalnim pritiskom bivanja na raspolaganju. Nadalje, osobe s invaliditetom nemaju privatnosti i ne mogu obaviti niti telefonski razgovor bez prisustva osobe koja pomaže oko samog telefona. Osim što je ovo izvor frustracija cijeloj obitelji, ujedno je iscrpljujuće, i emotivno i financijski.

Korištenjem Servusa, osoba s invaliditetom ponovo dobiva svoju neovisnost. Jednostavni zadaci svakodnevnice postaju lako ostvarivi i mogu biti obavljani bez pomoći drugih osoba. Kako uz pomoć Servusa obitelj ne mora biti cijelo vrijeme uz osobu s invaliditetom, time je i Servus od velike pomoći cijeloj obitelji.

Ujedno, korištenjem Servusa smanjena je potreba za plaćanjem dodatnih pomoćnika.

[www.servantess.com](http://www.servantess.com)

The project is supported by The Science and Technology Park of the University of Rijeka.

You can literally talk with Servus and thus control lights, TV, telephone, door opening, radio, heating, air conditioning, make an emergency call or even surf the web. With Servus, all these functions are performed completely hands-free.

Servus helps people with physical disability to be more independent and safe at their home. It also enables the elderly and the infirm to stay in the comfort of their home and delay sometimes unwanted moving to a retirement home.

Persons that cannot control their body are completely dependent on other people's help. Without the possibility to use their hands, they need help from their family members and other caregivers when performing everyday tasks. Moreover, they usually have to pay for additional help of personal assistants.

The life quality of a disabled person and of the entire family is severely affected by their condition. A disabled person feels constant frustration for not being able to do anything on their own. At the same time their loved ones are under constant pressure because they need to be around all the time. Additionally, a disabled person is completely deprived of any privacy, not even being able to have a private telephone call without someone's help. As a consequence, everyone is unhappy, both the disabled and their families, who are completely exhausted both emotionally and financially.

With Servus, a person with disability regains the independence. The simple tasks of everyday life become feasible and can be done without the need to ask others for help. It is also a big help for the whole family since its members do not have to be at constant service round the clock.

Furthermore, Servus reduces the need for paid personal assistants.

[www.servantess.com](http://www.servantess.com)





## 2.6.5 studentski projekti i diplomski radovi student projects and graduate thesis

### IME I PREZIME | NAME AND SURNAME:

Matej Celega

### NAZIV RADA | TITLE:

Modeliranje plinsko-turbinskog postrojenja  
Gas turbine plant modeling

### MENTOR(I) | SUPERVISOR(S):

doc. dr. sc. / Assist. Prof. D. Sc. **Tomislav Senčić**

#### Sažetak:

U ovom radu obrađeno je plinsko-turbinsko postrojenje, njegove karakteristike i primjena.

U uvodnom dijelu opisano je postrojenje u cjelini, njegove komponente te su navedene prednosti i mane. Ukratko su opisane postojeće metode modeliranja koje se primjenjuju na ovakvim sustavima. Pomoću kompjuterskog programa SciLab izrađen je proračun. Korišteni su Xcos grafički moduli koji omogućuju preglednost i modularnost programa. Na ovaj način moguće je brzo i jednostavno varirati ulazne podatke te vidjeti kako oni utječu na izlazne parametre postrojenja. Ukazano je na razliku u procesu bez poboljšanja i procesu s toplinskom regeneracijom ispušnih plinova. Takve simulacije daju uvid u radne parametre i stupanj iskoristivosti postrojenja prije njegove izrade.

Rezultati prikazanog modela dokazali su razlike procesa bez toplinske regeneracije i procesa s poboljšanjem. Količina topline koju je potrebno dovesti gorivom u komoru izgaranja za proces bez toplinske regeneracije ispušnih plinova veća je od količine topline koju je potrebno dovesti u proces s regeneracijom. Uz manju količinu dovedene topline, a istu vrijednost obavljenog rada i dobivene snage, ukupna iskoristivost procesa s toplinskom regeneracijom znatno je veća od ukupne iskoristivosti dobivene procesom bez poboljšanja. Povećanje od 13% u odnosu na proces bez poboljšanja u ovakvim sustavima predstavlja veliku uštedu i unaprijeđenje u radu.

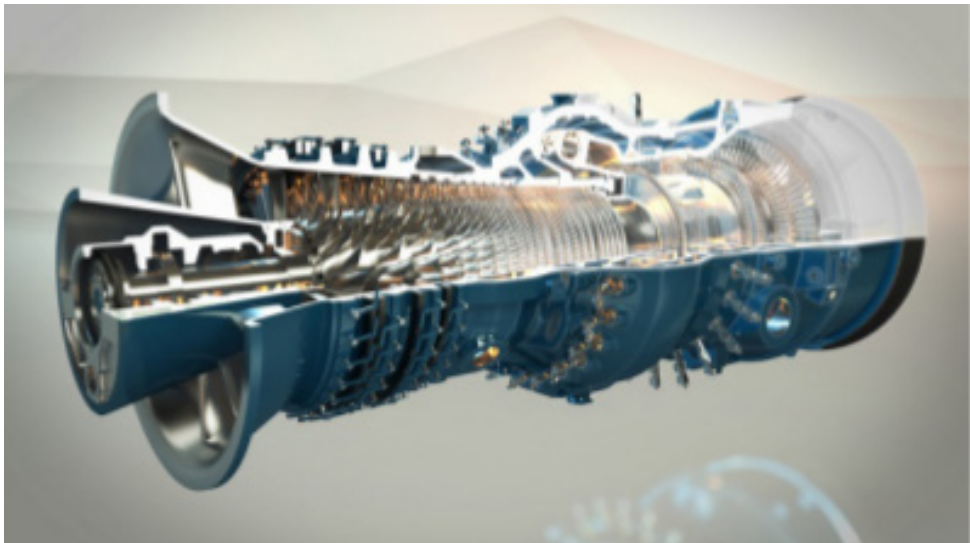
#### Summary:

This paper deals with the gas-turbine plant, its features and applications.

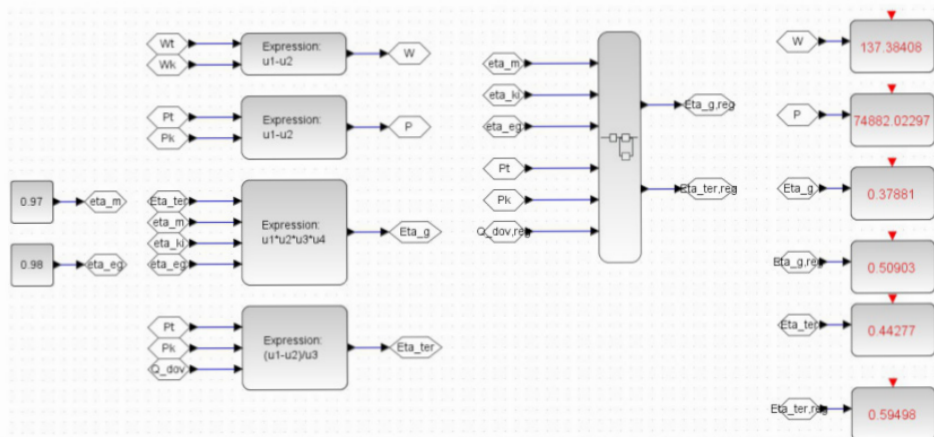
The introductory chapter describes the installation as a whole, its components, advantages and disadvantages. It presents a brief description of the existing modeling methods that are applied to these systems. By using software SciLab, budget has been developed. Xcos graphical modules have been used to enable transparency and modularity of the program. In this way, it is possible to vary the input data quickly and easily and see how they affect the output parameters of the plant. Differences in the process without improving the process and with thermal regeneration of exhaust gases have been pointed out. Such simulations provide an insight into the operating parameters and the efficiency of the plant prior to its production.

Results obtained by the presented model proved the difference in the process without heat recovery and process with improvements. The amount of heat that is necessary to bring fuel into the combustion chamber for the process without exhaust gas heat recovery is greater than the amount of heat that needs to be brought into the process of regeneration. With a smaller amount of incoming heat, and the same value of work performed and the resulting forces, the overall efficiency of the process with thermal regeneration is significantly higher than the overall efficiency of the resulting process without improvement. An increase of 13% compared to the process without improvements in these systems represent a huge savings and improvement in their work.





Presjek plinske turbine (iz literature).  
Cross-section of the gas turbine (from the reference book).



Blok dijagram iskoristivosti, ukupnog rada i ukupne snage s rezultatima u procesu plinsko-turbinskog postrojenja bez i s toplinskom regeneracijom.

Block diagram for efficiency, total work and total power with the results for the gas turbine plant with and without thermal regeneration.

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

Jelena Križanović

**NAZIV RADA | TITLE:**

Varijabilno upravljanje usisnim ventilima Ottovog motora s prednabijanjem  
Variable inlet valve timing for an turbocharged SI engine

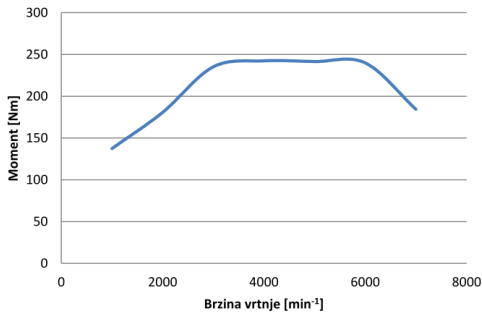
**MENTOR(I) | SUPERVISOR(S):**prof. dr. sc. / Prof. D. Sc. **Vladimir Medica****Sažetak:**

Za četverotaktni Ottov motor s prednabijanjem, snage 150 kW pri brzini vrtnje od 6000 min<sup>-1</sup>, namijenjen pogonu osobnog vozila trebalo je izvršiti proračune za odabir optimalnoga kuta otvaranja usisnih ventila u ovisnosti o brzini vrtnje motora sa ciljem postizanja najvećeg zakretnog momenta motora. Bilo je potrebno i konstruirati uređaj za zakretanje bregastog vratila s obzirom na koljenasto vratilo. U radu su izvršeni proračuni za određivanje promjene zakretnog momenta za odabrani motor u standardnoj izvedbi bez regulacije kuta otvaranja usisnih ventila (slika 1). Nakon toga su za različite pomake bregastog vratila usisnih ventila dobiveni i pomaci kuta otvaranja usisnih ventila i pomoću njih promjene zakretnog momenta u cijelom području brzine vrtnje motora (slika 2). Dobiveni su dijagrami promjene zakretnog momenta iz kojih su odabrana područja brzine vrtnje za maksimalni moment za određeni kut otvaranja ventila, kako bi se dobila potrebna promjena kuta otvaranja usisnih ventila za maksimalni zakretni moment, koja će služiti za upravljanje uređaja za zakretanje bregastog vratila (slika 3). Na kraju je dan prijedlog konstrukcijske izvedbe uređaja za zakretanje bregastog vratila (slika 4). Kao značajan rezultat ovoga diplomskog rada je proizašla činjenica da se dodatnim varijabilnim upravljanjem usisnih ventila kod Ottovog motora s prednabijanjem može značajno povećati zakretni moment motora u području nižih brzina vrtnje, više nego bi se to postiglo primjenom turbine varijabilne geometrije.

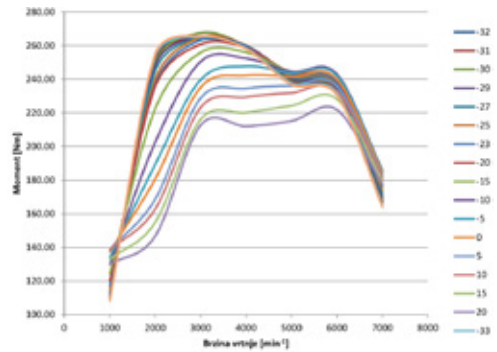
**Summary:**

For four-stroke turbocharged spark ignition (SI) engine, with 150 kW at a rotation speed of 6000 min<sup>-1</sup>, for personal vehicle, the calculations are performed to select the optimal inlet valve opening angle regarding the engine speed in order to achieve the maximum torque of the engine. It was necessary to construct a device to rotate the camshaft in respect to the crankshaft. In this thesis, the calculations for determining the torque diagram of the selected motor in the standard version without variable inlet valve timing (Figure 1). After that, for a variety of phase shifts of the camshaft for the inlet valves and the resulting phase shifts in the inlet valve opening angle, the torque diagrams in the entire range of engine speed are determined (Figure 2). From the resulting torque diagrams certain engine speed ranges and certain valve opening angles, giving the maximum torque, are selected. The required changes in the inlet valve opening angle for obtaining maximum torque in the whole engine speed range are determined. The obtained diagram (Figure 3), will serve for the control device to rotate the camshaft. Finally, it was given a proposal of the design the device to rotate the camshaft (Figure 4). As an important result of this thesis is derived by the fact that the additional variable inlet valve timing control in SI engines with turbocharging can significantly increase engine torque at lower speeds, more than it would be achieved by applying a variable geometry turbine.

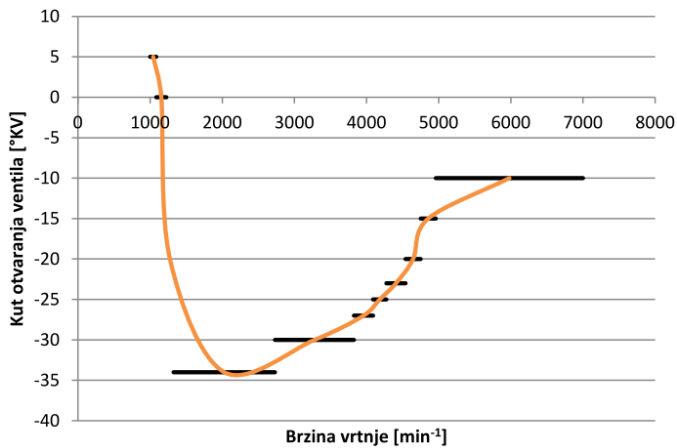




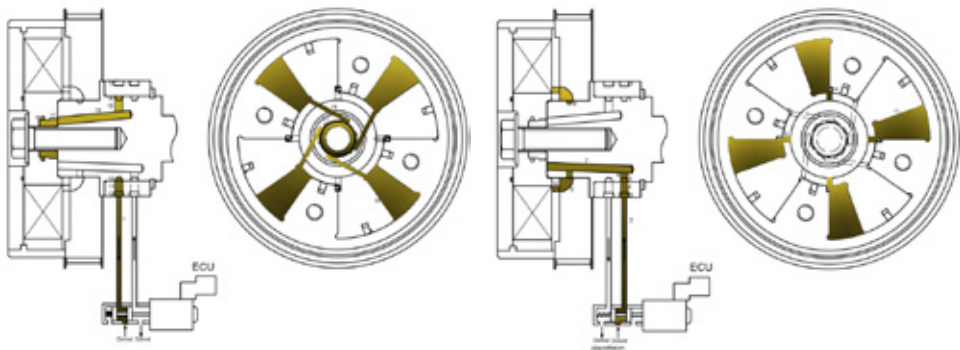
Slika 1: Promjena zakretnog momenta  
Figure 1: The change of torque



Slika 2: Promjena zakretnog momenta motora prema brzini vrtnje  
Figure 2: The change of torque according to engine speed



Slika 3: Krivulja optimalnoga kuta otvaranja usisnih ventila  
Figure 3: The curve of the intake valve optimal angle



Slika 4: Prikaz uređaja za zakretanje bregastog vratila  
Figure 4: Overview of camshaft rotating device

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

Stjepan Piličić

**NAZIV RADA | TITLE:**Utjecaj prigušenja kod elastičnog temeljenja strojeva za rezanje drveta  
Influence of damping in elastic foundation of wood cutting machines**MENTOR(I) | SUPERVISOR(S):**izv. dr. sc. / Assoc. Prof. D. Sc. **Sanjin Braut**  
prof. dr. sc. / Prof. D. Sc. **Roberto Žigulić****Sažetak:**

Predmet ovoga završnoga rada je analiza utjecaja prigušnih elemenata pri smanjenju ili sprječavanju vibracija podrhtavanja, tzv. „chatter“ (nestabilnosti podrhtavanja), koje se pojavljuju pri strojnoj obradi, a ogledaju se u lošoj kvaliteti obrađenih površina. Jedan od uzroka takvog nestabilnog vibracijskog ponašanja je činjenica da sustav vibrira istovremeno u više smjerova definiranih stupnjevima slobode gibanja, s različitim amplitudama i s različitim faznim kutevima.

U radu je postavljen pojednostavljeni matematički model stroja za obradu drveta, s dva stupnja slobode gibanja. Ispitavani su uvjeti pod kojima dolazi do nestabilnosti pri obradi drveta u slučaju konzervativnih i nekonzervativnog sustava. Kod konzervativnih sustava analizirani su slučajevi tzv. „flutter“ i „divergence“ nestabilnosti. Vezano za prigušenje u postavljenom dinamičkom sustavu, analiziran je njegov utjecaj kako na početno nestabilan neprigušeni sustav, tako i na početno stabilan neprigušeni sustav. Pri tome je potvrđeno da slični koeficijenti prigušenja u oba vibracijska smjera sprečavaju nastanak nestabilnosti podrhtavanja te ne destabiliziraju početno stabilan neprigušeni sustav.

Dodatnu vrijednost ovog završnog rada predstavlja njegova primjenljivost u drvnoj industriji PGŽ (glodanje pozadine dna stolice pri čemu se u odnosu na konvencionalnu izradu, upotrebom kružne pile u kombinaciji s dodatnim brušenjem, ostvaruje ušteda energije i do 30%) te činjenica da je radova na temu nestabilnih vibracija podrhtavanja u drvnoj industriji relativno malo u odnosu na iste vezane za strojogradnju.

**Summary:**

The subject of this final work is the analysis of the influence of damping elements in reducing or preventing vibrations called, "Chatter" (instability jitter), which occurs while machining and is reflected in the poor quality of treated surfaces. One of the causes of such an unstable vibration behavior is the fact that the system vibrates simultaneously in several directions defined by degrees of freedom of motion, and with various amplitudes and various phase angles.

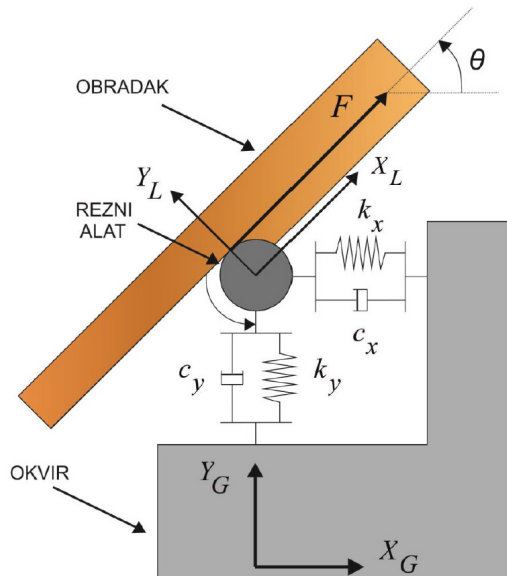
The paper sets up a simplified mathematical model for woodworking machines, with two degrees of freedom. Conditions under which instability occurs were examined in the processing of timber in conservative and non-conservative systems. In conservative systems, cases of so-called "Flutter" and "divergence" instability were analyzed. Regarding the damping set in the dynamic system, its impact on both the initial unstable undamped system, and the initial stable undamped system were analyzed. It was confirmed that similar attenuation coefficients in both directions prevent vibration instability flicker and do not destabilize the initial stable undamped system.

The additional value of this final work represents its applicability in the timber industry (milling the background of bottom chairs where in relation to conventional production, by using a circular saw in combination with additional grinding, energy savings of up to 30%) can be achieved and the fact that there are relatively few papers dealing with unstable vibration chatter in timber industry in comparison with the one related to the engineering industry.





Primjer stroja za obradu drva glodanjem.  
Wood processing milling machine.



Shematski prikaz postupka obrade drva i alata.  
Schematic representation of wood processing and tool.

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

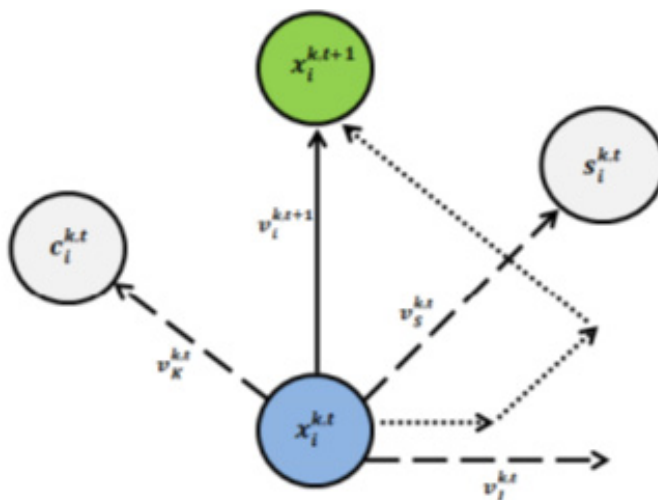
Ivan Staver

**NAZIV RADA | TITLE:**Optimizacija rute cjevovoda s obzirom na cijenu instalacije i eksploatacije  
Pipeline route optimization considering installation and exploitation costs**MENTOR(I) | SUPERVISOR(S):**prof. dr. sc. / Prof. D. Sc. **Senka Maćešić**izv. prof. dr. sc. / Prof. D. Sc. **Lado Kranjčević****Sažetak:**

U diplomskom radu razrađen je problem optimizacije trase cjevovoda s obzirom na trošak instalacije i eksploatacije. Izloženi su hidraulički modeli kojima se računa protok i tlakovi kroz sustav mreže cjevovoda te opisana optimizacijska metoda PSO (Particle Swarm Optimization) Hidraulička analiza napravljena je upotrebom programa EPANET, koji je uključen u optimizacijski postupak. Optimizacijski postupak primijenjen je na tri primjera: na testnoj mreži, na vodovodnoj mreži novog naselja u Pazinu i na mreži cjevovoda za navodnjavanje Čepičkog polja približne površine 1100 Ha. Postupak je pokazao da se uz pomoć web usluge Google maps te uz pomoć programa Epanet može izraditi mreža sukladna stvarnim potrebama, koju optimizacijski postupak uspješno rješava. Predloženi optimizacijski postupak pokazuje potencijal za primjenu u praksi.

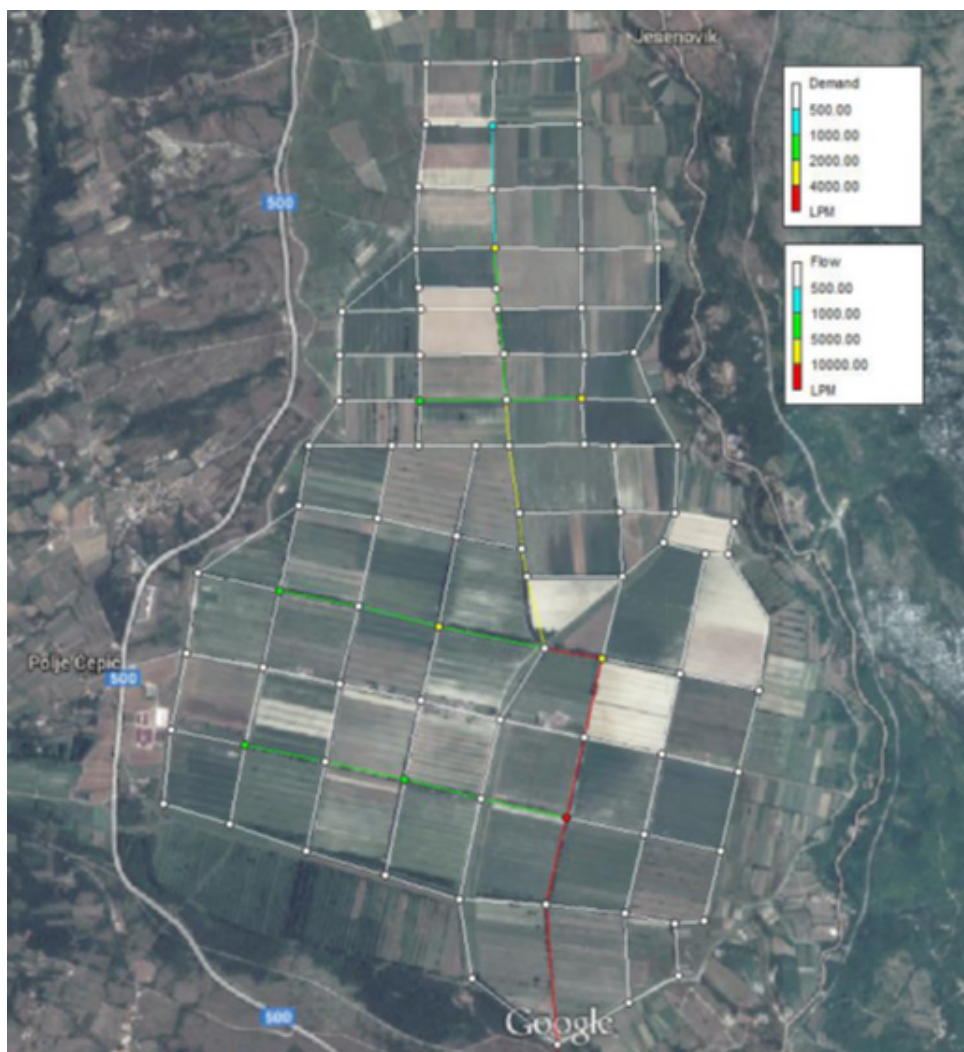
**Summary:**

The graduation thesis deals with the problem of pipeline route optimization with reference to the cost of installation and operation. The thesis presents hydraulic models by which flow and pressure through the pipe network are measured and also the optimization method PSO (Particle Swarm Optimization) is described. Hydraulic analysis was made using EPANET program, which is included in the optimization process. The optimization procedure was applied to three examples: test network, water supply network of the new settlement in Pazin and the network of pipelines for irrigation of Čepičko field with an approximate area of 1.100 Ha. The process has demonstrated that by using web services, Google maps and the program EPANET, a network can be created which has to be in accordance with the actual needs, and which successfully solves the optimization problems. The proposed optimization procedure shows potentials for the application in practice.



