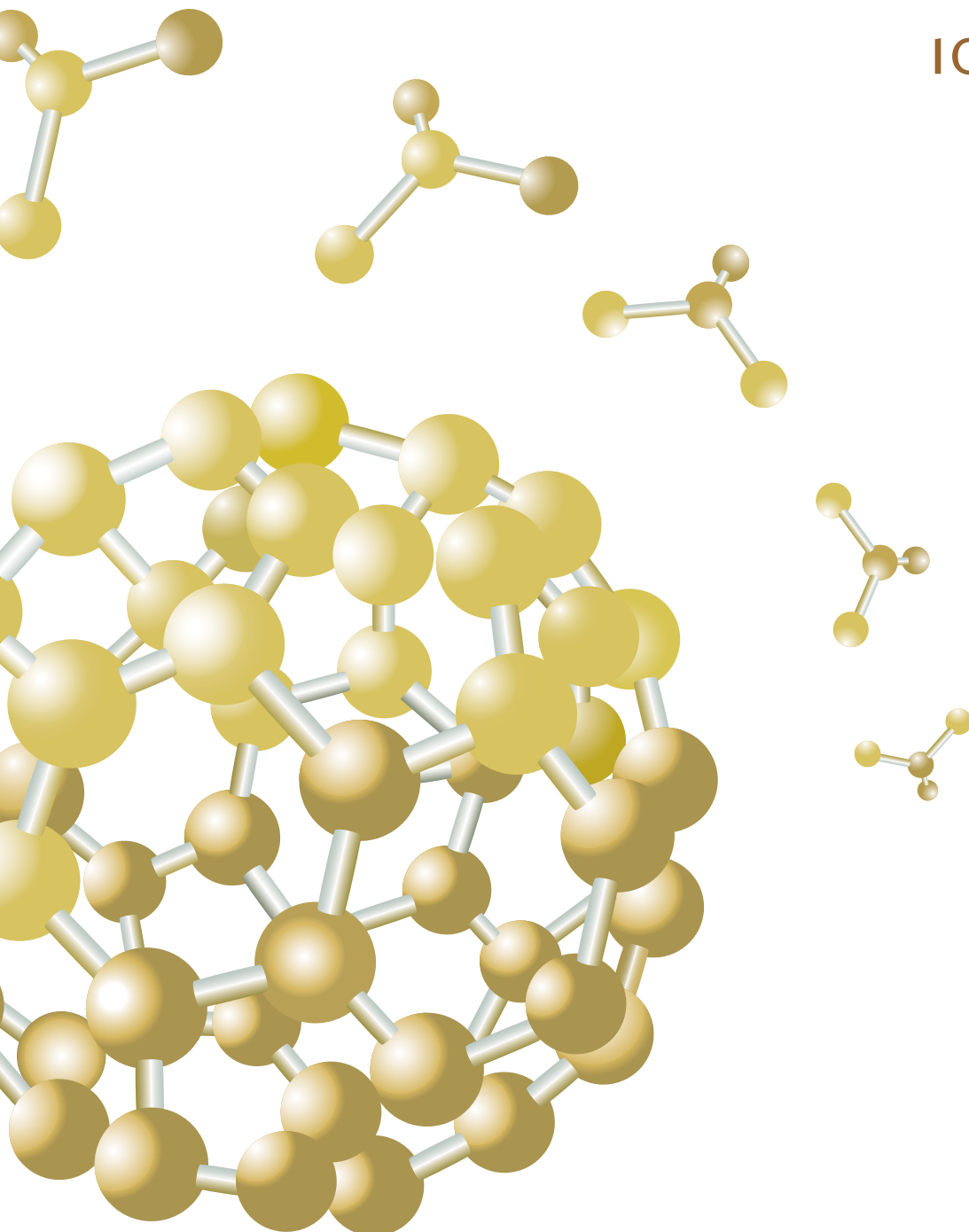


10. TRIMOVE
RAZISKOVALNE
NAGRADE

10TH TRIMO
RESEARCH
AWARDS

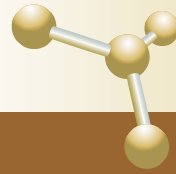
2011



KAZALO

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NAGOVOR GLAVNE DIREKTORICE

GENERAL MANAGER'S ADDRESS

Energija + odgovornost = bogastvo

V zadnjem letu je naša generacija doživela veliko različnih dogodkov, ki jim še ni videti konca, saj vsak dan doživimo ali spoznamo nekaj novega, doslej neznanega. Temu se moramo vedno znova prilagajati. Zato je gibkost pomembna vrlina tako v vsakdanjem življenju kot tudi na področju raziskav, kjer posebej v poslovnem sektorju iščemo čim bolj enostavne in praktične rešitve za probleme na različnih področjih delovanja.

Nove ideje nam dajejo naši kupci, zaposleni, strokovnjaki iz različnih centrov znanja in vsi, ki vidijo, da lahko skupaj z nami prispevajo k boljšim rešitvam. Trimove raziskovalne nagrade so pomemben vir za spoznavanje in kreiranje novosti. So trdna vez med akademsko sfero in gospodarstvom.

Pomenijo koristi za podjetje in raziskovalce, saj ti dobijo hitre povratne informacije za svoje raziskave. Raziskovalci tako lahko prihranijo veliko časa, saj praktične izkušnje svojih kolegov v gospodarstvu odstirajo marsikatero tančico skrivnosti, ki se vedno znajde med teoretično rešitvijo in njeno praktično uporabo. V realnem življenju je treba videti najširšo sliko in upoštevati vse omejevalne elemente.

Ko raziskovalno delo prinaša koristi uporabnikom, je zadovoljstvo raziskovalca popolno. To mu da novo energijo za še več novega.

V Trimu s podporo mladim raziskovalcem ne iščemo koristi le za podjetje, ampak za širšo skupnost. Predvsem želimo dati priznanje najboljšim mladim raziskovalcem, ki so vložili veliko časa, energije in znanja v svoje raziskovalno delo in jih motivirati za iskanje novega tudi, ko bodo ustvarjali v praksi.

V raziskave je vsako leto vključenih poleg raziskovalcev tudi veliko mentorjev in recenzentov. Vsem se iskreno zahvaljujem za njihov čas in znanja, ki so ga delili z raziskovalci in z nami v podjetju. Hvala tudi dekanom fakultet za podporo raziskovalcem in povezavo fakultet s Trimom. Tako bogatimo drug drugega in svet okrog nas.

Vsem nagrajencem Trimovih raziskovalnih nagrad 2011 iskreno čestitam in jim želim bogato in ustvarjalno kariero.

Tatjana Fink
Glavna direktorica, Trimo, d.d.

Energy + responsibility = prosperity

Our generation has never experienced so many different events in such a short period as in the previous year. And it seems that the end is not yet in sight because every day we experience something new, as yet undiscovered. We have to adapt to it constantly. This is why flexibility is an important virtue in everyday life and in the research field, especially in the business sector, where we are searching for simple and practical solutions for problems in different areas of activity.

We get new ideas from our customers, employees, experts from different knowledge centres and everyone who believe in contributing to better solutions, together, with us. The Trimo Research Awards are an important source for discovering and creating new solutions. They create a strong bond between the academic sphere and business.

They also contribute to the benefit of the company and researchers for they can receive feedback for their research work. Above all, researchers can save a lot of time because the practical experience of their colleagues in commerce reveals many secrets that always arise between a theoretical solution and its practical use. In real life it is important to create an overall picture and consider all restrictive elements.

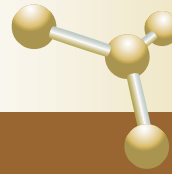
A researcher could not be more satisfied than when research work provides benefits for the users. This gives him additional energy for new achievements.

Supporting young researchers, Trimo does not enjoy benefits only for the company but also for the wider community. What is more, we wish to award the best young researchers who invested a lot of time, energy, and knowledge into their research work, and motivate them to search for new challenges in practice.

Every year not only researchers - but also several mentors and reviewers - are included in the research work. My special thanks to everyone who shares their time and knowledge with the researchers and Trimo. A special thanks to the faculty deans for supporting researchers and joining their faculties up with Trimo. This is how we enrich each other and the world around us.

I would like to congratulate all 2011 Trimo Research Awards winners and wish you a rich and creative career.

Tatjana Fink
General Manger, Trimo, d.d.



NAGOVOR PREDSEDNIKA KOMISIJE

PRESIDENT OF THE RESEARCH BOARDS' ADDRESS

Spoštovani!

Minilo je deset let, odkar v podjetju Trimo skupaj z vami organiziramo in podeljujemo Trimove raziskovalne nagrade. Okrogle obletnice pomenijo dobro priložnost, da se ozremo nazaj, ugotovimo, kaj smo do sedaj skupaj dosegli in si postavimo nove cilje.

V teh desetih letih je bilo podeljenih več kot 400 nagrad, od tega 229 za diplomska dela, 85 za magistrska in specialistična dela ter 87 za doktorske disertacije. Pri tem je sodelovalo 226 mentorjev iz 53-ih fakultet, ki prihajajo iz 12-ih držav. In kar je najpomembnejše: veliko mladih strokovnjakov je dobilo še eno potrditev pomembnosti in strokovnosti njihovega dela, kar je – upamo – bila dobra popotnica za nadaljnjo karierno pot.

Deset let je dolga doba, njenega resničnega pomena se zavedamo šele, ko pogledamo, kaj vse se je v tem času zgodilo. Kar 16 nagrajencev je nadaljevalo svojo akademsko pot in bilo potem še enkrat nagrajenih, nekaj nagrajencev Trimovih raziskovalnih nagrad je pozneje celo prevzelo vlogo mentorjev novim Trimovim nagrajencem, več kot 80 nagrajencev je v teh desetih letih sodelovalo s Trimom v konkretnih razvojnih aktivnostih.

Svet leta 2001 nikakor ni enak svetu, v katerem smo danes. Vse izkušnje in znanje ter strokovne in prijateljske vezi, ki smo jih tkali v vseh teh letih, pa bodo ostale za vedno in nam pomagale, da se bomo spoprijeli z novimi izzivi, ki so, v to sem prepričan, še pred nami.

Miloš Ebner
Predsednik komisije za znanstveno delo

Dear colleagues

It has been ten years since Trimo started organizing and granting Trimo Research Awards together with you. Anniversaries offer a good opportunity to look back, think about what we have done so far, and set new goals.

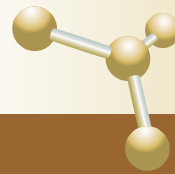
In these ten years, more than 400 awards have been granted, including 229 awards for diploma papers, 85 for master's and specialist dissertations, and 87 for doctoral theses. 226 mentors from 53 faculties in 12 countries have participated in this competition. And what is most important, many young experts received confirmation of the importance and professionalism of their work, which was, hopefully, a great advantage for their future career.

Ten years is a long time, which we actually realize when we look back on all what has happened in this time. 16 award winners continued their academic careers and were awarded again, and some Trimo Research Awards winners even became mentors to new Trimo award winners, and more than 80 award winners have cooperated with Trimo in development activities during these ten years.

The 2001 world is definitely different from today's world. However, all experience, knowledge, cooperation with experts, and friendly relationships that we have established, will not pass into oblivion. They will help us face new challenges which lie in our future.

