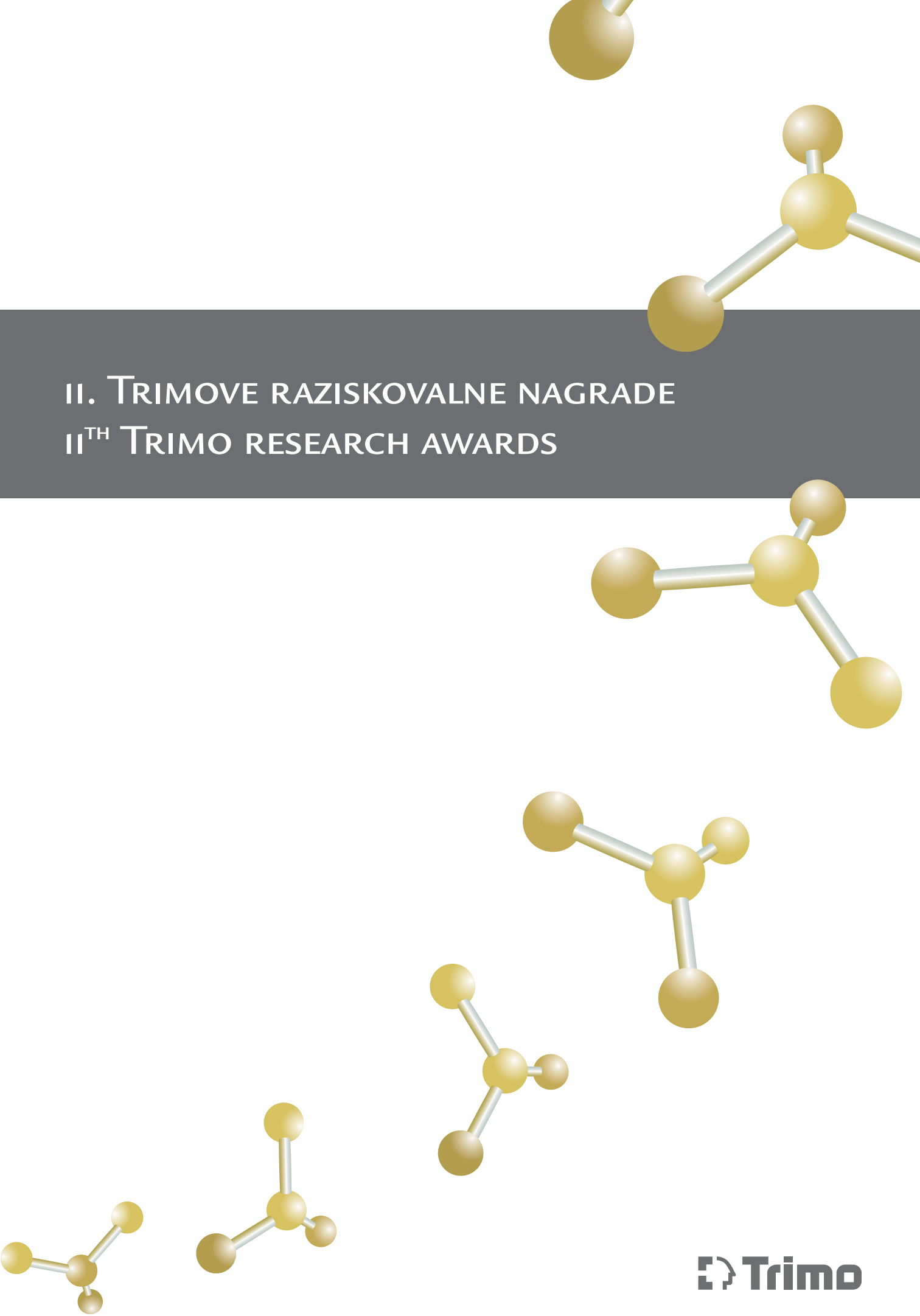
II. Trimove raziskovalne nagrade
IITH Trimo research awards



Trimo

KAZALO

CONTENTS

NAGOVOR GLAVNE DIREKTORICE

GENERAL MANAGER'S ADDRESS

Spoštovani!

Trimo že več kot petdeset let spodbuja kreativnost, inovativnost in dinamiko v svojem poslovanju. Tako je postal pomemben globalni igralec na področju fasad in streh nerezidenčnih objektov. Spremembe v svetu so odprle nove priložnosti za razvoj proizvodov, tehnologij in modelov, ki dajejo odgovore za energetsko učinkovitost zgradb, sodoben dizajn in ekonomsko sprejemljivo gradnjo. Odprli so se novi trgi v Afriki, ki iščejo enostavnejše rešitve zaradi ugodnejše klime in finančnih zmožnosti. Vse to je nova priložnost za mlade raziskovalce, raziskovalne institucije in tehnološke centre, ki bodo skupaj z industrijo prišli do novih rešitev za bivanje, nakupovanje, proizvodnjo, logistiko, za šole in vrtce, zdravstvene ustanove, ponekod celo za gradnjo novih mest.

Veliko sprememb je v poslovanje prinesla tudi svetovna finančna, gospodarska, socialna in denarna kriza, ki smo ji priča že od leta 2008. Rešitve prilagajamo novim gospodarskim pogojem in razvijamo nove proizvode, avtomatizirane tehnologije in vstopamo na nove trge, na katerih iščemo priložnosti.

Sodelovanje z akademsko in izobraževalno sfero je sedaj odločilnega pomena za Trimo, ki tako prej najde odgovore na številna vprašanja, ki jih prinaša spremenjeno okolje in nove zahteve kupcev. Tako sodelovanje je pomembno tudi za izobraževalne institucije, saj na ta način prihajajo do neposredno novih rešitev, ekonomskih, tehnoloških, tržnih in drugih modelov, ki so teoretična podlaga za nove pristope gospodarskih subjektov v spremenjenih okoljih.

V Trimu smo zelo veseli velikega števila prijav na raziskovalne nagrade, saj tako v praksi dokazujemo interes vseh strani za tesno sodelovanje, skupno ustvarjanje in tudi spoštovanje vseh ustvarjalcev nove vrednosti.

Vsem nagrajencem Trimo raziskovalnih nagrad za leto 2012 iskreno čestitamo in želimo še veliko odličnih projektov, s katerimi boste prispevali k razvoju našega modrega planeta. Zahvaljujem se vsem mentorjem, dekanom fakultet in rektorjem univerz, ki spodbujate ustvarjalno delo raziskovalcev ter krepite vez med akademsko sfero in gospodarstvo. Hvala tudi vsem recenzentom, ki ste svoj čas namenili izbiranju letošnjih najboljših Trimovih nagrajencev.

Želim vam uspešno in ustvarjalno prihodnost.

Tatjana Fink, MBA
Glavna direktorica

Ladies and gentlemen,

For over fifty years, Trimo has been encouraging creativity, innovation and dynamic development in its business operations. It is this policy that has helped Trimo to become a global player in the field of non-residential building façades and roofs. Changes in the world have led to new opportunities for the development of products, technologies and models that offer better energy efficiency options for buildings, modern design and economically acceptable construction.

The climate and financial situation in Africa mean that the new markets opening there are on the look out for simpler solutions. This offers a fresh opportunity for early stage researchers, research institutions and technological centres; working together with the industry, they will be able to develop new solutions for living, shopping, production, logistics, schools and kindergarten, medical institutions, and perhaps even the construction of new towns and cities.

The global financial, economic and social and crisis that has been with us since 2008 has also led to a number of changes being made to our business operations. We have adapted our solutions to new economic conditions; we are developing new products and automated technologies and searching for opportunities in new markets.

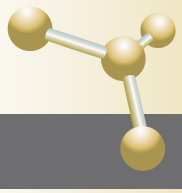
Cooperation with the academic and education sphere has proved essential for Trimo. It has helped us find faster answers to the many questions posed by the changed environment and new customer demands. This type of cooperation is also important for the educational institutions involved, since it gives them direct access to new solutions, economic, technological, marketing and other models that form the theoretical basis to new approaches implemented by businesses in changed environments.

At Trimo we are extremely pleased to have received so many applications for the Research Awards; we see it as a practical expression of interest from all sides for close cooperation and joint creativity, as well as an expression of our respect for all creators of new value.

We would like to express our sincerest congratulations to all recipients of the 2012 Trimo Research Awards and wish you many more excellent projects that will contribute to the development of our blue planet. I would also like to take this opportunity to express my gratitude to all mentors, faculty deans and university rectors for encouraging researchers' creative work and strengthening the bond between the academic sphere and the economy. I would also like to thank all the reviewers for dedicating their time to selecting this year's Trimo Research Award recipients.

We wish you a successful and creative future.

Tatjana Fink, MBA
General Manager



NAGOVOR PREDSEDNIKA KOMISIJE

PRESIDENT OF THE RESEARCH BOARDS' ADDRESS

Spoštovani!

Današnji svet je vse bolj nepredvidljiv in od vsakega posameznika zahteva, da poišče odgovor na vprašanje, v katero smer je najbolje pluti. Ob tem si večina od nas želi, da bi bila pot vznemirljiva, da bi delovanje na tej poti imelo smisel in širši pomen in da bi bilo na koncu potrjeno z uspehom. Prihodnost posameznika je, kot vsaka pot raziskovanja, negotova. Raziskovanje samo pa vznemirljivo kot vsako novo potovanje. Prav mlade generacije se danes sprašujejo, kako dobiti motiv, da bo pot raziskovanja dobila svoj smisel, da bo željo po raziskavah nekdo opazil, usmerjal in spodbujal.

V podjetju Trimo vidimo pomen tega procesa tudi v tem, da v tem nepredvidljivem in včasih kaotičnem svetu v družbi dobimo novo motivacijo in sinergijo, da ustvarimo kritično maso novega zagona za dvig gospodarstva, uvajanje novih pristopov, za nove izdelke in tehnologije. Želimo, da beseda »kriza« v sodobnem času ne postane zgolj sinonim za nujno varčevanje, omejevanje spodbud, zaprtost, pritiske na posameznika, omejevanje osebne svobode pri ustvarjanju, temveč nam vsem da nov polet.

Dragi letošnji nagrajenci, tudi letos smo se srečali z vami, vašimi mentorji in profesorji, da damo s povezovanjem raziskovanju smisel in rezultatom raziskovanja namen. S prejemom Trimove raziskovalne nagrade, ki jo letos podeljujemo že enajsto leto zapored, boste postali del prepletene mreže med akademsko sfero in gospodarstvom. Nekateri ste v to mrežo že močno vpeti. V podjetju Trimo bomo skupaj z letošnjimi nagradami podelili že preko 450 Trimovih raziskovalnih nagrad. Pri tem je sodelovalo več kot 250 mentorjev s približno 60 fakultet in iz 12 držav. Vsem vam čestitam in želim, da vas ta etapni cilj ne zadovolji, negotova situacija v svetu ne ustavi, temveč nadaljujte vznemirljivo in zanimivo pot raziskovanja še naprej.

Dovolite mi, da se ob koncu zahvalim vsem nagrajencem, njihovim mentorjem, recenzentom, komisiji za Trimove raziskovalne nagrade ter vsem tistim, ki ste omogočili letošnji dogodek, skratka vsem vam, ki želite z nami deliti vznemirjenje pri iskanju in izbiri novih poti.

Danijel Zupančič
Predsednik komisije Trimovih raziskovalnih nagrad

Dear Collegues,

The world today is becoming increasingly unpredictable and expects all individuals to find the answer to the question of which is the best path to follow. Most of us want the journey to be exciting, the steps we take along the way to have a purpose and broader meaning and be crowned with success in the end. However one's future is uncertain, like every road of exploration, and the exploration itself is as exciting as each new journey. Younger generations today in particular wonder how to acquire the motivation for this road of exploration in order to achieve its purpose, for their desire to do research to be noticed, guided and encouraged.

In this unpredictable and sometimes chaotic world, we at the Trimo Company also see the purpose of this process in achieving new motivation and synergy to generate the critical mass of the new driving force for the rise of the economy, the introduction of new approaches and the development of new products and technologies. In these times, we wish the word "crisis" not to become merely a synonym for urgent austerity measures, the reduction of incentives, lack of openness, forms of pressure on the individual and limitation of personal creative freedom, but to arouse renewed enthusiasm in all of us.

Dear winners of this year's awards, once again we got together with you, your mentors and professors to give meaning to research and purpose to research results gained through mutual cooperation. Receiving Trimo Research Awards, which are to be conferred for the 11th consecutive year, you will become part of a closely knit network between the academic sphere and the economy. Some of you are already closely involved in it. Together with this year's awards, Trimo will be handing out over 450 Trimo Research Awards. More than 250 mentors from some 60 faculties and 12 countries participated. I congratulate you all and wish that you do not content yourself with this interim goal, that the uncertain situation in the world does not stop you, but that you go on following your exciting and interesting road of exploration.

In closing, allow me to thank all the winners, their mentors, reviewers, the Trimo Research Work Committee and everyone else who made this year's event possible – all those who wish to share with us this excitement in finding and choosing new paths.

Danijel Zupančič
President of the Trimo Research Work Committee

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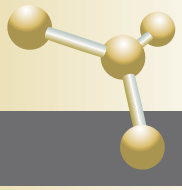

NAGRAJENCI

AWARDEES

DIPLOMSKA DELA

Diploma theses

1. Irman ABDIĆ, *Slovenija / Slovenia*
2. Lenard BILICKI, *Srbija / Serbia*
3. Rafał BOGUSZEWSKI, *Poljska / Poland*
4. Davor BURKELC, *Slovenija / Slovenia*
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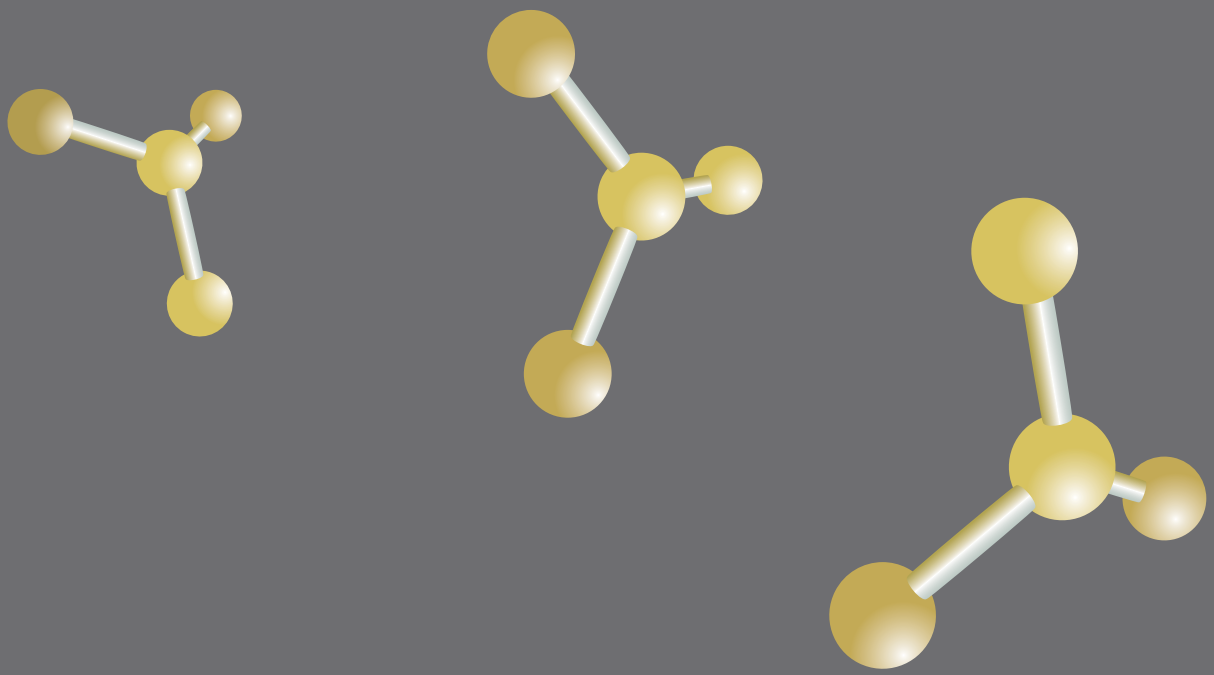
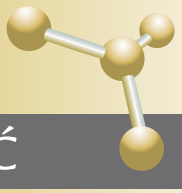


ZBORNIK POVZETKOV NAGRAJENIH DEL

ABSTRACTS OF THE PROJECTS AWARDED

DIPLOMSKA DELA

DIPLOMA THESES



Irman ABDIĆ

Diplomsko delo

IZVEDBA POSTOPKA ZA SPROTNO PRIKAZOVANJE SPEKTROGRAMA V ODPRTOKODNEM SISTEMU SPHINX-4

Mentor: doc. dr. Janez Žibert
Univerza na Primorskem, Fakulteta za matematiko, naravoslovje in informacijske tehnologije

Naloga je osredotočena na sprotno pretvorbo signalov v časovno-frekvenčni prostor, kar omogoča sprotno analizo zvočnih signalov in predstavlja novost glede na običajne produkte, kjer se časovno-frekvenčna analiza zvočnih signalov izvaja naknadno, po zajetem signalu.

Postavljena je bila hipoteza, da je mogoče v sistemu Sphinx-4 obstoječe postopke za izvedbo analize po zajemu zvoka nadgraditi tako, da se analizo zvoka izvaja sprotno.
Delo je bilo razdeljeno na tri dele: teoretična definicija procesov, praktično delo s sistemom Sphinx-4 ter meritve končnega produkta (iSound).

Še posebej izstopa usmerjenost v praktično uporabnost končnega izdelka. Za uspešno opravljeno nalogo sta bila potrebna multidisciplinarnost in tesno sodelovanje z ostalimi razvijalci programov pri reševanju nepredvidenih situacij pri razvoju programa.

Diploma thesis

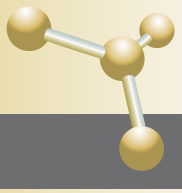
AUDIO TOOLKIT FOR DISPLAYING A SPECTROGRAM IN REAL TIME IN THE OPEN-SOURCE SYSTEM SPHINX-4

Mentor: Assistant Prof. Janez Žibert, PhD
University of Primorska, Faculty of Mathematics, Natural Sciences and Information Technologies

Typically, the time-frequency analysis of audio signals is performed later, on already saved and previously processed sounds. In this thesis, the focus is on the fly conversion of signals in the time-frequency space, which allows for real-time analysis of audio signals.

The work was done on the hypothesis that a toolkit for displaying a spectrogram in real-time with Sphinx-4 can be built. The work was split into three parts: theoretical definition of processes, practical work with Sphinx-4 system and measurements of final product (iSound).

The practical aspect of the work gives added value to the presented work. A lot of multidisciplinary work and cooperation with other developers can be also seen.



Lenard BILICKI

Diplomsko delo

VRNITEV INDUSTRIJE V SRBIJO – REALNOST ALI UTOPIJA?

Mentor: prof. dr. Sofija Adžić
Somentor: Prof. dr. Jelena Birovljev
Univerza v Novem Sadu, Ekonomska fakulteta Subotica

Zahtevani pogoji za ponovno industrializacijo Srbije glede na evropski koncept endogenega, samopoganjajočega se in trajnostnega razvoja na osnovi znanstvenih spoznanj so v slabem stanju. Za to ne obstajajo niti sodoben trg, poslovni sistemi in sistemi javnih ustanov niti zadovoljujoča učinkovitost opravljanja komercialnih in javnih poslov.

Glavna ugotovitev diplomske naloge je, da imajo dejavniki za realizacijo ponovne industrializacije Srbije kulturni karakter (razvoj kulturnih vzorcev, pri katerih se oblikujejo prioritete – zaupanje, natančnost, dobra komunikacija z domačimi in tujimi partnerji, pripisovanje velike pomembnosti prihodnosti – v smislu ustreznega nagrajevanja trenutne zavrnitve potrošnje zaradi produktivne naložbe v nova podjetja), predvsem pa, da se jih določa z izbiranjem ustreznega modela razvojnih politik glede na obseg razvoja izvoznega poslovanja.

To pomeni, da bi institucionalne reforme in gospodarska politika v Srbiji morala imeti te funkcije: (1) omejevanje moči distribucijsko usmerjene koalicije; (2) zatiranje mehanizmov korupcije v skladu z javnimi in poslovnimi predpisi; in (3) pospeševanje pogojev za izvozno poslovanje, predvsem pripravnosti finančne infrastrukture za uvedbo podjetništva in zasebnih naložb na načelih samoorganizacije in interakcije med ključnimi akterji v industrijskih in finančnih sistemih.