PSO optimizacijska metoda:  $x$  – položaj čestice;  $c$  – najbolji položaj čestice;  $s$  – najbolji položaj susjednih čestica;  $v_i$  ( $v_k$ ,  $v_s$ ,  $v_l$ ) brzina čestice s kognitivnom, socijalnom i inercijskom komponentom.

PSO optimization method:  $x$  - position of the particle;  $c$  - the best position of the particle;  $s$  - the best position of adjacent particles; you ( $V_k$ ,  $EA$ ,  $V_l$ ) particle velocity with cognitive, social and inertial component.



*Modeliranje poljoprivrednog sustava navodnjavanja Čepičkog polja.  
Modelling of agricultural irrigation systems in Čepičko field.*





# 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 Engineer of Mechanical Engineering
Brodogradnja	Sveučilišni prvostupnik inženjer brodogradnje	Naval Architecture	University Bachelor Engineer of Naval Architecture
Elektrotehnika	Sveučilišni prvostupnik inženjer elektrotehnike	Electrical Engineering	University Bachelor Engineer of Electrical Engineering
Računarstvo	Sveučilišni prvostupnik inženjer računarstva	Computer Science	University Bachelor Engineer of Computer Science
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 Engineer of Mechanical Engineering
Brodogradnja	Magistar inženjer brodogradnje	Naval Architecture	Master Engineer of Naval Architecture
Elektrotehnika	Magistar inženjer elektrotehnike	Electrical Engineering	Master Engineer of Electrical Engineering
Računarstvo	Magistar inženjer računarstva	Computer Science	Master Engineer of Computer Science
POSTDIPLLOMSKI 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	D.Sc. In Engineering Sciences
Temeljne tehničke znanosti		Basic Engineering Sciences	
Brodogradnja		Naval Architecture	
Druge interdisciplinarne 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 inženjer strojarstva	Mechanical Engineering	Bachelor Engineer of Mechanical Engineering
Brodogradnja	Stručni prvostupnik inženjer brodogradnje	Naval Architecture	Bachelor Engineer of Naval Architecture
Elektrotehnika	Stručni prvostupnik inženjer elektrotehnike	Electrical Engineering	Bachelor Engineer of Electrical Engineering



Studiji na Tehničkom fakultetu ustrojani 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, te 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.





Preddiplomski sveučilišni studij

S Strojarsvo		S Brodogradnja		S Elektrotehnika		S Računarstvo	
Predmet	N	B	N	B	Predmet	N	B
I Matematika I	6	7	6	7	I Matematika I	6	7
Statika	5	6	5	6	Elektronika I	4	5
Materijali I	4	4	4	4	Elektronika II	4	5
Uvod u modernu fiziku	3	4	3	4	Osnove elektrotehnike I	6	7
Računalne aplikacije u inženjerstvu	3	4	3	4	Osnove elektrotehnike II	4	5
Inženjerska grafika	4	4	4	4	Uvod u računarstvo	4	6
Tijelna i zdravstvena kultura	1	1	1	1	Inženjerska grafika i dokumentiranje	4	4
II Matematika II	6	7	6	7	Tijelna i zdravstvena kultura	1	1
Kinematika	5	6	5	6	III Matematika II	6	7
Čvrstoća konstrukcija I	6	7	6	7	Elektronika	4	6
Materijali II	3	5	3	5	Elektronika II	4	6
Oblikovanje pomoću računala	3	4	3	4	Osnove elektrotehnike II	4	5
Tijelna i zdravstvena kultura	1	1	1	1	Programiranje	4	6
III Dinamika	4	5	4	5	Tehnologija materijala	3	4
Mehanika fluida	5	5	5	5	Tijelna i zdravstvena kultura	1	1
Nauka o toplini I	6	7	6	7	III Inženjerska matematika ET	5	7
Mjerenja i kontrola kvalitete	3	5	3	4	Mjerenja u elektro tehnici	5	7
Računarske metode	4	5	4	5	Elektronika I	4	6
Strani jezici I	2	3	2	3	Elektronika II	4	7
IV Inženjerska statistika	4	5	4	5	Strani jezik I	2	3
Konstrukcijski elementi I	5	7	5	7	IV Inženjerska statistika	4	5
Hydraulički strojevi	4	5	4	5	Brodske tome	6	6
Proizvodne tehnologije	4	5	4	5	Osnove gradnje broda	3	5
Stručna praksa I	2	3	2	3	Konstrukcija broda I	4	6
V Konstrukcijski elementi II	6	7	6	7	Strani jezik II	2	3
Toplinski strojevi i uređaji	4	5	4	5	Stručna praksa I	5	5
Proizvodni strojevi, alati i naprave	4	5	4	5	VI Plovnost i stabilitet broda	6	7
Izborni kolegij skupine	4	4	4	4	Oprema broda	4	6
Tehnološki procesi	3	5	3	5	Konstrukcija broda II	4	6
VI Energetski sustavi	4	4	4	4	Tehnologija brodogradnje	4	7
Automatizacija	3	4	3	4	Izborni projekti	3	5
Izborni kolegij skupine	4	4	4	4	VI Organizacija i ekonomika posli. sust.	3	4
Organizacija i ekonomika posli. sust.	3	4	3	4	Hidrodinamika plovnih objekata I	6	8
Slobodni kolegij	3	4	3	4	Slobodni kolegij I	3	4
Završni rad	10	10	10	10	Slobodni kolegij II	3	4
					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 tjedno, a s B broj ECTS bodova pripadnog predmeta.)

Undergraduate University Studies		S Mechanical Engineering		S Naval Architecture		S Electrical Engineering		S Computer Science		N	B
Course	N	B	Course	N	B	Course	N	B	Course	N	B
I Mathematics I	6	7	I Mathematics I	6	7	I Mathematics I	6	7	I Mathematics I	6	7
Statistics	5	6	Statistics	5	6	Physics I	4	5	Electrical Engineering	4	5
Materials I	4	4	Materials I	4	4	Fundamentals of Electrical Engineering I	6	7	Programming	6	7
Introduction in Modern Physics	3	4	Introduction in Modern Physics	3	4	Introduction to Computer Engineering	4	6	Applied Computing	4	6
Applied Computing	3	4	Applied Computing	3	4	Engineering Graphics and Documenting	4	4	English Language I	3	3
Engineering Graphics	4	4	Engineering Graphics	4	4	Physical and Health Education	4	1	Physical and Health Education	4	1
Physical and Health Education	4	4	Physical and Health Education	4	4	Physical and Health Education	4	1	English Language I	3	3
Mathematics II	6	7	Mathematics II	6	7	Mathematics II	6	7	Mathematics II	6	7
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	Computer Networks	4	7
Materials II	3	5	Materials II	3	5	Programming	4	6	Digital Logic	4	6
Modeling by Computer	3	4	Modeling by Computer	3	4	Technology of Materials	3	4	English Language II	3	3
Physical and Health Education	4	4	Physical and Health Education	4	4	Physical and Health Education	4	1	Physical and Health Education	4	1
Mathematics II	6	7	Mathematics II	6	7	Mathematics for Engineers ET	5	7	Algorithms and Data Structures	5	7
Fluid Mechanics	5	6	Fluid Mechanics	5	6	Electrical Measurements	3	7	Operating Systems	4	7
Thermodynamics I	6	7	Thermodynamics I	6	7	Electrical Circuits	4	6	Computer Architecture	4	6
Measurements / Control of Quality	3	5	Thermodynamics II	3	5	Foreign Language I	2	3	Signals and Systems	4	6
Comparational Methods	4	4	Introduction to Machine Elements	4	4	Foreign Language I	2	3	Elective course I	3	4
Foreign Language I	2	3	Foreign Language I	2	3	English Language I	2	3			
Statistics for Engineers	4	5	Statistics for Engineers	4	5	Digital Logic	4	6	Software Engineering	4	7
Machine Elements Design I	5	7	Ship Hull Form	5	6	Electronics II	4	6	Databases	4	6
Hydraulic Machine Design	4	5	Ship Hull Form Production	3	5	Basics of Automatic Control	4	6	Computer Aided Measurements	4	6
Manufacturing Technologies	4	5	Ship Structure	4	6	Elective Course	4	4	Basics of Science Computing	3	3
Foreign Languages II	2	3	Ship Structure II	2	3	Foreign Language II	2	3	Elective course II	4	4
Professional Practice	5	5	Professional Practice I	2	3	Professional Practice I	2	3	Professional Practice I	4	4
Machine Elements Design II	6	7	Seaworthiness and Stability of the Ship	6	7	Electrical Machines	5	6	Embedded Computer Systems	5	7
Heat Engines and Devices	4	5	Ship Equipment	4	6	Power Electronics	5	6	Web Application Development	4	7
Production Machines, Jigs, Fixtures and Tools	4	5	Ship Structure II	4	6	Signals and Systems	4	6	Computer Graphics	4	6
Elective group course	4	4	Shipbuilding Technology	4	6	Elective group course	4	7	Free course	4	5
Technological Processes	4	4	Elective project	3	5	Elective project	3	5	Elective project	3	5
Elective project	3	5	Organization and Economics of Enterprises	3	4	Organization and Economics of Enterprises	3	4	Information systems	5	8
Energy Systems	3	4	Marine Hydrodynamics I	6	8	Free course I	3	4	Organization and Economics of Enterprises	3	4
Automation	4	4	Free course II	3	4	Free course II	3	4	Elective group course	5	7
Elective group course	3	4	Free course II	3	4	Free course II	3	4	Free course	3	4
Organization and Economics of Enterprises	3	4	Final Work	10	10	Final Work	10	10	Final work	3	4
Free course	3	4									
Final work	3	4									

(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 daljnjem 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 osposobljava 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 mjerenja te ih pravilno obraditi i protumačiti rezultate. Sposoban je identificirati, formulirati i riješiti problem. Pri tome se zna koristiti suvremenim inženjerskim alatima i spreman 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 poštuje 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 osposobljenih 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 energetske strojarstvo
- Brodostrojarstvo
- Inženjerstvo materijala

Diplomskim sveučilišnim studijem strojarstva studenti stječu potrebna uskospecijalistička znanja iz navedenih područja te su time osposobljeni za obavljanje najsloženijih inženjerskih zadataka 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, sposobnosti samostalnog istraživanja, otkrivanja novih znanja, pripreme i izvođenja eksperimenata te tumačenja podataka. Studijem se stječu znanja i kompetencije potrebne za projektiranje novih sustava, komponenata ili procesa te učinkovito djelovanje u uloji vođe tima. Studijski program sličan je programima studija na inozemnim visokim učilištima uz postizanje specifičnih zahtjeva sredine za koju se prvenstveno školuju kadrovi

## 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.



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, a 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 i 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 osposobljavaju 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 te 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 te su time osposobljeni 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, komponenata procesa uz postavljene uvjete. Pri tome mora biti sposoban djelovati i kao vođa i kao član skupine ili istraživačkog tima. Studijski

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 specialistic 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. Therefore, he is capable of working as a team or research group member



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:

- Programsko 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.

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.







Diplomski sveučilišni studij																
S	Strojarsvo			Brodogradnja			Elektrotehnika			Računarsvo						
	Predmet	N	B	Predmet	N	B	Predmet	N	B	Predmet	N	B				
I	Infenijska matematika	5	7	I	Infenijska matematika	5	6	I	Numeriĉka stohastiĉka matematika	4	6	I	Stohastiĉka matematika	4	6	
	Čvrstoća konstrukcija II	5	7	I	Čvrstoća broda	4	5	I	Upravljanje elektromotornim pogonom	4	6	I	Teorija informacija i kodiranje	4	6	
	Naika o toplini II	5	7	I	Brodska elektrotehnika	3	4	I	Kolegij izborne skupine	4	6	I	Izborni kolegij I	8	12	
	Kolegij izborne skupine	4	5	I	Metodologija granje plovnih objekata	4	4	I	Kolegij izborne skupine	4	6	I	Kolegij izborne skupine	4	6	
	Kolegij izborne skupine	4	4	I	Kolegij izborne skupine	4	4	I	Kolegij izborne skupine	4	6	I	Kolegij izborne skupine	4	6	
	Projekt I	2	5	II	Brodski sustavi	4	4	II	Projekt I	2	5	II	Upravljanje u programskom inženjerstvu	6	7	
	Slobodni kolegij I	4	5	II	Projekt I	2	5	II	Slobodni kolegij I	4	5	II	Projekt I	4	5	
	Stručna praksa II	4	5	II	Slobodni kolegij I	4	5	II	Stručna praksa II	4	5	II	Stručna praksa II	4	5	
	Izborni kolegij I	4	5	II	Stručna praksa II	4	5	II	Kolegij izborne skupine	4	5	II	Izborni kolegij I	4	5	
	Kolegij izborne skupine	4	5	II	Izborni kolegij I	4	5	II	Kolegij izborne skupine	4	5	II	Kolegij izborne skupine	4	5	
III	Projekt II	2	5	III	Kolegij izborne skupine	4	5	III	Projekt II	2	5	III	Napredni operacijski sustavi	6	8	
	Slobodni kolegij II	4	5	III	Ostvranje plovnih objekata I	4	4	III	Slobodni kolegij II	4	5	III	Projekt II	4	5	
	Kolegij izborne skupine	4	5	III	Projekt II	2	5	III	Kolegij izborne skupine	4	5	III	Slobodni kolegij I	3	2	
	Kolegij izborne skupine	4	5	III	Slobodni kolegij II	4	5	III	Kolegij izborne skupine	4	5	III	Izborni kolegij I	8	12	
	Kolegij izborne skupine	4	5	III	Izborni kolegij II	4	5	III	Kolegij izborne skupine	4	5	III	Slobodni kolegij I	3	2	
	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Izborni kolegij I	8	12	
	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Slobodni kolegij I	3	2	
	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Izborni kolegij I	8	12	
	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Slobodni kolegij I	3	2	
	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Kolegij izborne skupine	4	5	III	Izborni kolegij I	8	12	
IV	Sukcesni kolegij III	4	5	IV	Slobodni kolegij III	4	5	IV	Slobodni kolegij III	4	5	IV	Projektno management	2	3	
	Kolegij izborne skupine	4	5	IV	Izborni kolegij III	4	5	IV	Kolegij izborne skupine	4	8	IV	Slobodni kolegij II	3	5	
	Kolegij izborne skupine	4	5	IV	Kolegij izborne skupine	4	5	IV	Kolegij izborne skupine	4	7	IV	Izborni kolegij I	8	12	
	Kolegij izborne skupine	3	5	IV	Kolegij izborne skupine	3	5	IV	Diplomski rad	10	10	IV	Diplomski rad	10	10	
	Diplomski rad	10	10	IV	Diplomski rad	10	10	IV	Diplomski rad	10	10	IV	Diplomski rad	10	10	
	Moduli	Konstrukcije i mehatronika			Moduli	Tehnologija i organizacija brodogradnje			Moduli	Automatika			Moduli	Programsko inženjerstvo		
		Raĉunarsko inženjerstvo			Moduli	Projekiranje i konstrukcija plovnih objekata			Moduli	Elektroenergetika			Moduli	Raĉunalni sustavi		
		Tehnološko informatiĉko inženjerstvo														
		Industrijsko inženjerstvo i menadžment														
		Raĉunarska analiza konstrukcija i strojeva														
Termehnika																
Procesno i energetska strojarstvo																
Brodostrojarsvo																
Inženjerstvo materijala																

Graduate University Studies												
S	Mechanical Engineering			Naval Architecture			Electrical Engineering			Computer Science		
	Course	N	B	Course	N	B	Course	N	B	Course	N	B
I	Mathematics for Engineers	5	7	Mathematics for Engineers	5	7	Numerical and Stochastic Mathematics	4	6	Stochastic Mathematics	4	6
	Strength of Constructions II	5	7	Ship Strength	4	5	Control of Electrical Drives	4	6	Information Theory and Coding	4	6
	Thermodynamics II	5	7	Ships Electrical Engineering	3	4	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Metallurgy of Ship Production	4	5	Elective group course	4	6	Elective group course	4	6
	Elective group course	4	4	Elective group course	4	4	Elective group course	4	6			
	Elective group course	4	4	Elective group course	4	4	Elective group course	4	6			
	Elective group course	4	4	Elective group course	4	4	Elective group course	4	6			
II	Project I	2	5	Ships Systems	4	5	Project I	2	5	Software Engineering Management	6	7
	Free course I	4	5	Project I	2	5	Free course I	4	5	Project I	6	7
	Professional practice II	4	5	Free course I	4	5	Professional practice II	4	5	Professional practice II	5	5
	Elective course I	4	5	Professional practice II	4	5	Elective group course	4	5	Elective course UJ	4	6
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	5	Elective group course	4	7
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	5	Elective group course	4	7
	Project II	2	5	Ship Design I	4	5	Project II	2	5	Advanced Operating Systems	6	8
	Free course II	4	5	Project II	2	5	Free course II	4	5	Project II	6	8
	Elective group course	4	5	Free course II	4	5	Elective group course	4	6	Free course I	3	5
	Elective group course	4	5	Elective course II	4	5	Elective group course	4	6	Elective course Z	8	12
IV	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	6	Elective course Z	8	12
	Free course III	4	5	Free course III	4	5	Free course III	4	5	Project Management	2	3
	Elective group course	4	5	Elective course III	4	5	Elective group course	4	8	Free course II	3	5
	Elective group course	4	5	Elective group course	4	5	Elective group course	4	7	Elective course UJ	8	12
	Elective group course	3	5	Elective group course	4	5	Graduation thesis	4	10	Graduation thesis	8	12
Graduation thesis	10	10	Graduation thesis	3	5	Graduation thesis	4	10	Graduation thesis	10	10	
Modules	Mechanical Design and Mechatronics			Design and Construction of Ships			Automatics			Software Engineering		
	Computer Engineering			Technology and Organisation of Shipbuilding			Power Engineering			Computer Systems		
	Technological Information Engineering											
	Industrial Engineering and Management											
	Thematic Group Machine Elements and Machines											
	Thematic Group Energy Elements and Machines											
	Thematic Group Process and Energy Mechanical Engineering											
	Marine Engineering											
	Engineering of Materials											
	Engineering of Materials											



**POSLIJEDIPLOMSKI SVEUČILIŠNI  
(DOKTORSKI) STUDIJI IZ PODRUČJA  
TEHNIČKIH ZNANOSTI, POLJA  
STROJARSTVA, BRODOGRADNJE,  
TEMELJNIH TEHNIČKIH ZNANOSTI I  
INTERDISCIPLINARNIH TEHNIČKIH  
ZNANOSTI I 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 koji prvenstveno označava da superiorno poznaje određeno znanstveno područje unutar tehničkih znanosti i da je dokazao sposobnost originalnoga znanstvenog istraživanja. Njegove kompetencije obuhvaćaju vrsno 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 da prenese svoje znanje i iskustvo na mlađe generacije studenata, kritičnost, u prvom redu prema vlastitom istraživanju, ali i radu drugih te sposobnost prilagođavanja promjenama koje dolaze.

Nakon završetka doktorskog studija otvaraju se brojne mogućnosti nastavka znanstveno-istraživačkog rada na matičnoj instituciji ili srodnim institucijama u Hrvatskoj ili inozemstvu, kao i postdoktorskog usavršavanja. Također 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 sveučilišnim ili znanstvenim institucijama u

**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),
- sitting examinations for all obligatory and elective subjects prescribed by the curriculum of the doctoral study



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

(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 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 strojarstvo, brodogradnja, temeljne tehničke znanosti i interdisciplinarne tehničke znanosti

Metodologija znanstvenoistraživačkog rada		Numeričko modeliranje i numeričke metode		Statističke metode i stohastički procesi			
Zajednički predmeti	Proizvodno strojarstvo	Termodinamika	Računarska mehanika	Projektiranje i gradnja plovnih objekata	Konstruiranje u strojarstvu	Osiguranje kvalitete i vođenje tehničkih sustava	Ekološko inženjersvo i zaštita okoliša
	Planiranje i vođenje proizvodnje	IP iz toplinskih znanosti	Elastomehanika i plastomehanika	Metodologija projektiranja plovnih objekata	IP iz hidrostatičkih i pneumatskih prijenosnika	Upravljanje kvalitetom	IP iz zaštite okoliša
	IP iz konvencionalne obrade odvajanjem čestica	Numeričko modeliranje prijelaza topline	MKEI i optimizacija konstrukcija	Pomorstvenost i upravljivost plovnih objekata	Modeliranje inženjerskih konstrukcija	Upravljanje kvalitetom	Opća ekologija
	Deformabilnost i suvremeno oblikovanje deformiranjem	Optimizacija energetskih procesa	Viskoelastičnost i viskoelastičnost	IP iz osnivanja plovnih objekata	Nauka o konstruiranju IP iz konstrukcijskih elemenata	Planiranje i vođenje proizvodnje	Opća ekologija
	IP iz nekonvencionalnih postupaka obrade	IP iz brodskih strojnih kompleksa	Stabilnost konstrukcija	Integralna tehnologija gradnje plovnih objekata	Specijalni mehanički prijenosnici	Statistička kontrola procesa	Zaštita mora i probajba
	Razvojni i proizvodni menadžment	Termodinamička analiza procesa	Nonlinearna analiza konstrukcija	IP iz metodologije gradnje plovnih objekata	Konstruktivna mehanika i optimizacija zupčastih prijenosnika	Projekiranje baze podataka	Kemija okoliša
	CAM, CAP, CAD/NC-CIM	Ekperimentalne metode u toplinskoj tehnici i termodinamici	Kontaktna mehanika	IP iz otpora plovnih objekata	IP iz prijenosnika snage	Poslovno odlučivanje	Upravljanje održivim razvojem i zaštita okoliša
	Radovi i manipulatori	Termodinamička smjesa i toplinski uređaji	IP iz termodinamike	IP iz dinamike plovnih objekata	IP iz transportnih sredstava u industriji	Modeli stohastičkih procesa	Zaštita okoliša u energetici i proizvodnji
	IP iz fleksibilnih proizvodnih sustava	IP iz tehnike hlađenja i tehnike niskih temperatura	Vibracije i trajnost strojeva i konstrukcija	IP iz dinamike plovnih objekata	IP iz transportnih sredstava u industriji	Informacija	Instrumentacija i analitičke tehnike u zaštiti okoliša
	Inteligentni proizvodni sustavi	IP iz izmjenjivača topline	Kinematika i dinamika robota	Projekiranje strukture plovnih objekata	Metoda rubnih elemenata	Pouzdanost tehničkih sustava	Okoliš i gospodarstvo
	Metode simulacije u proizvodnji	IP iz grijanja i klimatizacije	Zaštita od buke i vibracija strojeva i konstrukcija	IP iz dinamike plovnih objekata	Kontaktni problemi u analizi konstrukcijskih elemenata	Inteligentni sustavi	Zaštita okoliša u tehnici hlađenja
	Optimizacija tehnoloških procesa	Obnovljivi izvori energije	Dinamika fluida	IP iz dinamike plovnih objekata	Metoda rubnih elemenata	Mikroekonomija i konkurentnost	
	IP iz ispitivanja materijala	Racionalna potrošnja energije	Računarska mehanika fluida	IP iz dinamike plovnih objekata	Principi konstrukcija visokih i ultravisokih preciznosti	Inženjersvo kvalitete	
	Toplinska obrada i inženjersvo površina	Numeričko modeliranje procesa izgaranja	Hidrodinamika turbostrojeva	IP iz dinamike plovnih objekata	Principi konstrukcija visokih i ultravisokih preciznosti	Sigurnost tehničkih sustava	
	Kemija materijala	IP iz motora s unutarnjim izgaranjem	Turbulentno strujanje	IP iz dinamike plovnih objekata	Podatiji i elementi i mehanizmi		
	Koroziji zaštita metala	Suvremene konstrukcije motora					
	Mehanika prijeloma i umorljivost	Trajnost i pouzdanost					
	Proces obličenja materijala						

Predmeti po modulima

Postgraduate University (Doctoral) Study  
Area of Engineering Sciences, fields of Mechanical Engineering, Naval Architecture, Fundamental Engineering Sciences and Interdisciplinary Sciences

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



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 Methods	
	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 energetskegih 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 projektiranju 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.