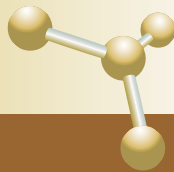
Miloš Ebner
President of the Research Work Committee

KOMISIJA ZA RAZISKOVALNO DELO



RESEARCH BOARD

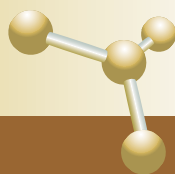
1. Miloš EBNER - *predsednik / president*
2. Danijel ZUPANČIČ - *član / member*
3. Maja LAPAJNE - *član / member*



RECENZENTI

REVIEWERS

1. Polona ADAMIČ
2. Polona BRIŠKI
3. Alojz CULJKAR
4. Andrej ČAMPA
5. Boštjan ČERNE
6. Jože DRČAR
7. Miloš EBNER
8. Matjaž GROŠELJ
9. Boštjan HAUPTMAN
10. Anton JANC
11. Mojca JAPELJ FIR
12. Marjan JARC
13. Miha KAVČIČ
14. Sonja KLOPČIČ
15. Ljudmila KOPRIVEC
16. Primož KOZLEVČAR
17. Aleš KRALJ
18. Franci KRALJ
19. Matej KRANJC
20. Alojz KRIŽMAN
21. Maja LAPAJNE
22. Špela LOKAR
23. Simona OSTANEK
24. Matjaž PERPAR
25. Katja PIRC
26. Aleš POR
27. Marko PRESKAR
28. Črtomir REMEC
29. Aleš RESNIK
30. Tomaž RUGELJ
31. Janez SLUGA
32. Marta STRMEC
33. Miha ŠANTAVEC
34. Tatjana ŠINKOVEC
35. Jara ŠPEGAR KNEZ
36. Silvo ŠTIH
37. Matjaž VIDOVIČ
38. Vincenc VOVK
39. Mitja VOVKO
40. Jože ZALETELJ
41. Viktor ZALETELJ
42. Danijel ZUPANČIČ
43. Gašper ŽEMVA
44. Matjaž ŽNIDARŠIČ



NAGRAJENCI

AWARDEES

DIPLOMSKA DELA

DIPLOMA PAPERS

1. Jana BOLTA, *Slovenija / Slovenia*
2. Olga BOMBAČ, *Slovenija / Slovenia*
3. Metod BONČA, *Slovenija / Slovenia*
4. Matjaž CVEK, *Slovenija / Slovenia*
5. Jerneja ČEMAŽAR, *Slovenija / Slovenia*
6. Luka GERDEN, *Slovenija / Slovenia*
7. Natalija HROMEČ, *Slovenija / Slovenia*
8. Darko KOVAČIČ, *Slovenija / Slovenia*
9. Gregor LONGAR, *Slovenija / Slovenia*
10. Martina MAČEK, *Slovenija / Slovenia*
11. Nataša MEDVED, *Slovenija / Slovenia*
12. Alja MIHEVC, *Slovenija / Slovenia*
13. Anja MOLAN, *Slovenija / Slovenia*
14. Gregor NOVAK, *Slovenija / Slovenia*
15. Vesna OGRIZ, *Slovenija / Slovenia*
16. Marko OMERZU, *Slovenija / Slovenia*
17. Neža PERGER, *Slovenija / Slovenia*
18. Katja PREGI, *Slovenija / Slovenia*
19. Aleksandra RAKINIČ, *Slovenija / Slovenia*
20. Karmen STARIČ, *Slovenija / Slovenia*
21. Mirela ŠAHINOVIČ, *Hrvaška / Croatia*
22. Sašo ŠONC, *Slovenija / Slovenia*
23. Simon VRHOVEC, *Slovenija / Slovenia*
24. Andrijano ZERA, *Slovenija / Slovenia*
25. Anja ZUPANČIČ, *Slovenija / Slovenia*
26. Peter ZUPANČIČ, *Slovenija / Slovenia*

SPECIALISTIČNO DELO

SPECIALIST THESIS

1. Jože STEPAN, *Slovenija / Slovenia*

MAGISTRSKA DELA

DISSERTATIONS

1. Boris BOGOSAVLJEVIĆ, *Srbija / Serbia*
2. Mrinal CHAKRABORTY, *Velika Britanija / United Kingdom*
3. Matej ČERNE, *Slovenija / Slovenia*
4. Aleks JAN, *Slovenija / Slovenia*
5. Valentin KOBLAR, *Slovenija / Slovenia*
6. Saša KOŠEC, *Slovenija / Slovenia*
7. Slavko MILANOVIC, *Italija / Italy*
8. Kaja RANGUS, *Slovenija / Slovenia*
9. Urszula Anna STEFANIUK, *Poljska / Poland*
10. Mateja ŠUŠTERŠIČ DIMIC, *Slovenija / Slovenia*
11. Lilijana ZALOŽNIK, *Slovenija / Slovenia*

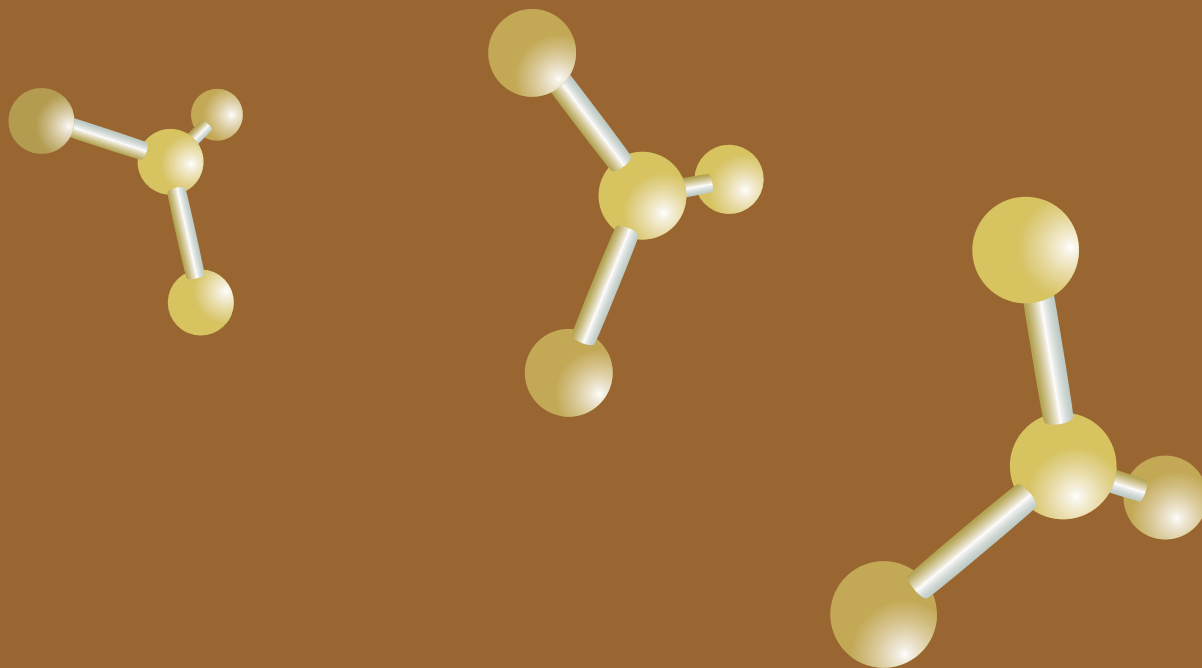
DOKTORSKE DISERTACIJE

DOCTORAL THESES

1. Jaka DUJC, *Slovenija / Slovenia*
2. Maja KRESLIN, *Slovenija / Slovenia*
3. Jurij KURNIK, *Slovenija / Slovenia*
4. Irena OROVIĆ, *Črna Gora / Montenegro*
5. Aleš POPOVIČ, *Slovenija / Slovenia*
6. Marko SEDLAČEK, *Slovenija / Slovenia*
7. Tomaž SLAK, *Slovenija / Slovenia*
8. Rok ŠKRINJAR, *Slovenija / Slovenia*
9. Bojan TEPAVČEVIČ, *Srbija / Serbia*
10. Nikola VUKAŠINOVIČ, *Slovenija / Slovenia*
11. Marko ZEBEC KOREN, *Slovenija / Slovenia*

POSEBNE NAGRADE ZA STROKOVNI PRISTOP

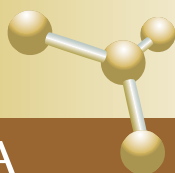
1. Barbara KALAR, *Slovenija / Slovenia*
2. Monika LOVŠE, *Slovenija / Slovenia*
3. Smiljana ZAJEC, *Slovenija / Slovenia*
4. Andrej ŽEROVNIK, *Slovenija / Slovenia*



ZBORNIK POVZETKOV NAGRAJENIH DEL
ABSTRACTS OF THE PROJECTS AWARDED

DIPLOMSKA DELA

DIPLOMA PAPERS



Diplomsko delo

STOPNIČASTE KLAUZULE

Mentor: red. prof. dr. Matjaž Tratnik
Univerza v Mariboru, Pravna fakulteta

Diplomsko delo obravnava stopničaste klavzule in njihov vpliv na področju reševanja sporov med strankami. V prvem delu so predstavljena teoretična izhodišča, zgodovina razvoja stopničastih klavzul, konkretna sodna praksa in kratka navodila za uporabo stopničastih klavzul. V posebnem delu so predstavljene posamezne pojavne oblike stopničastih klavzul, ki jim v tretjem delu naloge sledi predstavitev pravne analize konkretnega primera.

Stopničaste klavzule so postale pomemben dodatek domačih in mednarodnih gospodarskih pogodb po celem svetu. Sestavljene so iz več faz, ki vsebujejo ločene postopke, namenjene reševanju nastalega spora. Zaporedje postopkov je natančno določeno. V začetnih fazah so najpogosteje določena pogajanja ali postopek mediacije oziroma conciliacije, čigar namen je, da stranki rešita spor na prijateljski način ter se izogneta reševanju spora v naslednjih fazah. Postopka arbitraže in pravljanja sta predvidena kot zadnja, zato se z njuno pomočjo spor rešuje le, če so predhodne faze neuspešne.

Stopničaste klavzule se pogosto uporabljajo v praksi in pomenijo velik napredek na področju reševanja sporov.

Diploma paper

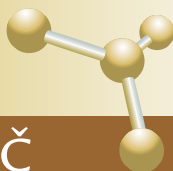
MULTI-TIER CLAUSES

Mentor: Prof. Matjaž Tratnik, PhD
University of Maribor, Faculty of Law

This diploma paper deals with the multi-tier clauses and their impact on the area of dispute resolution between parties. The first part is a theoretical platform, describing the historical development of the multi-tier clauses, specific case law on multi-tier clauses, and brief instructions on how and when to use these clauses. In a special part of the paper, the concrete forms of multi-tier clauses are explained, and the third part follows by the presentation of a legal analysis of the case.

Multi-tier dispute resolution clauses have become popular additions to domestic and international commercial contracts all over the world. These clauses typically prescribe tiered stages, involving separate procedures, for dealing with and seeking to resolve disputes. Such clauses typically provide for certain steps and efforts to be taken by the parties prior to commencing arbitration or litigation. Typically, the initial tiers of such clauses provide for a duty to enter into negotiations or a duty to participate in conciliation or mediation process. This initial steps are aimed at finding an amicable settlement of disputes, in order to avoid arbitration or litigation. Arbitration or litigation are the last tiers of such clauses and are intended to be conducted only if the efforts taken in the initial steps have failed.

Multi-tier clauses are widely used in practice and are an important process in dispute resolution methods.



OLGA BOMBAČ

Diplomsko delo

IDEJNA ZASNOVA ŠTUDENTSKEGA NASELJA V NOVI GORICI

Mentor: prof. mag. Peter Gabrijelčič,
univ. dipl. inž. arh.
Somentorica: doc. dr. Alenka Fikfak,
univ. dipl. inž. arh.
Univerza v Ljubljani, Fakulteta za arhitekturo

Tema diplomskega dela obravnava je zasnova študentskega naselja, ki tvori mestni rob in posledično formira prostor, v katerem se nahaja ter se osredotoča na ohranitev zelenih površin, fleksibilnost zasnove in odnose urbano-naravno, javno-zasebno ter individualno-kolektivno, hkrati pa predstavlja svež pristop gradnje študentskega bivališča po principu urbane pikselizacije, ki omogoča hiter, enostaven, fleksibilen sistem gradnje in enostavno širitev programa glede na potrebe univerze.

Analiza urbanizma Nove Gorice je pokazala pomanjkljivost njene urbanistične ureditve: središče mesta večinoma nima človeškega merila. Naloga se zoperstavi temu z gradnjo, ki je v človeškem merilu in spominja na mediteranske prostore, ki naj bi vzpodbujali komunikacijo. Iz tega se razvije zanimivi modularni kockasti koncept stavbe, ki se da fazno širiti.

Ambienti, ki se v takšni arhitekturi razvijejo, so vizualno zanimivi in tako zvišujejo bivalno udobje njenih uporabnikov.

Diploma paper

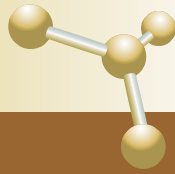
DRAFT DESIGN OF STUDENT HOUSING IN NOVA GORICA

Mentor: Prof. Peter Gabrijelčič, MSc (Architecture)
Co-mentor: Assistant Prof. Alenka Fikfak, PhD,
BSc (Architecture)
University of Ljubljana, Faculty of Architecture

This diploma paper addresses the topic of the student campus, which forms the urban edge and thus forms a space in which it is located and focuses on the preservation of green spaces, flexibility of design, and relations between urban-nature, public-private and individual-collective situations; and at the same time, it offers a fresh approach to constructing a student residence on the principle of urban pixelization that provides a quick, easy and flexible system of construction and easy extension of the program, based on the needs of the university.

The analysis of the existing urban layout of Nova Gorica showed that there is a flaw in its design; there is not much human scale in the city centre. The diploma paper deals with this issue with a building built to human scale that resembles Mediterranean urban spaces, which encourage communication between its users. An interesting modular box-like concept is developed. This concept enables the building to spread or grow in phases.

The ambience created in this complex are visually attractive and because of this the level of comfort for living in it is heightened.