Diploma thesis

THE RETURN OF INDUSTRY TO SERBIA – REALITY OR UTOPIA?

Mentor: Prof. Sofija Adžić, PhD
Co-mentor: Prof. Jelena Birovljev, PhD
University of Novi Sad, Faculty of Economics Subotica

The required conditions for the reindustrialisation of Serbia according to the European concept of endogenous, self-propulsive and sustainable development based on scientific knowledge are poor. It does not possess modern market, business or public institutional systems or satisfactory efficiency for accomplishing commercial and public businesses.

The main finding of this diploma thesis is that the key factors for its realisation are of a cultural nature (the development of cultural patterns, which forms priorities - trust, accuracy, good communication with domestic and foreign partners, giving great importance to the future - in terms of adequate rewarding of the present rejection of consumption on account of productive investment in new businesses), and most of all that they are determined by selecting the corresponding model of developmental politics according to the extent of export business development.

This signifies that the institutional reforms and the economic policy in Serbia should have the functions of: (1) power limitation of the distribution-oriented coalition; (2) suppression of corruption mechanisms in accordance with public and corporative regulations; and (3) advancing the conditions of the export business by most of all establishing good financial infrastructural convenience for implementing entrepreneurship and private investment based on the principles of self-organisation and of the interactivity of the key players in the industrial and financial systems.

Rafał BOGUSZEWSKI

Diplomsko delo

ZAČASNA UPORABA OBJEKTA - LETALIŠKI TERMINAL NA EVRU 2012 ZA SPLOŠNO LETALSTVO

Mentor: mag. Marcin Goncikowski, u.d.i.a.
Somentorja: dr. Wiesław Słowik, dr. Jerzy Górski
Tehnološka univerza v Varšavi, Fakulteta za arhitekturo

Ideja tega projekta je poiskati arhitekturni odgovor na vprašanja, ki se postavljajo pri uporabi objektov na velikih dogodkih, kot je Evro 2012. Redno ponavljanje, začasnost in alternativne lokacije so glavna načela, v skladu s katerimi se organizirajo večji športni dogodki.

Predlagana gradnja letališkega terminala je predlog, ki izpolnjuje funkcionalna in ekonomska pričakovanja organizatorja Evra 2012. Začasna uporaba letališkega terminala na Evru 2012 naj bi pomagala obvladovati zračni promet na letališču Chopin – glavnem varšavskem terminalu.

Glavni koncept projekta je arhitekturna interpretacija začasnih objektov, ki bi lahko bili funkcionalni, preprosti za ureditev in mobilni. Cilj te sheme je poiskati individualno formo objekta, ki bi lahko opravljala letališko funkcijo, pri tem pa ostala prilagodljiva glede na spremembe v prostoru.

Predlagana rešitev je objektiven odgovor na vprašanje, ki se je pojavilo v prej izvedeni analizi te teme. Zahvaljujoč edinstvenosti, preprosti prilagodljivosti in mobilnosti bi lahko predstavljena shema služila kot začetna točka za druge objekte, ki se morajo kosati s spreminjanem potreb svojih uporabnikov. Vendar pa je vloga arhitekta tista, ki odloča o uspehu projekta, saj mora on poiskati pravo ravnotežje med estetskimi in funkcionalnimi zahtevami objekta. Začasen objekt kot »samo« še en element razstave v času množičnega dogodka bo uspešen, ko bodo izpolnjena vsa ta merila.

Diploma thesis

TEMPORARY BUILDING SERVICING EURO 2012 - AIRPORT TERMINAL FOR GENERAL AVIATION

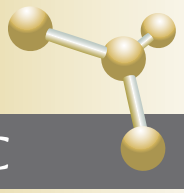
Mentor: Marcin Goncikowski, MSc (Architecture)
Co-mentors: Wiesław Słowik, PhD,
Jerzy Górski, PhD (Architecture)
Warsaw University of Technology, Faculty of Architecture

The idea of this project is an attempt to find an architectural response to the issues of servicing large-scale events such as Euro 2012. Regular recurrence, temporariness and alternative locations are the main principles according to which major sporting events are organised.

The proposed building of the airport terminal is a proposal that meets the functional and economic expectations of the Euro 2012 organiser. The temporary airport terminal servicing Euro 2012 ought to help in dealing with airborne traffic at Chopin Airport – Warsaw's main terminal.

The project's main concept is an architectural interpretation of temporary buildings that could be functional, easily rearranged and mobile. The scheme's objective is to find an individual building form that would cope with airport functions while remaining flexible to spatial variations.

The proposed solution is an objective response to the question posed by a prior analysis of this topic. Thanks to its uniqueness, easy adaptability and mobility, the presented scheme could serve as a starting point for other buildings that have to cope with the changing needs of their users. Nonetheless, it's the architect's role that determines the project's success by striking a correct balance between the building's aesthetic and functional requirements. A temporary building being 'just' an element of an exhibition during a mass event will succeed when all of these criteria are fulfilled.



Davor BURKELC

Diplomsko delo

STATIČNA IN DINAMIČNA ANALIZA STEBRA VETRNE ELEKTRARNE

Mentor: prof. dr. Stojan Kravanja
Somentorja: doc. dr. Simon Šilih,
prof. dr. Bojan Žlender
Univerza v Mariboru, Fakulteta za gradbeništvo

Namen diplomskega dela je izvedba statične in dinamične analize stebra vetrne elektrarne. Gre za energetski objekt z močjo 1 MW. Glavna nosilna konstrukcija je stožec spremenljivega prereza iz pločevine konstantne debeline. Višina stebra znaša 65 m. Steber je pritrjen na temelju s sidrnimi vijaki. Na vrhu stebra je pritrjeno ohišje, v katerem so pomembni elementi za proizvajanje električne energije. Premer rotorja znaša 64 m in je sestavljen iz treh lopatic, dolgih 31,05 m. Skupna višina – merjeno od začetka stebra do vrha lopatice – tako znaša 98,25 m. Za glavno nosilno konstrukcijo je uporabljeno jeklo kakovosti S 355. Vetrna elektrarna temelji na točkovnem temelju okrogle oblike.

Temelj ima premer 15 m in je zgrajen iz armiranega betona kakovosti C20/25 in armature S 500. V uvodu sta opisani zgodovina in delitev vetrnih elektrarn. Predstavljene in izračunane so tudi obtežbe vetra, ledu in potresa ter dimenzioniranje objekta po pravilih EUROCODE in standardih ISO.

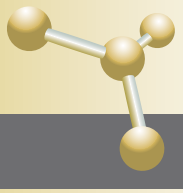
Diploma thesis

STATIC AND DYNAMIC ANALYSIS OF A WIND TURBINE TUBULAR STEEL TOWER

Mentor: Prof. Stojan Kravanja, PhD
Co-mentors: Assistant Prof. Simon Šilih, PhD,
Prof. Bojan Žlender, PhD
University of Maribor, Faculty of Civil Engineering

The purpose of this diploma thesis is a static and dynamic analysis of a wind turbine steel tower. The wind turbine has a rated capacity of 1 MW. The main supporting construction is truncated cone with constant thickness plate. The pillar is 65 meters tall. The tower is anchored to the foundation using anchor bolts. On the top of the tower, there is a nacelle with important elements for producing electricity. The rotor has a diameter of 64 meters and is comprised of 3 blades that are 31.05 meters long. The total height is 98.25 meters, measured from the base of the tower to the top of the blade. For the construction, they have used S 355 steel. The wind power plant is based on a points basis that has a round shape.

The foundation has a diameter of 15 meters and is built of reinforced concrete of quality C20/25 and reinforcement S 500. In the introduction, the history and the division of wind turbines is described. Further on, the diploma thesis presents and calculates the wind, ice and earthquake load and the dimensioning of the wind turbine tower according to EUROCODE rules and ISO standards.



Ranko Ćosić

Diplomsko delo

PROJEKT JEKLENE KONSTRUKCIJE HALE IZ TANKOSTENSKIH PROFILOV

Mentor: doc. dr. Davor Skejić, dipl. inž. grad.
Univerza v Zagrebu, Fakulteta za gradbeništvo

Diplomsko delo vsebuje projekt jeklene konstrukcije hale iz tankostenskih jeklenih profilov. Projekt vključuje dispozicije, statični preračun in dimenzioniranje jeklene konstrukcije hale z zatego, dimenzioniranje spojev tankostenskih profilov, pa tudi delavniške risbe s karakterističnimi detajli.

Analiza obtežb je bila izvedena v skladu z EN 1991, dimenzioniranje konstrukcije pa v skladu z EN 1993-1-3. Eden od ciljev diplomskega dela je bilo dimenzioniranje tankostenskih profilov hale, izdelanih iz hladno oblikovanih pločevin z največjo debelino 3 mm. V diplomskem delu je prikazano, kako lahko z zobljenjem robov pasnic in izvedbo profilirane stojine profila preprečimo lokalni uklon in s tem dobimo večjo odpornost tankostenskih profilov. Čeprav ojačitev reši problem lokalnega uklona, je bilo treba preučiti možnost torzijskega uklona (uklon ojačitve same). Učinki torzijskega uklona so bili določeni z uporabo poenostavljenega načina, ki je opredeljen v EN 1993-1-3. Pri tankostenskih profilih strešnih leg je bil poleg ojačitev upoštevan vpliv kontinuiranega bočnega pridržanja, ki je bilo ustvarjeno s kritino, modelirano z nepridržano pasnico kot nosilec na elastični podpori. Ker je bila debelina elementov (stebri, prečke in lege) zelo tanka (≤ 3 mm), so bili spoji izvedeni s prednapetimi vijaki. Spoji so bili zasnovani tako, da strižna odpornost ni presegala odpornosti pri zdrsu ali odpornosti na površinski pritisk. Dimenzioniranje spojev je bilo izvedeno v skladu z EN 1993-1-8.

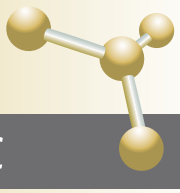
Diploma thesis

THIN-WALLED STEEL STRUCTURE PROJECT OF HALL

Mentor: Assistant Prof. Davor Skejić, PhD. MSc. (Civil Engineering)
University of Zagreb, Faculty of Civil Engineering

The paper contains a structural project for the thin-walled steel structure of a hall. The project includes a hall layout drawing, design (static analysis and dimensioning) of the steel structure (double hinge frame with tie structural system), design of thin-walled member's joints and execution drawings with characteristic details.

The load analysis was conducted in accordance with EN 1991, and the structural design was conducted according to EN 1993-1-3. One of the paper objectives was to design thin-walled members of the hall that would be made by cold-forming steel sheet with a maximum thickness of 3mm. It was clearly shown how edge folding of flange and web profilations can prevent local buckling and therefore increase resistance of thin-walled members. Although the stiffeners solved the problem of local buckling, it was necessary to consider the possibility of distortional buckling (buckling of the stiffener itself). The effects of distortional buckling were determined using a simplified method given in EN 1993-1-3. For thin-walled purlin, besides stiffeners, the impact of continuous lateral restraint was considered by modeling unrestrained flange as a beam on elastic foundation. As the thickness of these members (column, beams and purlins) is very thin (≤ 3 mm), connections were made with preloaded bolts. Connections were designed so that the design ultimate shear resistance does not exceed the design slip resistance, or the design bearing resistance. Connections design was conducted according to EN 1993-1-8.



Nastja FLORJANČIČ

Diplomsko delo

VPLIV KARIERNEGA COACHINGA NA KARIERNI RAZVOJ KLJUČNIH KADROV – ŠTUDIJA PRIMERA

Mentor: doc. dr. Branko Ilič
Univerza v Ljubljani, Fakulteta za družbene vede

Kariera, ki je bila skozi čas podvržena mnogim spremembam, je dandanes postala pomemben del posameznikovega življenja, preko katerega se ta identificira. Obenem pa je trg dela zaradi globalizacije, trenutnega gospodarskega stanja in povečane konkurence postal nezanesljiv, zaradi česar ima razvoj kariere toliko večji pomen. Danes zaposleni namreč ne morejo pričakovati varnosti zaposlitve, zato je pomembno, da so opremljeni z naborom znanj o vodenju in razvijanju lastne kariere, ki jim jih lahko organizacija ponudi tudi s pomočjo tehnik kariernega coachinga.

Karierni coaching zaposlenim namreč pomaga spoznati sebe, svoje zmožnosti, interese in cilje, prav tako pa lahko preko kariernega coachinga opredelijo dejavnosti, ki jim bodo pomagale pri doseganju teh ciljev. Na ta način organizacija zaposlenim lahko ponudi neko varnost, tako da jih naredi bolj zaposljive in iznajdljive pri konkuriranju na trgu delovne sile. Karierni coaching pa ne predstavlja prednosti le za zaposlene, temveč tudi za organizacijo, saj povečuje zadovoljstvo zaposlenih ter izboljšuje njihovo delovno uspešnost in učinkovitost, zato lahko organizacije poslujejo bolj uspešno.

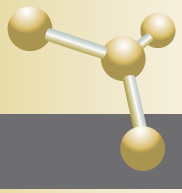
Diploma thesis

THE IMPACT OF CAREER COACHING ON THE CAREER DEVELOPMENT OF KEY EMPLOYEES - CASE STUDY

Mentor: Assistant Prof. Branko Ilič, PhD
University of Ljubljana, Faculty of Social Sciences

Career, which has been the subject of many changes, is an important part of an individual's life through which that individual identifies himself/herself. At the same time, the job market, due to globalisation, the current economic situation and increased competition, has become unreliable and thus career development has an even greater meaning. Job security cannot be expected at this time, which is why it is important for employees to be equipped with a set of skills for managing and developing their career that can be offered by organisations in the form of career coaching.

Career coaching helps employees to know themselves, their capabilities, interests and goals. Through career coaching, we can also define activities that will help us achieve these goals. In this way, an organisation can provide some security in the sense of making employees more employable and innovative in competing on the job market. Career coaching not only benefits employees but also the organisation, because it increases employee satisfaction and improves work success and efficiency. It thus enabling organisations to operate better.



Urša GOLOB

Diplomsko delo

MARKETINŠKA USMERITEV IN INOVATIVNOST V SLOVENIJI: PRIMER DOBITNIKOV NAGRADE ZA INDUSTRIJSKO OBLIKOVANJE RED DOT DESIGN AWARD 2010

Mentor: izr. prof. dr. Zlatko Jančič
Univerza v Ljubljani, Fakulteta za družbene vede

Diplomsko delo na primeru dobitnikov nagrade za industrijsko oblikovanje Red Dot Design 2010 obravnava marketinško usmeritev in njeno povezanost z inovativnim delovanjem podjetja.

V teoretičnem delu so predstavljeni pojem marketinške usmeritve in z njim povezani koncepti, kot so razlikovanje med prodajno in marketinško usmeritvijo, marketinška kratkovidnost, strateška integracija in medfunkcijska koordinacija, ter ključne ugotovitve raziskav, ki ugotavljajo povezanost med marketinškim delovanjem, inovativnostjo in dobičkonosnostjo podjetja.

V drugem delu so predstavljeni izsledki kvalitativne raziskave, v katero so bili vključeni predstavniki marketinških oddelkov petih velikih slovenskih podjetij, ki so leta 2010 prejela nagrado Red Dot. Raziskava ugotavlja, da izbrana podjetja še niso v celoti marketinško usmerjena, vendar je opaziti velik pozitiven premik v stanju prehoda od prodajne k marketinški logiki. Slednje je razvidno predvsem iz pomembne vloge marketinškega oddelka pri razvoju nagrajenega izdelka. Sodelovanje med marketinškim, raziskovalnim in oblikovalskim oddelkom je bilo v primeru nagrajenih izdelkov intenzivno, marketing pa je bil prisoten skoraj v vseh fazah razvoja novega izdelka: od posredovanja začetnih idej o proizvodu do pomoči pri definiranju potrebnih funkcionalnosti izdelka in oskrbe zunanjih oblikovalcev z informacijami o potrebah uporabnikov. Poleg tega je iz raziskave razvidno, da so podjetja, ki delujejo (tudi) na medorganizacijskem trgu, bolj dovzetna za razumevanje želja in potreb uporabnika.

Diploma thesis

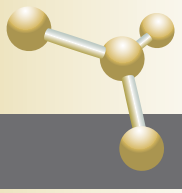
MARKETING ORIENTATION AND INNOVATION IN SLOVENIA: A CASE STUDY OF INDUSTRIAL DESIGN AWARD WINNERS AT RED DOT DESIGN AWARDS 2010

Mentor: Associate Prof. Zlatko Jančič, PhD
University of Ljubljana, Faculty of Social Sciences

This diploma thesis deals with the implementation of marketing orientation and its correlation with innovativeness in the case of Slovenian companies that received the Red Dot Design Award in 2010.

The theoretical part presents marketing orientation and its key concepts, i.e. the difference between sales and marketing orientation, marketing myopia, strategic integration, inter-functional coordination and key research findings that explore the correlation between marketing orientation, innovation and profitability.

The second part presents the qualitative research, which includes interviews with representatives of marketing departments at five big Slovenian companies that have received the Red Dot Design Award for one of their products in 2010. The research shows that the chosen companies are not yet marketing oriented, although a very positive shift from selling to marketing logic is clearly seen. The latter shift is among others seen in the increasingly important role of a marketing department in the case of development of the awarded product. The cooperation between the marketing and research/design department in the case of development of the awarded product was intense in almost all phases of the new product development: proposing the initial ideas about the product, help with defining the product's functionality and supplying the external designers with information about the user's needs. The research also indicates that business to business companies are more likely to pursue the desires and needs of their users.



Andrej HOMAR

Diplomsko delo

SLEDILNA NOSILNA KONSTRUKCIJA 3D-OVOJEV ZGRADB

Mentor: doc. dr. Boris Jerman, uni. dipl. inž. stroj.
Univerza v Ljubljani, Fakulteta za strojništvo

V diplomskem delu je predstavljeno področje gradnje stavb prostih oblik, izvedenih s prostorsko jekleno konstrukcijo.

Predstavljeni sta dve izvedbi nosilne konstrukcije; prva z uporabo vozliščnega elementa in druga z uporabo nosilnih okvirjev brez vozliščnega elementa. Izdelan je računalniški program v programskem jeziku APDL, ki omogoča uvoz osnovnih površin fasadne strukture v programsko okolje ANSYS, ki nadalje omogoča statični preračun nosilne konstrukcije po metodi končnih elementov. Za obe izvedbi nosilnih konstrukcij so izdelani numerični modeli in izvedeni statični preračuni za stavbe v obliki kupole, valovite in sedlaste strehe.

S pomočjo izračunanih notranjih sil so določene karakteristične obremenitve, ki so nadalje uporabljene pri napetostno-deformacijski analizi posameznih elementov nosilne konstrukcije. Na koncu je podana primerjava mas posameznih izvedb ter ugotovitve o njihovi ekonomičnosti.

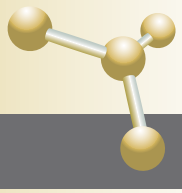
Diploma thesis

SUPPORT STRUCTURE OF COMPLEX-SHAPE BUILDING FACADE

Mentor: Assistant Prof. Boris Jerman, PhD (Mechanical Engineering)
University of Ljubljana, Faculty of Mechanical Engineering

The diploma thesis involves a complex building construction using three-dimensional steel structures.

Two different load bearing structures are analysed; one with structural joint elements and the other with structural frames without structural joint elements. A computer programme was written in the APDL language that enables the import of simple façade frame structures into the ANSYS software environment, which further enables static numerical simulations using the finite element method. Static numerical analysis is carried out for both types of load-bearing structures of three different shapes: dome-shaped building, wave-shaped roof and saddle type roof. Stress-strain analyses were carried out for various elements of the structures using the characteristic loading, as determined by the aforementioned static analysis. A mass and cost comparison of different variants of structures is also carried out.



Matic IVANOVIČ

Diplomsko delo

NAČRTOVANJE BREZŽIČNEGA SENZORSKEGA OMREŽJA ZA SPROTNI NADZOR STANJA INDUSTRIJSKE OPREME

Mentor: prof. dr. Igor Škrjanc
Univerza v Ljubljani, Fakulteta za elektrotehniko

Brezžična senzorska omrežja zadnja leta hitro prodirajo na vsa področja industrijske avtomatizacije, med drugim za potrebe spremljanja in nadzora stanja opreme in prediktivnega vzdrževanja. Na tem področju trenutno še ni veliko rešitev, obstoječe pa so še vedno sorazmerno drage, zahtevne za namestitev in izdelane za točno določene sisteme.