### **UNDERGRADUATE 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.







Prediplomski stručni studiji

S Strojstvo		S Brodogradnja			S Elektrotehnika		
Predmet	N	B	N	B	Predmet	N	B
I Matematika I	5	7	5	7	I Matematika I	5	7
Mehanika I	5	7	5	7	Fizika	4	6
Materijali	4	6	4	6	Osnove elektrotehnike ST I	5	8
Osnove elektrotehnike	3	5	3	5	Materijali i tehnološki postupci	3	4
Primjena računala ST	3	4	3	4	Primjena računala ST	3	4
Tijelena i zdravstvena kultura	1				Tijelena i zdravstvena kultura		
II Matematika II	5	7	5	7	II Matematika II	5	7
Mehanika II	4	6	4	6	Osnove elektrotehnike ST II	5	7
Čvrstoća	4	6	4	6	Digitalna logika ST	4	6
Tehničko crtanje	4	6	4	6	Mehanika i elementi konstrukcija ST	3	5
Tehnologija obrade I	3	4	3	4	Tehničko dokumentiranje	3	4
Tijelena i zdravstvena kultura	1				Tijelena i zdravstvena kultura		
III Organizacija ekonomika	3	4	3	4	III Mjerenja u elektrotehnici ST	5	7
Mehanika fluida ST	3	5	3	5	Elektroničke komponente i osnovni sklop.	5	7
Toplina	4	6	4	6	Linearne električne mreže	4	7
Tehnologija obrade II	4	6	4	7	Mehatronika	4	6
Elementi strojeva I	4	6	3	5	Strani jezik I	2	3
Strani jezik I	2	3	2	3			
IV Elementi strojeva II	4	6	4	6	IV Osnove energetske elektronike	5	7
Obradni strojevi	3	5	4	6	Osnove automatske regulacije	4	7
Toplinski strojevi i uređaji I	3	5	3	5	Kolegij izborne skupine	5	8
Strani jezik II	2	3	3	5	Strani jezik II	2	3
Stručna praksa I	4	6	2	3	Stručna praksa I		
Kolegij izborne skupine	4	6	5	5			
Mjerna tehnika ST	3	5	3	5	V Organizacija i ekonomika	3	4
Toplinski strojevi i uređaji II	3	5	5	6	Tehnologija brodogradnje II	5	7
Hydraulički strojevi	3	5	5	6	Kolegij izborne skupine	4	7
Zavarivanje	3	5	4	6	Kolegij izborne skupine	4	6
Kolegij izborne skupine	4	5	4	7	Kolegij izborne skupine	4	6
Oprema broda ST	4	5					
Kolegij izborne skupine	4	5					
VI Slobodni kolegij	4	5	4	5	VI Slobodni kolegij	4	5
Toplinski strojevi i uređaji II	4	5	4	5	Stručna praksa II		
Stručna praksa II	4	10	4	5	Kolegij izborne skupine	4	5
Kolegij izborne skupine	4	5			Završni rad		
Završni rad		10					

Undergraduate Vocational Studies

S Mechanical Engineering			S Naval Architecture			S Electrical Engineering		
Course	N	B	Course	N	B	Course	N	B
I Mathematics I	5	7	I Mathematics I	5	7	I Mathematics I	5	7
Mechanics I	5	7	Mechanics I	5	7	Physics	4	6
Materials	4	6	Materials	4	6	Fundamentals of Electrical Engineering I VS	5	8
Fundamentals of Electrical Engineering	3	5	Fundamentals of Electrical Engineering	3	5	Materials and Technological Processes	3	4
Applied Computing VS	3	4	Applied Computing VS	3	4	Applied Computing VS	3	4
Physical and Health Education	1	1	Physical and Health Education	1	1	Physical and Health Education	1	1
II Mathematics II	5	7	II Mathematics II	5	7	II Mathematics II	5	7
Mechanics II	4	6	Mechanics II	4	6	Fundamentals of Electrical Engineering II VS	5	7
Strength of Materials	4	6	Strength of Materials	4	6	Digital Logic VS	4	6
Technical Drawing	4	6	Technical Drawing	4	6	Mechanics and Structural Elements VS	3	5
Manufacturing Technology I	3	4	Marine Vessels	3	4	Technical Documenting	3	4
Physical and Health Education	1	1	Physical and Health Education	1	1	Physical and Health Education	1	1
III Organization and Economics	3	4	III Organization and Economics	3	4	III Electrical Measurements VS	5	7
Fluid Mechanics VS	3	5	Fluid Mechanics VS	3	5	Electronic Components and Basic Circuits	5	7
Thermodynamics	4	6	Thermodynamics	4	6	Linear Electric Circuits	4	7
Manufacturing Technology II	4	6	Ship Hull Forms VO	4	7	Mechatronics	4	6
Machine Elements I	4	6	Welding Engineering	3	5	Foreign Language I	2	3
Foreign Language I	2	3	Foreign Language	2	3	IV Fundamentals of Power Electronics	5	7
IV Machine Elements II	4	6	IV Ship Hydrostatics	4	6	Fundamentals of Automatic Regulation	4	7
Machine Tools	3	5	Ship Structure	4	6	Elective group course	5	8
Heat Engines and Devices I	3	5	Shipbuilding Technology I	3	5	Foreign Language I	2	3
Foreign Language II	2	3	Machine Elements I NA	3	5	Professional practice I	5	5
Professional Practice I	4	6	Foreign Language II	2	3	VI Organization and Economics	3	4
Elective group course	4	6	Professional practice I	5	5	Elective group course	4	7
V Measuring Technique VS	3	5	V Measuring Technique VS	3	5	Elective group course	4	6
Heat Engines and Devices II	3	5	Shipbuilding Technology II	5	6	Elective group course	4	6
Hydraulic Machines	3	5	Technological Processes of Shipbuilding and Repair	5	6	Elective group course	4	6
Welding Engineering	3	5	Ship Construction	4	6	Elective group course	4	6
Elective group course	4	5	Ship Equipment VO	4	7	Free course	4	5
Elective group course	4	5	VI Small Craft Building and Maintenance	4	5	Professional practice II	4	5
Free course	4	5	Free course	4	5	Elective group course	4	5
Professional practice II	4	10	Professional practice II	4	10	Final thesis	10	10
Elective group course	4	5	Final thesis	10	10			
Final thesis	4	10						



## 4 dekanat dean's office



### DEKAN | DEAN:

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

Tehnički fakultet Sveučilišta u Rijeci  
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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. **Juraj Šimunić**

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

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



**URED DEKANA | DEAN'S OFFICE:**

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

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

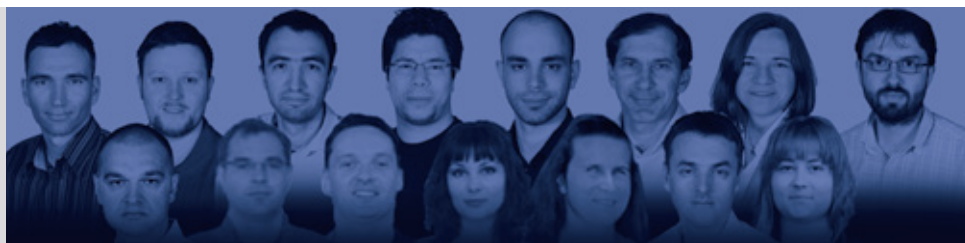
# 5 zavodi departments



**5.**

**zavod za automatiku i elektroniku**  
**department of automation and**  
**electronics**





**PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:**

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

<http://www.riteh.uniri.hr/ustroj/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*



**Nino Stojković**

*analogna obrada signala; analogni filtri*  
*analog signal processing; analog filters*

**IZVANREDNI PROFESORI | ASSOCIATE PROFESSORS**



**Vera Gradišnik**

*poluvodičke komponente; fotodetektor; fotodioda; sunčane ćelije; detekcija boja; tranzijentna analiza; numeričko modeliranje; defekti; senzor slike*  
*semiconductor devices; photodetector; photodiode; solar cells; color detection; transient analysis; numerical modeling; defects; image sensor*



**Viktor Sučić**

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



**Saša Vlahinić**

*mjerenja u elektrotehnici; mjerenja 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; filterski slogovi; asistivna tehnologija*  
digital signal and image processing, wavelets and filter banks, assistive technology



**DOCENT** | ASSISTANT PROFESSOR

**Neven Bulić**

*automatizacija*  
automation



**VIŠI ASISTENT** | SENIOR ASSISTANT

**Jonatan Lerga**

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



**ASISTENTI** | ASSISTANTS

**Vesna Krajić**

*automatika; robotika*  
automation; robotics



**Karlo Radman**

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



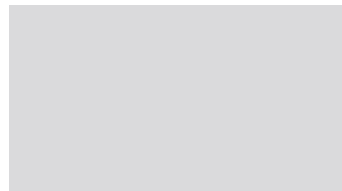


ZNANSTVENI NOVACI | JUNIOR RESEARCHERS



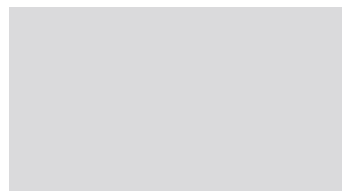
**Damir Malnar**

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



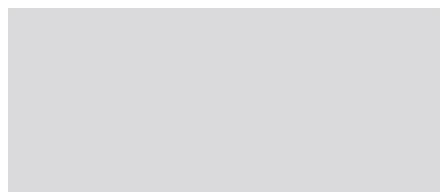
**Željka Milanović**

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



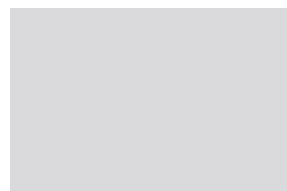
**Nicoletta Saulig**

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



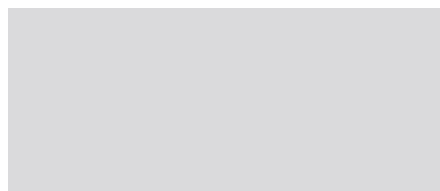
**Leon Šikulec**

*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

**Dario Matika**

Ministarstvo obrane | Ministry of Defense

*automatika*  
*automation*

**Antonio Linić**

*elektronika*  
*electronics*

**Marino Franušić**

Veleučilište u Rijeci | Polytechnics of Rijeka

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



*Nastava se izvodi iz područja automatike, robotike, elektronike, mjerenja 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*
- *Fotoničke komponente*
- *Mjerenje i analiza kvalitete električne energije*
- *Mješovita obrada signala*
- *Nelinearni sustavi automatskog upravljanja*
- *Ambijentalna inteligencija*
- *Projektiranje digitalnih sustava*
- *Pouzdanost tehničkih sustava*
- *Inteligentni proizvodni sustavi*
- *Roboti i manipulatori*
- *Nonstationary Signal Analysis and Processing*
- *Photonic Devices*
- *Measurement and Analysis of Electric Power Quality*
- *Mixed Signal Processing*
- *Nonlinear Control Systems*
- *Ambient Intelligence*
- *Digital System Design*
- *Reliability of Technical Systems*
- *Intelligent Manufacturing Systems*
- *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*

**PROJEKTI** | PROJECTS

- 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-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)*
- 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-PL-0007-07-1112 - *Modern Methods of the Constitution and Measurement of Geometrical Surface Structure (EU projekt mobilnosti/suradnik na projektu)*

CEEPUS; CIII-PL-0007-07-1112 - *Modern Methods of the Constitution and Measurement of Geometrical Surface Structure (EU mobility project; associate member)*

- **C140.106, Razvoj posebnih konstrukcija motora sa magnetskim ležajevima, upravljačke 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*
- **Optimizacija i dizajn vremensko-frekvencijskih distribucija, 069-0362214-1575, MZOŠ, Viktor Sučić, 2006 – 2013, znanstvenoistraživački**  
*Optimisation and Design of Time-Frequency Distributions, 069-0362214-1575, Ministry of Science, Education and Sports of the Republic of Croatia, Viktor Sučić, 2006 – 2013, research and scientific project*
- **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*

## PUBLIKACIJE | PUBLICATIONS

### KNJIGE | BOOKS

- *Car Z., Kudláček J., Costa Sanches Galvão J. R., Proceedings of International Conference on Innovative Technologies IN-TECH 2014, Faculty of Engineering University of Rijeka, ISSN 1849 - 0662 2014, Rijeka, Zbornik*

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Lerga J., Grbac E., Sučić V., An ICI Based Algorithm for Fast Denoising of Video Signals. Automatika : časopis za automatiku, mjerenje, elektroniku, računarstvo i komunikacije, ISSN: 0005-1144, prihvaćen za objavljivanje, 2014*
- *Marasović I., Milanović Ž., Betti T., Resistance Fluctuations in GaAs Nanowire Grids, Journal of Nanomaterials, ISSN: 1687-4110, 2014, 1-9, 2014*
- *Sučić V., Lerga J., Vrankić, M., Adaptive Filter Support Selection for Signal Denoising Based on the Improved ICI Rule, Digital Signal Processing, ISSN: 1051-2004, 23, 65-74, 2013*
- *Sučić V., Lerga J., Boashash B., Multicomponent Noisy Signal Adaptive Instantaneous Frequency Estimation Using Components Time Support Information IET signal processing, ISSN: 1751-9675, 8 (3), 277-284, 2014*

### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- *Bulić N., Radman K., Gruber W., Modeling of Bearingless Flux-Switching Slice Motor, Proc. International Conference on Innovative Technologies (IN-TECH), 2014, 1, 2014, Leiria, Portugal*
- *Janeš G., Car Z. and Ogrizović D., Accelerators on parallel roads to exascale computing, International Conference on Innovative Technologies IN-TECH 2014, ISSN 1849-0662,1, 333-337, 2014, Leiria, Portugal*
- *Janeš G., Car Z., Ogrizović D., A Fast Genetic Algorithm Based on Single Gene Evaluation Fitness Mechanism for Job-Shop Scheduling Problem, International Conference on Innovative Technologies*



*IN-TECH Budapest, ISBN: 978-953-6326-88-4, 1, 345-348, 2013, Faculty of Engineering University of Rijeka, Croatia*

- Kršulja M., Štefančić M., Car Z., Pepelnjak T., Plančak M., Vojkovský K., *Finite Analysis of Deep Drawing Tool Geometry for Thin Walled Tin Can, International Conference on Innovative Technologies IN-TECH Budapest, ISBN: 978-953-6326-88-4, 1, 401-404, 2013, Faculty of Engineering University of Rijeka, Croatia*
- Ogrizović D., Car Z., Janeš G., Kovačić B., *Doing Science in the Cloud, International Conference on Innovative Technologies IN-TECH Budapest, SBN: 978-953-6326-88-4, 1, 385-388, 2013, Faculty of Engineering University of Rijeka, Croatia*
- Radman K., Gruber W., Bulić N., *Control Design of a Bearingless Flux-Switching Slice Drive, Proc. European Embedded Design in Education and Research Conference (EDERC), 2014 ISBN:978-1-4799-6842-8, 1, 197-201, 2014, Milano, Italy*
- Radman K., Gruber W., Bulić N., *Loss Analysis of a Bearingless Flux-Switching Slice Motor, Proc. 14th Int. Symp. on Magnetic Bearings (ISMB), 2014, 1, 210-215, 2014, Linz, Austria*
- Radman K., Gruber W., Bulić N., *Performance Evaluation of a Bearingless Flux-Switching Slice Motor, Proc. 6th IEEE Energy Conversion Congress and Exposition (ECCE), 2014, ISBN:978-1-4799-5776-7, 1, 3811-3818, 2014, Pittsburgh, PA, USA*
- Šikulec L., Torlak M., Car Z., *The Development, Implementation and Comparison of Models of Industrial Robot Using Modelica Modeling Language, International Conference on Innovative Technologies IN-TECH 2014, ISSN 1849-0662, 1, 329-333, 2014, Leiria, Portugal*
- Šikulec L., Perčić K., Plančak M., Car Z., Kačmarčik I., Štrbac B., *Analyzing Anomalies of Injection Tooling Mold Design, International Conference on Innovative Technologies IN-TECH Budapest, ISBN: 978-953-6326-88-4, 1, 425 - 428, 2013, Faculty of Engineering University of Rijeka, Croatia*
- Volarić I., Sučić V., *Signal Sparsity and Compressed Sensing in the Time-Frequency Domain Proceedings of International Conference on Innovative Technologies INTECH 2014, ISBN:978-953-6326, 1, 325-328, 2014, Tiskas, s.r.o., Czech Republic*
- Zoubek M., Kudláček J., Dražnar P., Herrmann F., Valeš M., Car Z., *The New Wear-Resistant Coating Systems Containing Carbon Nanotubes, International Conference on Innovative Technologies IN-TECH Budapest, ISBN: 978-953-6326-88-4, 1, 173-176, 2013, Faculty of Engineering University of Rijeka, Croatia*

#### 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, 2014, Linz, Austria*

#### MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- *Budapest University of Technology and Economics, Mađarska / Hungary*
- *Danieli Automation, Italija / Italy*
- *Elektrotehnički fakultet, Univerzitet Crne Gore, Podgorica, Crna Gora / Montenegro*
- *Johannes Kepler Universität Linz, Austrija / Austria*
- *Kielce University of Technology, Poljska / Poland*
- *Linz Center of Mechatronics GmbH, Austrija / Austria*
- *North University of Baia Mare, Rumunjska / Romania*

- *Poznan University of Technology, Poljska / 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*





**5.**

**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/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*

*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*



**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; strukturna analiza broda; opterećenje plovnih objekata na morskim valovima; projektiranje strukture plovnih objekata; konstrukcija malih plovih 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**

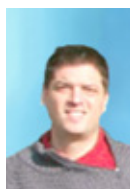
*gradnja i opremanje plovih objekata; tehnologija i organizacija brodogradnje; osnivanje brodogradilišta i proizvodnih procesa; simulacijsko modeliranje brodograđevnih procesa; analiza tržišta; ugovaranje i tehnološko prognoziranje*  
*ship production and outfitting; shipbuilding technology and organisation;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

**Tin Matulja**

*gradnja i opremanje plovih objekata; tehnologija i organizacija brodogradnje; osnivanje brodogradilišta i proizvodnih procesa; oprema plovih 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; tehnološki procesi brodogradnje; ugovaranje; rudarenje podacima u proizvodnji*  
*shipbuilding technology and organisation; lean manufacturing; technological processes of shipbuilding; contracts; data mining in manufacturing*

**Anton Turk**

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

**Dunja Matulja**

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



## 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***Rajko Rubeša**

Brodograđevna industrija 3. MAJ | Shipbuilding industry 3. MAJ

*opremanje i remont broda, tehnološki procesi gradnje broda**ship outfitting and repair, technological processes in shipbuilding***Davor Sablić**

Brodograđevna industrija 3. MAJ | Shipbuilding industry 3. MAJ

*ugovaranje plovnih objekata  
ship negotiation process***Alan Klanac**

Jadrolinija

*strukturna analiza broda  
ship structural analysis***Iva Kolacio***čvrstoća broda**ship strength***Mirela Marin**

M-Inženjering

*osnivanje plovnih objekata**ship design***Romano Pičuljan**

Pičuljan Marine

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

*Nastava iz područja: projektiranje plovnih objekata, tehnologija i organizacija brodogradnje, konstrukcija plovnih objekata, hidrodinamika 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 hydrodynamics.*

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

**KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA**

| UNDERGRADUATE UNIVERSITY COURSES

- *Brodске 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 plovniha objekata II*
- *Konstrukcija malih plovniha objekata*
- *Metodologija gradnje plovniha objekata*
- *Objekti morske tehnologije*
- *Oprema malih plovniha objekata*
- *Opremanje i remont broda*
- *Organizacija i poslovanje brodogradilišta*
- *Osnivanje plovniha objekata I*
- *Osnivanje plovniha objekata II*
- *Pomorstvenost plovniha objekata*
- *Projektiranje malih plovniha objekata*
- *Stabilitet broda u eksploataciji*
- *Stručna praksa II*
- *Strukturna analiza broda*
- *Tehnološki proces gradnje broda*
- *Ugovaranje plovniha 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

- *Brodске forme ST*
- *Gradnja i održavanje malih plovniha objekata*
- *Hidrostatika broda*
- *Konstrukcija broda*
- *Oprema broda ST*
- *Osnivanje plovniha 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*

**KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA**

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Integralna tehnologija gradnje broda*
- *Izabrana poglavlja iz metodologije gradnje plovniha objekata*
- *Metodologija projektiranja plovniha objekata*
- *Izabrana poglavlja iz osnivanja plovniha objekata*
- *Pomorstvenost i upravljivost plovniha objekata*
- *Izabrana poglavlja iz dinamike plovniha objekata*
- *Izabrana poglavlja iz otpora plovniha objekata*
- *Izabrana poglavlja iz propulzije plovniha objekata*
- *Projektiranje strukture plovniha 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, tehnološkičnost 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

- **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*
- **Energetski učinkovita i sigurna eksploatacija 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*
- **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*
- **Računalni program za optimiranje brodske rute prema vremenskim uvjetima, 4, Poslovno-inovacijska 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: Nikša Fafandjel, 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: Nikša Fafandjel, 2013/2014*



## PUBLIKACIJE | PUBLICATIONS

## RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Ban D., Blagojević B., Čalić B., *Analytical Solution of Global 2D Description of Ship Geometry with Discontinuities using Composition of Polynomial Radial Basis Functions*, Brodogradnja, ISSN 1845-5859 (Online), 65(2), 2-22, 2014, Zagreb
- Matulja D., Dejhalla R., *Optimization of the Ship Hull Hydrodynamic Characteristics in Calm Water* Brodogradnja, ISSN 1845-5859 (Online), 64(4), 426-436, 2014, Zagreb
- Matulja T., Bogdanović M., Udovičić N., *Selection of the Racing Multihull Sailing Boat Equipment by the AHP method – a case study*, Journal of Maritime Studies, 1332-0718, 27(2), 313-324, 2013 Rijeka
- Prpić-Oršić J., Slapničar V., Turk A., *Berth Operability Estimation Related to Ship Motion* Transactions of FAMENA, ISSN 13331124, 38, 13-25, 2014, Zagreb

## MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Kolić D., Yao Y. L., Fafandjel N., Hadjina M., *Value Stream Mapping Micropanel Assembly with Clustering to Improve Flow in a shipyard*, Proceedings of the International Conference on Innovative Technologies, IN-TECH 2014, ISBN: 978-953-6326-88-4, 85-88, 2014, Leiria, Portugal
- Matulja D., Dejhalla R., *Hydrodynamic Optimization of the Bulbous Bow Shape*, Proceedings of the 15th Congress IMAM 2013, ISBN: 978-1-138-00124-4, 41-47, 2013, A Coruna, Španjolska / Spain
- Prpić-Oršić J., Faltinsen O. M., Valčić M., *Development Strategies for Greener Shipping*, Proceedings of the 56th International Symposium ELMAR-2014, ISBN: 978-953-1-84-1-99-3, 83-87, 2014
- Prpić-Oršić J., Faltinsen O. M., Valčić M., Vučinić D., *Energy Efficiency Approach to Ship Design and Route Planning*, Proceedings of the VIII AIGE National Congress, ISBN: 978-88-940011-0-5, 192-196, 2014
- Turk A., Prpić-Oršić J., Ribeiro e Silva S., Guedes Soares C., *Experimental Investigations of Roll Damping of the C11 Containership for the Prediction of Parametric Rolling in Regular Waves*, Proceedings of the 15th Congress IMAM 2013, ISBN: 978-1-138-00124-4, 127-134, 2013, A Coruna, Španjolska / Spain

## POZVANA PREDAVANJA | INVITED LECTURES

- Šikić I., Prpić-Oršić J., Parunov J., *Ultra veliki kontejnerski brodovi u službi, Znanstveni skup Suvremena metode projektiranja ultra velikih brodova (EU FP7 TULCS project)*, 2014, Zagreb, Hrvatska
- Zamarin A., Fafandjel N., Matulja T., Hadjina M., *Materijali i tehnologija gradnje plovila*, Kongres, Promarine 2014, 2014, Zadar, Hrvatska

## MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- AALTO University School of Engineering, Helsinki, Finska / Finland
- Columbia University in the City of New York, New York, 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 Tecnico, Lisabon, Portugal / Portugal
- University of Naples, Naples, Italija / Italy

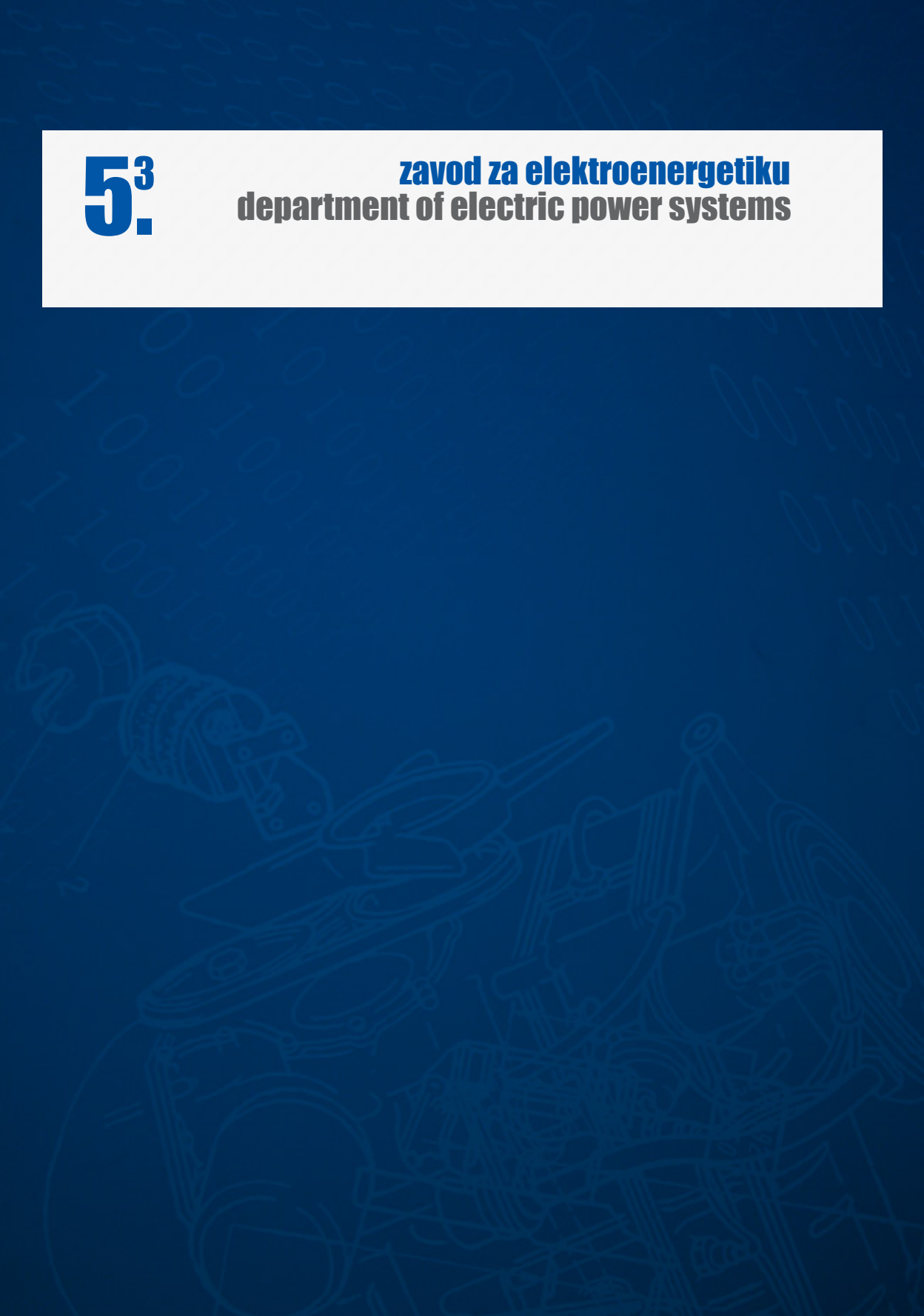


- *University of Technology, Krakow/Krakov, Poljska / Poland*
- *University of Trieste, Department of Naval Architecture and Ocean Engineering, Trieste, Italija / Italy*
- *University of Washington, Department of Industrial and Systems Engineering, Seattle, SAD / USA*