Diplomsko delo

OCENA POTRESNEGA TVEGANJA ZA IZBRANE JEKLENE STAVBE

Mentor: doc.dr. Matjaž Dolšek
Univerza v Ljubljani, Fakulteta za gradbeništvo in
geodezijo

Potres je eden izmed pomembnejših vplivov, ki jih je potrebno upoštevati pri načrtovanju novih in obnovi obstoječih objektov. Pri načrtovanju objektov se običajno upošteva potresna obtežba, ki se v povprečju pojavi enkrat na 475 let. Za projektni potres se dovoljujejo močne poškodbe konstrukcije, ampak je potrebno preprečiti porušitev. Takšna filozofija projektiranja je vključena tudi v predpise za projektiranje potresnoodpornih konstrukcij, vendar se vse bolj uveljavljajo metode projektiranja, ki predvidevajo določevanje potresnega tveganja, ki ga običajno izrazimo s srednjo letno verjetnostjo prekoračitve mejnega stanja.

Prednost takšnega pristopa pred običajnim projektiranjem je eksplicitna ocena verjetnosti prekoračitve mejnega stanja, pri čemer so upoštevani vsi možni potresi, ki se lahko pojavijo v življenjski dobi konstrukcije. Takšen pristop je bil uporabljen tudi v diplomskem delu.

V prvem delu so predstavljene teoretične osnove za oceno potresnega tveganja, v drugem delu pa sta bili ocenjeni potresni tveganji za dva primera jeklenih stavb. Izkaže se, da so konstrukcije, ki so projektirane po sodobnih predpisih, bistveno bolj varne kot tiste, ki so bile projektirane po predpisih JUS, čeprav je verjetnost porušitve zaradi potresa še vedno večja kot verjetnost porušitve zaradi lastne teže, vetra ali snega.

Diploma paper

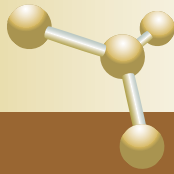
SEISMIC RISK ASSESSMENT FOR SELECTED STEEL BUILDINGS

Mentor: Assistant Prof. Matjaž Dolšek, PhD
University of Ljubljana, Faculty of Civil and
Geodetic Engineering

Earthquakes represent an important action on buildings, which have to be considered in the process of design or performance assessment. Usually it is considered that ordinary buildings are designed for an earthquake with a return period of 475 years. The seismic performance of a building subjected to design earthquake is still satisfactory if the building suffers significant damage, but its collapse should be prevented. Such design philosophy is embedded in the codes for design of earthquake resistant structures. However, new methods for design and performance assessment of structures are becoming increasingly popular and involve seismic risk assessment, which is usually expressed with by the mean annual probability of exceeding a given limit state.

The advantage of such an approach, which was also used in the diploma paper, is explicit determination of risk by consideration of all possible seismic events, which may appear during the life period of the structure.

In the first part of the paper the theoretical background of the seismic risk assessment method is summarized. The use of the method is then demonstrated by means of seismic risk assessment of two steel buildings. Results indicated that a structure designed according to the modern code is much safer than that designed according to the old JUS codes. Also, it was recognized that the probability of failure due to earthquakes can be higher than that due to gravity loads, wind, or snow.



Diplomsko delo

OPTIMIZACIJA OPTIČNIH LASTNOSTI ENODIMENZIONALNIH LATERALNIH PERIODIČNIH STRUKTUR V TANKOPLASTNIH SILICIJEVIH SONČNIH CELICAH

Mentor: izr. prof. dr. Janez Krč, univ. dipl. inž. el. Univerza v Ljubljani, Fakulteta za elektrotehniko

Učinkovito ujetje svetlobe v tankoplastnih sončnih celicah, kot predstavnikov druge generacije sončnih celic, je ključnega pomena za izboljšanje učinkovitosti pretvorbe sončne energije v električno. Svetloba, ki se razprši na hrapavih spojih, skozi strukturo potuje po daljših efektivnih optičnih poteh kot v strukturi z gladkimi spoji, s tem pa so tudi izkoristiki pretvorbe višji.

Narejena je sistematična analiza in optimizacija eno-dimenzionalnih lateralnih periodičnih struktur na spojih amorfno-silicijevih sončnih celic. Tovrstne strukture se dajo izvesti s pomočjo termoplastičnih in ultravijoličnih tehnik vtiskovanja tekstur na površino plastičnih ali kovinskih substratov. V diplomskem delu so s pomočjo simulacij določeni optimalni geometrijski parametri periodičnih struktur za štiri oblike: trapezna, trikotna, sinusna in oblika U. Za vsako obliko je podano izboljšanje izhodnih parametrov optičnih simulacij, tj. gostota kratkostičnega toka in kvantni izkoristek. V primerjalni analizi najbolj obetavnih struktur so rezultati sistematično prikazani, pri čemer so izpostavljeni najboljše.

Optično dogajanje znotraj sončne celice je natančneje opisano in razloženo. Velik potencial izkazuje nagnjena trikotna oblika in sinusna oblika spoja.

Diploma paper

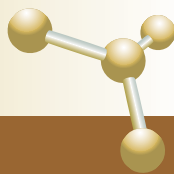
OPTIMIZATION OF THE OPTICAL PROPERTIES OF ONE-DIMENSIONAL REGULAR PERIODIC STRUCTURES IN THIN-FILM SILICON SOLAR CELLS

Mentor: Assoc. Prof. Janez Krč, PhD, BSc (Electrical Eng.) University of Ljubljana, Faculty of Electrical Engineering

In thin-film silicon solar cells, absorber layers are very thin (a few hundreds of nanometres), and, therefore, efficient light capture presents one of the key issues for improvement of the cells' conversion efficiencies. Surface textures of the interfaces in amorphous silicon solar cells lead to light scattering and has a higher chance of absorption, thus leading to improvements in solar cell output characteristics.

A systematic study and optimization of regular one-dimensional periodic textures of the interfaces, in thin-film amorphous silicon solar cells, is carried out using simulations. Optimization of the following textured shapes was performed: rectangular-like, triangular, sine, and U-like. Such textures can be fabricated on plastic or steel foil substrates by hot thermoplastic or ultra-violet embossing techniques, which are fully applicable in roll-to-roll PV module production. Optimal periods, heights, and other parameters of the texturization features are indicated.

The optical situation inside the cell is well described and explained. The highest potential improvements are determined for the triangular (blazed saw) and sine shaped textures of interfaces.



Diplomsko delo

PROSTOVOLJNA FLUKTUACIJA KADRA V IZBRANEM PODJETJU X S Poudarkom NA RAZLOGIH PROSTOVOLJNIH ODHODOV Z VIDIKA ODHAJAJOČIH DELAVCEV

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

V diplomskem delu so predstavljeni vzroki za prostovoljno fluktuacijo zaposlenih, in sicer tako vzroki, na katere ima organizacija vpliv (»interni vzroki«) in vzroki, na katere v organizaciji nimajo vpliva (»eksterni vzroki«).

Poudarek je predvsem na internih vzrokih, ki so predstavljeni z organizacijskega, sociološkega, ekonomskega in psihološkega vidika. V empiričnem delu so na podlagi analize opravljenih odhodnih intervjujev predstavljeni vzroki za prostovoljno odhajanje kadra iz izbranega podjetja X.

Diplomsko delo v teoretičnem delu ponuja sistematičen pregled možnih dejavnikov, ki v organizaciji vplivajo na odhod zaposlenih, in je dobra osnova za preverjanje zadovoljstva zaposlenih ter za izboljšanje vseh kadrovskega procesov. Postopek in rezultati empiričnega dela ponujajo uporabno metodologijo za odhodne razgovore z zaposlenimi in rezultate, ki so dober benchmarking za podjetja, ki bodo na tako sistematičen način preverjala vzroke za fluktuacijo.

Diploma paper

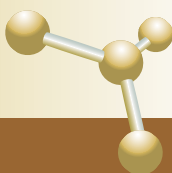
VOLUNTARY EMPLOYEE RESIGNATIONS IN A SELECTED COMPANY, X, WITH AN EMPHASIS ON REASONS FOR VOLUNTARY RESIGNATIONS FROM THE DEPARTING EMPLOYEES' POINT OF VIEW

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

This diploma paper discusses in detail the reasons for voluntary resignation, namely the internal reasons, which a company can control, as well as external reasons, which are beyond its power.

The emphasis is placed on internal reasons which are discussed from the organisational, sociological, economic, and psychological point of view. The second, i. e. the empirical part, is dedicated to the analysis of exit interviews conducted in the selected company, X, which shall help us reveal and understand the reasons for voluntary resignation.

In its theoretical part, this diploma paper provides a systematic overview of possible factors that affect employee resignation in a company, and is thus a good basis for employee satisfaction measurement and improvement of all human resource processes. The process and results of the empirical work provide a useful methodology for exit interviews with employees, and results that are a good benchmark for companies that will examine the causes of employee turnover in such a systematic way.



LUKA GERDEN

Diplomsko delo

**IDEJNA URBANISTIČNA IN
ARHITEKTURNA ZASNOVA ATLETSKE
DVORANE V ŠPORTNEM PARKU
LJUBLJANA**

Mentor: izr. prof. dr. Boris Leskovec, u.d.i.a.

Somentor: asist. Andrej Mahovič, u.d.i.a.,

izr. prof. dr. Vojko Kilar, u.d.i.g.

Univerza v Ljubljani, Fakulteta za arhitekturo

Diplomsko delo arhitekta Luke Gerdena obdeluje tematiko, ki je v slovenskem prostoru aktualna in zelo pereča. Glede na športne uspehe slovenskih atletov je infrastruktura močno podhranjena na področju pokrite atletske dvorane s 60 metrsko tekaško stezo. Avtor ocenjuje, da obstoječa ureditev športnega parka Ljubljana ne izkorišča vseh potencialov, zato z intervencijo program razširja in dopolnjuje s športnimi aktivnostmi, ki bodo v bodoče tu domicilne.

Pri načrtovanju so upoštevani aktualni standardi svetovne atletske zveze in normiranje športnih površin. Predlagajo se tisti programi, ki so trenutnim potrebam nujni in prostorsko nerazsipni. Nakazana je uporaba fotovoltaičnih integriranih sončnih celic v smislu samozadostne zgradbe in nizkih vzdrževalnih stroškov. Osnovna nosilna konstrukcija je jeklena, vključuje pa tudi možnost aplikacije izolacijskih fasadnih in strešnih panelov.

Način celostnega vrednotenja in kreiranja je vreden posnemanja pri objektih podobnega značaja.

Diploma paper

**URBAN AND ARCHITECTURAL
PROPOSAL FOR AN ATHLETIC SPORTS
HALL IN LJUBLJANA SPORT PARK**

Mentor: Associate Prof. Boris Leskovec, PhD,
BSc (Architecture)

Co-Mentor: Andrej Mahovič, BSc (Architecture),

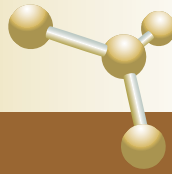
Associate Prof. Vojko Kilar, PhD, BSc (Civil Eng.)

University of Ljubljana, Faculty of Architecture

This diploma paper of the architect, Luka Gerden, presents a very topical and problematic theme in the Slovenian area. Despite the successes of Slovenian athletes there is not enough sporting infrastructure, especially covered athletic halls with a 60 m long track. The author believes that the existing arrangement of the Sport Park, Ljubljana, does not exploit its full potential. He thus proposes to expand the programme and include sports activities that will often appear here in the future.

When planning, the author took into account the current standards of the International Association of Athletics Federations and standards of sport surfaces. Programmes are suggested that are essential to current needs and do not require too much space. The author suggests the use of integrated photovoltaic solar cells in order to have a self-sustaining building and low maintenance costs. The main load-bearing construction is made of steel and it includes the possibility of applying an insulated facade and roof panels.

The method of comprehensive evaluation and creation is worth replicating in similar projects.



Diplomsko delo

IZBIRA PONUDNIKA POSLOVNE INTELIIGENCE

Mentor: izr. prof. dr. Marjan Krisper
Univerza v Ljubljani, Fakulteta za računalništvo
in informatiko

Namen diplomskega dela je izgradnja odločitvenega modela izbire ponudnika orodja poslovne inteligence, ki ponuja osebno oceno izbire ponudnika orodja poslovne inteligence in služi kot pomoč vodilnim v podjetju Trimo za končno odločitev.

Poslovna inteligenca se je razvijala več desetletij in danes ponuja orodja, ki so potrebna za izboljšanje odločanja znotraj organizacije. Management uspešnosti in učinkovitosti (BPM) zagotavlja prav sredstva za združevanje poslovnih strategij in struktur za celotno organizacijo.

Poslovna inteligenca se je razvila iz odločitvenih sistemov. Sistemi za podporo odločanju (DSS) in direktorski informacijski sistemi (EIS) so aplikativno usmerjeni, podatkovno skladiščenje (DW) in poslovno inteligenčni sistemi (BI) uporabljajo podatkovni pristop, management uspešnosti in učinkovitosti (BPM) pa poleg zgoraj naštetega vključuje tudi procese.