Diplomsko delo se osredotoča na izdelavo konceptualno novega sistema za sprotni nadzor stanja opreme, ki ga odlikujejo nizka cena, enostavna namestitev ter prilagodljivost različnim področjem uporabe. Avtor v njem predstavi načrtovanje prototipa senzorskega vozlišča in njegove programske opreme, izvedbo konfiguracij posameznih senzorskih vozlišč ter načrtovanje testne programske opreme za strežnik. Zaključi z izvedbo testnega omrežja, ki je sestavljeno iz strežnika in štirih vozlišč s senzorji vibracij, vgrajenih na rezkalnem stroju.

Diplomsko delo odlikujeta praktičen pristop in zelo aktualna tema, saj se v zadnjih desetih letih vedno več podjetij odloča za program prediktivnega vzdrževanja industrijskih obratov, ki prinaša veliko prednosti pred izvajanjem izključno preventivnega ter korektivnega vzdrževanja.

Diploma thesis

DEVELOPMENT OF A WIRELESS SENSOR NETWORK FOR CONDITION MONITORING OF INDUSTRIAL EQUIPEMENT

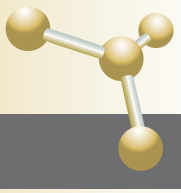
Mentor: Prof. Igor Škrjanc, PhD
University of Ljubljana, Faculty of Electrical Engineering

Wireless sensor networks are increasingly pervading numerous areas of industrial automation including condition monitoring, prognostics and health management (PHM). Currently, only a limited number of PHM systems exist on the market. Unfortunately, they are too expensive, difficult to install and can only be used on dedicated target applications.

The diploma thesis focuses on the development of a conceptually new PHM system that will be low cost, easy to install and applicable for a wide range of industrial equipment.

The author presents the design of a prototype sensor node, implementation of the sensor node's configuration and design of server software and ends with testing on a functional prototype of the wireless sensor network comprised of a server and four sensor nodes with vibration sensors mounted on a milling machine.

The diploma thesis represents a practical approach and very topical issue, since in the last ten years more and more companies are choosing a programme for predictive maintenance of industrial plants that brings many advantages over the implementation of purely preventive and corrective maintenance.



Sead JAMAKOVIĆ

Diplomsko delo

PROJEKT JEKLENE KONSTRUKCIJE HALE – OKVIR S TOGIMI PRIKLJUČKI

Mentor: doc. dr. Davor Skejić
Univerza v Zagrebu, Fakulteta za gradbeništvo

Bistvo diplomskega dela ni samo v izdelavi projekta konstrukcije, temveč v kritičnem pogledu na nekaj, kar je danes znano kot tradicionalni pristop k projektiranju. Iz tega razloga je narejena primerjava med tradicionalnim in modernim pristopom k projektiranju jeklene konstrukcije. Glavni namen te primerjave je, da se prepoznajo pozitivni učinki modernega pristopa k projektiranju. Dejstvo je, da moderni pristop še vedno ni poznan v praksi večine projektantskih birojev po svetu.

Razlika med omenjenima načinoma projektiranja je v tem, na kakšen način obravnavamo obnašanje priključkov jeklene konstrukcije. Tradicionalni pristop projektiranja jeklene konstrukcije dopušča samo dve možni predpostavki obnašanja priključkov, vpeto ali togo, medtem ko je dejanska togost priključka nekje med tema dvema možnostima. V tem primeru govorimo o delno togih priključkih. In prav to je glavni princip modernega načina projektiranja. Z drugimi besedami pomeni moderno projektiranje realistično obnašanje priključkov, ki predstavlja bistvo modernega pristopa, zaradi česar se ga opisuje kot nepotrebno kompliciranje brez večjih koristi.

Kandidat je uporabil sodobno in primerno literaturo na omenjenem področju in pokazal zavidljivo znanje na področju modeliranja konstrukcij z uporabo modernega in specialističnega programskega orodja (STAAD.Pro in COP). S tem diplomskim delom je jasno dokazana ekonomska učinkovitost modernega načina projektiranja delno togih vozlišč.

Diploma thesis

STEEL STRUCTURE PROJECT OF HALL – PORTAL FRAME WITH SEMI-RIGID JOINTS

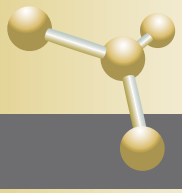
Mentor: Associate Prof. Davor Skejić, PhD
University of Zagreb, Faculty of Civil Engineering

The real purpose of this work isn't just about making a design of a hall but to make a critical observation regarding something that is known today as traditional design. Thus, a comparison between modern and traditional design of a steel structure was conducted. The intention of that comparison was to recognise the possible benefits of modern design.
The fact is that modern design is still not recognised within the practical process of design by most of the design offices around the world.

The difference between those two mentioned design approaches lies in the way in which each of them considers the behaviour of steel structure joints. Traditional design of steel structure allows only two possible assumptions of joint behaviour, pinned or rigid. However, the actual joint stiffness can also fall somewhere between these two extremes. In that case, we have semi-rigid behaviour, which is the main principle of modern design.

In other words, modern design takes more realistic behaviour of joints into consideration. More realistic consideration of joint behaviour is a core of the prejudice that writes off modern design as unnecessarily more complicated without significant benefit.

The candidate used recent and relevant literature from the field of the subject and showed impressive knowledge in the field of structure modelling with the use of modern and specialised software products (STAAD.Pro and CoP). With this paper, the economic benefit of the modern design approach of steel structures with semi-rigid joints is clearly demonstrated.



Katja JENIČ

Diplomsko delo

MARIBOR 2012: MOBILNA HIŠA ARHITEKTURE

Mentor: doc. Uroš Lobnik, u.d.i.a.
Somentorja: asist. Marko Jaušovec, u.d.i.a., asist. Vanja Skalicky, u.d.i.a.
Univerza v Mariboru, Fakulteta za gradbeništvo

Diplomsko delo obravnava tematiko generične arhitekture s kulturnim programom.

Nazorna študija potreb, zahtev končnega naročnika ter smiseln nabor uspešnih referenc podobnega tipa širšega urbanega prostora pomagata pri oblikovni in funkcionalni zasnovi, ki je v rezultatu uspešna.

Avtorica v zasnovo vključi modularno, bivalno tipizirano enoto 30', ki ji omogoča sestave tako v eni kot v več ravninah. Za končni projekt je uporabljenih 6 modularnih enot, ki oblikovno nastopajo kot skulptura ter prostor sublimirajo. Naloga za realizacijo izbere tri mesta, ki so vključena v mrežo Evropske prestolnice kulture 2012, ter s tem odgovarja na konkreten program v konkretnem času in prostoru.

Ponovljiva, avtorsko obarvana arhitektura z možnostjo delne prilagoditve v prihodnosti vsekakor predstavlja enakovredno alternativo gradnjam, ki smo jih poznali do sedaj.

Diploma thesis

MARIBOR 2012: MOBILE HOUSE OF ARCHITECTURE

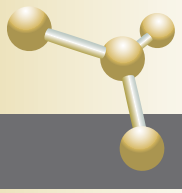
Mentor: Assistant Prof. Uroš Lobnik, BSc (Architecture)
Co-Mentors: Marko Jaušovec, BSc (Architecture), Vanja Skalicky, BSc (Architecture)
University of Maribor, Faculty of Civil Engineering

The diploma thesis discusses the topic of generic architecture with a cultural programme.

The illustrative study of the needs and requirements of the final customer and a selection of successful references of the wider urban area of similar type contributes to a conceptual and functional design that is successful in the result.

The author includes a modular residential standardised unit 30' in the design that allows the structures in both a single or in several plains. For the final project, 6 modular units were used that conceptually act as a sculpture and sublimate the room. Three places that are included in the European Capital of Culture 2012 network were selected for realisation in the paper, thus responding to the concrete programme in concrete time and space.

Reproducible architecture with the author's contribution and the option of partial adaption in the future certainly represents an equivalent alternative to the constructions known so far.



GAŠPER KOCIPER

Diplomsko delo

MEDGENERACIJSKO SREDIŠČE V ZGORNJI ŠIŠKI

Mentor: prof. dr. Fedja Košir
Somentorja: prof. dr. Lučka Ažman Momirski, prof. dr. Jože Ramovš
Univerza v Ljubljani, Fakulteta za arhitekturo

Medgeneracijsko središče je nov model socialnega varstva starejših, ki se šele uveljavlja (tako v Sloveniji kot v svetu). Koncept izhaja iz antropologije, psihologije, gerontologije in drugih humanističnih ved ter temelji na predpostavki, da je za človekov kakovosten razvoj izrednega pomena medgeneracijska povezanost med vsemi tremi generacijami. V praksi medgeneracijsko središče povezuje sodobne oblike bivanja starejših z dejavnostmi, ki vključujejo mlajše generacije.

Medgeneracijsko središče v Zgornji Šiški je zasnovano kot vozliščna točka v širši mreži programov socialne oskrbe in medgeneracijskega sodelovanja. Vanj so vključeni: dom za stare ljudi v obliki gospodinjskih skupnosti, paliativna oskrba, začasna nega, dnevno varstvo starih ljudi, oskrbovana stanovanja, izobraževalno središče, otroški vrtec, restavracija, večnamenska dvorana in druge storitve. Poleg trajnostne in energetsko učinkovite zasnove je bilo eno ključnih vodil pri projektiranju zagotovitev kakovostnega bivalnega okolja z ureditvijo zelenih površin. Tako v okolici središča kot na samem objektu – park na strehi. Posebna pozornost je bila namenjena zasnovi volumna objekta, ki postopoma prehaja z nivoja terena in se v obliki trikotne spirale dvigne na višino treh etaž. Na ta način park z vrtovi brez očitnega prehoda preide s terena na objekt, kar omogoča neoviran dostop gibalno oviranim osebam. Strešni vrt tako postane prostor medgeneracijskega srečevanja in sodelovanja.

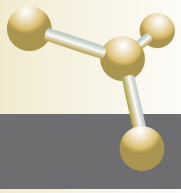
Diploma thesis

INTERGENERATIONAL CENTRE IN ZGORNJA ŠIŠKA

Mentor: Prof. Fedja Košir, PhD
Co-Mentors: Prof. Lučka Ažman Momirski, PhD; Prof. Jože Ramovš, PhD
University of Ljubljana, Faculty of Architecture

The intergenerational centre is a new model of social care for the elderly. The concept originates from anthropology, psychology, gerontology and other humanistic sciences. It is based on the idea that the intergenerational links between all of the three generations are crucial to the healthy growth of a human being. Thus, the intergenerational centre can be defined as a bridge between contemporary concepts of elderly care and activities involving younger generations.

The intergenerational centre in Zgornja Šiška is conceived as a node in a widespread network of social care programmes and intergenerational cooperation. The centre integrates household communities (the contemporary concept of a nursing home), palliative care, temporary care, day care for the elderly, sheltered housing, an education centre, a kindergarten, a restaurant, a multipurpose auditorium and other programmes and services. In addition to sustainability and energy efficiency, one of the key design guidelines was the creation of a favourable and healthy living environment, not only with the surrounding green areas, but also with the provisions for a rooftop garden. The mass of the building gradually elevates from the ground level and reaches a three-storey height in the shape of a triangular spiral. Hence the shape of the building allows the green park to continuously flow from the ground to the top deck. It thus enables wheelchair access and introduces the idea of the roof garden as a spatial platform for intergenerational connections and cooperation.



Urška KOCJANČIČ

Diplomsko delo

FAZNO SPREMENLJIV MATERIAL V VISOKOIZOLATIVNEM TANKOSLOJNEM STAVBNEM OVOJU

Mentor: prof. dr. Aleš Krainer
Somentor: prof. dr. Jožef Peternelj
Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo

V diplomskem delu avtorica obravnava modularni fasadni sistem Qbiss Air podjetja Trimo.

V notranjo, sredinsko ali zunanjo komoro sistema je možno vgraditi plast fazno spremenljivih materialov (PCM). Glede na to, kako se zaradi taljenja PCM upočasni segrevanje konstrukcijskega sklopa in katera temperatura tališča PCM omogoča steni najbolj ugodno sevalno temperaturo, je določila najprimernejšo komoro vgradnje PCM in najprimernejši PCM.

Diplomsko delo je osnova za empirične raziskave sistema PCM, integriranega v tankoslojni stavbni ovoj, in podaja smernice za nadaljnji razvoj produkta Qbiss Air.

Diploma thesis

PHASE CHANGE MATERIAL IN THERMALLY INSULATED LIGHTWEIGHTBUILDING ENVELOPE

Mentor: Prof. Aleš Krainer, PhD
Co-Mentor: Prof. Jožef Peternelj, PhD
University of Ljubljana, Faculty of Civil and Geodetic Engineering

This diploma thesis discusses the modular Qbiss Air facade system by Trimo.

A layer of phase change materials (PCM) may be installed into the internal, central and external chamber of the system. On the basis of the manner in which the melting of the PCM slows down the heating of the construction set and the melting point of the PCM enables the most favourable radiation temperature of the wall, the author determines the most adequate chamber of PCM installation and the most adequate PCM.

The diploma thesis represents a basis for empirical research of the PCM system integrated into a lightweight building envelope and provides guidelines for further development of the Qbiss Air product.

Janja KOTNIK

Diplomsko delo

IDEJNA ZASNOVA CENTRA ZA ŠOLSKE IN OBŠOLSKE DEJAVNOSTI NA OBMOČJU MUZEJA LONČARSTVA V FILOVCIH – PROJEKTNA ŠTUDIJA TRANSFORMACIJE IDENTITETNE ARHITEKTURE V PREKMURJU

Mentor: izr. prof. dr. Živa Deu
Univerza v Ljubljani, Fakulteta za arhitekturo

Izjemna dediščina prejšnjih rodov je avtorico spodbudila k razmišljanju o ohranjanju naravnih, krajinskih in arhitekturnih posebnosti panonske pokrajine in srečanju s preteklostjo. Iz starodavnih vzorcev je izluščila, kar je zanimivo za današnji čas, da se kot princip razume, transformira in integrira v naš način sodobnega bivanja.

Zasnova predstavlja racionalen, ekološki, modularen sistem naravne gradnje z uporabo naravnih materialov. Uporabnikom in obiskovalcem pa nudi ugodje za bivanje na podlagi trajnostnega razvoja in energetske samozadostnosti (uporaba fotovoltaičnih celic in sončnih kolektorjev, naravno prezračevanje objektov). Avtorica je izpostavila streho kot ovoj oziroma podaljšek fasade objekta, ki deluje kot »obleka« stavbe.

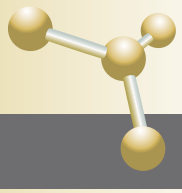
Diploma thesis

DESIGN CONCEPT OF THE CENTRE FOR SCHOOL AND OUT-OF-SCHOOL ACTIVITIES IN THE AREA OF THE POTTERY MUSEUM IN FILOVCI – A PROJECT STUDY OF THE TRANSFORMATION OF IDENTITY ARCHITECTURE IN THE PREKMURJE REGION

Mentor: Associate Prof. Živa Deu, PhD
University of Ljubljana, Faculty of Architecture

Special heritage of previous generations has encouraged the candidate to think about how to conserve natural landscape and architectural features of Pannonia region and combine them together with the past. She selected some of more interesting parts from ancient samples and transformed and integrate them into the way of modern living.

The design of a rational, ecological, modular system works by using natural materials. It offers comfortable environment for its users and visitors based on sustainable development and energy self-sufficiency (use of photovoltaic cells and solar panels, natural ventilation of buildings). Exposure of the roof as a wrapper or an extension of the building facade acts as a "dress" of the building.



Željko MESARIĆ

Diplomsko delo

IDEJNA ZASNOVA ŠPORTNO-REKREATIVNEGA CENTRA SVETI MARTIN NA MURI

Mentor: prof. dr. Mario Perossa, u.d.i.a.
Somentorja: Marko Pavlinjek, uni. dipl. inž. grad., prof. dr. Sašo Medved, uni. dipl. inž. stroj.
Univerza v Ljubljani, Fakulteta za arhitekturo

Diplomsko delo obravnava vprašanje sodobnega razvoja mesta v obrečnem prostoru. Pri tem gre za sodobno trajnostno arhitekturo, zgrajeno v jeklu, ki v zasnovi uporablja modularne kontejnerske enote.

Pristop raziskave je zelo analitičen in sestoji iz zgodovinskega pregleda pokrajine Medžimurje in kraja Sveti Martin na Muri ter vrednotenja širšega in ožjega naravnega okolja z naravnimi danostmi reke Mure. Naloga vsebuje bogato študijo razvoja in vloge kontejnerske enote. Objekt, ki ga snuje avtor, je enostaven; popestrijo ga volumni uporabljenih kontejnerjev, vendar pri tem ne pozablja na tehnične in športne normative ter zahteve po varnosti in udobju.

Delo se odlikuje z nadpovprečno kakovostno urbanistično-arhitekturno aplikacijo, ki spoštuje sonaravno delovanje in potrebe uporabnika. Poleg tega ponuja razmislek, kako se lahko s pomočjo modularne arhitekture tako oblikovno kot prostorsko izboljša arhitektura.

Diploma thesis

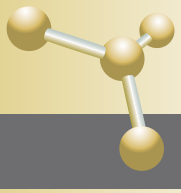
DESIGN CONCEPT OF SPORTS AND RECREATION CENTRE IN SVETI MARTIN NA MURI

Mentor: Prof. Mario Perossa, PhD (Architecture)
Co-Mentors: Marko Pavlinjek, BSc (Civil Engineering), Prof. Sašo Medved, PhD (Mechanical Engineering)
University of Ljubljana, Faculty of Architecture

The diploma thesis deals with the issue of modern development of a city in the riverside area. This includes modern sustainable architecture that is constructed in steel and conceptually uses modular container units.

The approach of the research is very analytical and consists of a historical review of the Medžimurje region and the town of Sveti Martin na Muri as well as an evaluation of the wider and narrower natural environment with natural features of the Mura River. The paper includes a rich study of the development and role of the container unit. The facility designed by the author is simple; it is enriched by the volumes of the containers used, whereby the technical and sports standards and safety and comfort requirements are still taken into account.

The paper is distinguished by an above average urban and architectural application that observes the natural operation and needs of the user. Furthermore, the paper invites us to consider how architecture can be improved both in terms of design and space by means of modular architecture.



Eva OBLAK

Diplomsko delo

DOLOČANJE NASTANKA MEJNIH FILMOV Z MERITVAMI NA NANO IN MAKRO SKALI

Mentor: prof. dr. Mitjan Kalin, univ. dipl. inž.
Univerza v Ljubljani, Fakulteta za strojništvo

V diplomskem delu je bila raziskana možnost uporabe mikroskopa na atomsko silo pri določanju sprememb na obrabnih površinah na nano skali, ki nastanejo kot posledica reakcij z aditivi. Veliko zahtevnost dela predstavlja predvsem način, kako ločiti kemijske spremembe površin zaradi delovanja aditivov od sprememb, ki so posledica mehanskih poškodb, torej obrabe. Tak pristop je v primeru raziskav mejnega mazanja diamantu podobnih (DLC) prevlek še neraziskan in nov, zato naloga predstavlja tudi relevantno znanstveno novost in izvirnost pri določanju mejnega mazanja teh sodobnih in učinkovitih površinskih prevlek.

V diplomski nalogi so bile obravnavane diamantu podobne prevleke, ki so danes ene najbolj hitro rastočih prevlek za inženirske aplikacije. Njihove prednosti se kažejo v dobrih tribooloških lastnostih, ki dajejo možnosti za izboljšanje obstojnosti ter zmanjšanje tornih izgub mehanskih sistemov. Specifične lastnosti DLC prevlek, kot so nizka površinska energija, predstavljajo problem pri hitrejšem razvoju, saj je uporaba konvencionalnih olj in aditivov zaradi nereaktivnosoti DLC prevlek omejena in trenutno se neraziskana. V primeru reaktivnega jekla so te raziskave utečene, velika reaktivnost z aditivi pa običajno zagotavlja dovolj dokazov za analizo. V primeru nekonvencionalnih površin z nizko reaktivnostjo pa dokazov skoraj ni mogoče najti, saj na površini ne ostajajo tribokemijsko plasti, čeprav tribološki rezultati nakazujejo na učinke aditivov. Zato so bili uporabljeni novi in inovativni načni za določanje in analizo mehanizmov mejnega mazanja.