**5<sup>3</sup>.**

**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/zav\\_katd\\_sluz/zee/osn\\_pod/index.html](http://www.riteh.uniri.hr/zav_katd_sluz/zee/osn_pod/index.html)

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**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; teorijska elektrotehnika; primjena mke u području elektromagnetizma*

*electrical machines; electromagnetics; 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*



**Marijana Živić-Đurović**

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



**VIŠI ASISTENT** | SENIOR ASSISTANT

**Vedran Kirinčić**

*vođenje elektroenergetskog sustava; električna postrojenja*  
*power system control; electric facilities*



**ZNANSTVENI NOVAK** | SENIOR ASSISTANT

**Andrea Andrijašević**

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



ASISTENT | ASSISTANT



**Vladimir Franki**

*tržište električne energije, osnove elektrotehnike*  
*electricity markets, electrical engineering fundamentals*

VANJSKI SURADNICI | ASSOCIATES

**Marin Antunović**

**Goran Klobučar**

**Vitomir Komen** HEP ODS | HEP DSO

**Ranko Lončarić**

**Andrej Maraš** Ina d.d.

**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

**Srđan Žutobradić** HERA

**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

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>Električna postrojenja</i></li> <li>• <i>Električni strojevi</i></li> <li>• <i>Elektroenergetske mreže</i></li> <li>• <i>Elektromotorni pogoni</i></li> <li>• <i>Elektrotehnika R</i></li> <li>• <i>Energetska elektronika</i></li> <li>• <i>Modeliranje procesnih informacijskih sustava</i></li> <li>• <i>Osnove elektrotehnike I</i></li> <li>• <i>Osnove elektrotehnike II</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Electric Facilities</i></li> <li>• <i>Electrical Machines</i></li> <li>• <i>Electric Power Networks</i></li> <li>• <i>Electrical Drives</i></li> <li>• <i>Electrical Engineering R</i></li> <li>• <i>Power Electronics</i></li> <li>• <i>Modeling of process information systems</i></li> <li>• <i>Fundamentals of Electrical Engineering I</i></li> <li>• <i>Fundamentals of Electrical Engineering II</i></li> </ul> |
|---|--|

**KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA**

| GRADUATE UNIVERSITY COURSES

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• <i>Brodaska elektrotehnika</i></li> <li>• <i>Elektrane</i></li> <li>• <i>Elektroenergetski sustavi</i></li> <li>• <i>Modeliranje procesne informatike električnih postrojenja</i></li> <li>• <i>Numerička analiza u elektromagnetizmu</i></li> <li>• <i>Prijenos i distribucija električne energije</i></li> <li>• <i>Projektiranje električnih postrojenja</i></li> <li>• <i>Teorijska elektrotehnika</i></li> <li>• <i>Vođenje elektroenergetskog sustava</i></li> <li>• <i>Zaštita i automatika električnih postrojenja</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Ships Electrical Engineering</i></li> <li>• <i>Power Plants</i></li> <li>• <i>Electric Power Systems</i></li> <li>• <i>Modeling of Process Informatics in Power System</i></li> <li>• <i>Numerical Analysis in Electromagnetics</i></li> <li>• <i>Electrical Power Transfer and Distribution</i></li> <li>• <i>Electric Power Substation Design</i></li> <li>• <i>Electromagnetics</i></li> <li>• <i>Power System Control</i></li> <li>• <i>Power System Protection</i></li> </ul> |
|--|--|

**KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA**

| UNDERGRADUATE VOCATIONAL COURSES

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

**KOLEGIJI NA POSLIJEDIPLOMSKIM (DOKTORSKIM) SVEUČILIŠNIM STUDIJIMA**

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- *Modeli stohastičkih procesa informacija*
- *Modeliranje sustava za distribuciju i potrošnju električne energije*
- *Aktivne distribucijske mreže*
- *Inteligentni elektroenergetski sustavi – Smart Grids*
- *Izabrana poglavlja iz energetske komponente i sustava obnovljivih izvora energije*
- *Nova energetska paradigma*
- *Models of Stochastic Information Processes*
- *Electric distribution system and load modeling*
- *Active distribution networks*
- *Smart transmission systems - Smart Grids*
- *Selected chapters of renewable energy sources' components and systems*
- *New energy paradigm*

**ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES**

- *Obnovljivi izvori energije, Fotonaponski sustavi, Napredne mreže*  
*Renewable energy systems, Photovoltaic systems, Smart grid*
- *Estimacija stanja elektroenergetskog sustava; Nadzor, zaštita i upravljanje elektroenergetskog sustava u realnom vremenu; Tehnologija sinkroniziranih mjerenja fazora*  
*Power System State Estimation; Wide Area Monitoring, Protection and Control of the Power System in Real Time; Synchronized Measurement Technology*
- *Razvoj suvremenih učinkovitih DC/DC i DC/AC pretvarača*  
*Design of modern power DC/DC and DC/AC converters*
- *Estimacija akustičkih parametara prostorije iz govornih signala*  
*Room acoustic parameters estimation from speech signals*

**PROJEKTI | PROJECTS**

- *HIBRID - Formulacija nove generacije estimatora stanja korištenjem sinkroniziranih mjerenja fazora. Ciparska zaklada za promicanje istraživanja, kroz Okvirni program za istraživanje, tehnološki razvoj i inovacije (DESMI 2009-2010), Republika Cipar i Europski fond za regionalni razvoj, Nicosia, Cipar, veljača 2014 – svibanj 2014, znanstveno-istraživački projekt, suradnik na projektu*  
*HYBRID - The formulation of the next generation state estimator by utilizing synchronized phasor measurements, Cyprus Research Promotion Foundation through the Framework Programme for Research, Technological Development and Innovation 2009-10 (DESMI 2009-2010), the Republic*

of Cyprus and the European Regional Development Fund; Nicosia, Cyprus, February 2014 – May 2014, research and scientific project, project associate

- **Inteligentni sustavi u prijenosnoj elektroenergetskoj mreži, 04/23, Hrvatska zaklada za znanost i Hrvatski operator prijenosnog sustava d.o.o., Srđan Skok, 2010-2013, znanstveno-istraživački projekt**  
Intelligent Systems in Power Transmission Grids, 04/23, Croatian Science Foundation and HEP – Transmission System Operator, Srđan Skok, 2010-2013, research and scientific project
- **STABILNOST - Pобоljšanje cjelovitosti i stabilnosti elektroenergetskog sustava korištenjem novih tehnologija mjerenja, Ciparska zaklada za promicanje istraživanja, kroz Okvirni program za istraživanje, tehnološki razvoj i inovacije (DESMI 2009-2010), Republika Cipar i Europski fond za regionalni razvoj, Nicosia, Cipar, veljača 2014 – svibanj 2014, znanstveno-istraživački projekt, suradnik na projektu**  
STABILITY - Enhancement of power system integrity and stability using novel sensing technologies, Cyprus Research Promotion Foundation through the Framework Programme for Research, Technological Development and Innovation 2009-10 (DESMI 2009-2010), the Republic of Cyprus and the European Regional Development Fund; Nicosia, Cyprus, February 2014 – May 2014, research and scientific project, project associate

## PUBLIKACIJE | PUBLICATIONS

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Kirinčić V., Skok S., Bulat H., Synchronized phasor measurements in a dual layer hybrid state estimator, *Technical Gazette*, 1330-3651, 20, 1043-1050, 2013, Slavonski Brod
- Kirinčić V., Skok S., Marušić A., Hybrid Constrained State Estimator with Pseudo Injection Measurements, *Przeglad Elektrotechniczny*, 0033-2097, 89, 137-142, 2013, Warszawa
- Kirinčić V., Skok S., Terzija V., A Hybrid State Estimator with Pseudo-Flows and Pseudo-Injections, *International Review on Modelling and Simulations - IREMOS*, 1974-9821, 6, 218-226, 2013, Italija
- Višković A., Franki V., Valentić V., The impact of carbon prices on CCS investment in South East Europe, *Economics and Policy of Energy and the Environment*, vol. 2013/3, 2280-7659, 2013/3, 91-120, 2013, Milano
- Višković A., Franki V., Valentić V., CCS (carbon capture and storage) investment possibility in South East Europe: A case study for Croatia, *Energy*, vol. 70, 0360-5442, 70, 325-337, 2014, Oxford
- 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*, vol. 30, 0957-1787, 30 8-17, 2014, Netherlands
- Vražić M., Višković A., Hanić Z., User P-Q Diagram as a Part of a Synchronous Generator Monitoring System, *Electronics and Electrical Engineering*. 20, 2014, 4, 33-38

### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Leci G. , Kuliš I. G. , Bago M. , Kirinčić V., Automatic Voltage Control of OLTC Power Transformers between Substations, *PAC World Conference 2014*, 2014, Zagreb, Hrvatska / Croatia
- Rubeša R., Kirinčić V., Skok S., Transmission Line Positive Sequence Impedance Estimation Based on Multiple Scans of Phasor Measurements, *Proceedings of IEEE ENERGYCON 2014*, 978-1-4799-2449-3, 644 – 651, 2014, Cavtat, Hrvatska / Croatia



- Skok S., Kirinčić V., Brnobić D., Čerina Z., Bulat H., *System integrity protection and control based on synchronized measurements*, *International conference on Power Engineering, Energy and Electrical Drives*, 1, 5, 2013, Istanbul, Turska / Turkey
- Valentić V., Višković A., Franki V., *Market position simulation of an independent power producer on the South East Europe electricity market*, *ENERGYCON 2014.*, 2014, Cavtat, Hrvatska / Croatia

#### POZVANA PREDAVANJA | INVITED LECTURES

- Skok S., *"Mikromreže - budućnost distribucijske mreže ili utopija?"*, 7. Dani inženjera elektrotehnike Zadar, 25.09.2014. – 27.09.2014., 2013, Zadar, Hrvatska / Croatia
- Sladić S., *Single-Phase Grid-Connected Inverter for Photovoltaic Applications*, *Slo PV - Euroreg 2014*, 2014, Ljubljana, Slovenija / Slovenia
- Sladić S., *Bidirekcijski AC/DC pretvornik s adaptivno enosmernom napetostjo*, *Predavanje za djelatnike Instituta za robotiku i doktrande, povodom novog ciklusa projekata*, 2014, Maribor, Slovenija / Slovenia
- Sladić S., *Primjena energetske elektronike: Indukcijsko zagrijavanje*, *EU Sustainable Energy Week, Energetski tjedan*, 2014, Rijeka, Hrvatska / Croatia

#### MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- *The University of Cyprus, KIOS Research Center for Intelligent Systems and Networks, Electrical and Computer Engineering Department, Cipar / Cyprus*
- *The University of Manchester, The School of Electrical and Electronic Engineering, Velika Britanija / United Kingdom*





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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 Ikonić**

<http://www.riteh.uniri.hr/ustroj/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*



**Milan Ikonić**

*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; mjerenje 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**Sven Maričić**

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

**Samir Žic**

*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*

**ASISTENTI** | ASSISTANTS**Sandro Doboviček**

*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*

**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; mjerenje i kontrola kvalitete*  
*quality management; quality assurance and control; measurements and quality control*

## VANJSKI SURADNICI | ASSOCIATES

### Dorjan Jermaniš

Istarski vodovod d.o.o. Buzet

*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*

### Aleksandar Vuković

NAVIS CONSULT d.o.o., Rijeka

*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*

### Mauro Štefančić

Alpron, Jurdani

*mjeriteljstvo*  
*metrology*

### Toni Vidolin

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

*tehnologija zavarivanja*  
*welding technology*

*Nastava 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*
- *Manufacturing Technologies*
- *Measurements and Quality Control*
- *Quality Assurance*
- *Quality Engineering*

- Zavarivanje I
- *Proizvodni strojevi, alati i naprave*
- *Organizacija i ekonomika poslovnih sustava*
- *Planiranje i upravljanje proizvodnjom*
- *Tehnološki procesi*
- *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*
- *Projekt 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 poglavlja iz nekonvencionalnih postupaka obrade*
- *Izabrana poglavlja iz konvencionalne obrade odvajanjem čestica*
- *Upravljanje kvalitetom*
- *Metode simulacije u proizvodnji*
- *Formability and Modern Forming Technology*
- *Selected Chapters on Nonconventional Manufacturing Processes*
- *Selected Chapters on Conventional Metal Cutting Processes*
- *Quality Management*
- *Simulation Methods in Production*



- *Planiranje i vođenje proizvodnje*
- *IP iz fleksibilnih proizvodnih sustava*
- *Planing and Processing of Manufacture*
- *Selected Chapters from flexible production system*
- *Razvojni i proizvodni management*
- *CAM, CAP, CAD/NC-CIM*
- *Optimizacija tehnoloških procesa*
- *Development and Operational Management*
- *CAM, CAP, CAD/NC-CIM*
- *Processes Plans Optimization*

## ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *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*
- *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*
- *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*
- *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

- *FP7-PEOPLE-2013-NIGHT projekt, Noć istraživača 2013, voditelj projekta za Tehnički fakultet: Sven Maričić*  
*FP7-PEOPLE-2013-NIGHT project, Researchers' night 2013, Project manager for Faculty of Engineering: Sven Maričić*
- *Razvoj naprednih metoda za modeliranje i optimizaciju obradnih postupaka i sustava, Ministarstvo znanosti, obrazovanja i sporta Republike Hrvatske i Ministarstva obrazovanja, znanosti i sporta 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*

## PUBLIKACIJE | PUBLICATIONS

### KNJIGE | BOOKS

- *Mikac T., Ikonić, M.: Proizvodni management, Tehnički fakultet Sveučilišta u Rijeci, ISBN 978-953-6326-57-0, 2014, Rijeka, dotisak*

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Barborak O., Stodola J., Jurković Z., Operation Reliability and Diagnostics of Complex Mechanical Systems, Strojarstvo, ISSN 0562-1887, 55, 189-195, 2013, Zagreb*



- Bukša T., Pavletić D., Soković M., Bukša J., *A Differentiation-Based Approach to Quality Management in Shipbuilding Taking into Consideration Errors in Manufacturing Processes*, *Brodogradnja: časopis brodogradnje i brodograđevne industrije*, 0007-215X, 64, 488-503, 2013, Zagreb
- Doboviček S., Mikac T., Damiani D., *Logical procedure for determining the appropriate method of calculating the process capability*, *Tehnički vjesnik/Technical Gazette*, 1330-3651, 20, 739-746, 2013, Slavonski Brod
- Hrelja M., Klančnik S., Irgolić T., Paulič M., Jurković Z., Balič J., Brezočnik M., *Particle swarm optimization approach for modelling a turning process*, *Advances in Production Engineering & Management*, ISSN 1854-6250, 9, 21-30, 2014, Maribor

#### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Jurković M., Jurković Z., Cukor G., Brezočnik M., Sekulić M., *Application of Modeling and Simulation in Reengineering of Manufacturing Processes*, *18th International Conference - Trends in the Development of Machinery and Associated Technology TMT 2014*, ISBN 1840-4944, 45-48, 2014, Zenica
- Jurković M., Jurković Z., Obad M., Buljan S., *Reengineering tools in the development of modern and competitive manufacturing*, *12th International Scientific-Expert Conference Maintenance and Production Engineering – KODIP 2014*, ISBN 978-9940-527-35-8, 211-220, 2014, Podgorica
- Sekulić M., Kovač P., Gostimirović M., Hadžistević M., Jurković Z., *Prediction of the Main Cutting Force in Drilling by Kienzle Equation 18th International Research/Expert Conference - Trends in the Development of Machinery and Associated Technology TMT 2014*, ISBN 1840-4944, 5-8, 2014 Zenica
- Šterpin G., Tadić B., Cukor G., Jurković Z., *Creating 3D models with scanner DAVID SLS-1*, *4th International conference "Mechanical Technologies and Structural Materials", MTSM2014*, ISSN 1847-7917, 99-105, 2014, Split
- Bukša T., Pavletić D., Forempoher-Škuver M., *Efficiency analysis of quality assurance methods applied at shipyard pipe production process*, *15th International Congress, International Maritime Association of Mediterranean, IMAM2013*, ISBN 978-1-138-00124-4, 543-551, 2013., A Coruna
- Vidolin T., Sedmak F., Kanižai D., Vučković Ž., Pavletić D., *Sanacija tankova tereta izrađenih od duplex čelika*, *7. Međunarodno znanstveno-stručno savjetovanje SBZ 2013 Suvremeni proizvodni postupci, oprema i materijali za zavarene konstrukcije i proizvode*, ISBN 978-953-6048-73-1, 2013., Slavonski Brod
- Vale F., Pavletić D., Šterpin G., Perinić M., *Measuring of sand core casting with 3D digitalisator*, *4th International conference "Mechanical Technologies and Structural Materials", MTSM2014*, ISSN 1847-7917, 87-94, 2014, Split

#### MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- Faculty of Mechanical Engineering, University of Zilina, Slovačka / Slovakia
- Ss. Cyril and Methodius University in Skopje, Faculty of Mechanical Engineering, Institute of Production Engineering and Management, Republika Makedonija / Republic of Macedonia
- Poznan Politechnic, Technical University of Poznan, Poljska / Poland
- Technical University of Ostrava, Faculty of Mechanical Engineering, Department of Machining and Assembly, Češka / Czech republic
- University of Banja Luka, Faculty of Mechanical Engineering, Bosna i Hercegovina / Bosnia & Herzegovina



- *University of Kragujevac, Faculty of Engineering, Department for Production Engineering, Srbija / Serbia*
- *University of Maribor, Faculty of Mechanical Engineering, Production Engineering Institute, Slovenija / Slovenia*
- *University of Montenegro, Faculty of Mechanical Engineering, Podgorica, Crna Gora / Montenegro*
- *University of Novi Sad, Faculty of Technical Sciences, Department of Production Engineering, Srbija / Serbia*
- *Università degli Studi di Udine, Facoltà di Ingegneria, Dipartimento di Ingegneria Elettrica, Gestionale e Meccanica (DIEGM), Italia, Italija / Italy*



**5<sup>5</sup>**

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







**PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:**

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

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## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**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*



**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; hidraulika i pneumatika; 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**



**Ervin Kamenar**

*precizno inženjerstvo; tehnologija mikrosustava; mehatronika; sustavi regulacije i upravljanja; sustavi 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**

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



**Kristina Marković**

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



## 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 pomoću 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 pomoću 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 pomoću 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

## 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

## 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, strukturna 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.*

## PROJEKTI | PROJECTS

- **Automatizirani sustav za identifikaciju parametara tkiva, Marina Franulović, MZOŠ, 2012– 2013, bilateralni hrvatsko-slovenski znanstvenoistraživački projekt**  
*Automated system for tissue parameter identification, Marina Franulović, Ministry of Science, Education and Sports, 2012 – 2013, bilateral Croatian – Slovenian research and scientific project*
- **GOLDFISH - Mjerenje onečišćenja u riječnim tokovima u zemljama u razvoju pomoću 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*
- **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*
- **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*
- **Karakterizacija i modeliranje ponašanja materijala za lake i inovativne konstrukcije, MZOS-DAAD, 2014-2015, međunarodni hrvatsko-njemački znanstveni projekt**  
*Characterisation and modelling of material behaviour for lightweight and innovative designs, MZOS-DAAD, 2014-2015, international croatian-german scientific project*
- **Materijali, trajnost i nosivost suvremenih zupčastih prijenosnika, 069-0692195-1796, MZOŠ, Božidar Križan, 2007 - 2013, znanstvenoistraživački**



*Materials, Durability and Load Capacity of Modern Gear Transmissions, 069-0692195-1796, Ministry of Science, Education and Sports of the Republic of Croatia, Božidar Križan, 2007- 2013, research and scientific project*

- *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*
- *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*
- *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*

## PUBLIKACIJE | PUBLICATIONS

### KNJIGE | BOOKS

- *Obsieger B. (urednik), CADAM 2014 (Selected Papers), Tehnički Fakultet, Create Space the Amazon Company, Autor, 978-953-7919-48-1, 978-953-7919-47-4, 978-1501039010, 978-1502366436, 2014, Hrvatska i USA, Prvo tiskano izdanje*
- *Obsieger B. (urednik), CADAM 2014 (Selected Papers, e-Book), Autor, Ingram Digital, 978-953-7919-49-8, 2014, Hrvatska i USA, Prvo elektronsko izdanje (e-kniga)*
- *Obsieger B., Numerical Methods I - Basis and Fundamentals (eBook), Autor, Ingram Digital, 978-953-7919-25-2, 2013, Hrvatska i USA, Prvo elektronsko izdanje (e-kniga)*
- *Obsieger B., Numerical Methods I - Basis and Fundamentals, Tehnički Fakultet, Create Space the Amazon Company, Autor, 978-953-6326-66-2, 978-953-7919-04-7, 978-953-7919-05-4, 978-953-57117-1-1, 978-953-7919-20-7, 978-953-7919-02-3, 978-953-7919-03-0, 978-953-7919-05-4, 2013, Hrvatska i USA, Prvo tiskano izdanje*

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Glažar V., Franković B., Trp A., Experimental and numerical study of the compact heat exchanger with different microchannel geometry, International journal of refrigeration-revue internationale du froid, 0140-7007, 10.1016/j.ijrefrig.2014.06.017, Online, 2014, France*
- *Katić V., Kamenar E., Blažević D., Špalj S., Geometrical design characteristics of orthodontic mini-implants predicting maximum insertion torque, The Korean Journal of Orthodontics, 2234-518, 44, 177-183, 2014, Korea*
- *Marunić G., Glažar V., Improvement and assessment of spatial ability in engineering education, Engineering review: znanstveni časopis za nove tehnologije u strojarstvu, brodogradnji i elektrotehnici, 1330-9587, 34 (2), 139-150, 2014, Hrvatska*
- *Siminiati D., Losses on hydrostatic lubrication in water hydraulic axial piston machines, International Journal Advanced Engineering, 1846-5900, 7, 125-132, 2014, Rijeka, Hrvatska*
- *Troha S., Žigulić R., Karaivanov D., Kinematic Operating Modes of Two-Speed Two-Carrier Planetary Gear Trains with Four External Shafts, Transactions of FAMENA, ISSN 1333-1124, 38/1, 63 - 76, 2014, Zagreb*

## MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Baćac N., Slukić V., Puškarić M., Štih B., Kamenar E., Zelenika S., *Comparison of different DC motor positioning control algorithms, 37th International Convention on Information and Communication Technology, Electronics and Microelectronics – MIPRO 2014, 978-953-233-078-6, 1895-1900, 2014., Rijeka*
- Bertović D., Gregov G., Siminiati D., *Simulation model of a serial hydraulic hybrid drive train for a forklift truck, 12th International Conference on Advanced Engineering, Computer Aided Design and Manufacturing - CADAM 2014, 978-953-7919-48-1, stu.14, 2014, Rijeka, Hrvatska*
- Blažević D., Zelenika S., *Numerical modelling of piezoelectric vibration energy scavenging bimorphs, Proceedings of the 14th EUSPEN International Conference, 978-0-9566790-3-1, Vol. 1, 389-392, 2014., Delft, Nizozemska*
- Franulović M., Basan R., Križan B., *Kinematic hardening parameters identification with respect to objective function, International Science Index , Vol:8 No:4, 549-553 , 2014, Lisbon*
- Kamenar E., Zelenika S., Blažević D., Šamanić I., *River flow energy harvesting by employing piezoelectric eels, Proceedings of the 14th EUSPEN International Conference, 978-0-9566790-3-1, Vol. 1 63-66, 2014., Delft, Nizozemska*
- Kamenar E., Zelenika S., Franulović M., *Precision positioning system with high-speed FPGA-based closed loop control, Proceedings of the 14th EUSPEN International Conference, 978-0-9566790-3-1, Vol. 1, 360-363, 2014., Delft, Nizozemska*
- Križan B., *Should We Teach Polymeric Machine Elements As Well?, Book of Proceedings of the 55th Int. Conference of Machine Design Departments, 978-80-01-05542-7, 39-44, 2014, Prag, Češka Republika*
- Lovrin N., *Some Ethical Aspects of Engineering Profession, 12th International Conference on Advanced Engineering, Computer Aided Design and Manufacturing CADAM 2014 Proceedings, 978-953-7919-48-1, 31-342014, Rijeka, Hrvatska*
- Lovrin N., Vrcan Ž., *The Influence of Engineering Ethics on Ecology and Sustainable Development 6th International Scientific Conference Management of Technology – Step to Sustainable Production Conference Proceedings , 1848-5022, 2014, Zagreb, Hrvatska*
- Marunić G., Glažar V., *Assessment of Engineering Students Spatial Ability, Proceedings - the Eighth International Symposium "KOD 2014" Machine and Industrial Design in Mechanical Engineering, 978-86-7892-615-0, 15-18, 2014, Novi Sad, Srbija*
- Marunić G., Glažar V., Šnauć J., *3D CAD modelling and related spatial ability of engineering students, Proceedings of TMCE 2014 (Tools and methods of competitive engineering), 2014, Budapest, Hungary*
- Vrcan Ž., Lovrin, N., *An Analysis of the Loading Capacity of Internal High Contact Ratio Gears , 12th International Conference on Advanced Engineering, Computer Aided Design and Manufacturing CADAM 2014 Proceedings, 978-953-7919-48-1, 67-70, 2014, Rijeka, Hrvatska*