Funkcije in značilnosti poslovne inteligence so poročanje in analiziranje, sistem uravnoteženih kazalnikov, ključni kazalniki uspešnosti, pregledne plošče, orodja za vizualizacijo, napredne analize, podatkovno rudarjenje, OLAP, ETL in EII.

Odločitveni model opredeljuje subjektivno oceno izbire orodja poslovne inteligence in služi kot pomoč vodilnim za končno odločitev.

Diploma paper

SELECTION OF A BUSINESS INTELLIGENCE TOOL PROVIDER

*Mentor: Associate Prof. Marjan Krisper, PhD
University of Ljubljana, Faculty of Computer and
Information science*

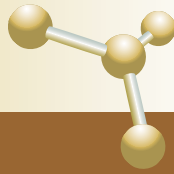
The purpose of this diploma paper was to build a decision-making model to assist in selecting the appropriate business intelligence tools provider. The model also includes my own assessment of the selection and serves as support for a final decision in Trimo.

Business Intelligence has evolved over decades and now offers the tools needed to improve decision-making within an organization. Management efficiency and effectiveness (BPM) provides a means to bring together business strategies and structures for the entire organization.

Business intelligence has evolved from decision-making systems. Decision support systems (DSS) and Directors Information Systems (EIS), are application oriented. Data warehousing (DW) and business intelligence systems (BI) are data oriented. Business process management (BPM) in addition to the above also includes the processes.

The functions and characteristics of business intelligence are reporting and analysis, balanced scorecards, performance key indicators, dashboards, tools for visualization, predictive analytics, data mining, OLAP, ETL, and EII.

The multi-attribute decision models define a subjective assessment of the selection tools of business intelligence and serve as support for a final decision.



Diplomsko delo

NOSILNOST JEKLENIH NOSILCEV Z ODPRTINAMI V STOJINI IN JEKLENIH SATASTIH NOSILCEV

Mentor: izr. prof. dr. Jože Korelc
Somentor: Teja Melink, univ. dipl. ing. grad
Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo

Avtor je v delu obravnaval nosilnost jeklenih nosilcev z odprtini v stojini in jeklenih satastih nosilcev. Z delom se je lotil povsem praktičnega inženirskega področja, tj. reševanja problematike vodenja inštalacij v etažni konstrukciji.

V začetni fazi predstavi področje uporabe nosilcev z odprtini in satastih nosilcev. Na kratko se dotakne načrtovanja razporeditve nosilcev glede na potek inštalacij v stavbah in predstavi ugotovitve. Iz obstoječe strokovne in znanstvene literature naredi izvlečke analitičnih metod za dokazovanje nosilnosti satastih nosilcev in nosilcev z odprtini. Iz literature izlušči in opiše najvažnejše porušne mehanizme, ki nastopajo.

V nalogi so navedeni postopki in konkretne rešitve za statične kontrole nosilcev z odprtini in satastih nosilcev. Prikazan je računski primer, ki še dodatno pripomore k praktičnosti uporabe. V svojem delu avtor opravi primerjalno analizo analitičnih metod, ki so trenutno v uporabi, in naprednejših računskih metod. Priložen je računalniški program in navodila za uporabo, ki ga je možno uporabiti v vsakdanji inženirski praksi. Rezultati so praktično uporabni pri procesu projektiranja jeklenih konstrukcij.

Diploma paper

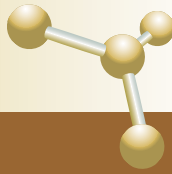
RESISTANCE OF STEEL BEAMS WITH WEB OPENINGS AND CASTELLATED BEAMS

Mentor: Associate Prof. Jože Korelc, PhD
Co-mentor: Teja Melink, BSc. (Civil Eng.)
University of Ljubljana, Faculty of Civil and Geodetic Engineering

In this diploma paper a demonstration of the bending and shear resistance of steel beams with openings in web and for castellated beams is presented. Measurement of such beams is performed in compliance with the general rules of Eurocode for measurement of beams by considering the speciality of beams with openings or by non-linear analysis taking into account imperfections. For delimit of beams with openings from castellated beams, geometric criteria are used.

A further approach to the measurement of these two types of beams depends on geometric delimitations mentioned. Resistance to lateral torsion buckling, for castellated beams and beams with openings, is demonstrated in the same way as solid web beams, by taking into account the geometric and static characteristics of the cross-sectional area at the place of opening.

It is possible to more accurately determine the behaviour of beams with openings by using advanced computer software than by the already established methods by Eurocodes. For the purpose of the diploma a program »AceGirder« has been written, in which the user can choose from different types of beams, such as castellated beams and beams with a single or multiple openings. The software carries out a statistical analysis of a given load, analysis of the load limit, and its stability.



GREGOR LONGAR

Diplomsko delo

ANALIZA KONSTRUKCIJSKIH ZASNOV ZA ENOPROSTORNE JEKLENE HALE

Mentor: prof. dr. Jože Korelc, u.d.i.g.
Somentor: asist. dr. Peter Skuber, u.d.i.g.
Univerza v Ljubljani, Fakulteta za gradbeništvo
in geodezijo

V diplomskem delu je narejena primerjava različnih izvedb jeklenih enoprostornih hal.

Narejene so primerjave med tremi različnimi zasnovami jeklenih okvirov: portalnim okvirom, okvirom z natezno vezjo in momentnim okvirom s paličnim strešnim sistemom.

V obliki razpredelnic, ki so izdelane za projektante in komercialiste, lahko za različne razpone, višine hal, kvaliteto jekla ter različne obtežbe z vetrom in snegom izberemo izvedbo z najmanjšo porabo jekla na kvadratni meter koristne površine. Razpredelnice služijo v prvi fazi projektiranja, kot pomoč za bolj realno oceno vrednosti izdelave enoprostornih hal iz jekla.

Na osnovi realnih podatkov slovenskega trga je ovrednotena tudi cena okvira, ki jo sestavljajo cena materiala, izdelave in montaže.

Diploma paper

DIFFERENT STRUCTURAL DESIGNS FOR SINGLE STOREY BUILDINGS

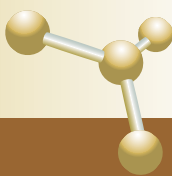
Mentor: Prof. Jože Korelc, PhD, BSc (Civil Eng.)
Co-Mentor: Dr. Peter Skuber, BSc (Civil Eng.)
University of Ljubljana, Faculty of Civil and
Geodetic Engineering

This diploma paper deals with the comparison between different designs of steel frames for single storey buildings.

Three different types of design are analysed; a portal frame, a frame with tension bar, and a moment resistant frame with truss girder.

Tables are created for the designer in the preliminary stage of design. Tables are shown of values for the mass of main steel frames, for different spans, height of columns, material quality, and also for different wind and snow loads. From these tables better designs can be seen which have less mass per square metre of useful surface.

On the basis of real data for the Slovenian market, the costs of materials for construction, manufacture, and assembly of frames, are validated.



Diplomsko delo

VPLIV INVESTICIJ V IZOBRAŽEVANJE NA UČINKOVITOST ORGANIZACIJE: ŠTUDIJA PRIMERA

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

Avtorica v diplomskem delu preučuje vpliv investicij v izobraževanje na učinkovitost organizacije na primeru podjetja Trimo d.d.

V uvodnem delu so opredeljena pojmovno-teoretična izhodišča, začenši z razvojem zaposlenih ter razmejitvijo pojmov izobraževanje, učenje in usposabljanje, s poudarkom na izobraževanju zaposlenih, njegovih ciljih, dejavnikih ter oblikah in metodah. V nadaljevanju je predstavljeno izobraževanje kadrov kot investicija v človeški kapital. Teoretični del je zaključen z opredelitvijo uspešnosti in učinkovitosti organizacije ter njenih kazalnikov. V delu se osredotočam na tri najbolj tipične kazalnike učinkovitosti, in sicer na produktivnost oz. proizvodnost, ekonomičnost ter na rentabilnost oz. donosnost.

Drugi del diplomskega dela je namenjen študiji primera, v kateri se preverja hipotezo o povezanosti vlaganja v izobraževanje zaposlenih in učinkovitostjo organizacije.

Delo ugotavlja, da je smotrno vlagati v ljudi in služi kot priporočilo podjetju Trimo d.d. po nadaljevanju tovrstne prakse tudi v prihodnje ter kot spodbuda vsem ostalim, da se začno zavedati pomena (izobraženih) zaposlenih, ki so pomemben člen vsake organizacije.

Diploma paper

THE EFFECT OF INVESTMENTS IN EDUCATION ON ORGANIZATIONAL EFFICIENCY: CASE STUDY

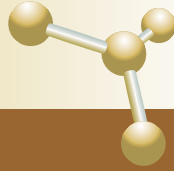
Mentor: Assistant Prof. Branko Ilič, PhD
University of Ljubljana, Faculty of Social Sciences

The author investigates the effects on efficiency of investments in education of the company, Trimo d. d., and establishes whether it is true that investments in education improve the efficiency of the organization.

First, a theoretical framework, starting with human resources development and later on with the explanation of the terms education, learning, and training is developed. An emphasis is put on the education of employees and its goals, factors, forms, and methods. Education of human resources as a form of investment in human capital is also dealt with. The theoretical framework concludes by defining effectiveness and efficiency and its indicators. The three most common indicators - productivity, income, and profitability are used in the diploma paper.

Secondly research on the effects of investments in education, on the efficiency of the organization, is made. A connection between the latter is more thoroughly examined in the Trimo d.d. case study.

It is important to invest in human resources. These findings should serve as a recommendation to Trimo d.d. to continue in such a manner in the future as well as an incentive to others to start becoming aware of the importance of having (educated) employees which are a vital part of every organization.



Diplomsko delo

OPOLNOMOČENJE ZAPOSLENIH KOT MOTIVACIJSKI DEJAVNIK: PRIMERJAVA DVEH PODJETIJ

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

Opolnomočenje se kot netradicionalna paradigma človeških virov ter praks organizacijskega vedenja osredotoča na prenos moči na zaposlenega, kar mu omogoča večjo avtonomijo pri sprejemanju odločitev, sprostí njegov potencial ter motivira za boljše opravljanje dela. Odgovornost nosi zaposleni sam, vodja pa prevzema vlogo usmerjevalca ter ga poučuje. Zaradi potreb empiričnega dela diplomsko delo obravnava tudi značilnosti in širi elemente (informacije, znanje, moč, nagrada) motiviranja zaposlenih, posledice in ovire opolnomočenja zaposlenih ter predhodne raziskave.

Cilj raziskave je bil ugotoviti, do kakšne mere oz. ali uvedba opolnomočenja motivira zaposlene za bolj učinkovito izvedbo delovnih nalog. Predmet raziskovanja so bili tudi: odnos zaposlenih in vodij do opolnomočenja, kateri izmed elementov opolnomočenja prevladuje kot motivator zaposlenih, koncept samoučinkovitosti in vpliv dimenzij opolnomočenja na posameznikovo zaznavanje opolnomočenosti. Raziskava temelji na petih hipotezah.

Primerjava slovenskega ter avstrijskega podjetja znotraj iste verige je pokazala, da so razlike bolj prisotne med oddelki kot med podjetjema. Različne stopnje opolnomočenosti vodjem v pretežni meri niso poznane. To predstavlja oviro, saj lahko zaradi nepravilne aplikacije opolnomočenja zaposleni dodatne odgovornosti občutijo kot izkoriščanje, preobremenjenost z delom, prekomerno tekmovalnost, dvom v lastne sposobnosti ter odpor zaradi strahu pred spremembami.

Diploma paper

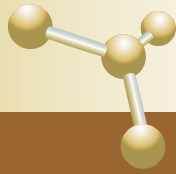
EMPOWERMENT OF EMPLOYEES AS A MOTIVATIONAL CONSTRUCT: COMPARISON OF TWO COMPANIES

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

Empowerment is non-traditional paradigm of human resource practice and organizational behaviour, focused on the transfer of power to employees, allowing greater autonomy in decision-making, releasing potential and improving motivation, for better outputs. The employee takes responsibility for their decisions, whereas the manager has a role of guiding and teaching. Due to the needs for empirical study, this paper also discusses the characteristics of employee motivation, its consequences, and impediments to empowerment of employees, and the four elements (information, knowledge, power, reward).

The aim of the research was to determine to what extent the introduction of empowerment motivates employees to be more effective. The subject of research was also the attitude of employees and managers towards empowerment, which is a dominant motivator element of empowerment of employees, the concept of self-efficacy, and ultimately the impact of dimensions of empowerment on the individual's perception of their empowerment. Research was tested on five assumptions.

The comparison of a Slovenian and Austrian company within the same chain showed that differences between departments are greater than between companies. Different stages of empowerment are mostly unknown to managers. This represents an obstacle, as improper implementation of empowerment can cause an employee to see additional responsibilities and powers as exploitation, excessive work and competition, doubt in their abilities, and resistance due to the fear of change.