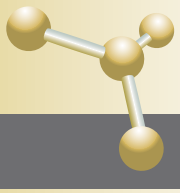
Diploma thesis

DETERMINATION OF BOUNDARY FILMS WITH MEASUREMENTS ON NANO AND MACRO SCALE

Mentor: Prof. Mitjan Kalin, PhD, BSc
University of Ljubljana, Faculty of Mechanical Engineering

In this diploma thesis, the possibility of using an atomic force microscope for determining the change in wear surfaces on the nano scale, which results from reactions with additives, was investigated. A major part of the complexity stems from how to differentiate between the chemical changes of surfaces caused by the action of additives and the changes caused by mechanical damage, i.e. wear and tear. In the case of boundary lubrication studies on diamond-like (DLC) coatings, this approach is still unexplored and new, so this thesis is also a relevant scientific novelty and originality in defining the boundary lubrication of these modern and effective surface coatings.

The diploma thesis presents diamond-like coatings, which are now one of the most rapidly growing coatings for engineering applications. Their advantages are reflected in their good tribological properties, which provide opportunities to improve durability and reduce the friction losses of mechanical systems. Specific properties of DLC coatings, such as low surface energy, present a problem related to faster development, because the use of conventional oils and additives is limited and currently un-researched due to the non-reactivity of these coatings. In the case of reactive steel, this research is well established; high reactivity with additives usually provides enough evidence for analysis. In the case of non-conventional surfaces with low reactivity, evidence almost could not be found because tribochemical layers do not remain on the surface although tribological results indicate the effects of additives. For this reason, new and innovative approaches for determining and analysing the mechanisms of boundary lubrication were used.



Anja PAVLIN

Diplomsko delo

IDEJNA ZASNOVA PAVILJONA V REMICHU NA OSNOVI VIRTUALNIH IN MATERIALNIH ELEMENTOV PROSTORA

Mentor: prof. mag. Peter Gabrijelčič, univ. dipl. inž. arh.
Somentor: asist. Mojca Gregorski, univ. dipl. inž. arh.
Univerza v Ljubljani, Fakulteta za arhitekturo

Delo se deli na teoretični del in preizkus teoretičnih ugotovitev na arhitekturnem modelu. Teoretični del se nadalje deli na dva tematska sklopa, virtualnega in materialnega, njuno sintezo in možne aplikacije teoretične osnove. Sintezo teoretičnega dela predstavlja definicija arhitekturne iluzije. Ta je opisana na predpostavki, da velikost in oblika volumna, razmerje arhitekturnih elementov, barve in teksture materiala ter tudi fizikalni pogoji okolice definirajo zunanjo podobo objekta. Kriteriji arhitekturne iluzije predpostavljajo, da na človeško zaznavo fasadnega ovoja vpliva pet kategorij: perspektiva, svetloba, refleksija, kromatoforna arhitektura in medijska fasada.

Eksperiment nadalje potrdi teoretične ugotovitve in prikaže preproste rešitve geometrijskih, matematičnih in fizikalnih lastnosti arhitekturnih modelov. V urbanističnem in arhitekturnem načrtovanju ter oblikovanju je odnos do konteksta okolice mogoče izraziti z uporabo enostavnih oblik, materialov in izbranih vizij, ki omogočajo kompleksne učinke dojemanja prostora.

Pomembno je poznavanje preteklih izkušenj in dognanj, ki nam omogočajo pravilno vrednotenje razvoja tehnologij.

Diploma thesis

PAVILION DESIGN IN REMICH ON THE BASIS OF VIRTUAL AND MATERIAL ELEMENTS OF SPACE

Mentor: Prof. Peter Gabrijelčič, MSc (Architecture)
Co-Mentor: Mojca Gregorski, BSc (Architecture)
University of Ljubljana, Faculty of Architecture

This diploma thesis is focused on two thematic sections, virtual and material, their synthesis and possible applications of the theoretical base. The primary purpose of the study is to understand the potential cohesion between the virtual elements and material space. The relations between the virtual and material elements of space are presented through a basic source of the term virtual and the role of façade. The conclusions of the theoretical basis, research and experimentation are, in a ''materialistic form", verified through the modular architectural project of a pavilion in Remich.

The idea deals with the problem of a public space on the shores of Mosel River in which a solution of the concept of architectural illusion is represented and tested. The project conclusion indicates that it is possible to express the relation towards the context of environment in urban and architectural planning through the use of simple forms, materials and chosen visors that enable complex effects of experiencing space. It is important to comprehend and understand past experiences and derived conclusions as they reflect correct evaluation of future technological development.

Neven POPOVAČKI

Diplomsko delo

ANALIZA INDUSTRIJSKE HALE S ŽERJAVOM NOSILNOSTI 160 KN

Mentor: prof. dr. Darko Dujmović, dipl. inž. grad.
Somentor: Ivan Lukačević, dipl. inž. grad.
Univerza v Zagrebu, Fakulteta za gradbeništvo

V okviru diplomskega dela je bil izdelan projekt večnamenske enoladijske industrijske hale tlorisnih dimenzij 66,0 m x 20,0 m. Višina zgornjega roba žerjavne proge je 6,9 m, nagib prečke okvirja je 10°. Na konstrukcijo delujejo: lastna teža jeklene konstrukcije, inštalacije 0,3 kN/m², veter referenčne hitrosti 25 m/s, sneg 0,75 kN/m² na tleh.

Predvidena je uporaba jekla kakovosti S 355 za vse glavne konstrukcijske elemente. Spoji so izvedeni v varjeni in vijačni izvedbi.

Statični preračun je izveden za nosilec žerjavne proge, glavni nosilni sistem (okvir) ter vodoravno in navpično stabilizacijo. Dimenzioniranje elementov konstrukcije je izvedeno v skladu s standardom Eurocode 3 za mejno stanje nosilnosti (MSN) in mejno stanje uporabnosti (MSU). Posebna pozornost je posvečena dokazu žerjavne proge, ki je izpostavljena pogostim spremembam napetosti in s tem utrujanju. Za dokaz utrujanja je uporabljen koncept $\Delta\sigma$ po Eurocode 3. Za glavni nosilni sistem so izbrane tri variante statičnega sistema, ki so vsaka zase preračunane in dimenzionirane.

Diploma thesis

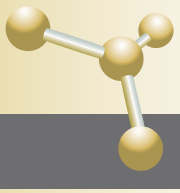
ANALYSIS OF AN INDUSTRIAL SINGLE STOREY BUILDING WITH A CRANE WITH A BEARING CAPACITY OF 160 KN

Mentor: Prof. Darko Dujmović, PhD, MSc (Civil Eng.)
Co-Mentor: Ivan Lukačević, BSc (Civil Eng.)
University of Zagreb, Faculty of Civil Engineering

The assignment required the development of a project of an industrial multipurpose single storey building with a 66.0 m x 20.0 m floor plan. The height of the upper edge of the crane supporting structures is 6.9 m, and the beam of the frame is slanted at a 10° angle. Actions on the structure are: self-weight of the steel structure, installations 0.3 kN/m², the fundamental value of the basic wind velocity is 25 m/s, and the characteristic value of the snow load on the ground for a given location is 0.75 kN/m².

Steel grade S 355 is to be used for all of the main structural elements. Two types of joints are used: welded and bolted.

Static calculations have been made for the crane supporting structures, the main support system (frame) and also for the horizontal and vertical bracing systems. The dimensioning of structural elements was made in accordance with Eurocode 3 for the ultimate limit state and the serviceability limit state. Close attention has been paid to the verification of the crane supporting structures, which are frequently exposed to stress ranges with reference to fatigue. For the verification of fatigue, the $\Delta\sigma$ concept was used, also in accordance with Eurocode 3. Three variations of the static system were selected for the main support system, each of which was analysed and dimensioned separately.



Peter POVHE

Diplomsko delo

UPORABA OKTADEKANA V TANKOPLASTNEM VISOKOIZOLATIVNEM PLINSKEM PANELU

Mentor: prof. dr. Igor Plazl
Univerza v Ljubljani, Fakulteta za kemijo in kemijsko tehnologijo

V gradbeništvu so za shranjevanje toplote že stoletja prisotni materiali za različne načine shranjevanja, zadrževanja in sproščanja toplote v stavbo. Fazno spremenljivi materiali v tem pogledu predstavljajo izreden potencial, zaradi visokih kapacitet shranjene toplote (v obliki latentne toplote) glede na maso uporabljenega materiala.

Izbrani material za preučevanje v diplomskem delu je oktadekan, ker je njegova temperatura tališča v območju bivalnega ugodja (20–30 °C), poleg tega ima manjšo toplotno prevodnost in visoko specifično talilno toploto.

V diplomskem delu avtor predstavi eksperimentalno pridobljene rezultate obnašanja tankoplastnega visokoizolativnega plinskega panela z vgrajenim dodatnim slojem, polnjenim s PCM, na temperaturni potek običajnega poletnega dne.

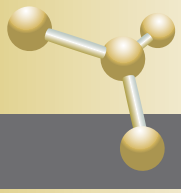
Diploma thesis

THE USE OF OCTADECANE IN A THIN-LAYER HIGH-PERFORMANCE GAS INSULATION PANEL

Mentor: Prof. Igor Plazl, PhD
University of Ljubljana, Faculty of Chemistry and Chemical Technology

For centuries, civil engineering has been using various materials for thermal energy storage in order to passively store, retain and release heat into a building. In order to refine the process of energy storage, to simplify it and to reduce the costs, phase changing materials (PCM) represent a great solution.

The material selected for the study was octadecane because of its melting temperature in the range of living comfort (20-30 °C). In the thesis, the author presents the experimentally obtained behaviour of a high-performance thin-layer insulation gas panel with a built-in extra layer filled with PCM at the typical temperature curve of a normal summer day.



Sara RUS

Diplomsko delo

VPLIV FINANČNEGA NAGRAJEVANJA MENEDŽERJEV NA POSLOVNO USPEŠNOST V PODJETJU X

Mentor: doc. dr. Branko Ilič
Univerza v Ljubljani, Fakulteta za družbene vede

Menedžerji so ključni dejavnik v organizaciji za doseganje poslovne uspešnosti. Po eni strani zaradi svojih sposobnosti, po drugi pa zaradi vpliva, ki ga imajo na delovanje svojih podrejenih, ki jih usmerjajo, usklajujejo njihovo delo in z njihovo pomočjo dosegajo organizacijske cilje. Tako pomembna vloga je seveda ustrezno plačana in nagrajena.

Sistem nagrajevanja je eden izmed ključnih mehanizmov motiviranja in spodbujanja zaposlenih, ki prinaša večjo produktivnost in delovno uspešnost. Paketi nagrajevanja menedžerjev se razlikujejo od nagrajevanja ostalih zaposlenih, ne le po vsebini, pač pa tudi po višini zneska. Ker so plače menedžerjev prav zaradi njihove višine, h kateri v veliki meri prispevajo tudi finančne nagrade, pogosto v središču razprav, je avtorica s pomočjo regresijske analize, dopolnjene s kvalitativnim intervjujem z enim izmed menedžerjev v podjetju X, ugotavljala, kakšen je vpliv finančnega nagrajevanja menedžerjev na poslovno uspešnost oziroma ali lahko poslovna uspešnost organizacije upraviči visoke plače in nagrade menedžerjev.

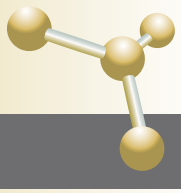
Diploma thesis

THE IMPACT OF MANAGERIAL FINANCIAL REWARDING ON BUSINESS EFFECTIVENESS AT COMPANY X

Mentor: Assistant Prof. Branko Ilič, PhD
University of Ljubljana, Faculty of Social Sciences

Managers are the key element for achieving business effectiveness. Not only because of their capabilities, but also because of the influence they have on the performance of their subordinates. Managers direct them and coordinate their work and together they achieve organisational goals. An important role like this is of course paid and rewarded properly.

A rewarding system is one of the key mechanisms of motivating and stimulating employees that results in higher productivity and work performance. Managerial reward packages differ from other employees, not just by contents but also by amount. Since managerial pay is, due to its amount, often at the centre of debate, the author uses a regression analysis and a qualitative interview with a manager at company X to research the impact of managerial financial rewards on business effectiveness and to answer whether the business effectiveness of an organisation can justify the high salaries and rewards of managers.



Sebastjan ŠLAJPAH

Diplomsko delo

VODENJE ŠTIRIH ROBOTOV V ARHITEKTURI DVOROČNEGA TELEOPERACIJSKEGA SISTEMA

Mentor: prof. dr. Matjaž Mihelj
Univerza v Ljubljani, Fakulteta za elektrotehniko

V diplomskem delu je predstavljen razvoj različnih načinov vodenj štirih robotov v arhitekturi dvoročnega teleoperacijskega sistema.

Delo zajema analizo različnih načinov vodenja robotov. Definiran je sklepni proporcionalno-diferencirni regulator s kompenzacijo gravitacije in trenja. Podrobneje so predstavljeni vodenje položaja, admitančno vodenje in vodenje z gumbom s šestimi prostostnimi stopnjami. Teleoperacijsko vodenje je razdeljeno na hitrostno in položajno upravljanje izvršne naprave. Hitrostno upravljanje je namenjeno postavitvi izvršnih naprav v delovno točko, položajno upravljanje s haptično povratno zanko pa natančni manipulaciji objektov v delovni točki. Predstavljena sta tudi primera vodilne in vodene izvršne naprave.

Podani so praktični primeri zagotavljanja varnosti, obravnavan pa je tudi varnostni sistem na primeru robotskega krmilnika z odprto arhitekturo. Ker sta v sistemu dve izvršni napravi, je implementiran tudi algoritem preprečevanja trka. Za boljšo uporabniško izkušnjo pa je predstavljena implementacija algoritma za mehko ustavitev robota.

Podane so tudi možnosti nadgradnje sistema, tako na nivoju strojne opreme kot tudi z vidika varnosti.

Diploma thesis

CONTROL OF FOUR ROBOTS IN A BIMANUAL TELEOPERATION ARCHITECTURE

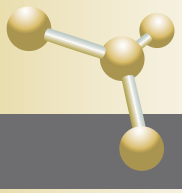
Mentor: Prof. Matjaž Mihelj, PhD
University of Ljubljana, Faculty of Electrical Engineering

This diploma thesis presents the control of four robots in a bimanual teleoperation architecture.

This diploma thesis analyses various types of robot control. A joint proportional-differential controller with gravity and friction compensation is defined. Position control, admittance control and control with a six-degree-of-freedom knob are presented. Teleoperation control is divided into velocity and position control of the slave device. Velocity control is used to bring the slave device to a working point. Position control with haptic feedback is then used for precise object manipulation. Examples of two slave devices, one dominant and the other submissive to the first one, are also given.

Practical examples of ensuring safety are presented, and a safety system based on an open-architecture robot controller is shown. Since the system includes two master devices, a collision detection algorithm has been implemented. Furthermore, an algorithm for robot soft stopping has also been implemented in order to ensure a more pleasant user experience.

Possibilities for upgrading the system, both on the hardware level and with regard to safety, are also presented.



Anton ŠUKLJE

Diplomsko delo

ZASNOVA IN REALIZACIJA NADZORNEGA STREŽNIKA Z BREZŽIČNO POVEZAVO Wi-Fi

Mentor: prof. dr. Marko Topič
Univerza v Ljubljani, Fakulteta za elektrotehniko

V diplomskem delu sta predstavljeni zasnova in realizacija mikrokrmilniškega sistema, zgrajeni na osnovi modula Mini Socket iWiFi s komunikacijskim krmilnikom iChip CO2128 IP proizvajalca Connect One Semiconductors. Realiziran krmilni sistem omogoča upravljanje z nizkonapetostnimi porabniki, meri temperaturo okolice in omogoča spremljanje stanja digitalnih tipal. Hrani tudi zgodovino spreminjanja temperature v zadnjih 24 urah. S sistemom lahko uporabnik s pomočjo tipk in LCD-prikazovalnika na sistemu upravlja preko spletne strani ali ročno. Za prenos podatkov med uporabnikom in sistemom je uporabljeno omrežje Wi-Fi.

Glede na podane zahteve, ki jih mora izpolniti mikrokrmilniški sistem, je avtor izbral ustrezne mehanske in elektronske komponente in jih sestavil v funkcionalno celoto. Napisal je program za mikrokrmilnik, izdelal spletno stran in zasnoval ter izdelal tiskano vezje.

Končni izdelek, ki je vgrajen v ohišje, predstavlja praktično uporabo modula. Z uporabo senzorjev in relejev je bilo nakazano, kaj se da z modulom narediti. V komercialne namene bi se dalo sistem nadgraditi tako strojno kot programsko. Sam modul ponuja dodatne možnosti uporabe v različnih aplikacijah.

Diploma thesis

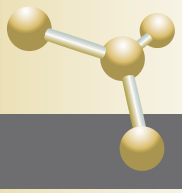
DESIGN AND REALISATION OF A CONTROL SYSTEM USING WI-FI IEEE 802.11 MOBILE NETWORKS

Mentor: Prof. Marko Topič, PhD
University of Ljubljana, Faculty of Electrical Engineering

In this diploma thesis, the design and realisation of a microcontroller system, using the Mini Socket iWiFi module, is presented. The system enables control of various low-voltage devices, monitoring of digital sensors and measuring of ambient air temperature. It also stores the temperature history of the last 24 hours. There are two options of how to control a microcontroller system: through a web page or manually using the onboard keys and the LCD display. A Wi-Fi network is used to transfer data between the user and the system.

According to the given requirements, suitable mechanical and electronic components were selected and assembled. The microcontroller programme was written, and the schematic and printed circuit board were designed. Finally, a web page providing the remote user interface was created.

The built prototype fulfils all the given requirements. With a few changes, the system may be modified for usage in various applications.



Tadej UDOVIČ

Diplomsko delo

UMESTITEV IN UPORABA ZUNANJEGA IZVAJANJA S POMOČJO MNOŽIC

Mentor: doc. dr. Robert Kaše
Somentor: doc. dr. Domen Bajde
Univerza v Ljubljani, Ekonomska fakulteta

Konzervativna paradigma raziskav in razvoja je temeljila na ideji, da se znotraj meja organizacij nahajajo talentirani posamezniki, sposobni razvijati prodorne inovacije, ki bodo na trgu dosegale izvrstne rezultate. Spremembe v okolju so podjetja prisilile k odpiranju inovacijskih lijakov zunanjim akterjem, s čimer se je razvil koncept odprtega inoviranja. Ta se odraža v različnih oblikah, med katerimi je tudi zunanje izvajanje s pomočjo množic (v nadaljevanju ZIPM), predmet raziskovalnega dela.

Ključni prispevek diplomskega dela je umestitev področja v slovensko poslovno terminologijo in s tem povečanje prepoznavnosti koncepta ter spodbujanje novih raziskovalnih vprašanj. Diplomsko delo podjetjem približa področje ZIPM ter hkrati, v obliki modela, predlaga smernice za razvoj in implementacijo ZIPM v njihovih organizacijah.

Rezultat diplomskega dela je model implementacije zunanjega izvajanja s pomočjo množic, ki organizacijam pomaga pri izbiri ustrezne oblike ter implementaciji ZIPM. Glavna ugotovitev je, da ZIPM omogoča zajem idej, informacij in znanja s pomočjo večjega »bazena« talentiranih posameznikov in z nižjimi finančnimi vložki kot v primeru drugih oblik. Delo hkrati izpostavi določene slabosti tega modela.

Diploma thesis

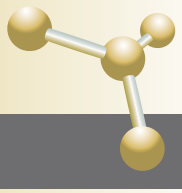
PLACEMENT AND APPLICATION OF CROWDSOURCING

Mentor: Assistant Prof. Robert Kaše, PhD
Co-Mentor: Assistant Prof. Domen Bajde, PhD
University of Ljubljana, Faculty of Economics

The notion of the traditional paradigm of research and development was that the most talented and brightest individuals were to be within the boundaries of each organisation. Due to many changes in the business environment, in particular the changing role of customers, organisations were forced to open-up their innovation funnels to outside entities, which leads to the development of an open innovation concept. This concept manifests in many forms, among which is also crowdsourcing, the subject of this diploma thesis.

The major contribution of the thesis is a Slovenian terminology for Crowdsourcing (si. Zunanje izvajanje s pomočjo množic). Adding Crowdsourcing to Slovenian business terminology will facilitate recognition of the subject and hopefully open new research questions. The main benefit for companies deriving from this research work is having the ability to get knowledgeable about crowdsourcing. Moreover, it provides companies with guidelines in the form of a model that helps them with the implementation of crowdsourcing.