## POZVANA PREDAVANJA | INVITED LECTURES

- Basan R., *Methods, resources and tools for obtaining cyclic and fatigue material parameters, Workshop on Computational Fatigue Analysis 2013 & The 5th PragTic Users' Meeting, 2013, Rytířsko, Češka Republika*
- Franulović M., *Practical use of genetic algorithm for deriving parameters of more complex fatigue models, Workshop on Computational Fatigue Analysis 2013 & The 5th PragTic Users' Meeting, 2013, Rytířsko, Češka Republika*





- Lovrin N., *Some Ethical Aspects of Engineering Profession*, 12th International Conference on Advanced Engineering, Computer Aided Design and Manufacturing CADAM 2014, 2014., Vodice, 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
- Moscow State Industrial University, Rusija / Russia
- University of Applied Sciences, Graz, Austrija / Austria
- University of Chemical Technology and Metallurgy, Bugarska / Bulgaria
- University of Udine, Italija / Italy



**5.6**

**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/zmfsjk/>

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**Julijan Dobrinčić**

*fizika; zaštita okoliša*  
*physics; environmental protection*



**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 tehnici; matematičko modeliranje; analiza podataka*  
*numerical mathematics; scientific computing; computer simulations in engineering; mathematical modelling; data analysis*



VIŠI PREDAVAČI | SENIOR LECTURER

**Mirko Bađim**

*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 Jursić**

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



**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 jednačbe; 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

**Bojan Crnković**

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

**Dejan Dešković****Vanja Čotić****Nevena Jurčević-Peček****Dina Kovačević****Ivona Novak****Vlasta Ružička-Matejčić****Marko Rukavina**

*matematika*  
*mathematics*

**Nenad Kralj****Marijana Varašanec****Marta Žuvić-Butorac**

*fizika*  
*physics*

**Luka Mandić****Nada Orlić**

*fizika; zaštita okoliša*  
*physics; environmental protection*

## 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 fizikalnih kolegija izvodi se za inženjere s odabranim poglavljima iz moderne fizike i zaštite okoliša. Nastava engleskog i njemačkog jezika obuhvaća obrađivanje odabranih poglavlja 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, veslanje, planinarjenje 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 relaxed 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
- Statistical Methods and Stochastic Processes
- Mathematical Modeling and Numerical Methods
- Optimization Methods

**ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES**

- *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)*
- *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*

## PROJEKTI | PROJECTS

- **"Ekološko modeliranje u obalnom području Riječkog zaljeva", istraživanje uz potporu Sveučilišta, voditelj Lado Kranjčević, suradnice Nelida Črnjarić-Žic i Senka Maćešić**  
*"Ecological modeling in the Bay of Rijeka coastal area", research supported by the University, principal investigator Lado Kranjčević, collaborators Nelida Črnjarić-Žic and Senka Maćešić*
- **"GOLDFISH - Detection of Watercourse Contamination in Developing Countries using Sensor Networks", FP7 projekt, kordinator Fernando Solano, Politehnika Warszawska, član istraživačkog tima Fakulteta Senka Maćešić**  
*"GOLDFISH - Detection of Watercourse Contamination in Developing Countries using Sensor Networks", FP7 project, coordinator Fernando Solano, Politehnika Warszawska, member of the Faculty research team Senka Maćešić*
- **"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*
- **"Matematičko i numeričko modeliranje kompresibilnog mikropolarnog fluida", istraživanje uz potporu Sveučilišta, voditelj Nermina Mujaković, suradnici Ivan Dražić, Nelida Črnjarić-Žic i Senka Maćešić**  
*"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 Maćešić*
- **"Reciklirajući endosomalni putevi" istraživanje uz potporu Sveučilišta, voditeljica Gordana Blagojević-Zagorac, suradnik Senka Maćešić**  
*"Recycling endosomal paths", research supported by the University, principal investigator Gordana Blagojević-Zagorac, collaborator Senka Maćešić*

## PUBLIKACIJE | PUBLICATIONS

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Crnković D., Rukavina S., Simčić L., *Binary doubly-even self-dual codes of length 72 with large automorphism groups*, *Mathematical communications*, 1331-0623, 18, 297-308, 2013

### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Bonato J., Dobrinčić J., *Ispitivanje uzoraka elastomera pomoću transmisijskog svjetlosnog mikroskopa*, *Zbornik radova V. savjetovanja o morskoj tehnologiji - in memoriam akademiku Zlatku Winkleru, 1848-3976*, 1, 181.-191., 2014., Rijeka
- Maćešić S., *Penalty immersed boundary conditions in piezoelectric eel models*, 2014., *PDEs, Continuum Mechanics and Numerical Analysis*, Dubrovnik 2014.
- Mujaković N., Dražić I., *Global existence and uniqueness of the solution for 3-D flow of a compressible viscous micropolar fluid with spherical symmetry*, 2014., *PDEs, Continuum Mechanics and Numerical Analysis*, Dubrovnik 2014.

- *Mujaković N., Črnjarić-Žic N., Global solution to 1-D model of a compressible viscous micropolar heat-conducting fluid with free boundary, 2014., PDEs, Continuum Mechanics and Numerical Analysis, Dubrovnik 2014.*
- *Simčić L., Crnković D., Codes constructed from orbit matrices of block designs, 2014, 2014 PhD Summer School in Discrete Mathematics and Symmetries of Graphs and Networks IV, Rogla, Slovenia*

#### **POZVANA PREDAVANJA** | INVITED LECTURES

- *Maćešić S., Črnjarić-Žic N., Backward-in-time Probabilistic Method Applied to the Gulf of Mexico Oil Spill, European Mathematical Society "Diderot Mathematical Forums", 2013., Zagreb-Berlin-Exeter*

#### **MEĐUNARODNA SURADNJA** | INTERNATIONAL COLLABORATIONS

- *Lund University, Švedska / Sweden*
- *University of Santa Barbara, California, SAD / USA*







**5.**

**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/zav\\_katd\\_sluz/zm/osn\\_pod/index.html](http://www.riteh.uniri.hr/zav_katd_sluz/zm/osn_pod/index.html)

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**Loreta Pomenić**

*materijali; tehnologija materijala; materijali i tehnološki 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*



**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 tehnološki 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*

**VIŠI ASISTENT | SENIOR ASSISTANT**



**Dario Ilkić**

*materijali; tehnologija materijala; materijali i tehnološki 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*



## VANJSKI SURADNICI | ASSOCIATES

**Sunčana Smokvina Hanza**

Adriainspekt d.o.o.

*materijali; tehnologija materijala; materijali i tehnološki 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 tehnološki 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 tehnološki 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 tehnoloških 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 toplinske 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*

**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*
- *Kemija materijala*
- *Korozija i zaštita materijala*
- *Toplinska obrada i inženjerstvo površina*
- *Izabrana poglavlja 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**

- *ARISE – Napredna istraživanja, inovacije i transfer tehnologije u inženjerstvu površina, IPA IIIc, 2013 - 2014, znanstvenoistraživački*  
*ARISE – Advanced Research, Innovation and technology transfer in Surface Engineering, IPA IIIc, 2013 - 2014, research and scientific*
- *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*

#### **PUBLIKACIJE** | PUBLICATIONS

#### **MEĐUNARODNI KONGRESI** | INTERNATIONAL CONGRESSES

- *Pomenić L., Iljkić D., Tomić M., Korozijska svojstva poboljšanog čelika i čeličnog lijeva, Proceedings of the 21th Conference of materials protection and industrial finish, KORMAT 2014, 1848-4255, 7-16, 2014, Zagreb, Croatia*
- *Smoljan B., Iljkić D., Computer modeling of mechanical properties and microstructure of quenched steel specimen, Proceedings from the 5th International Conference on Thermal Process Modeling and Computer Simulation 978-1-62708-068-2, 103-111, 2014, Orlando, USA*

#### **POZVANA PREDAVANJA** | INVITED LECTURES

- *Smoljan B., Iljkić D., Development of computer modelling of steel quenching for industrial purpose, 9th International Conference on Industrial Tools and Material Processing Technologies, 2014, Ljubljana, Slovenia*
- *Smoljan B., Iljkić D., Smokvina Hanza S., Computer modelling of mechanical properties and microstructure of quenched moulding die, 14th International Foundrymen Conference, 2014, Opatija, Croatia*

#### **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, Tajland / 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:**

Prof. dr. sc. / Prof. D. Sc. **Luka Sopta** (do / until 06/2014)

Izv. prof. dr. sc. / Assoc. Prof. D. Sc. **Lado Kranjčević** (od / till 06/2014)

<http://sim.riteh.hr>

## **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*



**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**



**Lado Kranjčević**

*strujanje u mreži cjevovoda; strujanje u otvorenim vodotocima; paralelno programiranje*

*pipe network flow; open channel flow; parallel programming*



**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*



## DOCENTI | ASSISTANT PROFESSORS

## Siniša Družeta

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



## ZNAJSTVENI NOVACI | JUNIOR RESEARCHERS

## Stefan Ivić asistent | assistant

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



## nastava education

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

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

## KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

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

## KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| GRADUATE UNIVERSITY COURSES

- Dinamika fluida
- Dinamički sustavi
- Fluid Dynamics
- Dynamic Systems

- Modeliranje u tehnici
- Numeričko modeliranje hidrauličkih strojeva
- Optimizacije u tehnici
- Primjena paralelnog računanja
- Primjena računalne grafike
- Programiranje tehničkih aplikacija I
- Programiranje tehničkih aplikacija II
- Računalna mehanika fluida
- Računalom podržano mjerenje
- Računarske metode u brodogradnji
- Upoznavanje industrijskih postrojenja
- Models in Engineering
- Numerical Modeling of Hydraulic Machines
- Optimization in Technics
- Applied Parallel Computing
- Applied Computer Graphics
- Programming of Technical Applications I
- Programming of Technical Applications II
- Computational Fluid Dynamics
- Computer Aided Measuring
- Computational Methods in Naval Engineering
- Insight to Industrial Facilities Process Engineering

### 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

- Dinamika fluida
- Hidrodinamika turbostrojeva
- Modeliranje nestacionarnog strujanja u cjevovodu
- Modeliranje onečišćenja zraka
- Modeliranje strujanja sa slobodnom površinom
- Računalna mehanika fluida
- Turbulentno strujanje
- Fluid Dynamics
- Hydrodynamics of Turbomachines
- Unsteady Pipe Flow Modeling
- Air Quality Modeling
- Free Surface Flow Modeling
- Computational Fluid Mechanics
- Turbulent Flow

### PUBLIKACIJE | PUBLICATIONS

#### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Čarija Z., Franković B., Perčić M., Čavrak M., Heat transfer analysis of fin-and-tube heat exchangers with flat and louvered fin geometries, *International Journal of Refrigeration*, ISSN: 0140-7007, prihvaćeno za objavljivanje, DOI information: 10.1016/j.ijrefrig.2014.05.026, [CC, SCI-Exp, SCOPUS]
- Čarija Z., Marušić E., Novak Z., Fućak S., Numerical analysis of aerodynamic characteristics of a bumped leading edge turbine blade, *Engineering Review*, Vol. 34, No. 2, 2014., ISSN 1330-9587
- Ivčić S., Čiković K., Družeta S., Optimalni dizajn nepneumatske gume kotača pomoću genetičkog algoritma, *Šesti susret Hrvatskoga društva za mehaniku (2014)*
- Ivčić S., Staver I., Kranjčević L., PSO optimizacija mreže cjevovoda s obzirom na troškove instalacije i eksploatacije, *Šesti susret Hrvatskoga društva za mehaniku (2014)*
- Ivčić S., Čanađija M., Družeta S., Static structural analysis of S-lay pipe laying with a tensioner model based on the frictional contact, *Engineering Review*, Vol. 34, No. 3, 2014: 223-234
- Snjarić D., Braut A., Čarija Z., Lajnert V., Kuiš D., Glavičić S., Brekalo Pršo B., Apical pressure with two different irrigation needles: ex vivo based computational fluid dynamics analysis, *International Endodontic Journal*, ESE Lisbon, 2013



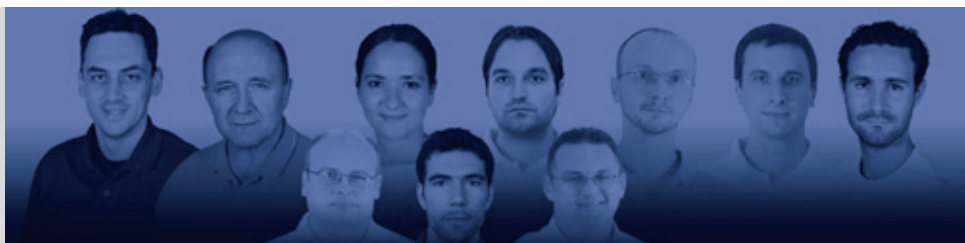




**5<sup>9</sup>**

**zavod za računarstvo**  
**department of computer engineering**





**PREDSTOJNIK ZAVODA | DEPARTMENT HEAD:**

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

<http://zr.riteh.hr/>

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**Ivo Ipšić**

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



**Željko Jeričević**

*znanstveno računanje, bioračunalstvo, razvoj algoritama,  
digitalna obrada slika*  
*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*

**DOCENTI | ASSISTANT PROFESSORS**



**Tihana Galinac Grbac**

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



**Kristijan Lenac**

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



**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*



**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**

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



**Goran Mauša**

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





## VANJSKI SURADNICI | ASSOCIATES

**Predrag Domijan**

*građa računala*  
computer architecture

**Renato Filjar**

*postupci određivanja položaja, navigacije i vremenskog usklađivanja obrada signala, ionsferski 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)

**Damir Nemčanin**  
**Dean Noč**  
**Iva Vlah**

## 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 računarstvo*
- *Algorithms and Data Structures*
- *Databases*
- *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 Computer Engineering*

**KOLEGIJI NA DIPLOMSKIM SVEUČILIŠNIM STUDIJIMA**

| GRADUATE UNIVERSITY COURSES

- *Analiza računalnih i komunikacijskih sustava*
- *Bioinformatika*
- *Građa računala*
- *Komunikacija čovjek-stroj*
- *Mobilne komunikacije*
- *Napredni algoritmi i strukture podataka*
- *Objektno orijentirano programiranje*
- *Programiranje ugradbenih sustava*
- *Računalna obrada govora i jezika*
- *Radiokomunikacije*
- *Razvoj mobilnih aplikacija*
- *Teorija informacija i kodiranja*
- *Upravljanje u programskom inženjerstvu*
- *Usluge zasnovane na lokaciji*
- *Computer and communication system analysis*
- *Bioinformatics*
- *Computer Architecture*
- *Human-Machine Interaction*
- *Mobile Communications*
- *Advanced algorithms and data structures*
- *Object Oriented Programming*
- *Embedded Systems Programming*
- *Computer Speech and Language Processing*
- *Radiocommunications*
- *Mobile Applications Development*
- *Information Theory and Coding*
- *Software Engineering Management*
- *Location-Based Services*

- *Napredna korisnička sučelja*
- *Programski određen radio*
- *Advanced User Interfaces*
- *Software-Defined Radio*

## 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

- *Bežične mreže osjetila, raspodijeljeni algoritmi*  
*Wireless sensor networks, distributed algorithms*
- *Digitalna obrada signala, adaptivni wavelet algoritmi*  
*Signal processing, adaptive wavelet algorithms*
- *Inženjerstvo upotrebljivosti, prediktivno modeliranje i vrednovanje, univerzalni pristup*  
*Usability engineering, predictive modeling and evaluation, universal access*
- *Mobilna robotika, autonomni sustavi, interakcija čovjeka i računala*  
*Mobile robotics, autonomous systems, human computer interaction*
- *Programsko inženjerstvo, informacijsko-komunikacijske tehnologije*  
*Software engineering, information-communication technologies*
- *Računalna obrada govora i jezika, raspoznavanje uzoraka*  
*Speech processing and pattern recognition*
- *Rekonfigurabilne i nosive antene, samoadaptivni sustavi, numeričko modeliranje širenja vala*  
*Reconfigurable and wearable antennas, self-adaptive systems, numerical modeling of wave propagation*
- *Razvoj i optimizacija algoritama*  
*Development and optimization of algorithms*

## PROJEKTI | PROJECTS

- *Laboratorijska i nastavna podrška u ICT tehnologijama, Ericsson Nikola Tesla, voditelj: Tihana Galinac Grbac, 2011, istraživački*  
*Laboratory and educational support in ICT technologies, Ericsson Nikola Tesla, project leader: Tihana Galinac Grbac, 2011, research*
- *FP 7 projekt, Noć istraživača 2013, sudionik: Tihana Galinac Grbac*  
*FP7 project, Researchers night 2013, participant: Tihana Galinac Grbac*
- *Pouzdana mreža Internetskih usluga temeljanja na samoupravljanju, COST Action IC 1304, voditelj za HR: Tihana Galinac Grbac, 2013-2017, znanstveno-istraživački*  
*Autonomous Control for a Reliable Internet of Services, COST Action, project no. IC1304, MC Cro: Tihana Galinac Grbac, 2013-2017*
- *Programsko inženjerstvo: Obrazovanje u računarstvu i znanstvena suradnja, Njemačka akademska služba za razmjenu, pridruženi član; Tihana Galinac Grbac, 2001-2013, stručni*  
*Software Engineering: Computer Science Education and Research Cooperation, Deutscher Akademischer Austausch Dienst, extended member: Tihana Galinac Grbac, 2001-2013.*



- *Teorija iz ponašanja tipova za pouzdane velike programske sustave, COST Action IC1201, voditelj za HR: Tihana Galinac Grbac, 2012-2016, znanstveno-istraživački*  
*Behavioral Types for Reliable Large-Scale Software Systems, COST Action, project no. IC1201, MC Cro: Tihana Galinac Grbac, 2012-2016, research and scientific project*
- *Govorne tehnologije, MZOŠ, 318-0361935-0852, Ivo Ipšić, 2006 – 2012, znanstvenoistraživački*  
*Speech technologies, Ministry of Science, Education and Sports of the Republic of Croatia 318-0361935-0852, Ivo Ipšić, 2006 – 2012, research and scientific project*
- *Mreža izvrsnosti za elektromagnetske komunikacije, voditelj Miroslav Joler*  
*Network of Excellence for Electromagnetic Communications, project leader Miroslav Joler*
- *Studija utjecaja proreza na ponašanje rezonantnih frekvencija mikrotrakastih antena. Sveučilište u Rijeci, voditelj projekta Miroslav Joler, znanstveno-istraživački*  
*A study of the Slot Effects on the Behavior of Resonant Frequencies of Microstrip Antennas. Funded by: University of Rijeka, Croatia, Project leader: Miroslav Joler, scientific research*

## 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](http://www.riteh.uniri.hr/SQAMIA/2014/files/SQAMIA2014_proceedings.pdf)*

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Arbula D., Lenac K., Pymote: high level Python library for event based simulation and evaluation of distributed algorithms, International journal of distributed sensor networks, 1550-1329, 2013*
- *Filjar R., Kos S., Krajnović S., Dst index as a potential indicator of approaching GNSS performance deterioration (<http://dx.doi.org/10.1017/S037346331200029X>), Journal of Navigation 0373-4633 (ISSN), 66(1), 149 - 160, 2013, Cambridge University Press, Cambridge, UK*
- *Filjar R., Brčić D., Kos S., Single-frequency Horizontal GPS positioning Error Response to a Moderate Ionospheric Storm over Northern Adriatic, Chapter in: Weintrit, A. (editor) (2013)., Advances in Marine Navigation., 978-1138001060 (ISBN13), 2013 Taylor & Francis Group, London, UK*
- *Galinać Grbac T., Runeson P., Huljenić D., A Second Replicated Quantitative Analysis of Fault Distributions in Complex Software Systems, IEEE Transactions on Software Engineering 0098-5589, 39, 462-476, 2013*
- *Grgurić A., Brestovac G., Marin D., Oroz T., Vidović A., Bozóki S., Mošmondor M., Galinać Grbac T., Ambient orchestration in assisted environment, Engineering Review, 1330-9587, 2, 119-129, 2014, Rijeka*
- *Galinać Grbac T., Runeson P., Huljenić D., A Quality Cost Reduction Model for Large Scale Software Development, Software Quality Journal, 0963-9314*
- *Galinać Grbac T., Huljenić D., On the Probability Distribution of Faults in Complex Software Systems, Information and Software Technology, 0950-5849*
- *Krapić L., Lenac K., Ljubić S., Integrating Blink Click interaction into a head tracking system: implementation and usability issues, Universal Access in the Information Society, ISSN: 1615-5289, 2013*



- Kožar I., Lozzi - Kožar D., Jeričević Ž., *Edge Detection in Segmented Non - Convex Space Polygon*, MIPRO DC VIS, 978-953-233-081-6, 2014, Opatija
- Ljubić S., Glavinić V., Kukec M., *Effects of Interaction Style and Screen Size on Touchscreen Text Entry Performance: An Empirical Research*, Lecture Notes in Computer Science, ISBN: 978-3-319-07439-9, 8514, 68-79, 2014, Berlin - Heidelberg
- Ljubić S., Glavinić V., Kukec M., *Predicting upper-bound text entry speeds for discrete-tilt-based input on smartphones (in press)*, Journal of Interaction Science, ISSN: 2194-0827, 2014

#### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- *Building resilience against space weather effects, Challenges in meteorology 3: Extreme weather and impact on society Conference, on-line, 2013, Zagreb, Croatia*
- *Contextual navigation: A tale of two worlds, Baška GNSS Conference 2014, to be published, 2014 Baška, Croatia*
- *Enhancing Performance of GNSS Position Estimation by Cloud-based GNSS SDR Receiver Architecture Utilisation, 55th International Symposium ELMAR 2013, 978-953-7044-14-5 (ISBN), 315 - 319, 2013, Zadar, Croatia*
- *Experiences from Building an EUD Business Portal, Proc. of MIPRO, CTI2014, 978-953-233-081-6, 551 - 556, 2014*
- *Impact of slot dimensions on the resonant frequencies of rectangular microstrip antennas, 2013 ICECom, 21th International Conference on Applied Electromagnetics and Communications, Dubrovnik 13-16, 2013., Proceedings CD, 2013, Dubrovnik, Croatia*
- *Positioning and localisation for Location-Based Services 21st Telecommunications Forum TELFOR 2013, 978-147-9914-18-0 (ISBN), 009 - 013, 2013, Belgrade, Serbia*
- *Processing and data collection of program structures in open source repositories, Third Workshop on Software Quality Analysis, Monitoring, Improvement and Applications, 978-86-7031-374-3, 57-67 2014*
- *Software Defect Prediction with Bug-Code Analyzer-a Data Collection Tool Demo, Proceedings of the 22nd International Conference on Software Telecommunications & Computer Networks SoftCOM2014, 978-953-290-051-4, P.2, 2014, Split*
- *Software structure evolution and relation to system defectiveness, Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering EASE2014, 978-1-4503-2476-2, Article No. 34, 2014*
- *Techniques for Bug-Code Linking, Third Workshop on Software Quality Analysis, Monitoring, Improvement and Applications, 978-86-7031-374-3, 47-57, 2014*
- *Web service for separating components in the exponential decay process, Information & Communication Technology Electronics & Microelectronics (MIPRO), 2013 36th International Convention on, ISBN: 978-953-233-076-2, 188-192, 2013*

#### POZVANA PREDAVANJA | INVITED LECTURES

- *Filjar R., On provision of resilient GNSS PNT services, 1st GNSS Summer School, Beihang University of Aeronautics and Astronautics, 2013, Beijing, China*
- *Galinac Grbac T., Uslužno orijentirano računarstvo, Dani novih tehnologija DanTe 2013, 2013 Rijeka, Hrvatska*



- *Galinac Grbac T., Theory on the distributions and predictive capability of verification faults, Second Workshop on Software Quality, Analysis, Monitoring, Improvement and Applications -SQMIA 2013, 2013, Novi Sad, Srbija*

**MEĐUNARODNA SURADNJA** | INTERNATIONAL COLLABORATIONS

- *Department of Mathematics and Informatics, Faculty of Sciences, University of Novi Sad, Srbija / Serbia*
- *Institute of Informatics, Faculty of electrical engineering and computer science, University of Maribor, Slovenia, Slovenija / Slovenia*



**5.<sup>10</sup>**

**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/zav\\_katd\\_sluz/zav\\_teh\\_meh/osn\\_pod/index.html](http://www.riteh.uniri.hr/zav_katd_sluz/zav_teh_meh/osn_pod/index.html)

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**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 Čanađija**

*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



## ZNAJSTVENI 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 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*



**Edin Merdanović** asistent | assistant

*statika, čvrstoća konstrukcija, mehanika i elementi konstrukcija, laboratorijske vježbe*  
*statics, strength of materials, mechanics and structural elements, laboratory exercises*



**Neven Munjas** asistent | assistant

*statika; čvrstoća konstrukcija; mehanika i elementi konstrukcija; laboratorijske vježbe*  
*statics, strength of materials, mechanics and structural elements, laboratory exercises*

**VANJSKI SURADNICI** | ASSOCIATES

**Franc Kosel**

Fakulteta za Strojništvo, Univerza v Ljubljani, Ljubljana, Slovenija | Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

*tehnička mehanika; čvrstoća;*  
*elastoplastomehanika*  
*engineering mechanics; strength of materials;*  
*elasto-plastomechanics*

**Stojan Kravanja**

Fakulteta za Strojništvo, Univerza v Ljubljani, Ljubljana, Slovenija | Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

*tehnička mehanika; optimizacija konstrukcija*  
*engineering mechanics; structural optimization*

*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, tankostijene konstrukcije, računalna analiza konstrukcija, kompozitne konstrukcije, eksperimentalna ispitivanja u mehanici konstrukcija i strojeva, termomehanika, kontaktna mehanika, kinematika, dinamika, vibracije, akustika, regulacija i upravljanje*