Diplomsko delo

DOJEMANJE MLADIH MANAGERJEV O RAZLIKAH V NAČINU VODENJA GENERACIJ X IN Y

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

Diplomsko delo je sestavljeno iz treh delov. V prvem delu je povzeta teorija vodenja s poudarkom na različnih stilih vodenja. V drugem delu sta podrobneje predstavljeni generaciji X in Y. Zadnji del je empirični – raziskovanje dojemanja razlike v načinu vodenja generacij X in Y preko intervjujev z mladimi managerji.

Mladi managerji pristopajo z različnimi stili vodenja k obema generacijama. So demokratični, želijo biti podrejenim zgled in jih vključujejo pri procesih odločanja v različnih situacijah. Najbližje zgoraj opisanemu se zdi avtentično vodenje, ki temelji na predpostavki, da udejanja vedenjske vzorce, ki gradijo na zaupanju. Avtentični vodje so pri zaposlenih sposobni spodbuditi akcijo, motivacijo, zavezanost in zadovoljstvo, kar privede do neprestanega izboljšanja rezultatov. Avtentične vodje opišemo kot vodje, ki vodijo z zgledom, ker izkazujejo transparentno odločanje, samozavest, optimizem, upanje in prožnost ter skladnost besed z dejanji. Zaposleni so seznanjeni s celotnim delovnim procesom, zato vedo, kakšna sta njihova vloga in prispevek h končnemu rezultatu.

Z odprto komunikacijo je možnost novih idej, inovacij in izboljševanja večja. V tem modelu vodenja so prisotne vse predpostavke vodenja, kakršne so omenjali mladi managerji v intervjujih.

Diploma paper

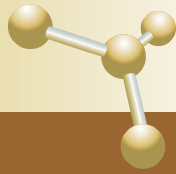
YOUNG MANAGERS' PERCEPTIONS OF THE DIFFERENCES BETWEEN GENERATIONS IN X AND Y TYPES OF MANAGEMENT

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

This diploma paper is divided into three parts. In the first part there is a summary of management theory with the emphasis on different leadership styles. In the second part the focus is on the concept of generation and the presentation of generations X and Y. The last part is empirical, interviews on how young managers perceive the differences in leadership styles of X and Y generations.

Young managers use different leadership styles in different generations. They are democratic and wish to be an example to their subordinates by also including them in the decision making process in different situations. The closest to the described model seems to be authentic management, based on the assumption that it translates behavioural patterns built on trust. Authentic leaders are capable of encouraging action, motivation, commitment, and satisfaction with their employees, all of this leading towards constant improvement of results. Authentic leaders are described as people that lead by example because they use transparent decision-making, self-confidence, optimism, hope, flexibility, and consistency of words with actions. Employees are familiar with the overall working process and they know what is their role and their contribution to the final result.

By using open communication, the chances for new ideas, innovation, and improvement, is greater. In this management model all the leadership assumptions are mentioned by young managers in the interviews.



ANJA MOLAN

Diplomsko delo

**VZPOSTAVLJANJE ČUSTVENEGA
ODNOSA MED BLAGOVNO ZNAMKO
IN UPORABNIKOM S POMOČJO
SOCIALNIH MREŽ IN INTERNETA**

**Mentor: prof. dr. Damijan Mumel
Univerza v Mariboru, Ekonomska-poslovna
fakulteta**

Avtorica v diplomskem delu obravnava izjemno aktualno temo in vsebino, ki se intenzivno spreminja ter prav zaradi tega predstavlja pomemben dokument, ki definira vedenje uporabnikov socialnih omrežij. Ne omejuje se zgolj na posameznike, temveč upošteva tudi organizacije, ki skušajo uporabiti socialna omrežja v promocijske namene.

Družbena omrežja predstavljajo platformo za navezovanje čustvenega odnosa z uporabniki, saj omogočajo osebni dialog med uporabniki in podjetjem oziroma blagovno znamko, njihovo vpletanje v aktivnosti in razvoj produktov, sodelovanje pri natečajih in olajšan način svetovanja ter pomoči uporabnikom.

Diplomsko delo se posveča raziskovanju uporabnikov družbenega omrežja Facebook in možnosti poslovne uporabe. Osredotoča se predvsem na dejavnike, ki posameznike prepričajo in vpletejo v sodelovanje z blagovno znamko oziroma podjetjem na Facebooku.

Diplomsko delo predstavlja poglobljeno in konsistentno, metodološko korektno in aktualno delo, še posebej, ker je raziskovalna komponenta zelo izpostavljena, predmet raziskave pa aplikativno zanimiv.

Diploma paper

**ESTABLISHING AN EMOTIONAL
RELATIONSHIP BETWEEN A BRAND
AND THE CONSUMER THROUGH
SOCIAL NETWORKING SITES AND THE
INTERNET**

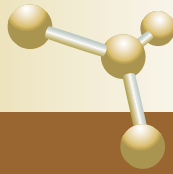
**Mentor: Prof. Damijan Mumel, PhD
University of Maribor, Faculty of Economics and
Business**

In this paper, the author presents a very topical theme and content which continually changes. Therefore, this is an important document that defines the behaviour of social network users. It is not limited only to individuals but also takes into account organisations that decide to use social networks for promotional purposes.

Social networks represent a platform which enables the building of an emotional relationship with customers, providing a personal dialogue between customers and brands, engagement and involvement in a company's activities - like product development, participation in competitions, and easier to deliver customer service.

The paper focuses on exploring Facebook and the possibilities that it offers for businesses. Furthermore, the diploma paper focuses on reasons why people join brands on social networks, and why they engage and cooperate with them.

This diploma paper presents in-depth, consistent, correct methodologically, and topical work, especially because the research component is clearly seen, and the subject of the research is applicably interesting.



GREGOR NOVAK

Diplomsko delo

**ANALIZA MANAGEMENTA
GRADBENIH PROJEKTOV V TRIMO, D. D.**

**Mentor: prof. dr. Jana Šelih, univ. dipl. inž. gradb.
Univerza v Ljubljani, Fakulteta za gradbeništvo
in geodezijo**

Diplomsko delo obravnava vodenje gradbenih projektov s pregledom tega področja v podjetju Trim, d. d.

V prvem delu naloge so predstavljene teoretične osnove projektnega vodenja s poudarkom na organiziranosti podjetja, udeležencev, projektni pisarni ter spremljanje projekta. Poleg naštetega zajema ta del naloge s teoretičnimi osnovami tudi sodobne informacijsko komunikacijske tehnologije, ki predstavljajo možnost za izboljšanje projektnega managementa v gradbeništvo.

V nadaljevanju sledi analiza projektnega vodenja v podjetju Trim, d. d. ter priložnosti za izboljšave na tem področju. V delu so predlagane nekatere spremembe tako za področje organizacijske strukture kot za informacijsko komunikacijski sistem eGradnja. Ta je osnovan v skladu s sodobnimi smernicami, vendar ima še nekaj možnosti za nadaljevanje razvoja.

V zaključku je delo osredotočeno na primer gradbenega projekta, preko katerega so vidni posamezni elementi projektnega managementa v praksi ter njihova soodvisnost.

Diploma paper

**CONSTRUCTION PROJECT
MANAGEMENT ANALYSIS IN TRIMO, D.D.**

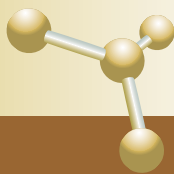
*Mentor: Prof. Jana Šelih, PhD, BSc (Civil Eng.)
University of Ljubljana, Faculty of Civil and
Geodetic Engineering*

The diploma paper deals with the management of construction projects to review this area in the company Trim, d. d.

The first part presents the theoretical foundations of project management with an emphasis on organization, participants, the project office, and project monitoring. This part also describes modern information and communication technologies that are presenting an opportunity to significantly improve project management in construction.

The analysis of project management in the company Trim, d. d. and the opportunities for improvement in this area are presented in the second part of the study. The study proposed some changes for both the organizational structure and the information communication system, eConstruction. This system is founded in accordance with contemporary guidelines, but still has some room for further development.

The last part of the study is focused on a construction project case study analysis, where individual elements of project management in practice, and their interdependence, are visible.



Diplomsko delo

RAZMERJE MED INOVATIVNOSTJO IN USPEŠNOSTJO POSLOVANJA V MALIH IN SREDNJE VELIKIH PODJETJIH

Mentor: doc. dr. Iztok Kolar
Univerza v Mariboru, Ekonomsko-poslovna fakulteta

V delu se na podlagi pregleda obstoječih kvantitativnih raziskav preverja povezava med inovativnostjo in poslovno uspešnostjo podjetij in dejavniki, ki na to povezavo vplivajo.

Sploh v obdobju gospodarske krize in neposredno po njej je mogoče tudi v večjih slovenskih podjetjih zaslediti omejeno višino razpoložljivih finančnih sredstev in strokovno usposobljenega kadra, namenjenih izključno za razvoj novosti in njeno nadaljnjo uvedbo na trg – težavo, ki jo je bilo mogoče v preteklosti zaslediti le v podjetjih omejene velikosti. Uspešna oziroma neuspešna predstavitev novitete na trgu pa ima vse pogosteje odločilen vpliv za nadaljnje poslovanje in obstoj tako malih in srednje velikih podjetij kot tudi večjih podjetij.

Ključno ugotovitev predstavlja potrditev teoretične podlage, da so inovativna podjetja uspešnejša kot tista, ki se za inovativnost ne odločajo. Izrazito pozitiven vpliv inovativnosti na poslovanje podjetja je možno zaslediti predvsem v mladih podjetjih, in to v državah, kjer je prisotna visoka stopnja kolektivizma – ena izmed takšnih držav je tudi Slovenija.

Pomembno informacijo za že obstoječa inovativna podjetja predstavlja tudi ugotovitev, da je za doseganje visoke stopnje poslovne uspešnosti potrebno oblikovanje in usklajevanje tržne in razvojne strategije skladno s številom trenutnih in potencialnih konkurentov na trgu. K moči povezave med pojmom pa lahko ključno pripomore tudi način razvoja inovacije – podjetja, kjer inovacije generira lasten razvojni oddelek, so uspešnejša od podjetij, ki inovacije kupijo na trgu, sama pa ne sodelujejo pri njihovi zasnovi.

Diploma paper

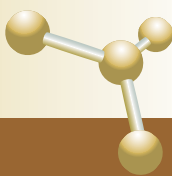
THE RELATIONSHIP BETWEEN INNOVATION AND ORGANIZATIONAL PERFORMANCE IN SMALL AND MEDIUM-SIZED ENTERPRISES

Mentor: Assistant Prof. Iztok Kolar, PhD
University of Maribor, Faculty of Economics and Business

Based on a review of existing quantitative research the diploma paper examines the relationship between innovation and organizational performance and the moderators that affect this relationship. It particularly focuses on small and medium sized enterprises.

A key finding of the paper confirms the theoretical basis that innovative companies are more successful than those which do not participate in the innovation process. Among innovative enterprises, the most successful are young companies operating in countries with a high level of collectivism - like Slovenia.

Important information for existing innovative enterprises is that the rate of their success might grow significantly if they create and coordinate their generic and development strategies in accordance with the number of current and potential competitors in the market. Also, companies that have their own research and development departments are generally more successful than those that purchase innovations in the market, but do not participate in their formation.



Diplomsko delo

SINHRONO VODENJE DVEH ASINHRONSKIH MOTORJEV S KRATKOSTIČNO KLETKO

Mentor: izr. prof. dr. Rastko Fišer
Univerza v Ljubljani, Fakulteta za elektrotehniko

Diplomsko delo obravnava zasnovano, razvoj in realizacijo sinhronnega vodenja dveh ali več asinhronskih motorjev s kratkostično kletko. Predstavljeni sodobni pretvorniki močnostne elektronike nadgrajeni z naprednimi principi vodenja električnih motorjev danes omogočajo uporabo cenenih in robustnih asinhronskih motorjev s kletko tudi v pogonih, kjer so pretekla desetletja prevladovali dražji in občutljivejši asinhronski motorji z navitim rotorjem.

V diplomskem delu so predstavljene dosedanje rešitve sinhronnega vodenja električnih pogonov in omejitve, ki jih imajo posamezni konstrukcijski pristopi. Sledi opis strojne opreme, ki je bila uporabljena za realizacijo sinhronnega teka dveh asinhronskih modelov. Predstavljeni so ključni deli strojne opreme, kot so krmilnik gibanja, frekvenčni pretvornik in dajalnik pozicije.

Jedro dela temelji na razvoju programske kode vodenja pogona in določanju ter optimiziranju parametrov regulatorjev za doseg čim boljše dinamike in natančnosti pozicioniranja osi obeh motorjev, ki delujeta v master/slave režimu. Preizkušeni in ovrednoteni je bilo več možnih izvedb regulacijskih zank, izbira uporabljene pa je ustrezno utemeljena.