A result of the intensive research was an implementation model of crowdsourcing that helps organisations to choose an appropriate form of the concept and implement it. Besides that, the main finding was that crowdsourcing brings many benefits to organisations. It enables the congregation of many ideas, knowledge and information from the larger pool of talented individuals using lower financial costs than in the case of other forms. Apart from the many benefits, the research also proposes the negative aspects of crowdsourcing.



Petra WEINGERL

Diplomsko delo

SODELOVALNA DOLŽNOST UPNIKA – PRIMERJAVA SLOVENSKE, MEDNARODNE IN BRITANSKE UREDITVE

Mentor: doc. dr. mag. Nataša Samec
Univerza v Mariboru, Pravna fakulteta

Diplomsko delo obravnava načelo sodelovalne dolžnosti upnika (ang. duty to mitigate), ki je načelo, s katerim se limitira višina odškodnine, ki jo mora dolžnik povrniti upniku za povzročeno škodo. V skladu s tem načelom mora oškodovana stranka izvesti razumne ukrepe, da bi se škoda zmanjšala, sicer lahko druga stranka zahteva zmanjšanje odškodnine v višini izgube, ki bi se ji z razumnimi ukrepi lahko izognila. V praksi se pogosto dogaja, da oškodovana stranka ne stori ničesar, da bi preprečila povečanje že nastale škode, čeprav je v njeni moči, da bi to lahko storila z razumnimi ukrepi.

V prvem delu naloge so predstavljena teoretična izhodišča in primerjava načela v Sloveniji, Dunajski konvenciji (CISG), Načelih evropskega pogodbenega prava (PECL) in v Veliki Britaniji.

V posebnem delu sledi predstavitev pravne analize konkretnega primera.

Diploma thesis

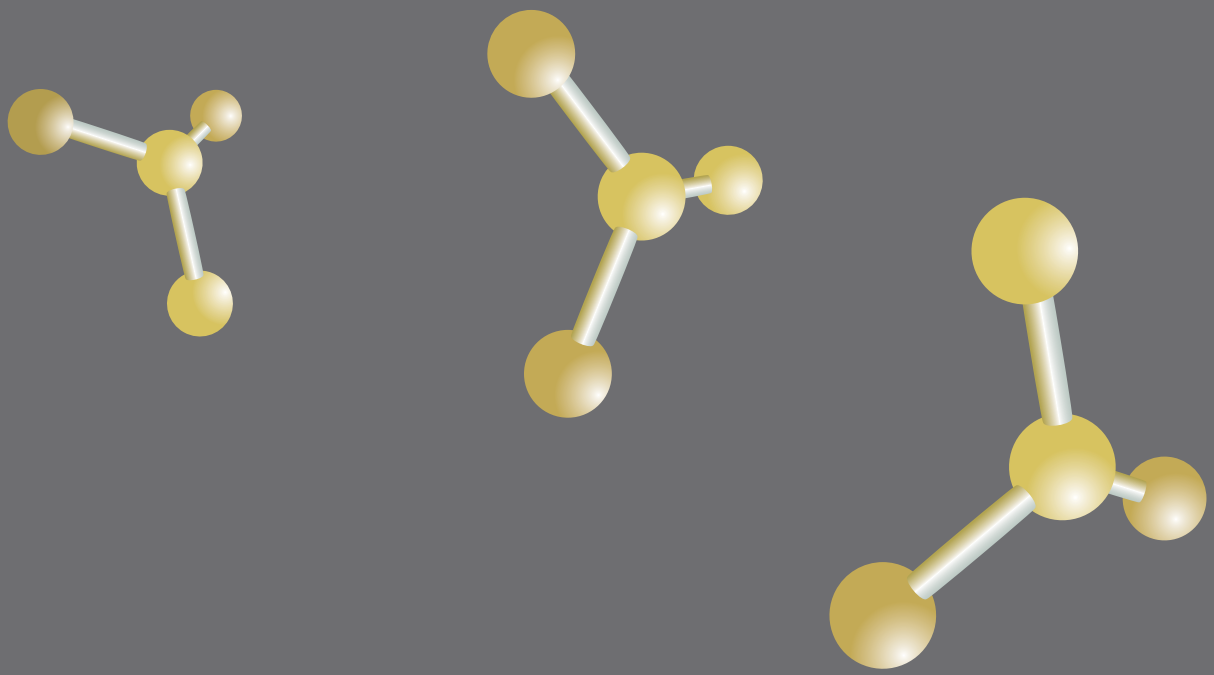
DUTY TO MITIGATE- COMPARISON OF THE SLOVENIAN, INTERNATIONAL AND BRITISH REGULATIONS

Mentor: Assistant Prof. Nataša Samec, PhD
University of Maribor, Faculty of Law

This diploma thesis deals with the principle of Duty to mitigate, which is the principle that limits the recovery of damages. It requires an aggrieved party claiming damages to take reasonable steps to mitigate losses and, if it fails to do so, the breaching party may claim a reduction in the damages recoverable in the amount that the loss should have been mitigated. It is often the case that the aggrieved party just sits back and waits while the losses accumulate and then sues for damages, although it could have taken reasonable measures to reduce the loss.

The first part of the thesis presents a theoretical platform and comparison of principles in Slovenia, the Vienna Convention on Sale of Goods (CISG), the Principles of European Contract Law (PECL) and Great Britain.

In a special part of the thesis, there is a presentation of the legal analysis of the case.

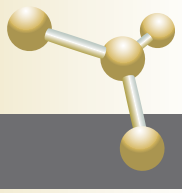


ZBORNIK POVZETKOV NAGRAJENIH DEL

ABSTRACTS OF THE PROJECTS AWARDED

MAGISTRSKA DELA

DISSERTATIONS



Sabina BOGILOVIĆ

Magistrsko delo

VPLIV USKLAJENOSTI POSAMEZNIKOVIH IN ORGANIZACIJSKIH VREDNOT NA USTVARJALNOST PRI DELU

Mentor: doc. dr. Miha Škerlavaj
Univerza v Ljubljani, Ekonomska fakulteta

Ustvarjalnost je produkt novih in ustvarjalnih idej ter predstavlja »osnovno gorivo« za inovativnost. Posameznikova ustvarjalnost pri delu je odvisna predvsem od posameznikove osebnosti, njegovih vrednot in od kulture ter vrednot, ki jih zazna v okolju, v katerem deluje. Cilj magistrskega dela je bil na podlagi teoretične osnove vpliva kulture in vrednot na ustvarjalnost razviti raziskovalni model, ga empirično preveriti ter tako prispevati k odkrivanju in razumevanju, ali in kako je ujemanje posameznikovih in organizacijskih vrednot povezano z ustvarjalnostjo.

Teoretični del magistrske naloge temelji na uporabi raziskovalne metode spoznavnega procesa in opisni metodi, v empiričnem delu pa je avtorica s kvantitativno raziskavo, ki je bila opravljena z anketnim vprašalnikom, preverila, ali je ustvarjalnost manjša, če je razhajanje med posameznikovimi in organizacijskimi vrednotami večje.

Rezultati multiple regresije kažejo, da usklajenost med posameznikom in zaznanima organizacijskima vrednotama usmerjenost k sebi in dosežek pozitivno vplivata na posameznikovo ustvarjalnost. Usklajenost med posameznikom in zaznano organizacijsko vrednoto dobronamernost negativno vpliva na posameznikovo ustvarjalnost pri delu. Usklajenost vrednot stimulacije, univerzalnosti, hedonizma, moči, konformnosti, varnosti in tradicionalnosti med posameznikom in organizacijo nima nobenega vpliva na posameznikovo ustvarjalnost pri delu.

Dissertation

THE IMPACT OF INDIVIDUAL AND ORGANISATIONAL VALUE CONGRUENCE ON CREATIVITY AT WORK

Mentor: Assistant Prof. Miha Škerlavaj, PhD
University of Ljubljana, Faculty of Economics

Creativity is the generation of new and innovative ideas, products, processes or solutions. The key for employee creativity is not only in knowing what psychological force motivates their creativity, but it is also about creating a work environment in which individuals feel free and safe to share ideas. The main purpose of this dissertation was to examine the effect of personal-organisational value congruence on individual creativity. Furthermore, the main goal of the dissertation was to develop and empirically verify the research model based on theoretical findings in literature regarding the impact of cultural values on creativity.

The theoretical part of the dissertation was based on research methods of cognitive processes and the descriptive method. The empirical part of the quantitative survey was conducted through a questionnaire that examined whether congruence between personal and organisational values will have a positive impact on individual creativity at work.

Multiple regression results show that congruence between personal and organisational values, self-direction and achievement positively affect individual creativity at work. The congruence between personal and organisational values and good intentions has a negative effect on an individual's creativity at work. Congruence of values such as stimulation, universalism, hedonism, power, conformity, security and traditionalism between individuals and the organisation has no impact on an individual's creativity at work.

Joanna GRZYMKIEWICZ

Magistrsko delo

REVITALIZACIJA POSTINDUSTRIJSKIH OBMOČIJ Z VIDIKA ARHITEKTURE IN DRUŽBE

Mentor: dr. Piotr Grodecki
Somentor: dr. Marcin Gorski
Tehnična univerza v Varšavi, Fakulteta za arhitekturo

Naloga je sestavljena iz dveh delov: teoretičnega in projektnega. Teoretični del obravnava karakteristiko revitalizacije arhitekturnega prostora, sociološkokulturni kontekst in analizo več različnih primerov.

Drugi, projektni del naloge obravnava revitalizacijo centra v Zyrardowu. Privlačna, sodobna in avantgardna arhitekturna rešitev sovpada z arhitekturo 19. stoletja. Dodana vrednost projekta je v inteziviranju duha prostora ter ohranjanju originalnih detajlov in zgodovinskih oblik.

Rezultat je nova, sodobna arhitektura, ki uspešno združuje oblikovno in programsko vsebino centra. Revitalizacijski center je uspešen primer nenavadne koesistence dveh arhitekturnih tvorb.

Dissertation

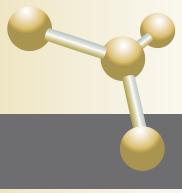
REVITALISATION OF POSTINDUSTRIAL AREAS CONSIDERED FROM THE POINT OF VIEW OF ARCHITECTURE AND SOCIETY

Mentor: Piotr Grodecki, PhD, BSc
Co-mentor: Marcin Gorski, PhD, BSc
Warsaw University of Technology, Faculty of Architecture

This dissertation consists of two parts – theory and design. The theme of the theoretical part concerns the characteristics of revitalisation of brownfield sites, the socio-historical context and analysis of various examples.

The second, design part of this dissertation deals with the revitalisation centre in Zyrardow. Attractive, contemporary and avant-garde architectural solutions coincide with the architecture of the 19th century. A great advantage of the project is that it intensifies the spirit of the place by preserving the original details and historical forms.

This provides an opportunity to create a new and lively space that is shaped in accordance with the principle of synaesthesia both in the architecture and the proposed functions. The social revitalisation centre is therefore an excellent example of an unusual coexistence of two architectural qualities.



Brina HRIBAR

Magistrsko delo

KLJUČNI DEJAVNIKI UVAJANJA MANAGEMENTA POSLOVNIH PROCESOV: ŠTUDIJA JAVNEGA PODJETJA SNAGA

Mentor: prof. dr. Mojca Indihar Štemberger
Univerza v Ljubljani, Ekonomska Fakulteta

Poslovni procesi so temeljni del vsakega podjetja, saj z njimi ustvarja dodano vrednost, ki jo ponuja na trgu. Za uspešno delovanje in konkurenčno prednost podjetja sta optimizacija poslovnih procesov in njihovo učinkovito upravljanje ključnega pomena. Management poslovnih procesov (MPP) in z njim povezane metode, tehnologije in programske rešitve so tako v zadnjih letih ena od najpomembnejših tem v večini podjetij. Ob ustrezni implementaciji in učinkoviti uporabi informacijske tehnologije lahko znatno vpliva na večjo uspešnost poslovanja. Uvajanje koncepta MPP pa ni enostavno, temveč je to kompleksen in dolgotrajen proces, ki zahteva veliko truda, časa, sredstev in discipline.

Ker je koncept MPP multidisciplinaren, na njegov uspeh vplivajo različni dejavniki. Ključni dejavniki uspeha MPP so: sposobni in motivirani kadri, ki so pripravljeni za sodelovanje in odprti za spremembe, spremembam naklonjena kultura, podpora vodstva in ustrezno vodenje projekta, jasno opredeljeni cilji in namen ter natančno določen načrt projekta MPP. Za uspešno uvedbo MPP v podjetju morajo zaposleni spremeniti svoj način razmišljanja, in sicer v smeri od tradicionalnega funkcijskega razmišljanja proti novemu procesnemu načinu, ki temelji na poslovnih procesih.

Študija primera podjetja Snaga, ki je uspešno privzelo in uvedlo koncept MPP, ter identificirani ključni dejavniki uspeha lahko neposredno koristijo organizacijam, ki razmišljajo o uvedbi tega koncepta.

Dissertation

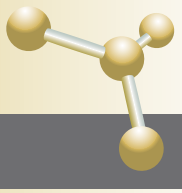
THE KEY SUCCESS FACTORS IN THE ADOPTION AND IMPLEMENTATION OF BUSINESS PROCESS MANAGEMENT: A CASE STUDY OF THE PUBLIC UTILITY SNAGA

Mentor: Prof. Mojca Indihar Štemberger, PhD
University of Ljubljana, Faculty of Economics

Business processes are a core part of every organisation, as they create added value that is offered on the market. Optimisation and efficient management of business processes is therefore a necessity for organisations in order to maintain their competitive advantage and successfully lead their business operations in a highly competitive environment. Business Process Management (BPM) and its related methods, technologies and software solutions have in recent years become a highest priority area for most organisations. This is a concept that can, if successfully implemented, bring significant benefits to the organisation. However, adoption and implementation of BPM is a very complex and time consuming process that requires much effort, time, resources and discipline. Consequently, many BPM projects are unsuccessful in practice. Therefore, it is very important that organisations fully understand the key success factors for BPM projects.

Since the BPM concept is multidisciplinary, its success is influenced by various factors. From the literature review and the case study, it was found that some of the most frequently identified key success factors are namely top management support, project management, clearly defined objectives, purpose and plan of the BPM project, capable and motivated employees, leadership and culture.

The results of the research can significantly contribute to better understanding and more efficient business process management adoption and implementation in organisations.



Nebojša JAKICA

Magistrsko delo

PARAMETRIČEN OKVIR OPTIMIZACIJE PROJEKTIRANJA KONTROLIRANEGA VEDENJA ŠPORTNE DVORANE

Mentor: prof. Paola Ronca
Somentorja: Chiara Domenici, Vittorio Grassi
Politehniška univerza v Milanu, Oddelek za visoke gradnje

Magistrsko delo opisuje možnosti uporabe parametričnega snovanja stavbe kot osnove za testiranje konstrukcije in raziskovanje razmerij med formo in funkcijo. Raziskava se osredotoča na metodologijo in pripravo delovne platforme za oblikovanje stavbnih gradnikov (tribun, nosilcev, prostorskega paličja) in predvsem stavbnega ovoja v želji po najboljšem izkoristku in uporabnostjo.

Delo odlikuje nadpovprečno kakovosten znanstvenoraziskovalen pristop. Obravnava aktualno tematiko parametrizacije, ki jo implementira na ključnih elementih športnega objekta Lamezia Terme. Pri tem si pomaga s sodobno programsko opremo, ki služi kot orodje za iskanje najugodnejše rešitve. Princip je v nekaterih industrijah že vpeljan, v gradbeništvu pa je prepoznan kot trend in vsekakor pomemben za razvoj in projektiranje v prihodnosti.

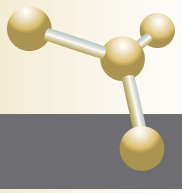
Dissertation

PARAMETRIC FRAMEWORK FOR PERFORMANCE – BASED STRUCTURAL DESIGN OPTIMISATION OF A SPORTS ARENA

Mentor: Prof. Paola Ronca
Co-Mentors: Chiara Domenici, Vittorio Grassi
Politecnico di Milano, Department of Structural Engineering

This dissertation describes the possibilities of the application of parametric building design as a basis for structure testing and the study of the relationship between form and function. The research focuses on the methodology and construction of a work platform for the design of building blocks (stands, girders, space truss) and especially the building envelope in order to establish optimum use and applicability.

The dissertation is distinguished by an above average scientific research approach. It deals with the current theme of parametrisation, which is implemented for key elements of the Lamezia Terme sports facility. This is performed by means of modern software, which serves as a tool for finding the most favourable solution. This principle has already been implemented in certain industries, while in the construction industry it is recognised as a trend and certainly has a significant role in future development and design.



Marko JOVANOVIĆ

Magistrsko delo

PRINCIPI UPORABE GENERATIVNEGA OBLIKOVANJA, BAZIRANEGA NA ANALIZAH PERFORMANC – ŠTUDIJA PRIMERA – UPORABA INTERAKTIVNIH PRILAGODLJIVIH SISTEMOV KOT GENERATORJEV URBANIH CELOT

Mentor: prof. dr. Bojan Tepavčević
Somentor: mag. Marko Todorov
Univerza v Novem Sadu, Fakulteta tehniških znanosti

V magistrskem delu je predstavljen postopek generativnega projektiranja z uporabo algoritmov in skript za nadzorovanje estetskega rezultata postopka projektiranja in z vpeljavo časa kot kinematske dimenzije za ustvarjanje optimiziranih prilagodljivih površin in oblike v realnem času v skladu s funkcijo in učinkovitostjo gradenj.

V postopek projektiranja je vključena tudi uporaba alternativnih virov energije. Na podlagi vseh uporabljenih metod je izveden postopek, ki podaja pregled splošne klasifikacije ravni računskega poznavanja za opredelitev začetnih temeljev generativnega in performativnega pristopa projektiranja. Na podlagi programskih plošč in jezikov je uporabljena povezava med fizičnimi komponentami arhitekturnih oblik in virtualnimi modeli v programu s kinetično adaptacijo. Hipoteza integriranega projektiranja s prilagajanjem v realnem času, ki bi zagotavljalo boljše arhitekturne rešitve kar na lokaciji na podlagi energetske učinkovitosti in trajnosti, je preizkušena na dejanski študiji primera v mestnem jedru Novega Sada, mesta v severnem delu Srbije. Rezultati so prikazani s pomočjo realnočasovne virtualne in fizične simulacije in natisnjenega modela v obliki 3D, ki prikazuje uporabo metod prefabrikacije.

Nadaljnje proučevanje tega pristopa lahko izboljša kakovost arhitekturne prakse v prihodnosti z vidika gospodarskih, ekoloških in časovnih dejavnikov projektiranja in dobe eksploatacije.

Dissertation

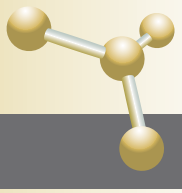
PRINCIPLES OF USING GENERATIVE PERFORMATIVE DESIGN – CASE STUDY – THE USE OF INTERACTIVE ADAPTIVE SYSTEMS AS URBAN ENVIRONMENT GENERATORS

Mentor: Prof. Bojan Tepavčević, PhD
Co-Mentor: Marko Todorov, Msc
University of Novi Sad, Faculty of Technical Sciences

In this dissertation, a generative design process is defined through the use of algorithms and scripts to control the aesthetic outcome of the design process, with the introduction of time as a kinematic dimension to generate optimised real time adaptive surfaces and form according to function and building performance.

The utilisation of alternative energy sources is also integrated into the design process. All methods used implement the process, where the general classification of degrees of computational awareness is reviewed to provide the initial groundwork for the generative and performative design approach. Through programming boards and languages, a connection between the physical components of architectural forms and the virtual model in software with kinetic adaptation is used. The hypothesis of integrated design with real time adaptation to provide better architectural solutions in situ with energy efficiency and sustainability is tested on an actual case study in the central core of Novi Sad, a city in the northern region of Serbia. The results are demonstrated through real time virtual and physical simulation and a 3D printed model showing the utilisation of prefabrication methods.

Further exploration of this approach can benefit the quality of future architectural practice concerning the economic, ecologic and time factors during the design and exploitation period.