*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, termomechanics, contact*

*dinamičkim sustavima, trajnost strojeva i konstrukcija, mehatronika, i.t.d.*

*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
- Čvrstoća konstrukcija
- Čvrstoća 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

- Čvrstoća 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
- 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

## KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Mehanika I
- Mehanika i elementi konstrukcija ST
- Čvrstoća
- 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
- Kinematika i dinamika robota
- Zaštita od buke i vibracija strojeva i konstrukcija
- Viskoelastičnost i viskoplastičnost
- 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



## ZNANSTVENOISTRAŽIVAČKI RAD | RESEARCH AND DEVELOPMENT ACTIVITIES

- *Primijenjena mehanika: računalna mehanika, eksperimentalna mehanika, mehanika grešaka i loma, 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, optimal structural design, structural stability, vibrations, vibroacoustics, dynamics of structures and machines, mechatronics, thermomechanics, nanomechanics, structural integrity*

## PROJEKTI | PROJECTS

- *Analiza uvjeta za kontrolu procesa oblikovanja metala, bilateralni projekt Hrvatska - Slovenija, 2012-2013, Josip Brnić*  
*Analysis of conditions for control of metal forming processes, bilateral project Croatia-Slovenia, 2012 - 2013, Josip Brnić*
- *Konačnoelementni modeli za analizu stabilnosti grednih konstrukcija, 069-0362214-1575, MZOŠ, Goran Turkalj, 2007 – 2013, znanstvenoistraživački*  
*Finite element models for stability analysis of beam-type structures, 069-0362214-1575, Ministry of Science, Education and Sports of the Republic of Croatia, Goran Turkalj, 2007 – 2013, research and scientific project*
- *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*
- *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*
- *Numerička analiza odziva konstrukcija za određena područja eksploatacije, 069-0691736-1737, MZOŠ, Josip Brnić, 2007. -2013., znanstvenoistraživački*  
*Numerical analysis of structural response for particular service conditions, 069-0691736-1737, Ministry of Science, Education and Sports of the Republic of Croatia, Josip Brnić, 2007- 2013, research and scientific project*
- *Premošćivanje tehničkih razlika i društvenih prepreka u cilju pretvaranja jadranskog područja u središte održivog tehnološkog razvoja, Adria HUB, IPA, 2°ord./0127/0*  
*Bridge technical differences and social suspicions contributing to transform the Adriatic area in a stable hub for a sustainable technological development, Adria HUB, IPA, 2°ord./0127/0*
- *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*
- *Proračun kritičnih brzina i stabilnosti turbinskog rotora oslonjenog na klizne ležajeve. Tvornica turbina d.o.o. Karlovac*  
*Estimation of the critical speed and stability of the turbine rotor supported by journal bearings Turbine works ltd. Karlovac*
- *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*



- *Redukcija vibracija i buke mehatroničkim pristupom, 069-0691736-1733, MZOŠ, Roberto Žigulić, 2007. – 2013., znanstvenoistraživački*  
*Mechatronic Approach to the Reduction of Machinery Vibration and Noise, 069-0691736-1733, Ministry of Science, Education and Sports of the Republic of Croatia, Roberto Žigulić, 2007- 2013, research and scientific project*
- *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*
- *Svojstva materijala, ponašanje pri puzanju, 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 - Austrija, 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*

## PUBLIKACIJE | PUBLICATIONS

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- *Brnić J., Turkalj G., Kršćanski S., Lanc D., Čanađija M., Brčić M.: Information Relevant for the Design of Structure - Ferritic-heat Resistant High Chromium Steel X10CrAlSi25, Materials and Design, 0261-3069, 63, 508 - 518, 2014*
- *Brnić J., Turkalj G., Lanc D., Čanađija M., Brčić M., Vukelić G.: Comparison of Material Properties: Steel 20MnCr5 and Similar Steels, Journal of Constructional Steel Research 0143 - 974X, 95, 81-89, 2014*
- *Brnić J., Turkalj G., Niu J., Čanađija M., Lanc D.: Significance of Experimental Data in the Design of Structure Made From 1.4057 Steel, Journal of Wuhan University of Technology- Mater Sci Ed, 1000 - 2413, 29(1), 131-136, 2014*
- *Brnić J., Turkalj G., Niu J., Čanađija M., Lanc D.: Study of the Effects of High Temperatures on the Engineering Properties of Steel 42CrMo4, High Temperature Materials and Processes, DOI: 10.1515/htmp-2014-001, 2014*
- *Brnić J., Turkalj G., Čanađija M., Niu J.: Experimental Determination and Prediction of the Mechanical Properties of Steel 1.7225, Materials Science and Engineering A, 0921 - 5093, 600, 47 - 52, 2014*
- *Brčić M., Čanađija M., Brnić J.: Multiscale Modeling of Nanocomposite Structures with Defects Key Engineering Materials, 1662 - 9795, 577-578, 141 - 144, 2013*
- *Čanađija M., Guo X., Lanc D., Yang W., Brnić J.: Low Cycle Fatigue and Mechanical Properties of Magnesium Alloy Mg-6Zn-1Y-0.6Ce-0.6Zr at Different Temperatures, Materials and Design, 0261-3069, 59, 287-295, 2014*
- *Lanc D., Turkalj G., Pešić I.: Global Buckling Analysis Model for Thin-walled Composite Laminated Beam Type Structures, Composite Structures, 0263-8223, 111, 371–380, 2014*



- Štimac G., Braut S., Žigulić R.: *Optimization of the Machine Foundation Using Frequency Constraints, Structural and Multidisciplinary Optimization*, 1615-147X (print version), 1615-1488 (electronic version), 1 (50), 147-157, 2014
- Vukelić G., Brnić J.: *Prediction of Fracture Behavior of 20MnCr5 and S275JR Steel Based on Numerical Crack Driving Force Assessment*, *Journal of Materials in Civil Engineering*, DOI: 10.1061/(ASCE)MT.1943-5533.0001071, 2014

#### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Braut S., Žigulić R., Štimac G., Skoblar A.: "Light Rotor-Stator Partial Rub Characterization Using Instantaneous Angular Speed Measurement", *Proceedings of the 10th International Conference on Vibration Engineering and Technology of Machinery - VETOMAC X 2014*, 1-10., 2014, Manchester, UK
- Braut S., Žigulić R., Štimac G., Skoblar A.: "Rotor-Stator Partial Rub Diagnosis Using Hilbert Huang Transform", *Proceedings of the 9th IFToMM International Conference on Rotor Dynamics IFToMM ICORD 2014*, 1-9., 2014, Milano, IT
- Brnić J., Vukelić G., Krščanski S.: "Comparison of Some Structural and Stainless Steels Based on the Mechanical Properties and Resistance to Creep", *8th International Conference on Advanced Computational Engineering and Experimenting-ACEX2014*, Paris, Abstract Book
- Čanadija M., Mosler J., Munjas N.: "A Thermodynamically Consistent Cyclic Thermoplasticity Model", *3rd International Workshop on Physics-based Models and Experimental Verification - Book of Abstracts*, 43, 2014, Luxembourg
- Krščanski S., Brnić J., Vukelić G.: "Assessment of Lifetime of the Structural Element Based on Known Experimental Data on the Properties of Material", *6th International Conference on Engineering Failure Analysis - ICEFA VI*, Lisbon, Abstract Book
- Vukelić G., Brnić J.: "Analysis of Austenitic Stainless Steels (AISI 303 and AISI316 Ti) Regarding Crack Driving Forces and Creep Responses", *8th International Conference on Advanced Computational Engineering and Experimenting-ACEX2014*, Paris, Abstract Book

#### POZVANA PREDAVANJA | INVITED LECTURES

- Brnić J.: "Comparison of Material Properties: Steel 20MnCr5 and Similar Steels", *Henan Polytechnic University*, 2014, Jiaozuo, Kina

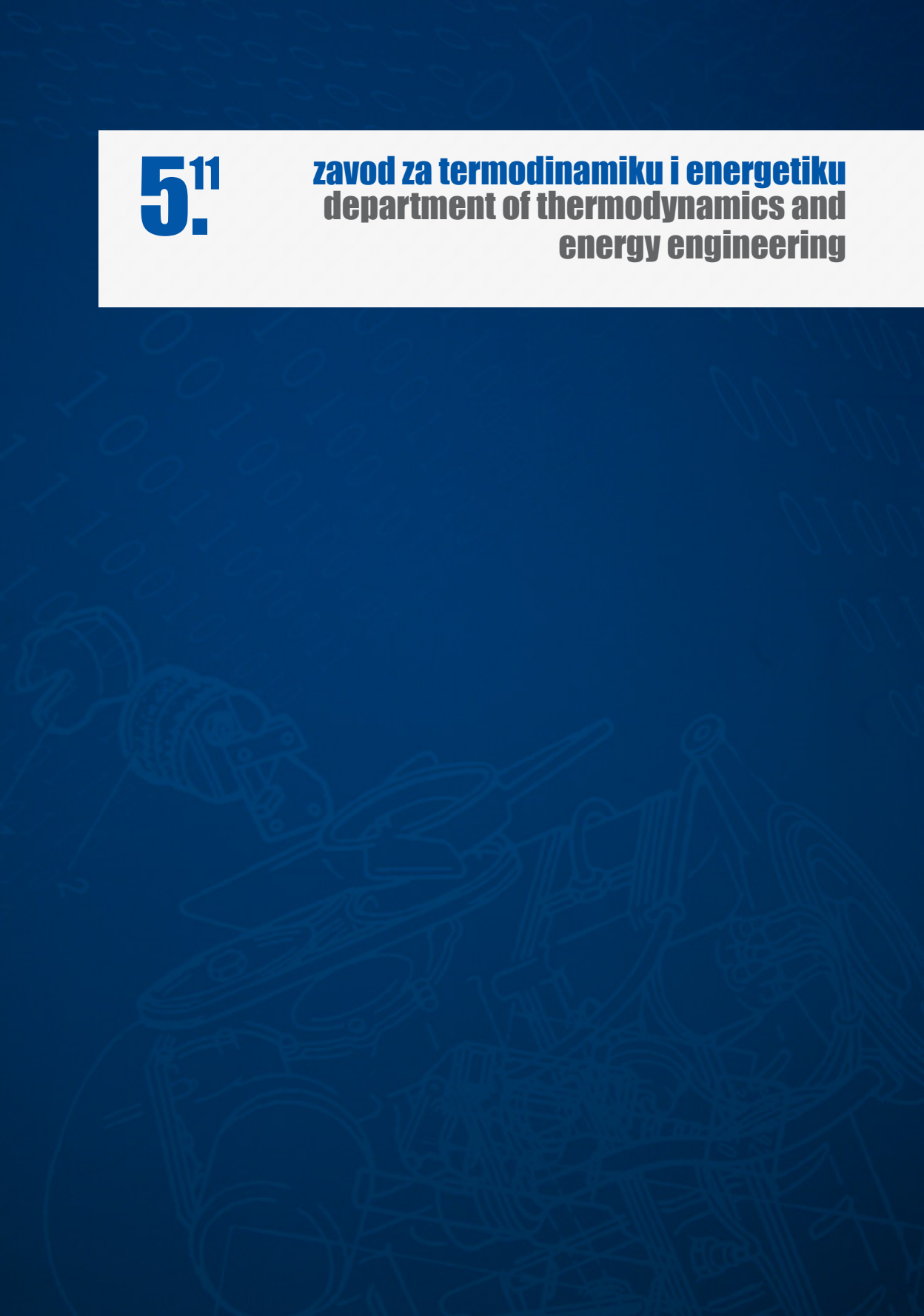
#### MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- *Civil Engineering Faculty, University of Maribor, Slovenia*
- *Faculty of Engineering - University of Kragujevac, Serbia*
- *Faculty of Mechanical Engineering - University of Montenegro, Montenegro*
- *Faculty of Mechanical Engineering, University of Ljubljana, Slovenia*
- *Harbin Institute of Technology, School of Materials Science and Engineering, China*
- *Institute of Mechanics Department of Mechanical Engineering TU Dortmund, Germany*
- *School of Materials Science and Engineering, Henan Polytechnic University, China*
- *Institute of Materials and Welding, Graz University of Technology, Austria*
- *University of Bologna, Italia*



**5<sup>11</sup>**

**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/zte/>

## **djelatnici** **faculty and staff**

**REDOVITI PROFESORI | PROFESSORS**



**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 energetska sustavi, brodski pogonski sustavi, brodski pomoćni 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, mjerenja u termotehnici, kompresori, procesna oprema, dizalice topline, energetska učinkovitost, obnovljivi izvori energije*  
*eration, thermal measurements, compressors, process equipment, heat pumps, energy efficiency, renewable energy sources*



**Zmagoslav Prelec**

*energetika; generatori pare; energetska sustavi; zaštita okoliša; energetska postrojenja*  
*energetics, steam generators, energy systems, environmental protection*



**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 Lenić**

*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*



**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**

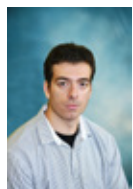
*termoenergetska postrojenja, energetski sustavi, energetski i procesni uređaji, inženjerstvo zaštite okoliša, određivanje emisija u okoliš iz stacionarnih izvora, obnovljivi izvori energije*  
*thermal energy systems, energy systems, energy and process facilities, environmental engineering, monitoring of emissions from stationery sources, renewables*

**ZNANSTVENI NOVACI** | JUNIOR RESEARCHERS



**Ozren Bukovac** viši asistent | senior assistant

*motori s unutarnjim izgaranjem, pogonski i radni strojevi, toplinski strojevi, numeričko modeliranje, neuronske mreže*  
*internal combustion engines, energy conversion engines, heat engines, numerical modeling, neural networks*



**Paolo Blecich** asistent | assistant

*termodinamika, numeričko modeliranje pri jelaza topline i izmjene tvari, obnovljivi izvori energije*  
*thermodynamics, numerical modelling of heat and mass transfer, renewable energy sources*



**Boris Delač** asistent | assistant

*tehnika hlađenja, mjerenja u termotehnici, kompresori, procesna oprema, dizalice topline*  
*refrigeration, thermal measurements, compressors, process equipment, heat pumps*



**Sanjin Fućak** asistent | assistant

*termodinamika, numeričko modeliranje prijelaza topline i izmjene tvari, obnovljivi izvori energije*  
*thermodynamics, numerical modelling of heat and mass transfer, renewable energy sources*



**Vedran Mrzljak** asistent | assistant

*motori s unutarnjim izgaranjem, termodinamika, toplinski strojevi, numeričko modeliranje*  
*internal combustion engines, thermodynamics, heat engines, numerical modeling*

**VANJSKI SURADNICI** | ASSOCIATES

Mr. sc. / M. sc. **Nikola Blažević** | Almes

*procesno inženjerstvo*  
*process engineering*

**Katarina Knafelj**

*brodsko strojarstvo*  
*marine engineering*



Dr. sc. / D. Sc. **Ivan Jakovljević**

*toplinske turbine; termoelektreane*  
thermal turbines; thermal power plants

**Bojan Jurdana** | KD Čistoća d.o.o.

*plinska tehnika*  
gas technology

Izv. prof. dr. sc. / Assoc. Prof. D. Sc.  
**Tomaž Kutrašnik**

*motori s unutarnjim izgaranjem*  
internal combustion engines

Dr. sc. / D. Sc. **Serđo Klapčić** | HEP - Termoelektrana

*termoelektreane, izvori energije*  
thermal power plants, heat sources

**Edi Kučan**

*brodsko strojarstvo*  
marine engineering

Prof. dr. sc. / Prof. D. Sc. **Damir Pečornik**

*racionalno korištenje energije*  
rational energy use

**Marko Perčić**

Prof. dr. sc. / Prof. D. Sc. **Enco Tireli**

*toplinske turbine; termoelektreane*  
thermal turbines; thermal power plants

**Damir Žaja**  
HVAC

**nastava**  
**education**

*Nastava iz područja znanstvenih polja strojarstva, temeljnih i interdisciplinarnih tehničkih znanosti, znanstvenih grana procesnog energetskeg strojarstva, broskog strojarstva, termodinamike, energetike i inženjerstva okoliša, energetske sustavi; energetska postrojenja, energetska oprema, uređaji i strojevi, zaštita okoliša, procesno inženjerstvo.*

*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.*

## KOLEGIJI NA PREDDIPLOMSKIM SVEUČILIŠNIM STUDIJIMA

| UNDERGRADUATE UNIVERSITY COURSES

- *Brodski pomoćni strojevi*
- *Energetski sustavi*
- *Izvori energije*
- *Nauka o toplini 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

- *Brodski energetske uređaji*
- *Brodski pogonski strojevi*
- *Brodski sustavi*
- *Brodski termotehnički sustavi*
- *Ship Energy Equipment*
- *Ship Propulsion Engines*
- *Ship Auxiliary Systems*
- *Marine HVAC&R Systems*

- Energetska postrojenja
- Energetski i procesni uređaji
- Goriva, maziva i voda
- Inženjerstvo zaštite okoliša
- Kompresori
- Laboratorijske vježbe u termotehnici
- Motori
- Nauka o toplini II
- Numeričko modeliranje u termodinamici
- Obnovljivi izvori energije
- Oprema procesnih postrojenja
- Plinska tehnika
- Pogonski i radni strojevi
- Procesno inženjerstvo
- Tehnički izmjenjivači topline
- Tehnika hlađenja
- Tehnika klimatizacije i automatska regulacija
- Termodinamika smjesa
- Termoenergetska postrojenja
- Toplinska mjerenja
- Toplinske turbine
- Power Plants
- Energy and Process Equipment
- Fuels, Lubricants and Water
- Environmental Engineering
- Compressors
- Laboratory Practice in Thermal Engineering
- Internal Combustion Engines
- Thermodynamics II
- Numerical Modelling in Thermodynamics
- Renewable Energy Sources
- Process Plant Equipment
- Gas Engineering
- Energy Conversion Engines
- Process Engineering
- Heat Exchangers
- Refrigeration Systems
- HVAC Systems and Automatic Control
- Thermodynamics of Mixtures
- Thermal Energy Plants
- Thermal Measurements
- Thermal Turbines

### KOLEGIJI NA PREDDIPLOMSKIM STRUČNIM STUDIJIMA

| UNDERGRADUATE VOCATIONAL COURSES

- Brodski sustavi, pomoćni strojevi i uređaji
- Energetika u procesnoj industriji
- Grijanje i klimatizacija
- Procesna oprema i uređaji
- Stručna praksa I
- Stručna praksa II
- Tehnološki procesi u procesnoj industriji
- Toplina
- Toplinski strojevi i uređaji I
- Toplinski strojevi i uređaji II
- Zaštita okoliša i radne sredine
- Ship Systems, Auxiliary Engines and Equipment
- Energy in Process Industry
- Air Conditioning and Automation Systems
- Process Equipment and Devices
- Professional Practice I
- Professional Practice II
- Technological Processes in Process Industry
- Thermodynamics
- Thermal Engines and Devices I
- Thermal Engines and Devices II
- Environment and Workspace Protection

### KOLEGIJI NA POSLIJEDIPLOMSKIM SVEUČILIŠNIM (DOKTORSKIM) STUDIJIMA

| POSTGRADUATE UNIVERSITY (DOCTORAL) COURSES

- Eksperimentalne metode u toplinskoj tehnici i termoenergetici
- Izabrana poglavlja iz brodskih energetskih postrojenja
- Izabrana poglavlja iz brodskih strojnih kompleksa
- Izabrana poglavlja iz grijanja i klimatizacije
- Izabrana poglavlja iz izmjenjivača topline
- Izabrana poglavlja iz motora s unutarnjim izgaranjem
- Izabrana poglavlja iz tehnike hlađenja i tehnike niskih temperatura
- Izabrana poglavlja iz toplinskih turbostrojeva
- Izabrana poglavlja iz toplinskih znanosti
- Numeričko modeliranje prijelaza topline
- Numeričko modeliranje procesa izgaranja
- Obnovljivi izvori energije
- Experimental Methods in Thermal and Power Engineering
- Selected Topics on Marine Energy Systems
- Selected Topics on Marine Machinery Systems
- Selected Topics in HVAC
- Selected Topics on Heat Exchangers
- Selected Topics in Internal Combustion Engines
- Selected Topics in Refrigeration and Low Temperature Refrigeration
- Selected Topics in Thermal Turbomachines
- Selected Topics in Thermal Sciences
- Numerical Modeling of Heat Transfer
- Numerical Modeling of Combustion Process
- Renewable Energy Sources



- Okoliš i gospodarstvo
- Optimizacija energetskih procesa
- Racionalna potrošnja energije
- Suvremene konstrukcije motora
- Termodinamička analiza procesa
- Termodinamika smjese i toplinski uređaji
- Trajnost i pouzdanost termoenergetskih sustava
- Zaštita okoliša u tehnici hlađenja
- Zaštita okoliša u energetici i procesnoj industriji
- Environment and Economy
- Optimization of Energy Processes
- Rational Energy Consumption
- Advanced Design of Internal Combustion Engine
- Thermodynamic Analysis of Processes
- Thermodynamics of Mixtures and Thermal Devices
- Durability and Reliability of Thermal Energy Systems
- Environmental Protection in Refrigeration Systems
- Environment Protection in Energy and process Industry

## 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 u optimizaciji 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 broskog 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*

## PUBLIKACIJE | PUBLICATIONS

### RADOVI U ČASOPISIMA | JOURNAL PAPERS

- Čarija Z., Franković B., Perčić M., Čavrak M., Heat transfer analysis of fin-and-tube heat exchangers with flat and louvered fin geometries, *International journal of refrigeration-revue internationale du froid*, ISSN 0140-7007, 45, 160-167, 2014
- Delač B., Trp A., Lenić K., Numerical investigation of heat transfer enhancement in a fin-and-tube heat exchanger using vortex generators, *International Journal of Heat and Mass Transfer*, ISSN 0017-9310, 78, 662-669, 2014



- Delač B., Prelec Z., Pavković B., *Tehnološka, ekonomska i ekološka analiza zamjene energenta u bolničkom energetskom sustavu, KGH - naučno stručni časopis za klimatizaciju, grejanje i hlađenje, ISSN 0350-1426, 43, 93-100, 2014, Beograd*

#### MEĐUNARODNI KONGRESI | INTERNATIONAL CONGRESSES

- Lenić K., Trp A., Diklić D., *Calculation of Solar Energy Use as a Part of Determination of the Energy Performance of Building, Proceedings of the EuroSun 2014 conference, 2014, Aix les Bains, Francuska*

#### MEĐUNARODNA SURADNJA | INTERNATIONAL COLLABORATIONS

- ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers, California Institute of Technology, SAD / USA
- Dipartimento di fisica tecnica, Università degli studi di Padova, Italija / Italy
- Dipartimento di energetica, Università degli studi di Trieste, Italija / Italy
- Dipartimento di energetica, Politecnico di Milano, Italija / Italy
- EAEC – European Automobile Engineers Cooperations, 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, Savoie Technolac, Le Bourget du Lac – Cedex, Francuska / France
- Institute of Energy Technology, ETH Zürich, Švicarska / Switzerland
- Institut für angewandte Thermo- und Fluidodynamik, 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, 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'Applications Thermiques (CIAT), Culoz, Francuska / France



- *Szent Istvan University, Gödollo, Mađarska / Hungary*
- *Universität in Kassel, Njemačka / Germany*



## 6 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*





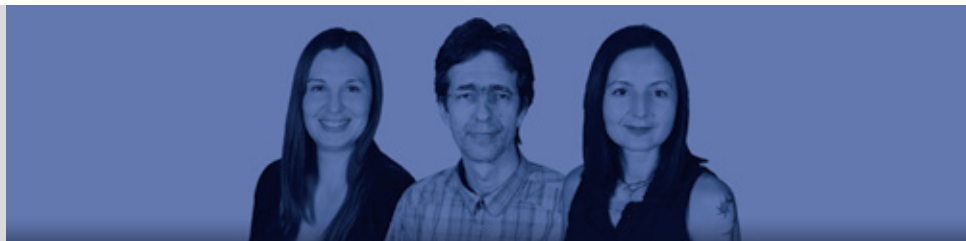




# 7 stručne službe professional and administrative staff



# 71 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



**Mario Šlosar-Brnečić** dipl. knjižničar grad. librarian



**Ana Širola**, dipl. oec., mag. filozofije i mag. edu. mag.  
oec, mag. educ. philol. angl. and mag. phil.

*prilapravnica  
apprentice*

Knjižnica Tehničkog fakulteta Sveučilišta u Rijeci dio je znanstvene, istraživačke i obrazovne djelatnosti Fakulteta. Obavlja poslove oblikovanja i izgradnje knjižničkog fonda (nabava, stručna obrada), pružanja knjižničkih 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

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



zajednice koji se bave znanstvenim i stručnim radom, a usluge knjižnice koriste po posebnim uvjetima. Knjižnica funkcionira kao informacijsko, izobrazbeno i komunikacijsko središte. Nalazi se u prizemlju zgrade Fakulteta, gdje su na 403 m<sup>2</sup>, na dvije etaže, smještene čitaonica, računalna čitaonica te otvoreni i zatvoreni fond.

Čitaonica se sastoji od trideset i tri mjesta za učenje i korištenje prijenosnih računala s priključcima na mrežu. Računalna čitaonica ima dvadeset i četiri mjesta s dvanaest računala namijenjenih istraživanju i učenju; preko njih studenti imaju pristup bazama podataka i katalogima svih knjižnica. Nedavnom modernizacijom knjižničkoga 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 osuvremenjuje pri čemu se težište stavlja na nabavu literature iz tehničkih znanosti, elektrotehnike, brodogradnje, računarstva. Početkom 2014. godine, knjižnični fond iznosi oko 22 000 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 međuknjižnične posudbe.

Uključeni smo u sustav upravljanja kvalitetom ISO 9001.

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 m<sup>2</sup> where there are situated a Reading Room, computer Reading Room, Open and Closed-End Fund.

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 2014, the library fund covered about 22 000 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.