Teoretično poznavanje sistema je avtor nadgradil z izdelavo laboratorijske aplikacije mostnega dvigala, ki je namenjena demonstraciji učinkovitosti tovrstne zasnove pogona. Upravljanje s ključnimi parametri pogona se izvaja s pomočjo PC računalnika, vodenje pa je možno izvajati tudi z namensko razvito posluževalno konzolo.

Diploma paper

SYNCHRONOUS CONTROL OF TWO ASYNCHRONOUS MOTORS WITH ROTOR CAGE

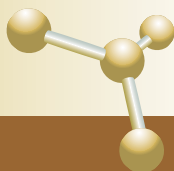
Mentor: Associate Prof. Rastko Fišer, PhD
University of Ljubljana, Faculty of Electrical Engineering

The objective of the diploma is the design and construction of the synchronized operation of two or more induction motors with squirrel cage rotors. Nowadays, modern power electronics converters with sophisticated control methods enable the application of inexpensive and robust cage induction motors, also in electric drives, where the use of costly and less durable slip-ring induction motors were predominant in past decades.

Several possible technical solutions of the synchronized operation of induction motors and their limitations are presented in the diploma paper. A detailed description of the applied hardware is given, emphasizing the function of a motion controller, frequency converters, and position sensors in the proposed system configuration.

The main contribution of the presented work is in the field of control techniques and software utilization. Clearly shown are significant procedures for determination and optimization of drive parameters, enabling the dynamic and precise operation of two induction motors which must rotate simultaneously in a master/slave mode.

The theoretical expertise of integrated drive systems is demonstrated by a laboratory model of an overhead crane, which demonstrates the effectiveness of the drive design.



Diplomsko delo

IDEJNA ZASNOVA MESTNEGA PAVILJONA

Mentor: prof. mag. Peter Gabrijelčič
Univerza v Ljubljani, Fakulteta za arhitekturo

Ljubljana je v zadnjih letih doživela velik napredek pri vzpostavljanju korelacije med prostorom mesta in njegovimi uporabniki. Avtorica si je za izziv postavila vzpostavitev sistema, ki bo dopolnjeval funkcije mestnega jedra, kot reprezentativnega dela Ljubljane in hkrati dopustil, da primarne funkcije kot tudi oblike izklesane z močnim pridihom kulturno-zgodovinskega razvoja še vedno dominirajo. Prostočasne delavnice, ki se odvijajo v paviljoni, omogočajo staršem, da je v času njihovih opravkov poskrbljeno za otroke. V obravnavanem območju se avtorica osredotoči na os med Prešernovim trgom in parkom Tivoli-kot hrbtenico z največjim pretokom ljudi, dogodkov, informacij.

Paviljoni so sestavljeni iz prefabriciranih modulov, katerih osnovno nosilno konstrukcijo predstavljajo lahki palični nosilci povezani v prostorski sistem zunanjih sten, talne konstrukcije in strehe. Elementi so hermetično zaprti s sistemom vodotesnih, požarno odpornih in izolativnih panelov Trimoterm.

Module je mogoče sestaviti v raznovrstne objekte, ki ustrezajo tako lokaciji kot zahtevanemu programu. Posamezni moduli, in vse potrebne inštalacije so v celoti narejeni in pripeljeni na lokacijo ter v kratkem času sestavljeni v poljubno velik objekt.

Zasnove objekte odraža fleksibilnost in diskretnost umestitve v prostor, s svojo zunanjo podobo, predvsem materializacijo pa odražajo vse smernice sodobne gradnje in oblikovanja.

Diploma paper

CONCEPT OF CITY PAVILLION

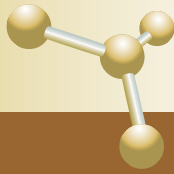
Mentor: Prof. Peter Gabrijelčič, MSc (Architecture)
University of Ljubljana, Faculty of Architecture

In recent years, Ljubljana has witnessed great progress in establishing a correlation between city space and its users. The author's challenge was to set up a system which would complement the functions of the city centre as the representative part of Ljubljana, and at the same time allow the domination of primary functions and configurations formed with a strong sense of cultural and historic development. Leisure time workshops taking place in the pavilions guarantee parents that their children will be taken care of while parents take care of their business. The author treats the area of an axis from Prešeren Square to Tivoli Park as the backbone, with the highest flow of people, events, and information.

The pavilions are assembled from pre-fabricated modules, whose basic supporting construction consists of light truss beams, connected into a spatial system of outside walls, floor construction, and roof. The elements are hermetically sealed with the Trimotim system of waterproof, fire resistant, isolating panels.

Modules can be composed into different structures best suited for the location and the programme performed. Individual modules, as well as all the necessary installation and fittings, are completely pre-fabricated, brought to the location, and assembled into a structure of any size in a very short time.

The proposed structures are marked by flexibility and discreet space placement, and their outer image and realisation reflect all the guidelines of modern construction and design.



Diplomsko delo

KORUPCIJA KOT OVIRA ZA ETIČNO MEDNARODNO POSLOVANJE

Mentor: izr. prof., dr. Milan Jurše
Somentor: izr. prof. Borut Bratina
Univerza v Mariboru, Ekonomsko-poslovna
fakulteta

Diplomsko delo posega na področje etičnih in koruptivnih razsežnosti v mednarodnem poslovanju podjetij ter pravne regulacije tega aktualnega problema v mednarodnem poslovnem okolju.

Avtorica je najprej orisala opredeljitvene vidike korupcije, njene vzroke in vzvode njenega razvoja, posledice za gospodarsko in širše okolje in osnovne probleme pri merjenju tega fenomena. To je nadgradila s podrobnejšo razčlenitvijo pojavnih oblik (klasificiranje) korupcije in izbrane vidike pravne regulacije za odkrivanje in zatiranje tega družbeno-gospodarskega fenomena. Posebno pozornost je namenila oblikam in institucijam, ki se na različne načine ukvarjajo z organiziranim bojem proti korupciji.

Sklepni del raziskave je namenjen analizi korupcije in njenih pojavnih oblik v mednarodnem poslovanju podjetij, v katerem so menedžerji in podjetja zaradi različnih pravnih in kulturnih okvirov še posebej izpostavljeni negativnim posledicam tega družbenega pojava in s tem tudi številnim etičnim dilemam v svojem ravnanju in poslovanju s partnerji v tujini.

Diploma paper

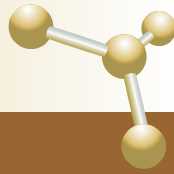
CORRUPTION AS AN OBSTACLE TO ETHICAL INTERNATIONAL BUSINESS

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

This diploma paper discusses the sphere of ethical and corruptive dimensions in international business and legal regulation of this topical problem in the international business environment.

The author first outlines the defining aspects of corruption, its causes and development, the consequences for the economy and wider environment, and the basic problems of measuring this phenomenon. Different forms (categorisation) of corruption are also analysed in detail and some aspects of legal regulations for detecting and suppressing this social and economic phenomenon are described. Special attention is given to forms and institutions that are in various ways involved in the organised fight against corruption.

The final part of the research is dedicated to the analysis of corruption and its forms in international business operations in which, due to various legal and cultural frameworks, managers and companies are particularly exposed to the negative consequences of this social phenomenon and thus to numerous ethical dilemmas in their management and operations with partners abroad.



Diplomsko delo

IDEJNA ZASNOVA KNJIŽNEGA PARKA NA OBMOČJU KOPALIŠČA ILIRIJA – PARK TIVOLI – LJUBLJANA

Mentor: prof. Miloš Florijančič, u.d.i.a.
Somentor: Mitja Zorc, u.d.i.a.
Univerza v Ljubljani, Fakulteta za arhitekturo

Pri diplomskem delu gre za arhitekturni eksperiment v prostoru – za zasnovo objekta z identiteto kulturnega stičišča, saj je že del okolice nosilec kulturnega. Trenutna namembnost olimpijskega bazena, pa čeprav prvega v Jugoslaviji, namreč še zdaleč ne funkcionira tako kot včasih. Območju pa posebno identiteto daje predvsem prehod iz grajenega mestnega tkiva v zeleno parkovno ureditev. Gre za knjižni park – knjižnico z elementi parkovne ureditve.

Izhodišče arhitekturne zasnove je preoblikovanje obstoječe lokacije. Stavba kopaljšča Ilirija razpade. Ostane element bazena. Ideja parka integrirana v zasnovo knjižnice se odraža v oblikovanju poti in programa. Pot kot ključen element parka je gradnik programa. Končna arhitekturna zasnova knjižnega parka je podrejena percepciji uporabnika. Dva elementa, ki sta stalno prisotna pri procesu, sta program in povezovalna pot. Dialog med potjo in programi formira krožne enote kot oddelke splošne knjižnice. Ob njih se vzpostavi dodani program multimedije. Konstrukcija objekta je sestavljena iz betonskega in jeklenega sistema. Glavni dostop svetlobe je zenitalni, kar še dodatno nudi enkratno ambientalno doživetje uporabnikom prostora.

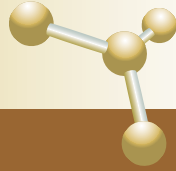
Diploma paper

CONCEPTUAL DESIGN OF A LITERARY PARK IN THE ILIRIJA SWIMMING POOL AREA - TIVOLI PARK - LJUBLJANA

Mentor: Prof. Miloš Florijančič, BSc (Architecture)
Co-Mentor: Mitja Zorc, BSc (Architecture)
University of Ljubljana, Faculty of Architecture

This diploma paper centres on an architectural experiment within space – it is an architectural shape with an identity of a new cultural centre, also because the environment already consists of a various cultures. The first Olympic swimming pool in former Yugoslavia, situated in Ilirija, has, unfortunately, lost its purpose nowadays. The location is also unique for its transitional identity – Ilirija is a threshold between urban and green space. We call the building – library park – a library with several elements of a park.

The starting point for an architectural form is the transformation of the existing location. The building around the swimming pool is deteriorating. The element of a swimming pool remains. The basic idea of a natural park is integrated within the design of the library itself. This idea is reflected in a building as a new formation of paths and programmes. The path as a basic element of a landscape park actually builds the programme. The final result of an architectural form is subjected to the perception of a single space user. Two elements which are the main constants in this process are the programme and the path. A consequence of a dialogue between the path and the programmes represents circular units of a public library. The additional programme of multi – media is designed to embrace the sections. The construction consists mainly of steel and concrete. Natural light penetrates inside the building mainly from above, which also emphasizes the mystical and naturally fluid environment.



KARMEN STARIČ

Diplomsko delo

MODEL ODPRAVLJANJA OZKIH GRL V PROCESU BARVANJA POLIZDELKOV Z METODO SIMULACIJE

Mentor: red. prof. dr. Miroljub Kljajić
Somentor: doc. dr. Davorin Kofjač
Univerza v Mariboru, Fakulteta za organizacijske vede

Optimiranje procesov in reinženiring so ključne naloge podjetij, ki želijo ohraniti konkurenčnost na lokalnem in globalnem trgu. S temi pristopi se optimalno uporabijo razpoložljivi človeški, energetski in proizvodni viri ter s tem odpravljajo nesorazmerne porabe in s tem dolgoročno slabijo konkurenčnost in slabijo položaj na lokalnem in globalnem trgu.

V diplomskem delu je najprej predstavljena metodologija modeliranja in simulacije. Sledi ji analiza obstoječega proizvodnega procesa z izdelavo simulacijskega modela s 3D simulacijskim orodjem Flexsim. Glede na rezultate analize je predstavljena preureditev proizvodnega procesa in nov simulacijski model. Ob koncu diplomsko delo predstavlja primerjavo rezultatov obeh simulacijskih modelov, kjer je razvidno, da se z reorganizacijo skrajšajo proizvodni časi in s tem doseže večja produktivnost.

Predstavljeno diplomsko delo podaja pristop za reinženiring procesov z uporabo metode simulacij, kar predstavlja najhitrejšo in najcenejšo pot do potrebnih izboljšav, ki so potrebna za ohranjanje konkurenčnosti na globalnem trgu.

Diploma paper

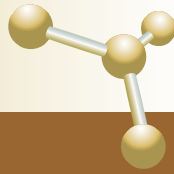
A MODEL FOR ELIMINATING BOTTLENECKS IN THE PROCESS OF DYEING SEMI-MANUFACTURED PRODUCTS BY SIMULATION

Mentor: Prof. Miroljub Kljajić, PhD
Co-mentor: Assistant Prof. Davorin Kofjač, PhD
University of Maribor, Faculty of Organizational Sciences

Process optimization and re-engineering are the key tasks of companies that wish to maintain competitiveness in local and global markets. With these approaches human, energy, and manufacturing resources can be optimally used. The disproportionate spending which, in the long run, undermines competitiveness and weakens position in the local and global markets, can thus be avoided.