Andrej JURIČKO

Magistrsko delo

URAVNAVANJE SODELOVANJA MED ZAPOSLENIMI IN RAZVOJ INOVATIVNOSTI: OBLIKOVANJE KONCEPTUALNEGA MODELA IN PRIMER IZRABNEGA PODJETJA

Mentor: doc. dr. Robert Kaše
Univerza v Ljubljani, Ekonomska fakulteta

Inovativnost je mogoče razviti z ustreznimi praksami in rutinami. V magistrskem delu so se osredotočili na širši vidik managementa človeških virov. Izdelali so model razvoja inovativnosti, v katerem so prikazali ključne korake za razvoj inovativnosti v podjetju. V ospredju modela je teza, da so za uspešno inoviranje potrebne investicije tako v človeški kot v socialni kapital. Šele ko usposobljeni posamezniki učinkovito izmenjujejo znanja znotraj in zunaj podjetja, je mogoče doseči kvalitativen premik na področju inoviranja.

Model razvoja inovativnosti je služil kot izhodišče za delo na izbranem podjetju. Poglobljene analize stanja so se lotili s treh različnih vidikov. S kariernimi intervjuji so določili bistvene ovire pri razvojnem delu, z anketnim vprašalnikom pa so preverili stališča zaposlenih do inovacijske kulture. Navedene izsledke so nadgradili z intervjuji dvojic, s katerimi so preučevali ovire in rešitve za učinkovito sodelovanje v podjetju. Vključili so šest medsektorskih parov, katerih sodelovanje je ključno za uspešno inoviranje.

Rezultate so združili in opredelili ključne probleme v podjetju. V odgovor na navedene izzive so predlagali več aktivnosti, s katerimi je mogoče dvigniti raven inovativnosti. Podjetju so predlagali, naj najprej razvije kapaciteto za uspešno realizacijo projektov. Šele nato naj uvede aktivnosti, ki podjetje odprejo idejam iz notranjega in zunanjega okolja.

Dissertation

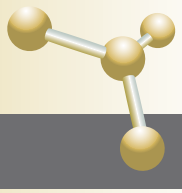
EMPLOYEE COOPERATION MANAGEMENT AND INNOVATIVENESS DEVELOPMENT: A CONCEPTUAL MODEL AND A CASE STUDY OF A SELECTED COMPANY

Mentor: Assistant Prof. Robert Kaše, PhD
University of Ljubljana, Faculty of Economics

Innovativeness can be shaped by appropriate practices and routines. In this research, the focus was on the wider area of human resources management. A model for the development of innovativeness was created, where the crucial stages for innovativeness development inside companies were presented. They emphasised that investment in human capital is not enough: we need to invest in social capital as well. When competent individuals effectively share their knowledge inside and outside of companies, a qualitative difference can be achieved.

The model for the development of innovativeness served as a foundation for further work regarding the selected company. First, a detailed current-state analysis was made. Through career interviews, crucial barriers that prevent the realisation of future-oriented projects were identified. Attitudes toward the culture of innovation were explored through questionnaires. Those results were upgraded with dyadic interviews, where they researched problems and solutions for effective cooperation at the company. Six cross-departmental pairs were included whose cooperation is crucial for successful innovativeness.

The results were then brought together, and the key problems in the area of innovativeness were identified. Challenges were confronted through proposed initiatives that can further raise level of innovativeness. A general suggestion was made that the company should first develop the capacity for project implementation. After that, it should focus more on activities that enable the flow of ideas from inside and outside the company.



Renata KENDA

Magistrsko delo

VPLIV NAGRAJEVANJA PROJEKTNEGA TIMA NA USPEŠNOST PROJEKTA

Mentor: doc. dr. Robert Kaše
Univerza v Ljubljani, Ekonomska fakulteta

Število projektov in projektnega načina dela iz leta v leto narašča, kar nakazuje njihovo pomembnost v organizacijah. Na uspešnost projektov vplivajo številni dejavniki, v tem magistrskem delu pa je posebna pozornost namenjena nagrajevanju projektnega tima.

Področji nagrajevanja (projektnega tima) in merjenja uspešnosti projekta sta bili podrobneje preučeni. Poleg osnovne opredelitve nagrajevanja je bila pozornost posvečena tudi individualnemu in skupinskemu nagrajevanju tima, vrednosti nagrade in različnim vrstam nagrad: denarnim, nedenarnim in nematerialnim nagradam. Pri uspešnosti projekta je značilen trikotnik projektnega managementa, ki meri uspešnost projekta skozi stroške, čas in kakovost. Poleg teh meril so se skozi čas pojavila tudi druga, tako imenovana mehkejša merila, kot so ljudje ali odnos z odjemalcem. Najbolj ključno pri merjenju uspešnosti projekta je ločiti merjenje uspešnosti projekta in projektnega managementa.

V raziskavi je bilo ugotovljeno, da ima skupinsko nagrajevanje projektnega tima bolj pozitiven učinek na uspešnost projekta v primerjavi z individualnim nagrajevanjem, kar se ujema s teorijo in raziskavami v tujini. Raziskava je pokazala, da izkušnje projektnega managerja ne igrajo pomembne vloge pri uspehu projekta. Rezultati tudi kažejo, da se slovenska podjetja zavedajo pomembnosti visoko izobraženih zaposlenih (strokovnjakov) v projektnih timih in jih nagrajujejo, a žal na napačen način. Nepričakovan rezultat je bil tudi, da nagrajevanje nima pozitivne povezave z uspešnostjo projekta. Razlog za to lahko leži v kulturni raznolikosti, mladosti projektnega managementa in omejitvah raziskave.

Dissertation

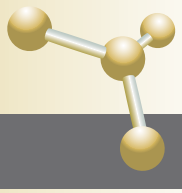
THE EFFECT OF PROJECT TEAM REWARDING ON PROJECT PERFORMANCE

Mentor: Assistant Prof. Robert Kaše PhD
University of Ljubljana, Faculty of Economics

Projects and project work are increasing every year, thus suggesting their value in organisations. There are, however, several factors that can influence project performance.

Initially, a literature review was conducted that focused on (project team) rewarding and project performance. This provided a preliminary definition of rewarding, which was further defined by focusing on both individuals and groups. This also included a review of reward values and typologies such as monetary, non-monetary and non-material. Traditionally, project performance measures mainly drew upon triangulating costs, time and quality, however recent 'soft' criteria include people, customer relations, etc. The current literature seems to lack a universal definition and measurement, although general agreement distinguishes between measuring project and project management performance.

The results showed that group rewards had a more positive effect on project performance compared with individual rewards. This corresponds with findings in other countries. Surprisingly, the project manager's experience does not play a major role in project success. Furthermore, Slovenian companies seem conscious of the importance of high educated employees, i.e. experts in project teams. In recognition of their skills, they aptly reward them; however, this may not be optimally presented. Surprisingly, rewards also seem to have no significant positive connection with project performance. This may be explained either culturally, because of the immaturity of the project management field, or because of current research limitations.



Jana KRAPEŽ

Magistrsko delo

KONTEKSTUALNE SPREMENLJIVKE PARADIGME ODPRTIH INOVACIJ V POSLOVNEM OKOLJU SLOVENSKIH PODJETIJ

Mentor: doc. dr. Miha Škerlavaj
Univerza v Ljubljani, Ekonomska fakulteta

Odprto inoviranje lahko pomaga znižati stroške R&R in ustvariti nove priložnosti za rast. Z zunanjim sodelovanjem lahko podjetje izboljša partnerski odnos ter si z njimi deli stroške in tveganje večjih inovacijskih projektov. V obdobju finančne krize lahko vitalna podjetja financirajo svoje projekte z nakupom novih tehnologij, saj so v tem času mnogi njihovi konkurenti finančno šibkejši, in si tako pridobijo prednost na trgu.

V kvalitativni raziskavi je bilo izvedenih 14 poglobljenih, polstrukturiranih intervjujev z namenom definiranja podpore slovenskega poslovnega okolja odprtim inovacijam. Da bi ustvarili prijaznejše poslovno okolje za odprte inovacije, so bili v Sloveniji vzpostavljeni številni podporni mehanizmi.

Če želi biti Slovenija dolgoročno uspešna, podporno poslovno okolje ne more in ne sme biti oblikovano zgolj z vladno finančno podporo, temveč mora vsebovati tudi druge elemente, ki vplivajo na tehnološki razvoj; to pomeni: 1) organizacijsko kulturo, vrednote in sistem nagrajevanja, 2) zakonodajo, 3) davčni sistem in socialne prispevke, 4) birokratske ovire, 5) človeške vire 6) infrastrukturo, stroške zemljišč in 7) možnosti financiranja (ugodna bančna posojila, bančne garancije, tvegan kapital ...).

Dissertation

CONTEXTUAL VARIABLES OF OPEN INNOVATION PARADIGM IN THE BUSINESS ENVIRONMENT OF SLOVENIAN COMPANIES

Mentor: Assistant Prof. Miha Škerlavaj, PhD
University of Ljubljana, Faculty of Economics

Open innovation can be useful in reducing the costs of R&D, and it can create new opportunities for growth. A company can foster partner relationships and share the costs and risks of major innovation projects with external partners. It can finance innovation projects by acquiring external technology, since during the crisis many of their competitors are financially weaker and so "healthy" companies can create competitive advantage.

In the qualitative empirical research, 14 in-depth semi-structured interviews were conducted in order to investigate to what extent determinants from the internal, narrower and broader external business environment impact open innovation in Slovenian companies. Several support mechanisms were established to create a friendlier environment for open innovation.

The review indicates that if Slovenia wants to be successful in the long run, the supportive environment cannot and should not be based solely on government financial support but must also contain other elements that affect technological development, i.e.: 1) organisational culture, values, rewards system; 2) legislation; 3) tax and social contributions; 4) bureaucratic barriers; 5) human resources; and 6) favourable bank loans, bank guarantees, venture capital, etc.

Igor LAUTAR

Magistrsko delo

PRENOS ZNANJA MED PROJEKTI V PROJEKTNO USMERJENI ORGANIZACIJI – ŠTUDIJA PRIMERA COMTRADE

Mentor: doc. dr. Miha Škerlavaj
Univerza v Ljubljani, Ekonomska fakulteta

Avtor v magistrskem delu raziskuje problematiko prenosa znanja med projekti. Identificira dejavnike, ki na ta prenos vplivajo, in opredeli metode prenosa znanja med projekti v odvisnosti od tipa in načina prenosa znanja.

Empirična raziskava temelji na kvantitativni in kvalitativni raziskavi. Avtor razvije metodologijo, s katero na podlagi vprašalnika pridobi vidik zaposlenih. Pri kvalitativni raziskavi izvede intervjuje zaposlenih. Na podlagi pridobljenih rezultatov izvede analizo ter poda predloge za vodstvo in morebitno nadaljnje raziskovanje.

Teoretični prispevek raziskave je tudi v analizi vpliva recesije na procese prenosa znanja. Avtor ugotavlja, da je v recesiji, ko so investicije v izobraževanje zmanjšane, še posebno pomembna ustrezna organizacijska kultura, v kateri neformalne vezi in komunikacija lahko delno nadomestijo izpad pri formalnem izobraževanju.

Raziskava potrdi, da prenos znanja med projekti poteka skozi vse aktivnosti v podjetju. Za uspešen prenos znanja je treba identificirati in zmanjšati vpliv negativnih dejavnikov. Avtor tudi empirično potrdi, da je izbira ustreznih metod prenosa znanja v podjetju izjemno odvisna od organizacije same, česar se mora vodstvo še posebno zavedati.

Dissertation

KNOWLEDGE TRANSFER AMONG PROJECTS IN A PROJECT-BASED ORGANISATION – CASE STUDY OF COMTRADE

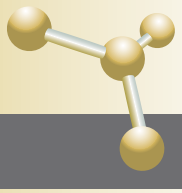
Mentor: Assistant Prof. Miha Škerlavaj, PhD
University of Ljubljana, Faculty of Economics

The author of this dissertation explores the issues involved in knowledge transfer among projects. He identifies both the factors that influence this process and the methods of knowledge transfer among projects according to method type and the way knowledge is transferred.

The empirical research is based both on quantitative and qualitative research. To obtain employee perspectives, the author develops a methodology based on a questionnaire. Based on analysis of the gathered results, the author suggests a number of improvements for management and future research.

The theoretical contribution of this research can be found in the analysis of the impact of the recession on knowledge transfer processes. The author notes that in a time of recession, due to the reduced investments in education, organisation culture becomes even more important. It drives informal relationships and communication, which can replace shortfalls in formal knowledge transfer processes.

The research confirms that knowledge transfer among projects is contained within all activities in the company. It is imperative to identify and reduce the impact of negative factors influencing knowledge transfer. The author empirically confirms that the selection of appropriate methods of knowledge transfer within a company is extremely dependent on the organisation itself – a fact that the management should be very aware of.



Mija LORBEK

Magistrsko delo

MODELI VODENJA ZA SPODBUJANJE INOVATIVNOSTI V VISOKOTEHNOLOŠKIH PODJETJIH

Mentor: doc. dr. Branko Ilič
Univerza v Ljubljani, Fakulteta za družbene vede

Poudarek raziskave je na procesih vodenja za vzpodbujanje inovativnosti, izbiri delavcev znanja in njihovemu motiviranju za inovativnost, inovativnostni kulturi organizacije, izobraževanju in eksperimentiranju. Naslednji poudarek je na pomenu izmenjave znanja podjetja z okoljem, predvsem z inštitucijami znanja, s trgom ali inovativnostjo uporabnikov in produkcijsko verigo ter vplivom mezo in makro okolja na podjetje, vključno z ustvarjalnim razredom in podpornimi okolji.

Prispevek magistrskega dela k teoretski konceptualizaciji inovativnosti in inovacij je v odkrivanju in povzemanju managerskih tehnik za vzpodbujanje inovativnosti. Tako se prva hipoteza glasi: inovativnost v podjetjih ni samo rezultat dela izjemnih posameznikov, temveč tudi ustreznega modela vodenja. Fokus zanimanja je, ali obstajajo splošna pravila za pospeševanje inovativnosti, torej temeljna pravila inoviranja. Druga hipoteza se glasi: inovativna visokotehnološka podjetja ne uporabljajo različnih pristopov k vodenju inovativnosti, temveč je mogoče najti skupne značilnosti vodenja inovativnosti. Naslednji poudarek je na pomenu izmenjave znanja podjetja z okoljem, predvsem z inštitucijami znanja, s trgom ali inovativnostjo uporabnikov in produkcijsko verigo ter vplivom mezo in makro okolja na podjetje, vključno z ustvarjalnim razredom in podpornimi okolji. Zato se tretja hipoteza glasi: vir inovacij niso samo notranji razvojno-raziskovalni oddelki, temveč tudi inovacije iz zunanjih virov.

Dissertation

LEADERSHIP MODELS OF HIGH-TECH COMPANIES FOR INNOVATION STIMULATION

Mentor: Assistant Prof. Branko Ilič, PhD
University of Ljubljana, Faculty of Social Sciences

The main research is upon the importance of leadership processes for innovation stimulation, the hiring of knowledge workers and their motivation, organisational culture, education and experimentation. Additional emphasis is placed upon the exchange of knowledge between a company and its environment, namely institutions of knowledge, the market and user innovations. Furthermore, the impact of the mezzo and macro environment is explored, including creative class analysis and support environments.

Three theses are analysed through the research process: first, the stimulation factors for innovations in companies, the common patterns of successful innovation leadership and the identification of alternative innovation sources. Second, the research attempts to reveal whether or not there are common innovation leadership approaches to innovativeness to find the underlying premises of the "innovation formula". Third, the alternative innovation sources outside the company are underlined as additional innovation sources to internal R&D departments. The theoretical and empirical research results in an integral model of leadership for innovation stimulation in high-tech companies.

Ivan PALIJAN

Magistrsko delo

OCENA VARNOSTI DELNO SOVPREŽNIH NOSILCEV V VISOKOGRADNJI

Mentor: prof. dr. Ivica Džeba
Univerza v Zagrebu, Fakulteta za gradbeništvo

V tem magistrskem delu je narejena raziskava zanesljivosti sovprežnih nosilcev v visokogradnji z deloma drsno vezjo. Na podlagi zbranih podatkov iz izpeljanih laboratorijskih raziskav so probalistično ovrednoteni različni modeli preračuna odpornosti za to vrsto sovprežnih konstrukcij, kar doslej v literaturi ni zabeleženo.

Raziskave so izpeljane z velikim številom baznih spremenljivk. S primerjavo koeficientov občutljivosti je pokazano, na katere bazne spremenljivke je treba biti posebno pozoren pri nadaljnjih raziskavah te problematike. To se še posebno nanaša na bazno spremenljivko korekcije modela preračuna odpornosti, kar pomeni, da je od statističnih parametrov te bazne spremenljivke močno odvisna tudi velikost indeksa zanesljivosti.

Ugotovljeno je, da so vsi analizirani modeli preračuna primerni za uporabo v vsakodnevni inženirski praksi, s čimer so doseženi boljši ekonomski učinki uporabe sovprežnih konstrukcij. Izjema je Vayasov model preračuna, ki se ni izkazal kot dovolj zanesljiv glede na to, da so preračunani indeksi zanesljivosti manjši od ciljane vrednosti indeksa zanesljivosti 3,8 za to vrsto konstrukcij.

Na primeru probalističnega vrednotenja različnih modelov preračuna se je pokazalo, da deterministična primerjava ni ustrezna, kot v primeru Vayasovega modela preračuna.

Predlagan je povsem nov model preračuna na drugačnih osnovah od raziskovanih, izvedeno je tudi njegovo probalistično vrednotenje.

Dissertation

RELIABILITY ASSESSMENT OF COMPOSITE BEAMS WITH PARTIAL SHEAR INTERACTION IN BUILDINGS

Mentor: Prof. Ivica Džeba, PhD, MSc (Civil Eng.)
University of Zagreb, Faculty of Civil Engineering

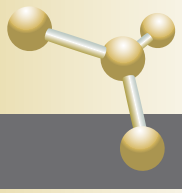
This dissertation, based on the collected data of conducted experiments at four different world-recognised laboratories, probabilistically evaluates various calculation models for this type of composite structure that until now has not been found in the literature.

A comparison of weight coefficients revealed which basic variables should be given special attention in future research. On the resistance side, that variable would be the basic variable of resistance model correction calculation kR, while on the action side it would be imposed load q. Reliability index value β is highly influenced by the statistical parameters of these basic variables.

It was found that all analysed calculation models are suitable for everyday engineering practice and result in better economic performance of composite structure application. The only exception was the Vayas calculation model, which has not proven to be sufficiently reliable, since the calculated reliability index values are lower than the reliability index target value of 3.8 required for this type of structure.

The example of probabilistic evaluation of various calculation models has shown that deterministic evaluation cannot be considered as suitable, which proved to be the case with the Vayas calculation model.

The dissertation proposes a completely new calculation model that has an entirely different base than the studied models, and its probabilistic evaluation was conducted.



Črt VEDENIK

Magistrsko delo

MODEL INSTITUCIONALNE PODPORE INTERNACIONALIZACIJE SLOVENSKIH PODJETIJ V RAZMERAH DINAMIČNEGA SPREMINJANJA GLOBALNE EKONOMIJE

Mentor: izredni prof. dr. Milan Jurše
Univerza v Mariboru, Ekonomsko-poslovna fakulteta

Spremembe so edina stalnica sodobnega sveta. Globalizacija je povzročila oblikovanje svetovne ureditve, zaznamovane z močno povezanostjo sveta, verjetno največjo v svetovni zgodovini, kar je prispevalo h globalni gospodarski rasti in vodilo v dvig življenjskega standarda. Povezanost sveta pa hkrati predstavlja tudi grožnjo, česar smo se začeli resneje zavedati kljub nekaterim zgodnejšim opozorilom, šele z nastopom velike finančne krize leta 2007.

Nastop krize pogosto vodi v oblikovanje nove svetovne ureditve, kar se odseva v oblikovanju novih centrov moči v svetovni gospodarski ureditvi, to pa zahteva spremembe svetovne politične ureditve ter je za države in podjetja velik izziv. Podjetja morajo pri vprašanjih internacionalizacije delovati proaktivno, saj internacionalizirana podjetja dosegajo boljše rezultate od tistih, ki to niso. Tega se morajo zavedati tudi države, ki lahko z različnimi načini institucionalne podpore internacionalizaciji pripomorejo k uspehu podjetij na tujih trgih.