# 7.2 računalni centar computer center



## VODITELJ | HEAD:

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*



**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**

*operater  
computer operater*



### 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*



## 7.3 **financijska služba** accounting division



### VODITELJICA | HEAD:

**Ana Mirković Pavlović**, mag. oec. grad. economist

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>



**Ana Mirković Pavlović**, mag. oec. grad. economist

*voditeljica*  
*head*



**Mirjana Mihaljević Vukelić**, ing. bacc. eng.

*voditeljica ostalih ustrojstvenih jedinica*  
*head of other organizational units*



**Davorka Medanić**

*financijski poslovi*  
*financial activities*



**Iva Spajić**, dipl. oec. grad. economist

*financijski poslovi*  
*financial activities*



**Ana Šutalo**, struc. spec. oec. spec. grad. economist

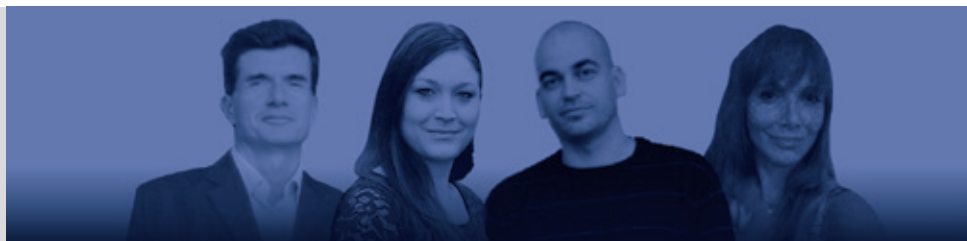
*financijski poslovi*  
*financial activities*







## 7.4 služba nabave i komercijale procurement and commerciale office



### VODITELJ | HEAD:

**Mohorić Robert, dipl. oec.** grad. economist

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>



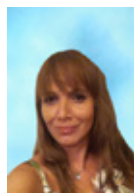
**Robert Mohorić, dipl. oec.** grad. economist

*voditelj*  
*head*



**Dorotea Burčul**

*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 se nabavom roba, usluga i radova, izradom plana nabave robe, usluga i radova za tekuću godinu, priprema i provodi postupke odabira godišnjih dobavljača, vodi evidencije nabava 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 inventaru, 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.



# 7.5 služba općih i kadrovskih poslova general and personnel office



## VODITELJICA | HEAD:

**Lenka Štajduhar**, oec. economist

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>

**Lenka Štajduhar**, oec. economist

*voditeljica opće i kadrovske službe  
general and personnel office head*



**Ana Jeričević**

*stručno osposobljavanje  
vocational training*



**Snježana Mikuličić**

*voditeljica kadrovskih poslova  
personnel operation manager*



**Lidija Petričić**

*administrativna tajnica  
administrative secretary*



## TAJNICE ZAVODA | DEPARTMENT SECRETARY:

**Mira Bobanović**



**Vesna Franelić**

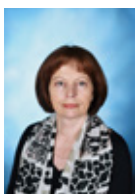




**Natalija Forgić**



**Lovorka Malinić**



**Dragica Jurin**



**Radojka Praprotnik**

**DOMAR - KUĆEPAZITELJ | MAJOR - DOMO:**



**Franjo Brozović**



**Štefan Rancinger**

**SPREMAČICE | CLEANING STAFF:**



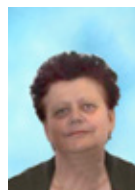
**Dragica Alempić**



**Marica Gnjatović**



**Lidija Antunović**



**Fahira Horozović**



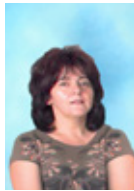
**Snježana Ban**



**Jasna Mijolović**



Senka Jedrejčić



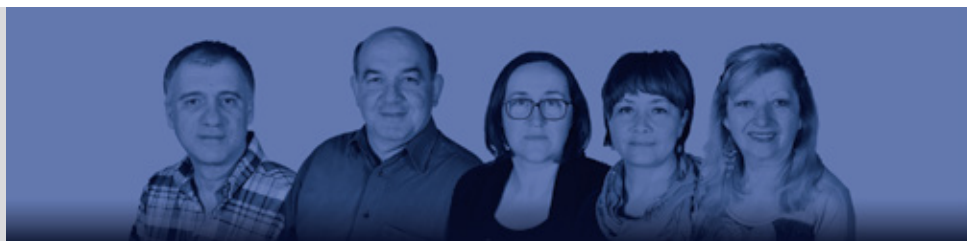
Mirjana Košpić



Nevenka Lilić - Pekas



## 7.6 služba studentske evidencije student's registrar and affairs office



### VODITELJ | HEAD:

**Žarko Burić, mag. ing.**

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>



**Žarko Burić, mag. ing.**

*voditelj  
office head*



**Ivona Balzani**

*voditelj odsjeka  
head of section*



**Darko Vidučić**

*stručni savjetnik ISVU  
ISVU Advisor*



**Antonela Čaleta**

*voditelj ostalih ustrojstvenih jedinica  
head other organizational units*



**Tanja Veljić**

*administrativna tajnica  
administrative secretary*

Služba studentske evidencije Fakulteta obavlja sve poslove vezane uz potrebe studenata. Zaprima i obrađuje dokumentaciju za razredbeni postupak, obavlja upis studenata u prvu i u više studijske godine, priprema dokumentaciju studenata za završni ili diplomski ispit, organizira promocije završenih studenata, prima i izdaje razne zahtjeve, uvjerenja i potvrde, izrađuje izvješća stručne analize za potrebe Fakulteta te vodi potrebnu korespondenciju i daje izvješća zainteresiranim strankama.

The students' Registrar 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.



## 7.7 tehnička služba technical and maintenance services



### VODITELJ | HEAD:

**Nevio Poniš**, dipl. ing.

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>



**Nevio Poniš**, dipl. ing.

*voditelj  
office head*



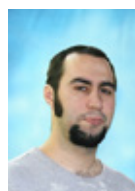
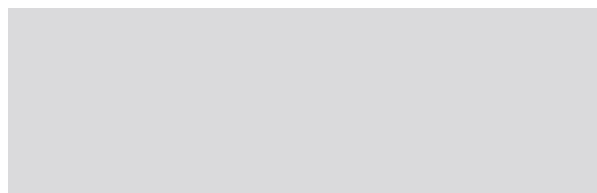
**Bernardo Badurina**

*viši laborant  
senior laborant*



**Igor Mihaljević**

*viši laborant  
senior laborant*



**Josip Jurašić**

*voditelj odsjeka  
head of section*



**Serdo Mišić**

*voditelj ostalih ustrojstvenih jedinica  
head of other organizational units*

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.



## 7.8 uredi za IPA projekte IPA project offices

<http://www.riteh.uniri.hr/ustroj/strucne/index.html>

**Nikola Anđelić**

*inženjer-stručnjak  
engineer-expert*



**Nadija Surać**

*projekt  
administrator  
project admin*



**Jelena Višnić**

*projekt  
administrator  
project admin*



## 7.9 marendarij "pipi" cafeteria "pipi"

**VLASNICA | OWNER:**

**Ivanka Jursić**

**DJELATNICA | EMPLOYEE:**

**Helena Mavrinac**





# 8 studentski zbor student council



## 8.1 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. Broji 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 sufinancirati 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.

Tijekom akademske godine održana su razna događanja u organizaciji Zbora. Prva od njih je Brucošijada Tehničkog fakulteta održana 22.11.2013. na brodu Nina.

Tom prilikom održano je predstavljanje Riteh E-mobila, Riteh Racing tima i Riteh waterbike tima.

U prosincu je organizirano skupljanje hrane i potrepština za Socijalnu samoposlugu.

Druga akcija koja je svesrdno prihvaćena na fakultetu bila je prikupljanje pomoći za

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 attention 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.

In 2013/2014 ac. year various events were organized by the Student Council. The first of these was the Freshmen Evening of the Faculty of Engineering, held on 22 November 2013 on the Nina ship.

On that occasion, the Riteh E-mobile, Riteh Racing team and Riteh waterbike team were presented.

In December, collection of food and supplies for the Social self-service store was organized. Many thanks to all students who participated.



poplavljen područja. Članovi Zbora također su dali svoju ruku. Velika pohvala ide i studentima koji su danima pomagali oko sortiranja na Kampusu ili dežurali u studentskoj prostoriji na Fakultetu.

Nastavljena je potpora i suradnja s udrugama. Web platforma Onetisus, čiji je idejni kreator i tvorac student računarstva Mario Novak, dobila je potporu. Riječ je o platformi čija je ideja razmjenjena znanja i vještina među studentima.

Branimir Tadić, student strojarstva, svojom inicijativom Znati kako, kroz koju je studentima omogućeno razviti i usavršiti svoja teorijska znanja kroz praksu, također je zavrjedio potporu Zbora.

Studentski zbor aktivno sudjeluje u radu tijela Fakulteta i Sveučilišta u Rijeci. Član Zbora Lovro Liverić izabaran je za studentskog pravobranitelja za riječko Sveučilište.

Za sva pitanja, savjete i pomoć studenti se mogu obratiti preko:

- tel: 051/651-556
- sustava MUDRI
- mailom na sz@riteh.hr
- facebook stranice i profil Studentski zbor Tehničkog fakulteta u Rijeci

Another action that was wholeheartedly accepted at the Faculty was collecting aid for flooded areas. Members of the Council were directly involved. Many thanks also to all the students who helped with sorting the aids at the Campus or were on duty in the students' room at the Faculty.

Support and cooperation with associations continued. Support was also given to Onetisus Web Platform, ideated and created by Computer Engineering student Mario Novak, which aims to exchange knowledge and skills among students.

Branimir Tadić, a student of Mechanical Engineering, also earned the Council's support for his Know How Initiative, which enables students to develop and improve their theoretical knowledge through practical work.

The Student Council takes an active part in the works of the bodies of the Faculty and the University of Rijeka. Lovro Liverić, a member of the Council, has been elected the students' ombudsman for the University of Rijeka.

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

## 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

- *Toni Koraca*  
(tonykoraca@gmail.com)
- *Stella Ostojić, zamjenica/deputy*  
(stella.ostojic@riteh.hr)
- *Dora Burul*  
(burul.dora@gmail.com)
- *Eugen Trbojević, zamjenik/deputy*  
(eugen.trbojevic@riteh.hr)

### 2. PREDDIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE I RAČUNARSTVA

#### 2. UNDERGRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING AND COMPUTER ENGINEERING

- *Ivan Pavković*  
(pavkovic.ri@gmail.com)
- *Luka Pejaković, zamjenik/deputy*  
(luka.pejakovic@riteh.hr)

- *Juraj Jumić*  
(*jjumic@gmail.com*)
- *Antonio Papić, zamjenik/deputy*  
(*antonio.papic@riteh.hr*)

**3. PREDDIPLOMSKI STRUČNI STUDIJ STROJARSTVA, BRODOGRADNJE I ELEKTROTEHNIKE**  
3. UNDERGRADUATE VOCATIONAL STUDY OF MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING AND NAVAL ARCHITECTURE

- *Emanuel Gradišar*  
(*emanuel.gradisar@riteh.hr*)
- *Toni Gregov, zamjenik/deputy*  
(*toni.gregov@riteh.hr*)

**4. DIPLOMSKI SVEUČILIŠNI STUDIJ STROJARSTVA I BRODOGRADNJE**  
4. GRADUATE UNIVERSITY STUDY OF MECHANICAL ENGINEERING AND NAVAL ARCHITECTURE

- *Ljubica Pavlović*  
(*pavlovljubi@gmail.com*)
- *Dean Delač, zamjenik/deputy*  
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- *Lovro Liverić*  
(*lliveric@gmail.com*)
- *Ana Tomasović, zamjenik/deputy*  
(*ana.tomasovic@riteh.hr*)

**5. DIPLOMSKI SVEUČILIŠNI STUDIJ ELEKTROTEHNIKE I RAČUNARSTVA**  
5. GRADUATE UNIVERSITY STUDY OF ELECTRICAL ENGINEERING AND COMPUTER ENGINEERING

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- *Emil Rubinić*  
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- *Olga Čerina, zamjenik/deputy*  
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**6. POSLIJEDIPLOMSKI SVEUČILIŠNI (DOKTORSKI) STUDIJ**  
6. POSTGRADUATE UNIVERSITY (DOCTORAL) STUDY

- *Paolo Blecich*  
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## 8.2 ieee sb rijeka



IEEE, Institute of Electrical Engineers, je stručna neprofitna organizacija koja djeluje širom svijeta. Udruga je nastala 1884. godine na inicijativu nekolicine znanstvenika, a sve sa ciljem praćenja razvoja elektrotehnike, prerastajući u najveću svjetsku stručnu udruhu 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 te 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 dajući svoj doprinos u organizaciji raznih događanja u riječkom području.

### 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 te sadržava i promociju studentskih radova iz istih područja.

IEEE Institute of Electrical Engineers is a professional non-profit organization that operates 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.

### 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.





### SYP Congress Krakow

Student and young professional congress je kongres studentskih ogranaka i „young professional“ (članova koji su diplomirali tijekom zadnjih deset godina) koji se održava svake dvije godine. Ove godine je na kongresu sudjelovalo četirstotinjak inženjera iz različitih zemalja. Kongres je obilježio niz zanimljivih radionica, predavanja, stručnih posjeta i stvaranja novih poslovnih i privatnih kontakata za sve sudionike.

Uz sve stručne aktivnosti bilo je vremena i za šetnju Krakowom, kao i za posjete muzejima. Među njima ističemo posjet rudniku soli u blizini Krakowa gdje se održala i svečana večera kao i posjet koncentracionom logoru Auschwitz-Birkenau.

### 3. Kongresić IEEE Studentskih ogranaka

Krajem rujna prošle godine, u organizaciji studentskog ogranka iz Zagreba, održan je 3. CroSBC (Croatian Student Branch Congress), odnosno „Kongresić“, na kojem su se okupili predstavnici svih četiriju hrvatskih ogranaka. Na susretu nam se pridružio i Rui Costa, održavši prezentaciju o programu IEEE Academic. Uz to, na kongresu se održala TISP (Teachers in Service Program) radionica na kojoj smo trebali izraditi robotsku ruku od zadanih materijala, a koja bi bila u mogućnosti podignuti čašu na 15 cm visine. Ideja je bila na interaktivan način učenicima bolje približiti gradivo.

### SYP Congress Krakow

Krakow Congress organized by student and young professionals is a congress of student branches and "young professional" (members who have graduated in the last ten years) which is held every two years. This year the congress was attended by four hundred engineers from different countries. The congress was distinguished with a series of interesting workshops, lectures, professional visits and it was marked by creating new business and personal contacts for all participants.

In addition to all professional activities, there was also time for a walk through Krakow, as well as for visits to museums. Among them, we are to point out a visit to a salt mine near Krakow where a gala dinner was held and a visit to the concentration camp Auschwitz-Birkenau organized.

### 3rd CroSBC

At the end of September last year, a 3rd CroSBC (Croatian Student Branch Congress), or "Kongresić" was held organized by the student branch in Zagreb, which brought together representatives from all four Croatian branches. At the meeting, Rui Costa also joined us, holding a presentation on the application of IEEE Academic. In addition, at the congress, TISP (Teachers in Service Program) workshop was



U nedjelju ujutro imali smo prezentacije aktivnosti studentskih ogranaka održanih tijekom godine. Razgovaralo se o mogućnostima poboljšanja komunikacije između ogranaka, projektima koje smo održali ili planiramo održati te svemu što bi moglo doprinijeti boljem funkcioniranju IEEE-a. Puno smo toga naučili, stekli dosta korisnoga iskustva i, povrh svega, upoznali nove ljude s kojima ćemo surađivati tijekom sljedećih godina.

#### LinuxLab konferencija Linux korisnika

Četvrta LinuxLab konferencija Linux korisnika održana je 19. i 20.10. u prostorijama Tehničkog fakulteta Rijeka. Kroz trajanje konferencije stvoreni su novi kontakti, proširena je vijest o mogućnostima uključivanja u nove projekte koje uključuju čak i međunarodnu suradnju. Ugostili smo vlasnike tvrtke koja se bavi isključivo opensource rješenjima; odgovarajući na pitanja sudionika podijelili su svoja iskustva o življenju od otvorenih rješenja te istovremenog vraćanja natrag zajednici. Nisu izostali ni članovi akademske zajednice koji su prepoznali koristi slobodnog softwera i od kojih smo dobili riječi hvale za inicijativu.

held where we had to make a robotic arm of the given material, which would be able to raise a glass to 15 cm in height. The idea was to present the material to students better in an interactive way.

On Sunday morning, we had a presentation of activities maintained by student branches throughout the year. We discussed the possibilities of improving communication between the branches, the projects that we have held or plan to hold, and everything that could contribute to a better functioning of the IEEE. We've learned a lot, gained a lot of useful experience and, above all, met new people with whom we are about to collaborate in the coming years.

#### LinuxLab Conference by Linux users

Fourth LinuxLab Conference of Linux users was held on October 19th and 20th in the premises of the Engineering faculty, Rijeka. During duration of the conference, new contacts were created and news about opportunities for involvement in new projects including even international cooperation was spread. We welcomed owners of the company that deals exclusively with open source solutions; while responding to questions from the participants, we shared our experiences based on simultaneous living on open solutions and returning them back to the community. The event also included members of the academic community who have recognized the benefits of free software and of which we have received words of praise for the initiative.



## 8.3 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 ove godine pokrenuo humanitarnu akciju prikupljanja sredstva za prihvatilište za beskućnike "Ruže svetog Franje", a tu akciju nastavit 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.

This 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.





## 8.4 eestec



Electrical Engineering Students European Association (EESTEC) međunarodna interna 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 te 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 s ciljem promicanja i vrednovanja cjelovite europske baštine.

Udruga se bavi organizacijom skupova studenata elektrotehnike u Europi radi druženja i stručnoga usavršavanja, nadalje 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 razmijene ideja, ciljeva i stavova, sudjeluje na međunarodnim susretima i tribinama te razvija razne druge kulturne i društvene aktivnosti.

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.



## 8.5 riteh racing team



### Riteh Racing Team

Desetak studenata iz Riteh Racing Teama iz sezone u sezonu spaja ugodno s korisnim. Svoju ljubav prema brzim automobilima i znanje stečeno na fakultetu pretvaraju u male trkaće bolide. Naglasak ovog projekta je na učenju kroz praktični rad i rješavanju realnih problema na koje se nailazi tijekom cijelog projekta. Važno je napomenuti da je rad studenata isključivo volonterski.

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 i ohrabriti ih pri odabiru inženjerskog poziva. Smisao je potaknuti studente u osmišljavanju, konstruiraju, izradi, ekonomizaciji, prezentiranju i natjecanju s prototipom malog trkaćeg bolida u seriji statičkih i dinamičkih kategorija. Oblik natjecanja omogućuje studentima idealnu priliku za demonstraciju i poboljšanje vlastitih mogućnosti izrade kompleksnog i integriranog proizvoda u zahtjevnoj okolini auto-moto natjecanja.

Formula Student natjecanja podijeljena su na statičke i dinamičke kategorije. No, prije svega potrebno je zadovoljiti detaljan tehnički pregled

### Riteh Racing Team

From season to season a group of about ten students from the Riteh Racing Team combine business with pleasure. They turn their love for fast cars and the knowledge gained at college into small racing cars. The emphasis of this project is laid on learning through practical work and solving real concrete problems encountered during the project. It is worth mentioning that the students' work is exclusively voluntary.

The Riteh Racing Team is the Formula Student Team of the Faculty of Engineering. The Formula Student is the most recognized and most appreciated 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



koji jamči 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 nagnje pod kutom od 45° čime se kontrolira eventualno istjecanje tekućina te pod kutom od 60° za provjeru stabilnosti, zatim Noise test koji osigurava neprelaženje buke motora iznad 110 dB te Brake test kojim se provjeravaju kočnice.

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, zatim Autocross utrka koja objedinjuje sposobnost skretanja, akceleraciju i kočenje bez prisutnosti ostalih bolida. Zadnja utrka je Endurance na kojoj je potrebno odvoziti 22 km uz prisutnost ostalih bolida 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 i cijena svakog pojedinog dijela i ukupna cijena bolida. Tu je i Design Report kojim se prezentiraju konstrukcijska rješenja i performanse vozila.

Kako bi se mogao natjecati, svaki bolid mora biti napravljen u skladu sa striktnim pravilima instituta SAE (Society of Automotive Engineers). Također, potrebno je svake sezone napraviti novi bolid. Sezone 2013./2014. članovi tima radili su na konstrukciji i izgradnji bolida pod imenom RRC3. Sa svojih 215 kg, RRC3 je bio najlakši do sada, a zahvaljujući inovativnim konstrukcijskim rješenjima imao je poboljšane performanse.

Na području motora napravljene su mnoge modifikacije. Modificiran je senzor pozicije radilice i stavljeno je novo ozubljenje radi što veće preciznosti. Također, promijenjena je usisna bregasta osovina radi dobivanja momenta na nižim okretajima, a pomaknut je i kut otvaranja i zatvaranja usisnih i ispušnih ventila za maksimalnu snagu u području rada. Usis motora je dizajniran tako da postoji mogućnost promjene dužine usisnih kanala radi pomicanja točke maksimalne volumetrijske efikasnosti s obzirom na broj okretaja motora. Iako je rađen od karbonskih vlakana, plenumu su dodana rebra na kritičnim mjestima kako bi izdržao velike potlake koji nastaju zbog restrikcije na usisu koju zahtijeva pravilnik natjecanja te kako bi istovremeno bio što lakši. Šasija i ovjes su konstruirani i zavareni kako bi bili što lakši i

static and dynamic categories. But first it is necessary to satisfy a detailed technical inspection which 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 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 Autocross 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. In 2013/2014 season, members of the team were working on the design and construction of the car named RRC3. The RRC3, with its 215 kg, was the lightest to date and, owing to innovative design solutions, had improved performances.

As regards the engine, many modifications were made. The crankshaft position sensor was altered and a new gearing was implemented to give maximum precision. The intake camshaft was also modified to provide the torque at low revolutions, while the angle of opening and closing the intake and exhaust valves was shifted for maximum power in the work area. The engine intake was designed so that it was possible to change the length of the inlet channels to move the point of maximum volumetric efficiency with respect to the speed of the engine. Although it was made of carbon fibre, ribs were added to the plenum at critical points to enable it to withstand the high pressure caused by the restriction on



istovremeno zadovoljavali sva pravila i potrebne funkcije. Karoserija i sjedalo u potpunosti su izrađeni od karbonskih vlakana koja pružaju potrebnu visoku vlačnu čvrstoću te izuzetno malu masu finalnih proizvoda. Ove sezone tim je izradio i prikolice za vlastite potrebe prijevoza bolida.

the intake, as required by the competition regulations, and to make it as light as possible at the same time. The chassis and suspension were also designed and welded so as to be as light as possible and to satisfy all the regulations and the required functions. The car body and the seat are completely made of carbon fibres, which provides the necessary high tensile strength and extremely low weight of the final product. In addition, this season the team also produced a trailer for the transportation needs of the car.



Riteh Racing Team sudjelovao je na više događaja:  
The Riteh Racing Team has participated in several events:

- **Noć istraživača 27. 9. 2013.**  
Projekt kojemu je cilj približiti istraživače javnosti.  
**The Researchers` Night, 27 September 2013**  
The project aimed to close the gap between the researchers and the public.
- **Kronometar Tar 8. 10. 2013.**  
Utrka prvenstva Hrvatske u disciplini kronometar.  
**Chronometer Tar, 8 August 2013**  
Race of the Croatian Championship in the chronometer discipline.
- **Exclusive Auto Moto Show 3. - 6. 4. 2014.**  
Predstavljanje bolida široj javnosti u Tower Centeru.  
**Exclusive Auto Moto Show, 3 – 6 April 2014**  
Presentation of the car to the general public in the Tower Centre.
- **Dodjela zahvalnica 28. 11. 2013.**  
Na kraju svake sezone organizira se svečanost dodjele zahvalnica sponzorima i svim partnerima projekta. U prostorijama Tehničkog fakulteta tim se zahvalio svima koji su prethodne sezone podržali našu grupu studenata i projekt te smo im uručili simbolične zahvalnice. Događaj su medijski popratili RITV, KanalRi te Radio Sova i Novi list.  
**Letters of thanks award, 28 November 2013**  
At the end of each season, the ceremony of the letter of thanks award to sponsors and all partners of the project is organised. In the premises of the Faculty of Engineering the team thanked all who supported the group of students and the project in the previous season and handed the symbolic letters of thanks. The event was followed by the media RITV, KanalRi, Radio Sova and Novi list.
- **Fomula Student Italy natjecanje 28. 8. - 2. 9. 2014.**  
Iako su u planu bila dva natjecanja, u Mađarskoj i Italiji, natjecanje u Mađarskoj bilo je odgođeno jer važni dijelovi bolida nisu bili završeni.  
**Formula Student Competition Italy, 28 August - 2 September 2014**  
Although two competitions (in Italy and Hungary) were planned, unfortunately the competition in Hungary was not attended because fundamental parts of the car were not finished.



Prvi dan uvijek je rezerviran za smještaj u kamp i prijavu timova. Drugi dan slijedi tehnički pregled. Na red za tehnički pregled tim je došao među zadnjima, tako da cijeli pregled nije bio odrađen u istome danu. Treći dan natjecanja, nakon nužnih izmjena na bolidu, (osiguranje vijaka i zaštita vozača) na redu je bilo vaganje bolida, Tilt test, Noise test i Brake test koje smo, kao i test iskakanja vozača u 5 sekundi, uspješno prošli.

Slijedila je Autocross utrka u kojoj se dogodila strašna nesreća. Nakon što je vozač, Mel Totman, odvezio prvi krug, bolid RRC3 se zapalio. Srećom, Mel je uspio iskočiti iz bolida na vrijeme i prošao bez ikakvih ozljeda.