First, this diploma paper presents the methodology of modeling and simulation. Analysis of the existing manufacturing process to develop a simulation model with a 3D simulation tool, 'Flexsim', is next. This is followed by presentation of the re-organization of the manufacturing process and a new simulation model. Finally, a comparison of results of both simulation models is presented, where clearly re-organization would reduce production times and thereby achieve greater productivity and thus increase competitiveness in a business environment.

This diploma paper provides an approach for the re-engineering of processes by using the simulation method. This is the quickest and the fastest way to the necessary improvements that are necessary in order to maintain competitiveness in global markets.



Diplomsko delo

PROJEKT JEKLENE KONSTRUKCIJE HALE VELIKEGA RAZPONA

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

Diplomsko delo vsebuje dispozicije, statični preračun, dimenzioniranje jeklene konstrukcije in izvedbene načrte ter detajle glavne nosilne konstrukcije jeklene hale velikega razpona. Statični preračun in dimenzioniranje je narejeno po standardu EN 1993.

V prvem delu naloge je izveden statični preračun in dimenzioniranje na način, da so ločeno analizirani osnovni nosilni deli hale. Dimenzionirani so prostorski okviri, lege, sekundarni rešetkasti steber in sekundarna prečka. Glede na to so dobljene vse potrebne geometrijske veličine elementov konstrukcije.

V drugem delu diplomske naloge je statični preračun in dimenzioniranje izvedeno na trodimenzionalnem modelu, ki vsebuje celotno konstrukcijo hale. Na osnovi tega je dobljena realnejša razdelitev učinkov delovanja obtežb na konstrukcijo in je glede na to izvedena optimizacija potrebnih geometrijskih veličin elementov. Na ta način je dobljena izenačena izkoriščenost elementov in maksimalni prihranek materiala.

Na koncu so dimenzionirani priključki glavne nosilne konstrukcije, na podlagi katerih so narejeni tudi izvedbeni načrti osnovnih nosilnih elementov in konstrukcijskih detajlov.

Diploma paper

PROJECT OF A STEEL STRUCTURE OF A LARGE RANGE HALL

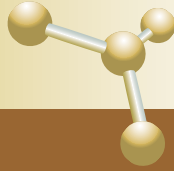
Mentor: Assistant Prof. Davor Skejić, PhD,
BSc (Civil Eng.)
University of Zagreb, Faculty of Civil Engineering

The diploma paper includes dispositional solutions, structural analyses, and design of a steel structure of a large range hall and performance plans and plans of details of the main load-bearing steel structure. A structural analysis and design were performed according to EN-1993.

In the first part of the paper, a widely accepted structural analysis and design in the way that a separate base supporting system of the hall is analyzed. Most loaded bearing systems of construction (space frame, purlins, secondary lattice columns, and secondary bars) were measured. On this basis the required geometric properties of the elements that have been accepted throughout the whole structure is calculated.

In the second part of the study, a structural analysis and design were carried out on a three-dimensional model that includes the complete construction of the hall. Although the design on most separated load bearing systems of the construction provides an acceptable solution and a simpler way of calculation, modeling the entire hall structure gives a more realistic distribution of the effects and enables optimization of the geometric properties of elements on a global scale. It gives a more balanced utilization of the elements and maximum material saving, which gives significant economic savings, and ultimately a more competitive project.

Finally, plans were made for the basis of structural systems and structural details.



Diplomsko delo

OBVLADOVANJE PROCESOV OBLIKOVANJA PANELOV

Mentor: prof. dr. Karl Kuzman
Univerza v Ljubljani, Fakulteta za strojništvo

Diplomsko delo popisuje procese preoblikovanja pločevine pri izdelavi panelov.

Pri profiliranju se pojavlja valovitost pločevine, ki je estetsko moteča in je lahko razlog za reklamacijo. Vzrok za nastajanje valovitosti se je iskal v mehanskih lastnostih materiala.

V prvem delu je predstavljen proces izdelave fasadnega panela, opis problema, do katerega prihaja in na kakšen način se je problem reševalo. Drugi del pa predstavlja analizo rezultatov mehanskih preizkusov različnih pločevin.

V zaključku avtor opiše ključne dejavnike in parametre, ki vplivajo na nastajanje valovitosti, poišče medsebojne korelacije in poda predloge za ukrepanje.

Diploma paper

MASTERING THE PROCESS OF BUILDING PANELS

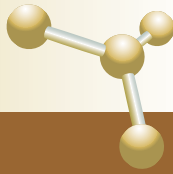
*Mentor: Prof. Karl Kuzman, PhD
University in Ljubljana, Faculty of Mechanical
Engineering*

The diploma paper describes the process of transforming metal sheet when manufacturing panels.

Waviness of metal sheet occurs at profiling, which is not good from an aesthetic point of view and can be a reason for a claim. The cause for the waviness can be found in the mechanical characteristics of the material.

The first part presents the process of manufacturing facade panels, describes the problem which occurs, and the way it is solved. The second part presents the analysis of the results of mechanical tests made on different sheet metals.

In the conclusion the author makes a list of key factors and parameters which influence the occurrence of waviness, searches for mutual correlations, and gives suggestions for taking measures.



Diplomsko delo

OBVLADOVANJE UPORA PRI PROJEKTIH IT

Mentor: doc. dr. Rok Rupnik
Univerza v Ljubljani, Fakulteta za računalništvo
in informatiko

Spremembe so v sodobnih organizacijah stalnica. Organizacije jih poskušajo izvesti hitro in učinkovito. Spremembe zaradi njihovega pomena pogosto vključujejo spremembe informacijskih sistemov.

Odpor do sprememb spada med ključne dejavnike uspeha večjih projektov in programov na področju informacijskih tehnologij, kot so informatizacija in optimizacija poslovnih procesov, prenove informacijskih sistemov ipd. Obvladovanje odpora ne pomaga organizacijam zgolj izvesti spremembe hitreje in učinkoviteje, temveč je hkrati tudi pomemben vir inventivnosti v procesu spreminjanja.

V pričujočem delu so raziskani vzroki za pojav odpora in opredeljeni ključni elementi upravljanja odpora, iz katerih lahko izvira odpor in na katere se lahko aplicira v pričujočem delu povzeta priporočila in strategije obvladovanja odpora. Na strateškem nivoju se lahko na področju IT spremembe upravlja z obvladovanjem informatike. Kot izvajalno disciplino obvladovanja informatike je mogoče opredeliti obvladovanje portfelja IT, ki pokriva vse projekte in programe IT v organizaciji. Na podlagi obravnave odpora kot projektne tveganja in že obstoječih modelov je v pričujočem delu predlagan model upravljanja odpora, ki je tudi umeščen v standard za vodenje projektov PMI (Project Management Institute).

Diploma paper

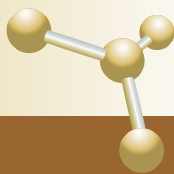
RESISTANCE TO GOVERNANCE IN I.T. PROJECTS

Mentor: Assistant Prof. Rok Rupnik, PhD
University in Ljubljana, Faculty of Computer and
Information Science

Modern organizations change frequently. They try to implement changes rapidly and effectively. Change usually involves a change in information systems (IS) due to their importance to organizations.

Resistance to change is an important factor for a possible project failure when implementing larger IS changes - such as business process improvement and IS renovation. Resistance management does not only help organizations to implement changes more rapidly and efficiently but is also an important source of innovation in the change process.

In this study the causes of resistance were explored, the key elements of resistance management identified, and the most significant resistance-handling strategies summarized. A generic resistance-management model was proposed as an upgrade to existing models and position resistance management within the PMI (Project Management Institute) project-management standard.



ANDRIJANO ZERA

Diplomsko delo

SPLETNA APLIKACIJA ZA DOLOČITEV FAKTORJA OBNAŠANJA IN PROJEKTNEGA SPEKTRA PO EC8

Mentor: doc. dr. Tomo Cerovšek,
univ. dipl. inž. grad.

Somentor: izr. prof. dr. Matjaž Dolšek,
univ. dipl. inž. grad.

Univerza v Ljubljani, Fakulteta za gradbeništvo
in geodezijo

Diplomsko delo obravnava spletno aplikacijo, ki določa faktor obnašanja q in projektni ter elastični spekter odziva. Izdelana je z namenom, da olajša delo inženirjem, saj je določanje faktorja obnašanja q in projektnega spektra odziva precej zamudno.

Uporabniški vmesnik je izdelan v obliki spletnih strani z dinamičnimi elementi in diagrami, ki se v celoti izvajajo v spletnem brskalniku. V diplomski nalogi so opisani vsi parametri, ki vplivajo na določitev faktorja obnašanja q in spektra odziva, kot določa SIST EN 1998 – Evrokod 8. Opisani so tudi sistemi za podporo odločanju.

Glede na naravo določanja faktorja obnašanja q in projektnega spektra odziva je izbran najustreznejši sistem, ki ga je bilo moč učinkovito implementirati v računalniškem sistemu.

Diplomsko delo je sestavljeno iz treh delov. V prvem delu smo analizirali predpise, ki so osnova za izdelavo spletne aplikacije. V drugem delu so predstavljeni sistemi za podporo odločanju, v tretjem delu pa je predstavljen načrt spletne aplikacije z opisom tehnologij spletnih aplikacij. Prikazana je tudi implementacija spletne aplikacije v izbrano programsko okolje ter opisi vseh JavaScript funkcij. Aplikacija je internacionalizirana in jo je moč enostavno nadgraditi, razširiti in lokalizirati.

Diploma paper

WEB APPLICATION FOR DETERMINATION OF EC8 BEHAVIOURAL FACTORS AND DESIGN SPECTRA

Mentor: Assistant Prof. Tomo Cerovšek, PhD,
BSc (Civil Eng.)

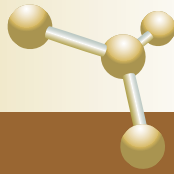
Co-Mentor: Associate Prof. Matjaž Dolšek, PhD,
BSc (Civil Eng.)

University of Ljubljana, Faculty of Civil and
Geodetic Engineering

This diploma paper presents a web application as a result of a procedure for computerization of standards. The application allows for determination of behaviour factor q and response spectra. The aim of the work was to develop a solution that will facilitate the work of engineers, and reduce time-consuming procedures for the determination of the behaviour factor, q , and design response spectra.

The user interface is designed as a single web page with dynamic diagrams and runs completely in a web browser. The paper describes all parameters that affect the determination of the behavioural factor q and the design response spectra as defined by the European standard SIST EN 1998. We also describe a decision support system and its application for the computerization of standards.

According to the specifics of parameters affecting the determination of the behaviour factor q , and design response spectra, and facts that affect the implementation in a computer system, the most appropriate system is chosen. The web application is scalable, extendable, and internationalized for localization.



Diplomsko delo

IDEJNI NAČRT KULTURNEGA CENTRA V TREBNJEM

Mentor: izr. prof. dr. Igor Kalčič, u.d.i.a.
Somentor: asist. Rupert Gole, u.d.i.a.
Univerza v Ljubljani, Fakulteta za arhitekturo

Diplomsko delo obravnava projekt idejnega arhitekturnega predloga novega kulturnega centra na izbrani lokaciji v Trebnjem. Obsežne analize mikrolokacije privedejo do spoznanja, da v strogem mestnem centru Trebnjega vlada ureditveni kaos in degradiran prostor.

Avtorica z definicijami osnovnih pojmov, členjenjem programa kulturnega centra in jasnimi principi načrtovanja postavi dobre temelje za izpeljavo idejnega projekta. Intervencija je širše pomembna, ker urbanistično neurejenemu okolju daje nov pomen, ga revitalizira ter dodaja nove mestotvorne površine. Spoštovana so vsa osnovna izhodišča po racionalni gradnji na osnovi konstrukcijske mreže.

Osnovna nosilna konstrukcija je hibridna železobetonska z intervencijo jekla na področjih, kjer je to arhitekturno logično. Še posebej so atraktivne zunanje dekorativne plošče z imitacijo naravnih materialov, ki bi jih bilo vredno še detajlneje razviti. To avtorica to tudi jasno predvidi v risbi in tehničnem opisu.

Diploma paper

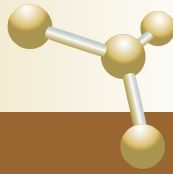
CONCEPTUAL DESIGN OF THE CULTURAL CENTER IN TREBNJE

Mentor: Associate Prof. Igor Kalčič, PhD,
BSc (Architecture)
Co-Mentor: Rupert Gole, BSc (Architecture)
University of Ljubljana, Faculty of Architecture

This diploma paper presents the project of a conceptual architectural proposal for a new cultural centre at a selected location in Trebnje. Extensive analyses of the micro site leads to the conclusion that in the very centre of Trebnje there is regulatory chaos and a degraded environment.