Posvetili smo se aktualnim vprašanjem institucionalne podpore internacionalizacije slovenskih podjetij. Ta smo preučili z anketnim vprašalnikom in modelom GE portfolio, s katerim smo ocenili delovanje mreže diplomatsko-konzularnih predstavništev, kot enega od ključnih dejavnikov institucionalne podpore. Ugotovili smo, da je v Sloveniji treba poenotiti institucionalno podporo internacionalizaciji, doseči širše sodelovanje izobraževalnih, državnih in drugih institucij ter gospodarstva ob vzpostavitvi primernega sistema nadzora delovanja. To bi dolgoročno prineslo ustrezen odziv slovenskega gospodarstva na napoved razvoja nove svetovne ureditve. Takšne spremembe, ki prinesejo boljše življenje, tako doma kot na tujem, pa naj predstavljajo osrednji nacionalni interes.

Dissertation

A MODEL OF INSTITUTIONAL SUPPORT FOR THE INTERNATIONALISATION OF SLOVENIAN ENTERPRISES AND THE CHANGES OF THE GLOBAL ECONOMY

Mentor: Associate Prof. Milan Jurše, PhD
University of Maribor, Faculty of Economics and Business

Change is the only constant in the modern world. Globalisation has led to the creation of a global order that is marked by the strong interconnectedness of the world, probably to the greatest extent in history, which has contributed to global economic growth and led to a rise in the standard of living. Integration of the world also represents a threat, as we began to realize fully, despite prior warnings, with the onset of the great financial crisis of 2007.

The onset of a crisis often leads to the formation of a new world order, which is reflected in the creation of new centres of power in the economic order. This requires changes in the global political system, and it is a major challenge for countries and companies. Companies need to work proactively on issues of internationalisation, as internationalised companies achieve better results than those that are not internationalised. Countries should be aware of this fact and thus support various modes of institutional internationalisation to contribute to the success of companies in foreign markets.

We focused on the current issue of the institutional support for internationalisation of Slovenian companies. This was studied through a questionnaire and GE portfolio model that helped us to assess the functioning of the network of diplomatic and consular offices as one of the key institutional supports. We found that Slovenia needs to standardise its institutional support for internationalisation. We also need to achieve a wider participation of educational, governmental and other institutions and the economy during the establishment of an adequate system of operational control. This would in the long-term provide an adequate response of the Slovenian economy to the forecasted development of a new world order. Such changes that lead to a better life, both at home and abroad, should represent a central national interest.

Tamara VLADETIĆ

Magistrsko delo

MODNI CENTER V NOVEM SADU

Mentor: prof. dr. Predrag Šiđanin, univ. dipl. inž. arh.
Somentorja: Ivana Marcijuš, univ. dipl. inž. arh., doc. dr. Željko Jakšić
Univerza v Novem Sadu, Fakulteta tehniških znanosti

S študijem nekaterih modnih hiš je mogoče ugotoviti, da je v Evropi zelo malo namenskih kapacitet, ki bi lahko ponudile celovite storitve prireditev, izložb in razstav. Modne predstave so običajno kar v hotelih in veliko slavnih oblikovalcev prikaže svoje izdelke v majhnih prostorih, ki so le deli stavb.

Obravnavana stavba je zasnovana na osnovi principov okoljske trajnosti. Sončni zbiralniki na strehi, ki pretvarjajo sončno obsevanje v toploto, so postavljeni kot princip trajnostne gradnje. Sončne stene in sončni zbiralniki prejemajo toploto ter tako manjšajo potrebo po dodatnem ogrevanju. Na sončni strani so predvidena velika okna, ki pokrivajo 65 % celotne površine južne strani. Okna na severni strani in v drugih pomembnih smereh predstavljajo le 5 % površine sten.

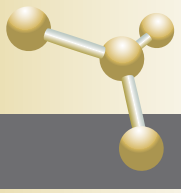
Dissertation

FASHION CENTRE IN NOVI SAD

Mentor: Prof. Predrag Šiđanin, BSc (Architecture)
Co-Mentors: Ivana Marcijuš, BSc (Architecture), Assistant Prof. Željko Jakšić, PhD
University of Novi Sad, Faculty of Technical Sciences

By studying some of the fashion houses, it can be noticed that in Europe there are very few facilities that could provide a whole range of services related to performances, shows and exhibitions. Fashion shows are usually held in hotels, and many famous designers display their work in small spaces, such as rooms, which are only parts of buildings.

The building in question is designed by observing the principles of sustainability. Solar panels on the roof, which convert solar energy into heat, are set as one of the principles of sustainable development. Solar walls, like solar collectors, receive solar energy and thus reduce the need for additional space heating. Large windows are located on the sunny side of the building. Reception of solar energy through the south windows or greenhouses is optimal if the surface of the glass covers 65% of the total area of southern walls, and if windows to the north or other cardinal directions make up 5% of the wall surface.



Dejan ŽOHAR

Magistrsko delo

RAZVOJ OSEBJA PROJEKTA IN ČAS IZVEDBE INVESTICIJSKIH PROJEKTOV V SLOVENSKIH BOLNIŠNICAH

Mentor: izr. prof. dr. Mirko Markič
Univerza na Primorskem, Fakulteta za management

Namen magistrskega dela je proučitev in analiza vpliva dejavnikov razvoja osebja v investicijskih projektih na čas njihove izvedbe v primeru slovenskih bolnišnic in zasnova predlogov za razvoj osebja projekta.

V raziskavi je sodelovalo 76 sodelavcev iz slovenskih bolnišnic, ki so v zadnjem letu sodelovali vsaj v enem investicijskem projektu. Za zbiranje podatkov in informacij je oblikovan anketni vprašalnik, na katerem je zasnovana kvantitativna raziskava. Opravljena je opisna, faktorska in regresijska analiza. Izidi analize kažejo, da je bilo z zamudo končanih 52,5 % vseh faz investicijskih projektov. Dejanski čas izvedb faz se v nekaterih primerih v povprečju signifikantno skrajša glede na ocenjeni čas izvedb, če se poveča stopnja znanja ali spretnosti v medosebnih odnosih osebja projekta.

S predlogi za razvoj osebja projekta za učinkovitejše obvladovanje časa izvedbe je mogoče povečati stopnjo uspešnosti investicijskih projektov v zdravstvu.

Dissertation

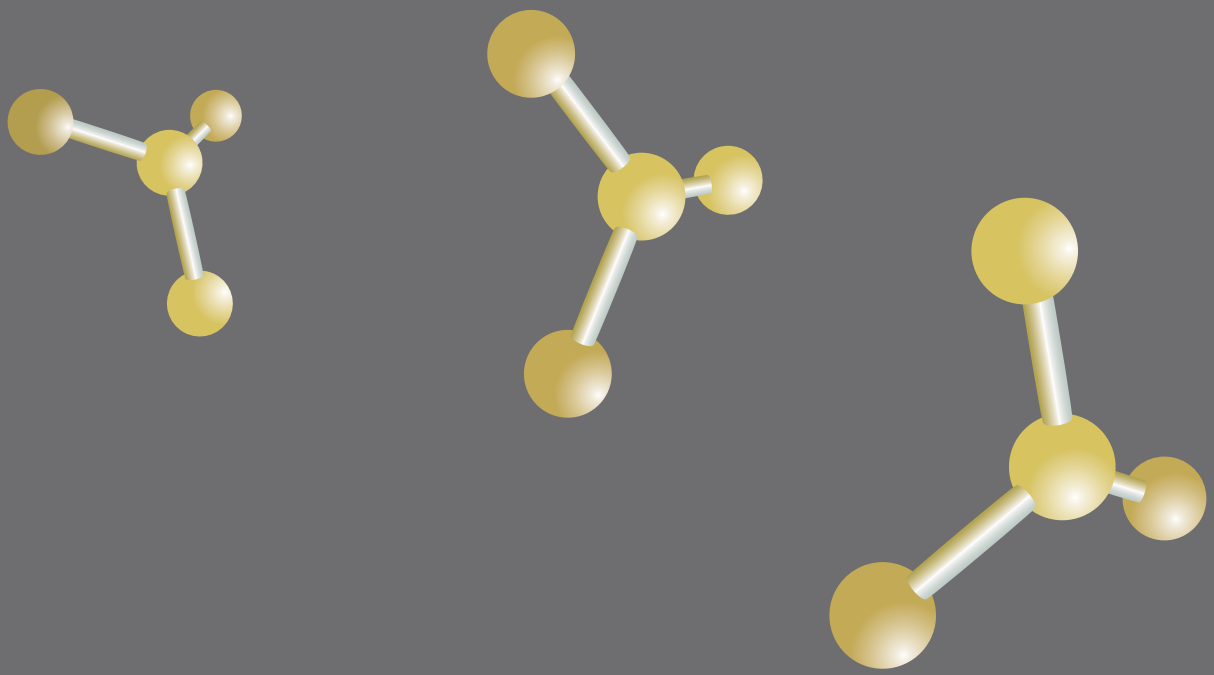
DEVELOPMENT OF PROJECT STAFF AND IMPLEMENTATION PHASE OF INVESTMENT PROJECTS IN SLOVENIAN HOSPITALS

Mentor: Associate Prof. Mirko Markič, PhD
University of Primorska, Faculty of Management

The intention of this dissertation is to investigate and analyse the impact that development of the employees working on investment projects in Slovenian hospitals has upon the time period of project realisation. It also attempts to develop proposals for the development of project employees.

76 employees from Slovenian hospitals that participated in at least one investment project last year participated in the research. A pole questionnaire was prepared in order to obtain the data and information based on which the quantitative research was conceived. Descriptive, factor and regression analyses were also performed. The analysis results show that 52.5% of all investment project phases were finished with delays. The actual time of the phase realisation can in some cases be on average significantly shortened in regard to the assessed time of the realisation if the level of knowledge or skill regarding the mutual relations between project employees can be improved.

Through the proposals for project employee development, in the sense of more efficient use of realisation time, it is possible to increase the degree of effectiveness of investment projects in health care institutions.

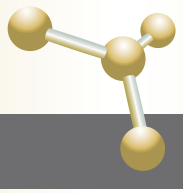


ZBORNIK POVZETKOV NAGRAJENIH DEL

ABSTRACTS OF THE PROJECTS AWARDED

DOKTORSKE DISERTACIJE

DOCTORAL THESES



Jasna ČIKIĆ TOVAROVIĆ

Doktorska disertacija

VPLIV NOVIH TEHNOLOGIJ NA RAZVOJ SODOBNIH FASAD: MEDIJSKE FASADE IN MOŽNOSTI ZA REMODELIRANJE STEKLENIH FASAD V BEOGRADU

Mentor: prof. dr. Milica Jovanović Popović
Somentorja: prof. dr. Vladimir Mako,
prof.dr. Lidija Djokić
Univerza v Beogradu, Fakulteta za arhitekturo

Za sodobno arhitekturo je značilna vedno pomembnejša vloga informacijskih tehnologij, izboljšani strukturni sistemi in materiali ter tudi interaktivne možnosti elektronskih medijev. Razvoju arhitekture sledijo spremembe v oblikovanju in gradnji arhitekturnih fasad.

Napredne tehnologije imajo izredno močan vpliv na področju medijskih fasad in so predmet te doktorske disertacije.

V tej doktorski disertaciji je najprej raziskan fenomen medijske arhitekture in medijskih fasad ter kulturno-socialnega konteksta, nato pa je analizirano in sistematizirano pomembno število novih tehnologij s pregledom njihovih tehničnih karakteristik. Kategorizacija fasad temelji na tehnični klasifikaciji in obsega obstoj dveh glavnih skupin: mehanske in elektronske medijske fasade. Poskus odkriti, poudariti in določiti kakovosti in karakteristike teh fasad v tej disertaciji bo prispeval k reševanju vrste težav, ki so posledica agresivnega vpliva marketinga na arhitekturo ter njegove pretirane in neprimerne uporabe. V disertaciji smo potrdili in analizirali trditev, da »lahko integrirane informacijske in komunikacijske tehnologije ustvarijo nove pogoje za dojemanje arhitekturnih objektov«, pri čemer spremenljivi značaj ni nujno povezan s spremenljivo funkcionalnostjo objektov, ampak s spremembo v dojemanju tega objekta.

Ta študija je prikazala, da je z uporabo predlaganih načel oblikovanja medijskih fasad v postopku razvoja mogoče doseči uspešne rešitve.

Doctoral thesis

IMPACT OF NEW TECHNOLOGIES ON THE DEVELOPMENT OF MODERN FAÇADES: MEDIA FAÇADE AND OPPORTUNITIES FOR REMODELLING GLASS FAÇADES IN BELGRADE

Mentor: Prof. Milica Jovanović Popović, PhD
Co-Mentors: Prof. Vladimir Mako, PhD,
Prof. Lidija Djokić, PhD
University of Belgrade, Faculty of Architecture

Contemporary architecture is characterised by the increasingly more important position of information technologies, improved structural systems and materials and the interactive possibilities of electronic media. The development of architecture is followed by changes in the design and construction of architectural façades.

Advanced technologies have had a very strong effect on the field of media façade, and they are the subject of this doctoral thesis.

This doctoral thesis explored the phenomenon of media architecture, media façade and cultural-social context, and then analysed and systematised a significant number of new technologies with a review of their technical characteristics. The categorisation of the façades is based on a technical classification and implies the existence of two main groups: mechanical and electronic media façade. The attempt made in this work to discover, emphasise and identify the qualities and characteristics of these façades will contribute to solving a series of problems that are the consequence of the aggressive influence that marketing has on architecture and their exaggerated and inappropriate use. It has been confirmed and analysed in the paper that "integrated information and communication technologies can create new conditions of the perception of architectural buildings" where a variable character is not necessarily related to the variable functionality of the building itself, but to the change in its perception.

This study has demonstrated that successful solutions can be achieved in the design process through the application of the proposed principles for the design of media façades.

Justin ČINKELJ

Doktorska disertacija

VODENJE ROBOTSKEGA HIDRAVLIČNEGA TELESKOPSKEGA DVIGALA

Mentor: prof. dr. Marko Munih
Fakulteta za elektrotehniko, Univerza v Ljubljani

Delo obravnava razvoj robotiziranega dvigala za delo v gradbeništvu.

Uporabljeno je bilo standardno dvigalo s štirimi prostostnimi stopnjami kateremu sta bili dodani dve prostostni stopnji, potrebna senzorika za pozicioniranje in elektronika za povezavo na obstoječe krmilje dvigala.

S pomočjo strojne in programske opreme ter ustreznih modelov, algoritmov, metod ter parametrov so bile dosežene predvidene zahteve glede točnosti in ponovljivosti makro pozicioniranja panela na fasado.

Doctoral thesis

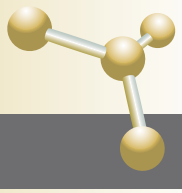
ROBOTIC CONTROL OF A HYDRAULIC TELESCOPIC HANDLER

Mentor: Prof. Marko Munih, PhD
University of Ljubljana Faculty of Electrical Engineering

In the Dissertation teoretical and practical problems of Robotic control of a hydraulic telescopic handler (crane) are presented.

Commercially available handler with four degrees of freedom, and two additional degrees of freedom were added, necessary sensors for positioning and electronic device for connecting at existing crane control, was used.

With the help of software, hardware and some other models, algorithms, metods and parameters, requests for accuracy and repeatebility of macro positioning panel on a facade, are reached.



Nenad ČUŠ BABIČ

Doktorska disertacija

OPTIMIZACIJA INFORMACIJSKIH TOKOV V GRADBENIH PROJEKTIH KOT OSNOVA ZA UČINKOVITO STRATEGIJO UVAJANJA INFORMACIJSKIH TEHNOLOGIJ

Mentor: prof. dr. Danijel Rebolj
Univerza v Mariboru, Fakulteta za gradbeništvo

Gradbeništvo se stalno sooča s potrebo po večanju produktivnosti in ena od možnih rešitev je industrializacija gradbene proizvodnje.

Industrializacija gradbenih procesov zahteva visoko stopnjo avtomatizacije in v tej točki se gradbena industrija sooča s številnimi problemi. Večina manjših in srednje velikih podjetij, ki v stroki prevladujejo, uporablja IT na zelo nizki stopnji. Še posebno so te težave povezane z vzpostavitvijo in upravljanjem ustreznih informacijskih tokov, vzpostavljanjem interoperabilnosti med udeleženci in s tem povezanimi informacijskimi sistemi.

V gradbeništvu se za potrebe izmenjave informacij o gradbenem objektu uveljavlja koncept informacijskega modela zgradbe (Building Information Model – BIM). BIM gradbeni objekt opisuje celovito in nedvoumno ter v več dimenzijah. Je objektno zasnovan načrt zgradbe, ki vsebuje informacije o posameznih elementih – delih zgradbe – vključno z njihovimi atributi in povezavami. Z uporabo BIM dosežemo enoten dostop do informacij za potrebe različnih panog, ki v gradbenem projektu sodelujejo. Vendar pa vpeljava koncepta modelno zasnovane gradnje v prakso kljub velikim naporom raziskovalcev in industrije še vedno ni dovolj učinkovita.

Iz prikazanega dela je mogoče sklepati, da institucionalna analiza lahko pomembno pripomore k iskanju učinkovitih in izvedljivih rešitev na področju uvajanja modelne gradnje in k iskanju strateških usmeritev razvojnih procesov na področju gradbene informatike. Menimo tudi, da je naša analiza pokazala, da brez upoštevanja sociоloških faktorjev, rezultatov raziskovalno-razvojnih projektov praviloma ni mogoče ustrezno in trajno vpeljati v gradbeno prakso.

Doctoral thesis

INFORMATION FLOW OPTIMISATION IN CONSTRUCTION PROJECTS AS A BASIS FOR AN EFFICIENT INFORMATION TECHNOLOGY DEPLOYMENT STRATEGY

Mentor: Prof. Danijel Rebolj, PhD
University of Maribor, Faculty of Civil Engineering

The construction sector is faced with constant demands for lowering prices and shortening project durations. One of the options that could be used is industrialisation of the production process in construction.

However, industrialisation requires a high level of automation and on that point the construction sector is confronted with many problems. Most of the small and medium sized companies that prevail in the sector use information technology at a very basic level. In particular, the problems are related to information flow set up and management among the stakeholders and to information system interoperability issues.

With regard to information exchange and collaboration in construction, the concept of building information modelling (BIM) has been developed as the most popular solution. The model describes buildings completely and unambiguously in multiple dimensions. It is object oriented design of the building that includes information on particular parts of the building, including all necessary attributes and relationships. With BIM, various project stakeholders obtain standardised access to information regardless of their field of work. Despite the benefits and all of the efforts made by the research community and the industry, the concept of BIM is still not sufficiently introduced into everyday practise.

From the results, we can conclude that institutional analysis significantly contributes to the search for effective and feasible solutions in the field of BIM based construction development and other strategic processes of construction informatics. Our work clearly shows also that for the deployment of IT solutions in the construction sector to be successful, it is necessary to take sociological factors into consideration.

Antonino DI RAIMO

Doktorska disertacija

ČLOVEŠKO TELO KOT INSTRUMENT ZA PROJEKTIRANJE: ZA ARHITEKTURO KOT ŽIV SISTEM

Mentor: prof. Antonino Saggio
Univerza v La Sapienzi, Fakulteta za arhitekturo

Doktorska disertacija je napisana v skladu s sodobnimi arhitekturnimi študijami, ki pri arhitekturni zasnovi kot osrednjo idejo uporabljajo prisotnost paradigme informacijske tehnologije.

Raziskava upošteva kognitivne vede, računalniške vede in celo fiziko. Kognitivne vede služijo kot sredstvo za vzpostavitev neposredne povezave med človekovim mišljenjem (glej um kot koncept) in računalništvom; računalniške vede pa so predstavljene kot teoretičen okvir za obravnavo računalnika kot specifičnega instrumenta za računanje.

Raziskava se nato osredotoči na arhitekturo kot zapleteno enotnost interakcij, ki izhajajo iz različnih slojev stika med umetnimi in živimi udeleženci, to pa ustvarja arhitekturno avtopoezno enotnost.

Doctoral thesis

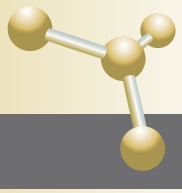
THE HUMAN BODY AS A DESIGN INSTRUMENT: TOWARD ARCHITECTURE AS A LIVING SYSTEM

Mentor: Prof. Antonino Saggio
University La Sapienza, Faculty of Architecture

The doctoral thesis is in line with contemporary architectural studies that use as a central idea the presence of the Information Technology Paradigm in architectural design.