Točan razlog zapaljenja nije poznat ni nakon pregleda bolida od strane tehničke inspekcije. Pretpostavlja se kako je uzrok visoka temperatura uslijed koje se uljevna cijev goriva rastopila iako je bila izrađena od materijala koji je u skladu s pravilima SAE. Prilikom otapanja, benzinske pare su se raširile unutar bolida te je došlo do samozapaljenja takvog razmjera da je bolid izgorio u 10 sekundi do neprepoznatljivosti. Nažalost, vatrogasni tim koji je bilo na stazi nije pravovremeno reagirao što su uočili i ostali sudionici natjecanja.

Ovo je veliki udarac za Riteh Racing Team koji je dizajnirao, konstruirao i izradio konkurentni bolid nakon skoro godinu i pol dana rada. Iako očekivanja nisu ispunjena, tim je dodatno motiviran pri izgradnji novog vozila.

Svaki trenutak slobodnog vremena iskorištava se za rad na novom RRC3 bolidu.

Zahvaljujemo se Studentskom zboru Sveučilišta u Rijeci, AVL-u, Zagrebačkoj banci, Gradu Rijeci, Zakladi Sveučilišta u Rijeci, Tehničkom fakultetu u Rijeci, Alumni klubu TFRI i Vardu na financijskoj te Plinari Baderna, Scripti, Auto nipponu, Brzoglasu, CLM Pro-u, Autoklubu RI na ostaloj materijalnoj pomoći; Elcon Geraetebau na materijalu i obradi te Končar-Električnim uređajima, Brossu, Diz-Cnc-u, Festu, JLM Perković, Malkoč Tehnici, NMP Produktu, Risek Metalu, Scam Marineu i TTM strojnoj obradi na obradi dijelova. Također, velike zahvale Loctiteu, Würthu, SKF-u, AMOC Ivičeku, Auto-Birtiću, KMD Babić, Kelteksu, Primitronicu-RS Components, As2conu, Adria kompozitima, Balen tokariji 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 se

The first day is always reserved for accommodation in the camp and registration of the teams, while the technical inspection is carried out on the next day. The team was among the last in line for technical inspection, so that the whole inspection was not done on the same day. On the third day of the competition, after some modifications were done on the car such as security screws and driver protection, the car was weighed and subjected to the Tilt test, the Noise test and the Brake test, all of which were successfully passed, as well as the drivers' jumping out of the car in 5 seconds.

In the Autocross race that followed, a terrible accident happened. Namely, after the driver, Mel Totman, had driven the first round, the RRC3 car caught fire. Fortunately, Mel managed to jump out of the car in time without being injured.

The exact cause of the fire is not known even after a technical inspection of the car, since everything had been done by the book and the preliminary technical inspection had been passed. It is assumed to be due to the high temperature which caused the fuel inlet pipe to melt, although it had been made of a material meeting the SAE standards. While melting, the gasoline vapours expanded inside the car and resulted in self-ignition of such a scale that the car burned beyond all recognition in mere 10 seconds. Unfortunately, the fire-fighting team that was on the racetrack did not react in time, which was noticed also by the other participants of the competition.

This is a big blow for the Riteh Racing Team members, who designed, constructed and produced the competitive car after almost a year and a half of work. Although expectations were not fulfilled, the team is additionally motivated not to give up and to start working on a new vehicle.

Every moment of free time is used to work on the new RRC3 car.

We wish to thank the Student Council of the University of Rijeka, the AVL, Zagrebačka Banka, the City of Rijeka, the Foundation of the University of Rijeka, the Faculty of Engineering of Rijeka, the Alumni Club of the Faculty of Engineering and Vard for their financial support, and Plinara Baderna, Scripta, Auto Nippon, Brzoglas, CLM Pro, Autoclub RI for the material aid they provided. Our thanks go also to Elcon Gerätebau for the material and processing, as well as to Končar-Electrical Appliances, Bross, Diz-Cnc, Fest, JLM Perković, Malkoč Tehnika, NMP Produkt, Risek Metal, Scam Marineo and TTM for machining the parts. Additionally, we express our



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 – omogućujete vidljivost i promociju našega rada. Još jednom veliko hvala na svesrdnoj suradnji za kojoj se nadamo i ubuduće.

Zahvale idu i voditelju Riteh Racing Teama i projekta Formula, studentu Ivanu Barbariću, na neizmjerne podršci i strpljenju tijekom izrade novog RRC3 bolida. Svoje znanje nesebično je podijelio sa svim novim članovima tima, uvijek spreman odgovoriti na sva pitanja i pomoći oko svih nedoumica.

Veliko hvala mentoru projekta, profesoru Sanjinu Brautu, koji je u svakom trenutku bio uz sve članove i svojim savjetima pomogao projekt RRC3 privesti kraju.



gratitude to Loctite, Würth, SKF, AMOC Iviček, Auto-Birtić, KMD Babić, Kelteks, Primotronic-RS Components, As2con, Adria kompoziti, Balen-tarija and Yacht Center Adriatic for the donated material, tools and parts. For the media support we thank Radio Sova, Studentski.hr portal and other mass media that covered us, like RITV, Kanal Ri, and Novi list.

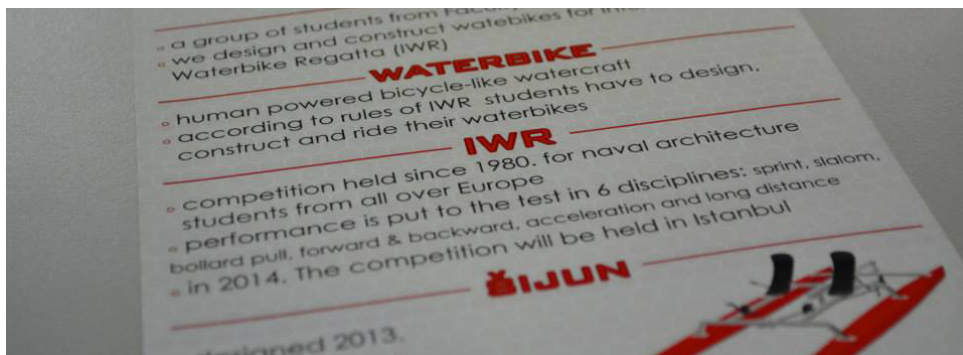
Dear sponsors and partners,  
We wish to take this occasion to thank you for all your generous support and time you invested in us. This entire project would not have been possible without your support, which is of even greater value for us in these tough economic times – you enabled us to make our work more widely recognized. Once again a big “thank you” for your generous cooperation, which we hope to enjoy in the future as well.

We express our gratitude also to Ivan Barbarić, the leader of the Riteh Racing Team and the Formula Student Project, for the immense support and patience during the manufacturing of the new RRC3 car. He has generously shared his knowledge with all new team members and has always been ready to answer all the questions and to help out with any problems.

And finally we would like to thank our project’s supervisor, Prof. Sanjin Braut, who has always been part of the team and whose advice helped us bring the RRS3 Project to an end.



## 8.6 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 primjerci 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 financijskim sposobnostima timova.

Ovogodišnja regata, 35. po redu, održana je u Istanbulu od 4. do 8. lipnja. U Turskoj se natjecalo tristotinjak članova posada na 30 različitih 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.

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.

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 pedalo 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, Istanbul hosted the 35th International Waterbike Regatta from 4th to 8th of June. There were more than 300 crew members from 30 different waterbike teams competing in 6 different disciplines: 100 meters sprint, slalom, acceleration, forward-stop-backward, long distance and bollard pull.

After first two waterbikes "Zvizda" and "Kajzer", RITEH Waterbike Team constructed the third one named "Šijun" in 2013'. All waterbikes were



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: osmisliti 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 prijemu ugostio izaslanstvo RITEH Waterbike Teama i obećao im podršku u budućim projektima.



catamarans, but improvement was showed in mass and speed. "Šijun" has just 35 kilograms and his maximum speed is 11 knots, which is a big improvement comparably! Although it is new, "Šijun" can be further improved. This year, RITEH Waterbike Team with "Šijun" also made improvement in the standing on the regatta.

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 by the Croatian president Ivo Josipović who hosted members of RITEH Waterbike Team and promised them support for the future projects.



Foto: Ured Predsjednika RH, Tomislav Bušljeta  
Photo: President's Office, Tomislav Bušljeta





**in memoriam**

## IN MEMORIAM

Prof. dr. sc.  
Josip Obsieger

1. srpnja 1923.  
– 14. svibnja 2013. g.



koji je na Tehničkom fakultetu radio neprekidno 32 godine, do umirovljenja 1992. godine.

Profesor Josip Obsieger rođen je u Varaždinu 1. srpnja 1923. godine. Osnovnu školu i gimnaziju pohađao je u Koprivnici i Varaždinu, a diplomirao je na Strojarskom odsjeku Tehničkog fakulteta u Zagrebu. Zvanje doktora tehničkih znanosti stekao je 1971. godine na Fakultetu strojarstva i brodogradnje u Zagrebu, obranom doktorske disertacije "Prilog određivanju granica opteretivosti kliznih ležajeva s hidrodinamičkim podmazivanjem".

Svoju karijeru prof. Josip Obsieger započeo je 1949. godine kao asistent u Zavodu za konstrukciju strojnih dijelova Strojarskog odsjeka Tehničkog fakulteta u Zagrebu, gdje je radio do 1952. godine. 1960. godine zaposlio se u zvanju docenta na Strojarskom fakultetu u Rijeci, današnjem Tehničkom fakultetu. Mirovinu je dočekaao u zvanju redovitog profesora 1992. godine.

Od 1972. do 1974. godine bio je dekan Strojarsko-brodograđevnog fakulteta, današnjeg Tehničkog fakulteta. Predstojnik Zavoda za elemente strojeva, današnjeg Zavoda za konstruiranje u strojarstvu bio je u više mandata, ukupno 21 godinu.

Predavao je i na Mornaričko-tehničkoj akademiji u Puli te na Mornaričkoj akademiji u Splitu.

Prof. Josip Obsieger imao je izuzetno bogatu inženjersku karijeru. Tijekom svoga rada u Zagrebu radio je na konstrukcijama raznih građevinskih strojeva, transportera i projektima novih i rekonstrukcijama postojećih tvornica cementa. Dolaskom u Rijeku, radio je na konstrukcijama raznih ljevaničkih strojeva i opreme, malih građevinskih i brodskih dizalica i liftova, hidrauličkih kormilarskih uređaja za brodove i hidrostatskih uređaja za prijenos energije za brodove. Osnovao je i rukovodio odjeljenjem za konstrukciju kormilarskih uređaja u tvornici „Vulkan“. Izradio je razna uputstva i

## IN MEMORIAM

Prof. D. Sc.  
Josip Obsieger

1 July 1923  
– 14 May 2013

He worked at the Faculty of Engineering continuously for 32 years until his retirement in 1992.

Professor Josip Obsieger was born in Varaždin on 1 July 1923. He attended primary and grammar schools in Koprivnica and Varaždin, and graduated in Mechanical Engineering at the Faculty of Engineering in Zagreb. He obtained his PhD degree in Engineering Sciences at the Faculty of Mechanical Engineering and Naval Architecture in Zagreb in 1971, defending his doctoral thesis "Contribution to Demarcation of the Load Capacity of Plain Bearings with Hydrodynamic Lubrication".

Professor Josip Obsieger started his career in 1949 as an assistant at the Department of Machine Parts Construction of the Mechanical Engineering Division of the Faculty of Engineering in Zagreb, where he remained until 1952. In 1960, he started working as an assistant professor at the Faculty of Mechanical Engineering in Rijeka, today's Faculty of Engineering. He retired as full professor in 1992.

From 1972 to 1974, he was dean of the Faculty of Mechanical Engineering and Naval Architecture, today's Faculty of Engineering. On several occasions he was also appointed head of the Department of Machine Elements, today's Department of Mechanical Engineering Design, which he ran over a total of 21 years.

He also taught at the Naval -Technical Academy in Pula and the Naval Academy in Split.

Prof. Josip Obsieger had a very rich career as engineer. During his work in Zagreb, he worked on designing various construction machines and transporters, as well as on projects of constructing new and reconstructing the existing cement plants. On his arrival in Rijeka, he worked on constructing various casting machinery and equipment, small construction and ship cranes and lifts, hydraulic steering equipment for ships and hydrostatic energy transmission systems for ships. He founded and ran the section for constructing steering devices at the "Vulkan" factory. He created several instructions and tools for calculating machine elements, and collaborated in the development of factory standards.



*pomagala za proračun elemenata strojeva te surađivao u izradi tvorničkih standarda.*

*Dolaskom na fakultet započeo je znanstveno-nastavni rad prof. Josipa Obsiegera koji je bio ponajprije vezan za njegovu stručnu djelatnost u poduzeću „Vulkan“.*

*U svome znanstvenome radu, prof. Josip Obsieger bavio se vibracionim strojevima, kliznim ležajevima s hidrodinamičkim podmazivanjem, hidrauličkim kormilarskim uređajima, oprugama, vitlima, spojka, hidrostatskim strojevima, tribologijom te ponajviše proračunom i konstrukcijom zupčastih prijenosnika snage. Treba osobito istaknuti njegova istraživanja nosivosti zuba i predloženu novu metodu za točniji proračun naprezanja u korijenu zuba, naziva max-metoda, koja je i eksperimentalno potvrđena. Bio je pionir i začetnik korištenja računala u proračunu elemenata strojeva, posebno zupčastih prijenosnika.*

*Trajno će ostati upamćen na našem fakultetu, a i u široj regiji, po računalnom programu za proračun geometrije i nosivosti cilindričnih evolventnih zupčanika GearPac CX, koji se, iako je objavljen 1992. godine i danas na našem Zavodu redovito koristi u nastavi, u znanstvenim istraživanjima i u suradnji s privredom. Treba napomenuti da je taj izvanredan software, tada, početkom devedesetih godina prošlog stoljeća, bio među prvima u široj regiji koji je radio na stolnim PC računalima i koji je omogućavao vrlo točan proračun geometrije, kontrolnih mjera i nosivosti cilindričnih evolventnih zupčanika. Sigurno je da će ovaj software još dugo biti u upotrebi i da će ga budućim generacijama teško biti nadmašiti.*

*Njegove studije proračuna i konstrukcije planetnog mjenjača i sigurnosne spojke u pogonu NC-alatnih strojeva, pokazuju da je on bio vrlo nadareni inženjer, vrstan i savjestan konstruktor i poznavatelj strojeva te veliki uzor i inspiracija svima nama kako bi trebao razmišljati i djelovati inženjer u našoj struci.*

*Uz održavanje nastave nastavio je suradnju s privredom; izdvajamo sudjelovanje u izgradnji kontejnerske luke na Brajdici u Rijeci, luke za rasuti teret u Bakru, luke za prekrcaj fosfata u Šibeniku i u izgradnji postrojenja za preradu sekundarnog aluminija u TLM-Lozovac.*

*Once at the Faculty, he started his research-teaching activity which was primarily related to his professional activities at “Vulkan”.*

*Professor Josip Obsieger’s scientific work focused on vibration machines, plain bearings with hydrodynamic lubrication, hydraulic steering gear, springs, winches, clutches, hydrostatic machines, tribology, and above all the calculation and construction of the gear box. His research into the load carrying capacity of the tooth as well as the new method for a more accurate calculation of stress in the tooth root, called Max Method, which was experimentally confirmed, earned him particular recognition. He was a pioneer and instigator of the use of computers in calculating machine elements, especially gears.*

*Our Faculty and the wider region will permanently remember him for his computing program for calculation of the geometry and load capacity of cylindrical involute gears GearPac CX, which, although launched in 1992, our Department still uses on regular basis in teaching, scientific research and collaboration with industry. The fact worth stressing is that at the time, in early 1990s, this exceptional software was among the first in the wider region to be used on desktop PCs, enabling a highly accurate calculation of geometry, control measures and load carrying capacity of cylindrical involute gears. There is no doubt that this software will continue to be used even in the future and that future generations will find it difficult to surpass it.*

*His studies of calculation and construction of the epicyclic gear transmission and safety clutches in the drive of NC machine tools, indicate that he was a highly talented engineer, skilled and conscientious constructor and connoisseur of machines and a role model and inspiration for all of us, teaching us how an engineer should think and act in the engineering profession.*

*Besides teaching he continued collaborating with industry. To mention just few examples: he participated in the construction of the container port of Brajdica in Rijeka, bulk cargo port in Bakar, phosphate transshipment port in Šibenik, and in the construction of the TLM-Lozovac secondary aluminum processing plant.*



IN MEMORIAM  
umirovljeni prof. dr. sc.  
Branko Staniša



IN MEMORIAM  
Professor Emeritus D. Sc. Branko Staniša

#### Obrazovanje:

Branko Staniša rođen je 3. svibnja 1941. godine u Dugoj Resi. Sedmi stupanj studija strojarstva završio je 1970. godine na Fakultetu za strojništvo Univerze u Ljubljani, smjer Energetika. Poslijediplomski magistarski studij završio je na Fakultetu strojarstva i brodogradnje u Zagrebu, a doktorsku disertaciju pod naslovom Prilog istraživanju utjecaja erozije na vijek trajanja turbinskih lopatica obranio je 1987. godine na Fakultetu strojarstva i brodogradnje Sveučilišta u Zagrebu.

Nakon završenog studija strojarstva radio je u "Jugoturbini" u Karlovcu, na radnim mjestima pomoćnika rukovoditelja razvojnog odjela turbina, konstruktora turbina i rukovoditelja proračunskog odjela turbina; potom je pomoćnik generalnog direktora te predsjednik poslovnog odbora OOUR Inženjering turbina, gdje je bio zadužen za razvoj, konstrukciju, tehnologiju, kontrolu i ispitivanje turbina u RO Tvornica parnih turbina.

1990. godine prelazi u Institut Jugoturbine na radno mjesto specijaliste za turbine i termoenergetska postrojenja. Od 1992. radi u Energetskom institutu Karlovac na radnom mjestu pomoćnika direktora, a kasnije i kao direktor. U dopunskom radnom odnosu predavao je na Višoj tehničkoj školi u Karlovcu. Potom predaje na novoosnovanom Veleučilištu u Karlovcu, na Strojarskom fakultetu u Rijeci gdje je 1988. godine izabran u nastavno zvanje docent, a 2002. godine u zvanje redovitog profesora u trajnom zvanju. Na Tehničkom fakultetu bio je mentor na više od 120 diplomskih radova i mentor na tri obranjene doktorske disertacije.

Od 1978. godine predavao je na poslijediplomskom studiju na Mašinskom fakultetu u Sarajevu i na poslijediplomskom studiju na Fakultetu strojarstva i brodogradnje u Zagrebu. Kao znanstvenik i istraživač surađuje i razmjenjuje rezultate znanstvenih istraživanja iz područja toplinskih turbina i termoenergetskih postrojenja s nizom nastavnika tih predmeta

#### Education:

Branko Staniša was born on 3rd May 1941 in Duga Resa. He graduated from the Faculty of Mechanical Engineering of Ljubljana in 1970, course of study Energy Engineering. He obtained his MSc degree at the Faculty of Mechanical Engineering and Naval Architecture in Zagreb, where he also obtained his PhD degree in 1987, having defended his doctoral thesis entitled Contribution to the Research of the Effects of Erosion on the Lifetime of the Turbine Blades.

After graduation he worked for "Jugoturbina" in Karlovac as assistant manager at the turbine development department, as turbine constructor and manager of turbine budget department. Afterwards he was assistant to the general manager and chairman of the Management Board of the Turbine Engineering Department, where he was responsible for the development, construction, technology, control and testing of turbines in the Steam Turbine Plant.

In 1990 he moved to the Jugoturbina Institute as a specialist for turbines and thermal power plants. As of 1992 he was engaged at the Karlovac Energy Institute as assistant to the general manager and went on to become general manager himself. As part time employment, he first taught at the two-year Technical College in Karlovac and then at the newly founded Polytechnic of Karlovac. In 1988 he was appointed assistant professor at the Faculty of Mechanical Engineering in Rijeka, becoming full-professor with tenure in 2002. At the Faculty of Engineering he was mentor for more than 120 graduation theses and 3 defended doctoral thesis.

As of 1978 he held lectures at postgraduate studies at the Faculty of Mechanical Engineering of Sarajevo and the Faculty of Mechanical Engineering and Naval Architecture of Zagreb. As scientist and researcher he collaborated and shared the results of scientific research into the field of heat turbines and thermal power plants with a number of teachers of these subjects at home and abroad. Particularly significant scientific-research collaboration was developed with the Department of Steam and Gas Turbines of the Moscow Energy Institute. Some of the results of this joint scientific research were published in national and international scientific and professional journals.



u zemlji i inozemstvu. Posebno značajnu znanstveno - istraživačku suradnju razvio je s Katedrom za parne i plinske turbine Moskovskog energetskog instituta. Dio rezultata zajedničkih znanstvenih istraživanja objavljen je u domaćim i inozemnim znanstvenim i stručnim časopisima.

U Jugoturbini, Tvornici parnih turbina Karlovac, u okviru razvojnog rada do 1990. godine izradio je 52 stručne studije iz područja turbina, od kojih je većina rađena u okviru Republičkog znanstvenog projekta Energetika. Rezultate istraživanja iz tih radova objavio je u 33 članka, većinom u časopisu "Strojarstvo". Razna izlaganja i rezultati projekata kojih je bio voditelj objavljeni su u zbornicima i znanstvenim i stručnim časopisima.

#### **Priznanja i nagrade:**

1974. godine povodom 25. godišnjice osnivanja Jugoturbine Karlovac dodijeljena mu je Diploma za samoprijegoran rad i postignute uspjehe. 1988. godine dodijeljena mu je nagrada Privredne komore Karlovac za ostvarene rezultate u privredi. 1990. godine na 5. međunarodnom znanstvenom simpoziju International Power Systems u Teheranu dodijeljeno mu je priznanje za vrijedno održano izlaganje. Internacionalni biografski centar Cambridge dodijelio mu je priznanje Internacionalnoga znanstvenika 1997. - 1998. godine za parne i plinske turbine. 2000. godine, povodom 40. obljetnice osnutka, Tehnički fakultet Rijeka dodijelio mu je priznanje za dugogodišnji samoprijegoran rad i uspješan znanstveno-nastavni rad.

#### **Članstvo u časopisima i društvima:**

Bio je član Uredničkog odbora i izdavačkog savjeta časopisa Termotehnika. Član uredničkog odbora časopisa Strojarstvo bio je od 1979. do 1991. godine. Početkom 1991. godine izabran je za člana Komisije Saveznog zavoda za standardizaciju za standarde parnih turbina. Bio je zamjenik glavnog i odgovornog urednika časopisa Tehničke informacije Jugoturbine i TPK, Republičkog komiteta za znanost, tehnologiju i informatiku, Izvršnog odbora poslovnog udruženja Jugoatomenergo, predsjednik Vijeća privredne grupacije energetike, metalne i elektroindustrije u Privrednoj komori Karlovac, delegat Društva termičara Hrvatske. Također, bio je član Društva inženjera i tehničara Hrvatske, Hrvatskog energetskog društva, Hrvatskog nuklearnoga društva, Društva za materijale i tribologiju, Hrvatskog društva održavalaca i Akademije tehničkih znanosti Hrvatske.

In Jugoturbina, the Factory of Steam Turbines Karlovac, within the framework of development work performed until 1990, he carried out 52 professional studies from the field of turbines, most of which were conducted within the Republican Scientific Project Energy Engineering. Results from these studies were published in 33 papers, mostly in Strojarstvo journal while his presentations and results of projects in which he was the main researcher were published in proceedings and scientific and professional journals.

#### **Honours and Awards:**

In 1974, on the occasion of the 25th anniversary of the foundation of Jugoturbina Karlovac, he was awarded the Diploma for dedicated work and achieved results. In 1988, he was awarded the prize of the Karlovac Chamber of Commerce for the results achieved in economy. In 1990, at the 5th International Science Power Systems Symposium in Teheran he received acknowledgment for his valuable presentation. In 1997/1998, the International Biographical Centre of Cambridge awarded him the recognition of International Scientist for his achievements in the field of steam and gas turbines. In 2000, on the occasion of the 40th anniversary of its foundation, the Faculty of Engineering of Rijeka awarded him for his long-standing dedicated work and successful research and teaching.

#### **Membership in Journals and Societies:**

He was a member of the Editorial Board and the Editorial Council of Termotehnika journal, of the Editorial Board of Strojarstvo journal from 1979 to 1991. In early 1991, he was elected Commissioner of the Federal Institute for Standardization for steam turbines. He was deputy chief editor of Technical Information of Jugoturbina and TPK journals, of the Republican Committee for Science, Technology and Information Technology, of the Executive Board of Jugoatomenergo Business Association, chairman of the Council of the economy group of energy engineering, metal end electrical industry in the Karlovac Chamber of Commerce, delegate of the Association of Croatian Thermal Engineers. He was also a member of the Association of Engineers and Technicians of Croatia, of the Croatian Energy Association, the Croatian Nuclear Society, the Society for Materials and Tribology, Croatian Maintenance Society and Croatian Academy of Engineering Sciences.



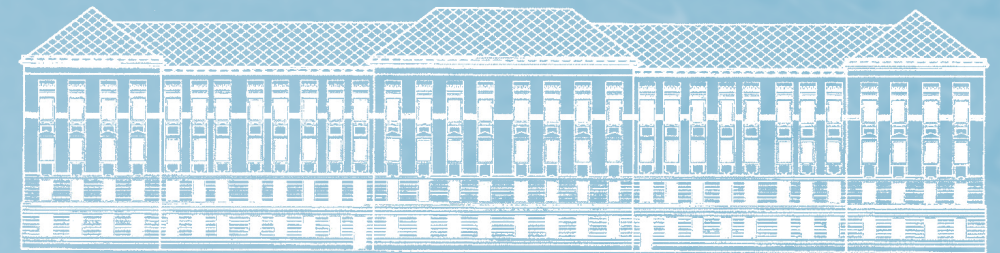
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