The research takes into consideration cognitive sciences, computer sciences and even physics. Cognitive sciences are intended as means to establish a direct connection between human thinking (see the mind as a concept) and computing; computer sciences are introduced as the theoretical framework to deal with the computer as a specific computational instrument.

The research then emphasises architecture as a complex unity of interactions that result from various layers of coupling between artificial and living participants, giving rise to an architectural autopoietic unity.



Jure ERJAVEC

Doktorska disertacija

ANALIZA RAZREZA MATERIALA KOT DELA POSLOVNEGA PROCESA

Mentor: prof. dr. Miro Gradišar
Univerza v Ljubljani, Ekonomska fakulteta

Doktorska disertacija predstavlja stanje in študijo primera procesa razreza materiala v širšem poslovnem okolju. Na proces razreza materiala vpliva več parametrov, ki definirajo odločitve glede postopkov nabav in obvladovanje zalog ter posledično stroškov celotnega procesa. Avtor je v doktorski nalogi predstavil integracijo področij optimizacije razreza, poslovnih procesov in managementa oskrbovalne verige. Predstavljeni so pristopi, ki omogočajo zniževanje stroškov poslovanja in razrez materiala umestijo v poslovne procese podjetja.

Pri optimizaciji procesov nabave, skladiščenja in proizvodnje po eni strani stremimo h krajšim pretočnim časom in nižjim zalogam ter večji prožnosti pri izpolnjevanju naročil, po drugi strani pa s tem ustvarjamo več neuporabnih ostankov. Zato je treba poiskati optimalno razmerje med velikostjo zaloge in velikostjo pričakovanih naročil v nekem obdobju, tako da bodo stroški zalog, neuporabnega ostanka in neizpolnitve naročila najnižji.

V doktorski disertaciji je predstavljen vpliv prenove poslovnih procesov na stroškovno učinkovitost celotnega procesa v primerjavi z izboljševanjem algoritmov za optimizacijo načrta razreza. Ugotovitve temeljijo na uporabi metode študije primera in metode simulacij.

Predstavljena doktorska disertacija podaja pristop pri optimizaciji nekaterih procesov z razvojem optimizacijskih algoritmov, ki pa se lahko uporabijo tudi na drugih področij, kjer je treba optimizirati tako proizvodne kot tudi druge, vzporedne procese.

Doctoral thesis

ANALYSIS OF THE CUTTING STOCK PROBLEM AS PART OF A BUSINESS PROCESS

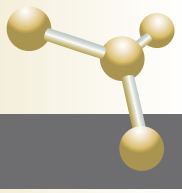
Mentor: Prof. Miro Gradišar, PhD
University of Ljubljana, Faculty of Economics

This doctoral thesis presents a situation and a case study related to cutting stock within a wider business environment. The process of cutting stock is influenced by many parameters that define decisions on purchasing procedures, inventory control and consequently the cost of the entire process. In this doctoral thesis, the author presents the integration of cutting optimisation, business processes and supply chain management. The approaches that are presented allow for lower operating costs and cutting stock is integrated into the business processes.

In optimising procurement processes, storage and production on the one hand, we strive towards shorter flow time, lower inventory levels and greater flexibility in fulfilling orders, and on the other hand we create higher unusable residues. It is therefore necessary to find an optimal relationship between stock size and the size of the expected orders within a specified period, so that the cost of supplies, the cost of unusable residue and the cost of failure to fulfil orders are as low as possible.

The doctoral thesis presents the impact of renovation of business processes on the cost-effectiveness of the overall process compared with the improvement of algorithms to optimise the cutting plan. The findings are based on the use of case study methods and simulation methods.

The doctoral thesis provides an approach to the optimisation of specific processes through the development of optimisation algorithms that can be used in other areas where it is necessary to optimise both production as well as other parallel processes.



Marija GORJANC

Doktorska disertacija

PLAZEMSKO SPREMENJENE POVRŠINE BOMBAŽA ZA NANOS NANOSREBRA

Mentor: prof. dr. Barbara Simončič
Univerza v Ljubljani, Naravoslovnotehniška fakulteta
Somentor: prof. dr. Petar Jovančić
Univerza v Beogradu, Tehnološko-metalurška fakulteta

Mnoge industrijske panoge, ki imajo v svojem procesu vključeno obdelavo površine materialov, si zaradi težnje po zmanjšanju onesnaževanja in stroškov, povezanih s porabo vode, kemikalij in energije, prizadevajo nadomestiti konvencionalne postopke obdelave materialov z novimi, za okolje manj obremenjujočimi tehnologijami. Plazemska tehnologija je do okolja prijazna ter pomeni korak k novim načinom obdelave trdnih površin in izdelave materialov, ki jih s konvencionalno obdelavo ne moremo oblikovati.

V doktorski disertaciji je podrobneje predstavljena raziskava plazemske obdelave na tekstilnih vlaknih iz bombaža in poliestra. Avtorica je preverila vpliv plazemske obdelave na lastnosti tekstilnih substratov, pri čemer je uporabila sodobne analizne tehnike: vrstični elektronski mikroskop (SEM), rentgensko fotoelektronsko spektroskopijo (XPS), kapilarni dvig in omakalni kot ter določila pretržno trdnost in raztezek tekstilij. Rezultati raziskave so pokazali, da plazma ne poslabša mehanskih lastnosti tkanin, izboljša pa njihove površinske lastnosti za nadaljnjo obdelavo. Rezultati raziskave so aplikativni tudi za druge tekstilije, primernejše za gradbeništvo, kot sta, denimo, aramidna in poliamidna vlakna.

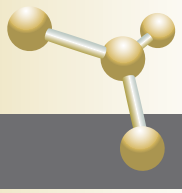
Doctoral thesis

PLASMA MODIFICATION OF COTTON SURFACES FOR A DEPOSITION OF NANOSILVER

Mentor: Prof. Barbara Simončič, PhD
University of Ljubljana, Faculty of Natural Sciences and Engineering
Co-Mentor: Prof. Petar Jovančić, PhD
University of Belgrade, Faculty of Technology and Metallurgy

Pollution reduction and energy savings are important topics in today's industry. Many industries whose business involves surface treatment show interest in the altering of traditional "dirty" chemical surface treatments to new environmentally friendly technologies. One of these new and innovative technologies is plasma surface treatment and its finalisation with coatings.

The doctoral thesis is related to the field of cotton and polyester textile finish-coating using plasma coating nanotechnology for the final functionalisation of fibrous polymers. All morphological, chemical and physical properties of textile fibres treated with plasma were studied using scanning electron microscopy (SEM), X-ray photoelectron spectroscopy (XPS), contact angle measurements, capillary acting tests and measuring of the breaking strength and elongation of textiles. The results showed that the mechanical properties of textiles remained unaltered after being treated with plasma, but the surface properties of the fibres were improved. Additionally, the plasma treatment of fibres is applicable to the other common textile fibres, possibly to aramid and polyamide fibres that are used in civil engineering.



Jasmin KALJUN

Doktorska disertacija

MODEL INTELIGENTNE PODPORE PRI ERGONOMSKEM IN ESTETSKEM RAZVOJU IZDELKOV

Mentor: izr. prof. dr. Bojan Dolšak
Somentor: izr. prof. Vojmir Pogačar
Univerza v Mariboru, Fakulteta za strojništvo

Vsak izdelek, ki ga neko podjetje ponudi na trgu, mora zadovoljiti neko potrebo. Izdelek opravlja svojo glavno funkcijo v tehničnem smislu, hkrati pa mora zagotavljati tako uporabo, ki bo uporabniku zagotavljala ugodje.

Osnovna teza temelji na predpostavki, da je mogoče z ustrezno sistemizacijo znanja s področja ergonomskega in estetskega razvoja izdelkov in s pomočjo metod umetne inteligence znanje v obliki svetovalnega sistema ponuditi širšemu spektru oblikovalcev in konstruktorjev.

V delu posebno izstopa zelo pregleden in strukturiran način pisanja, ki omogoča bralcu enostavno razumevanje tematike, obenem pa poglobitev v posamezne vsebine in pridobitev novega specifičnega znanja. Ima širši pomen za strokovno javnost, ki nemalokrat v fazi razvoja izdelka zanemarja vpliv ergonomije in estetike, to pa lahko ključno vpliva na priljubljenost izdelka na trgu.

Doctoral thesis

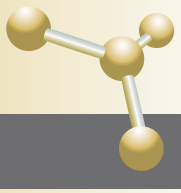
INTELLIGENT SUPPORT MODEL FOR ERGONOMIC AND AESTHETIC PRODUCT DEVELOPEMENT

Mentor: Associate Prof. Bojan Dolšak, PhD
Co-Mentor: Associate Prof. Vojmir Pogačar
University of Maribor, Faculty of Mechanical Engineering

All products on the market must fulfil the users' needs. The product has to perform its main function in a technical sense, while ensuring usage that will provide the user with comfort.

The basic hypothesis is based on the supposition that it is possible to provide knowledge in the form of a consulting system to a wider scope of visitors or constructors by suitably systemising knowledge regarding ergonomic and aesthetic product development and with the help of artificial intelligence methods.

In this thesis, special emphasis is placed on a very transparent and structured method of the thesis that enables the reader to easily understand the subjects and at the same time makes it possible for the reader to delve deep into individual subject matters and obtain specific new knowledge. It has a broader meaning for the expert public, which, during the stage of product development, often disregards the influence of ergonomics and aesthetics, which can have a major impact on the popularity of the product on the market.



David KOREN

Doktorska disertacija

POTRESNA IZOLACIJA IN NESIMETRIČNA KONSTRUKCIJSKA ZASNOVA V ARHITEKTURI

Mentor: izr. prof. dr. Vojko Kilar
Univerza v Ljubljani, Fakulteta za arhitekturo

Disertacija predstavlja interdisciplinarno delo na področjih arhitekture in konstrukcij v arhitekturi. Obravnava dokaj slabo raziskano področje uporabe potresne izolacije za izboljšanje potresne varnosti neregularnih stavb in proučuje njen vpliv na zasnovo konstrukcij v arhitekturi.

Pod pojmom potresna izolacija razumemo sodobne naprave, ki podaljšajo nihajni čas sistema in s tem zmanjšajo sile, ki delujejo na zgornjo konstrukcijo, ter omogočajo sipanje energije, ki jo inducira potres. Disertacija se osredotoča predvsem na konstrukcijsko neregularne stavbe in možnosti, ki jih v tem primeru zagotavlja potresna izolacija. Izhaja iz teze, da uporaba potresne izolacije lahko prispeva k svobodnejšemu oblikovanju arhitekture nekaterih tipov konstrukcij in s tem k večji arhitekturni izraznosti tudi na potresno dejavnih območjih. Pravilno projektirana potresna izolacija naj bi med projektnim potresom zagotavljala elastično vedenje zgornje konstrukcije. Iz različnih vzrokov pa lahko pride tudi v primeru potresno izoliranih konstrukcij do neželenih poškodb v zgornji konstrukciji.

V ta namen so se v disertaciji ukvarjali tudi z metodami računalniške analize potresno izoliranih konstrukcij stavb ter kot rezultat razvili poenostavljeno nelinearno statično metodo N2 in jo prilagodili za uporabo na potresno izoliranih konstrukcijah.

Doctoral thesis

SEISMIC ISOLATION AND STRUCTURAL ASYMMETRY IN ARCHITECTURE

Mentor: Associate Prof. Vojko Kilar, PhD
University of Ljubljana, Faculty of Architecture

This dissertation presents an interdisciplinary work in the field of architecture and earthquake resistant structures and discusses the relatively poorly researched topic of the use of seismic isolation for increasing the seismic safety of irregular structures.

The term seismic isolation means the use of modern systems for increasing the seismic safety of structures that increase the system's period of vibration and, consequently, reduce the seismic forces on the superstructure and dissipate the energy induced by the earthquake. The dissertation focuses on the design of irregular building structures and analyses the benefits that could be provided by seismic isolation in such cases. The dissertation hypothesis is that the use of seismic isolation may allow for greater freedom in architectural design for certain types of structures, thus contributing to the greater artistic value of architecture even in seismically active locations. As required by code provisions, the seismically isolated structures have to be designed in such a manner that during design earthquake excitation, the superstructure remains elastic. Due to various reasons, some unfavourable damage could be generated in the superstructure even in the case of seismically isolated structures. Therefore, the need for a nonlinear analysis of seismically isolated structures is evident.

In this dissertation, the use of the simplified nonlinear N2 method has been adapted and upgraded for the analysis of the base-isolated structures.

Franc SINUR

Doktorska disertacija

VZDOLŽNO OJAČANI POLNOSTENSKI NOSILCI PRI INTERAKCIJI VELIKIH UPOGIBNIH IN STRIŽNIH OBREMENITEV

Mentor: prof. dr. Darko Beg
Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo

Polnostenske nosilce običajno sestavljajo vitke stojine in kompaktne pasnice. Za povečanje nosilnosti se stojina ojača s prečnimi in vzdolžnimi ojačitvami različnih oblik. Posebnost polnostenskih nosilcev, ki se uporabljajo za premostitev večjih razponov, je izkazovanje velike postkritične nosilnosti, ki je dosežena potem, ko se pločevina že izboči. Za boljše razumevanje vedenja vzdolžno ojačanih polnostenskih nosilcev, obremenjenih z velikimi upogibnimi momenti in strižnimi silami, so bili izvedeni štirje eksperimenti na nosilcih naravnih dimenzij.

Rezultati eksperimentalnih testov so bili uporabljeni za verifikacijo numeričnega modela, uporabljenega za nadaljnje študije vpliva različnih parametrov. Na verificiranem numeričnem modelu je bila opravljena študija vpliva začetnih geometrijskih nepopolnosti in zaostalih napetosti na nosilnost. S poenostavljenim verificiranim numeričnim modelom je bila z namenom določitve nosilnosti vzdolžno ojačanih nosilcev sistematično opravljena parametrična nelinearna analiza. Na podlagi numeričnih simulacij je bila določena nova interakcijska enačba za območje velikih strižnih in upogibnih obremenitev ter določen prerez v panelu, kjer naj se kontrola interakcije izvede. Sledila je obširna analiza zanesljivosti petih modelov odpornosti. Namen analize zanesljivosti je bil določitev delnih varnostnih faktorjev in kontrola ustreznosti modelov, ki jih določa EN 1993-1-5.

V zadnjem delu naloge sledi tudi določitev vplivov diagonalnega nateznega polja na vmesne prečne ojačitve. V ta namen sta bila opravljena dva eksperimentalna testa na nosilcih naravne velikosti in tako določena velikost osnih sil v prečnih ojačitvah. Sledila je sistematična parametrična študija, na podlagi katere je bil preverjen vpliv togosti ojačitev na mejno nosilnost nosilca. Izkazalo se je, da je določanje velikosti osnih sil po EN 1993-1-5 konservativno, zato je bil predlagan nov način projektiranja togih prečnih ojačitev, ki temelji le na upogibni togosti teh ojačitev.

Doctoral thesis

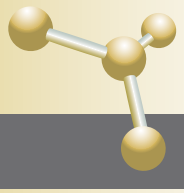
BEHAVIOUR OF LONGITUDINAL STIFFENED PLATE GIRDERS SUBJECTED TO BENDING-SHEAR INTERACTION

Mentor: Prof. Darko Beg, PhD
University of Ljubljana, Faculty of Civil and Geodetic Engineering

Slender plated girders are usually composed of slender webs and compact flanges. In order to increase their capacity, they are stiffened with transverse and longitudinal stiffeners of various shapes. Thin plated girders used to support loads over long spans develop significant post-critical resistance after the plate buckling occurs. To achieve better understanding of longitudinally stiffened plated girders subjected to high bending moments and shear forces, four experimental tests on large scale test specimens were performed.

The results of these tests were used to verify the numerical model that was employed for further parametric studies. Through numerical simulations, the influence of initial imperfections and residual stresses on the capacity of girders was investigated. Using a verified simplified numerical model, a parametric nonlinear analysis was systematically carried out to determine the resistance of longitudinally stiffened plated girders. Based on numerical simulations, a new equation for interaction at high bending moments and shear forces, as well as the section where the check should be performed, is proposed. An extensive reliability analysis of five different design models was made. The purpose of this reliability analysis is to determine partial safety factors and study the adequacy of the EN 1993-1-5 resistance model.

Finally, the influence of the tension field action on intermediate transverse stiffeners was studied. Two tests on a full scale girder were performed to determine the axial forces in transverse stiffeners. This was followed by a parametric study, where the influence of stiffener's stiffnesses on the girders limit capacity was investigated. The EN design rule for axial forces in transverse stiffeners proved to be conservative, therefore a new design rule for rigid intermediate transverse stiffeners based on the minimum flexural stiffness of a stiffener is proposed.



Blaž ŠAMEC

Doktorska disertacija

ŽIVLJENJSKA DOBA ZAVORNIH DISKOV TIRNIH VOZIL PRI TERMOMEHANSKEM OBREMENJEVANJU

Mentor: red. prof. dr. Iztok Potrč
Somentor: izr. prof. dr. Matjaž Šraml
Univerza v Mariboru, Fakulteta za strojništvo

V doktorski disertaciji je razvit model za določitev življenjske dobe zavornih diskov tirnih vozil. Model temelji na predpostavki, da natančno poznamo hitrostni in višinski profil proge, na kateri bodo diski obratovali. Posledično to omogoča napovedovanje ciklov termomehanskega obremenjevanja, ki je vhodni podatek za določitev življenjske dobe zavornih diskov.

Na osnovi zahtev računskih modelov za izračun življenjske dobe po deformacijski metodi je bila v sklopu doktorske naloge opravljena podrobna analiza materialnih lastnosti nodularne litine EN-GJS-500-7 pri različnih temperaturah. Ugotovljeno je bilo, da povišana temperatura močno vpliva na življenjsko dobo analizirane nodularne litine.

Z numeričnimi analizami po metodi končnih elementov so bila analizirana napetostna in deformacijska polja, ki nastanejo med zaviranjem na dejanskem zavornem disku, in določeno kritično mesto njegove konstrukcije. Na podlagi numeričnih rezultatov je bila z deformacijsko metodo izračunana življenjska doba zavornega diska v različnih obremenitvenih primerih za nov in obrabljen disk, pri čemer so bile ugotovljene precej velike razlike med posameznimi hipotezami, ki upoštevajo večosno napetostno stanje. Na koncu je podana še metodologija določitve življenjske dobe zavornih diskov pri vožnji na določeni progi ali hitrostnem sistemu.

Doctoral thesis

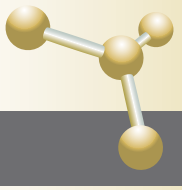
SERVICE LIFE OF RAILWAY BRAKE DISCS UNDER THERMOMECHANICAL LOADING

Mentor: Prof. Iztok Potrč, PhD
Co-Mentor: Associate Prof. Matjaž Šraml, PhD
University of Maribor, Faculty of Mechanical Engineering

A model for assessment of the service life of railway brake discs is presented in this doctoral thesis. The model is based on the assumption that the particular railway route where the brake disc will operate is precisely known. Consequently, this allows for a prediction of the thermomechanical cycles of loading, which are the input data for determination of the service life for a railway brake disc.

Based on the requirements of computational models for fatigue life assessment, detailed analysis of material properties of ductile cast iron EN-GJS-500-7 at various temperatures was performed. It was found that the fatigue life of the analysed ductile cast iron is strongly affected by the increased temperature.

Stress and strain fields generated during braking on the actual brake disc were analysed using the finite element method and a critical area of the brake disc design has been determined. Based on numerical results, fatigue life was calculated for new and worn discs in various braking regimes, where relatively large differences between various hypotheses that take account of multiaxial stress state were found. At the end, the methodology for determining the fatigue life of brake discs while driving on a particular route is presented.



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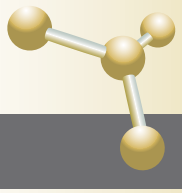

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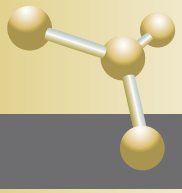

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Alkemist, prevajalske storitve, d. o. o.

TISK / Print

Tiskarna Herle

IZDAL IN ZALOŽIL / Issued by

Trimo, d. d.
Prijateljeva cesta 12
8210 Trebnje
Slovenija / Slovenia

NAKLADA / Edition

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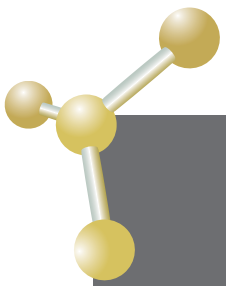

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