By defining basic concepts, analyzing the programme of the cultural centre, and setting clear planning principles, the author provides a good basis for the realisation of a conceptual project. Intervention has wider importance, for it gives new meaning to the unregulated urban environment, revitalizes it, and adds new urban areas. All the main points in connection with rational construction on the basis of the structural network are taken into account.

The main load-bearing construction consists of hybrid reinforced concrete and contains steel in areas where this seems architecturally logical. Especially attractive features are external decorative plates with an imitation of natural materials which could be developed more in detail. The author clearly considers this in her drawing and technical description.



PETER ZUPANČIČ

Diplomsko delo

PROJEKT SOVPREŽNEGA ŽELEZNIČARSKEGA MOSTU

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

Diplomsko delo obravnava projektiranje sovprežnega železniškega mostu. Projektiranje je narejeno v skladu z evropskim standardom Evrokod, pri katerem so upoštevani predpisi iz nacionalnega dodatka. Ker ni projektiran resnični most, je zasnova le tega izbrana tako, da najbolj realno predstavlja resnično konstrukcijo.

Narejena je podrobna analiza faze gradenj, ki zajema narivanje glavnih jeklenih nosilcev preko vseh polj, nato pa betoniranje prekladne konstrukcije na pomičnem opažu. Med fazo uporabe se upošteva vse merodajne spremenljive vplive. Diplomsko delo ne obravnava potresne analize in utrujanje mostne konstrukcije.

Namen dela je bil med drugim tudi testiranje primernosti uporabe komercialnega programa SOFiSTiK za napredno analizo konstrukcije.

Diploma paper

A COMPOSITE STEEL AND CONCRETE RAILWAY BRIDGE DESIGN PROJECT

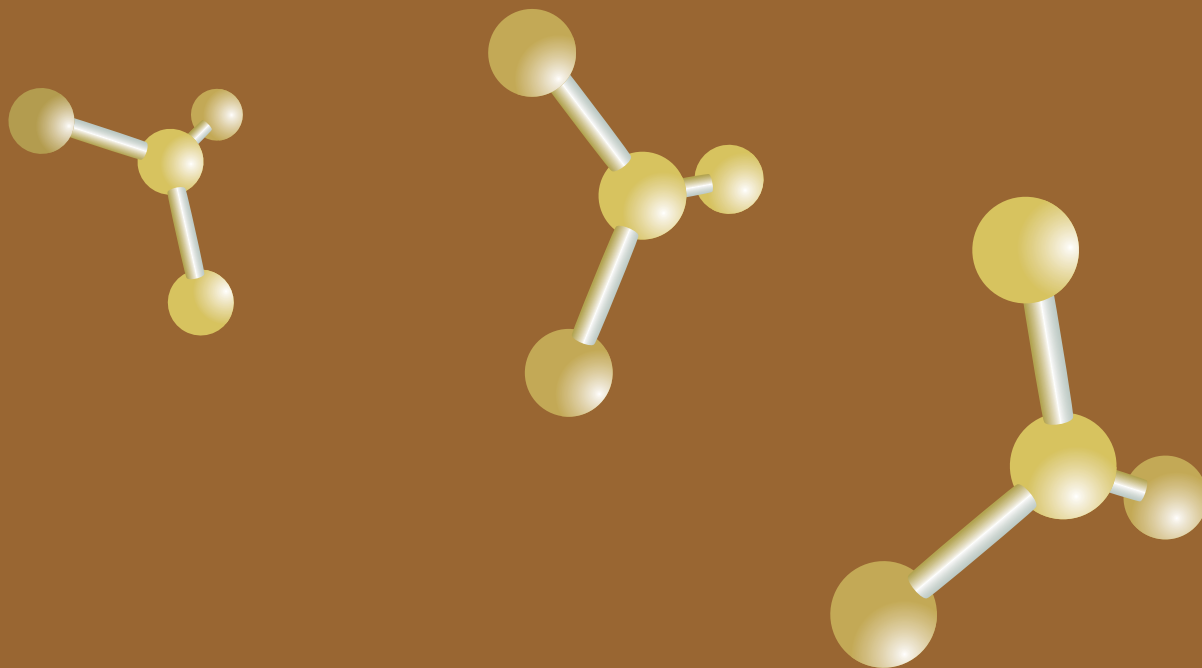
*Mentor : Prof. Darko Beg, PhD, BSc (Civil Eng.)
University of Ljubljana, Faculty of Civil and Geodetic
Engineering*

The diploma paper deals with the planning of a composite railway bridge. The planning has been pursued in accordance with the European standard Eurocode, where the national appendix has been taken into consideration. Since no real bridge has been taken into account, the outline has been chosen in the way that it represents a construction as near to real conditions as possible.

A thorough analysis of the construction stage has been made which covers the incremental launching of main steel girders over the whole span and then pouring of the concrete plate onto the movable formwork. During the operational phase, all essential variable influences on the bridge have been taken into account. However, no earthquake and fatigue analyses have been taken into consideration.

The diploma paper aims, amongst others, at testing the adequacy of the commercial programme SOFiSTiK for an advanced construction analysis.

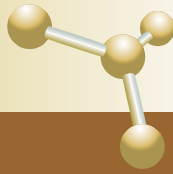




ZBORNİK POVZETKOV NAGRAJENIH DEL
ABSTRACTS OF THE PROJECTS AWARDED

SPECIALISTIČNO DELO

SPECIALIST THESIS



JOŽE STEPAN

Specialistično delo

OVREDNOTENJE METOD ZA MERITEV TEMPERATURE FOTONAPETOSTNIH MODULOV

Mentor: doc. dr. Marko Jankovec
Univerza v Ljubljani, Fakulteta za elektrotehniko

Pri meritvah in ocenjevanju kvalitete sončnih celic in iz njih narejenih fotonapetostnih modulov igra pomembno vlogo poznavanje temperature merjenca – sončne celice ali fotonapetostnega modula. Na prvi pogled je merjenje temperature enostavno opravilo, kar se pri sami pripravi merilnega mesta in izvedbi meritev izkaže za netočno trditev. Na točnost meritve vpliva množica različnih faktorjev. Od izbire pravilne merilne metode, izbire pravilnega temperaturnega tipala, do njegove pravilne montaže in zunanjih pogojev, v katerih se nahaja merjenec.

V specialističnem delu je predstavljena problematika meritev fotonapetostnih modulov. V nadaljevanju sledi opis uporabljenih temperaturnih tipal in principov na katerih delujejo.

Bistvo celotnega dela je prikazano v tretjem in četrtem poglavju, kjer je opisana postavitve testnega mesta s temperaturnimi tipali in grafični prikaz rezultatov skupaj z njihovo analizo. Na koncu je podan še splošen pregled, kjer so naštetá opažanja in ocene opravljenega dela z napotki vsem tistim, ki se bodo lotevali podobnih merjenj na fotonapetostnih modulih.

Specialist thesis

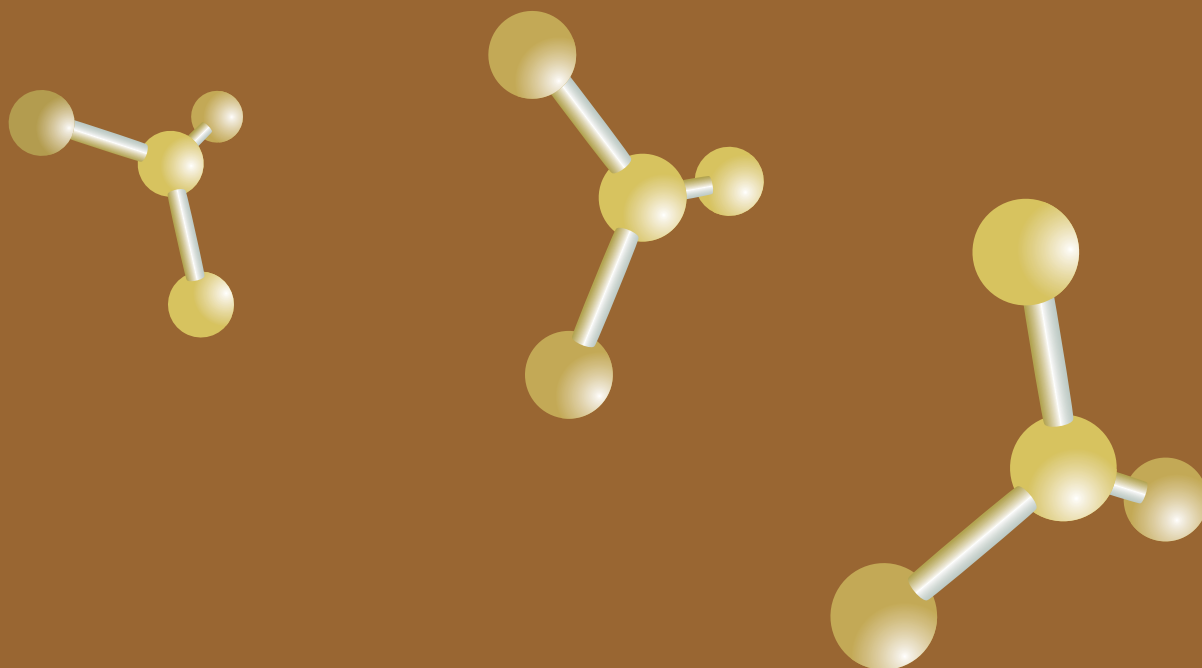
EVALUATION OF METHODS FOR MEASURING THE TEMPERATURE OF PHOTOVOLTAIC MODULES

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

Temperature plays a very important role when trying to measure electrical properties of solar cells or photovoltaic modules. A common opinion is that measuring temperature is an easy job, which results in the exact value of temperature. But this is not necessarily true. There are many factors that influence the temperature measurement accuracy, such as a correctly selected measuring method, use of appropriate temperature sensors, and their mounting technique. Environmental conditions also have a very high influence on the accuracy of the measured results.

In the first part of this paper the problems of measuring temperature is discussed. Different standards are also described. In the following sections the basic measurement principles of sensors, which are used in this case, are described.

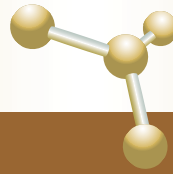
The main part of the paper comprises a third and fourth chapter. First a construction of a custom photovoltaic module with laminated temperature sensors acting as a reference temperature measurement device and data acquisition system is described. Then a graphical review of the measured data is presented, together with discussion and analysis of the acquired data. In the last chapter a conclusion is given with some suggestions on how to choose the right temperature sensors and guidance for avoiding common mistakes when measuring the temperature of photovoltaic modules.



ZBORNİK POVZETKOV NAGRAJENIH DEL
ABSTRACTS OF THE PROJECTS AWARDED

MAGISTRSKA DELA

DISSERTATIONS



BORIS BOGOSAVLJEVIĆ

Magistrsko delo

MUZEJ STROJEV

Mentor: prof. dr. Predrag Šidanin
Somentor: mag. Milan Šijakov
Univerza v Novem Sadu, Fakulteta tehniških
znanosti, Oddelek za arhitekturo in urbanizem

Magistrsko delo preverja nekonvencionalne pristope oblikovanja in uporabo mehanizmov preko idejnega projekta muzeja strojev v katerem naj bi razstavljali tehnološke dosežke 21. stoletja.

Temeljna misel dela je, da ima vsaka tehnologija svojo formo, estetiko, primarna pa ji ostaja funkcija. Naloga odpira tematiko, ki je v trenutni oblikovalsko-arhitekturni praksi aktualna. Prepoznavanje estetike v tehnologiji predstavlja neizkoriščen potencial in možen bodoči trend. Delo v sicer skromni aplikaciji ponudi nekaj načinov mehanične reorganizacije razstavnih prostorov za vedno nove kulturne programe. Konstrukcijo sestavljajo pomični in nepomični sklopi, kar je novo. Današnja praksa se s tehnologijo po večini ukvarja na nivoju načrtov, ki v realizacijah ostaja neopazna.

Predstavljena rešitev ponuja utemeljene odgovore na vprašanja, ki so nastavljena v raziskovalnem pristopu. Stroji so prisotni povsod; pospešujejo, poenostavljajo in delujejo v skladu z dinamiko življenja. V spektru arhitekture nudijo nove možnosti na nivoju estetike, izvajanja in eksploataciji objektov.

Dissertation

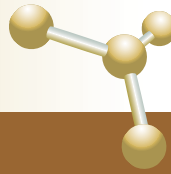
MACHINE MUSEUM

Mentor: Prof. Predrag Šidanin, PhD
Co-Mentor: Milan Šijakov, MSc (Architecture)
University of Novi Sad, Faculty of Technical Sciences,
Department for Architecture and Urban Planning

This dissertation examines unconventional approaches regarding the design and use of mechanisms. This is achieved through the conceptual project of the machine museum which should exhibit the technological achievements of the 21st century.

The basic idea is that each technology has its own form and aesthetics but the most important aspect is its function. This dissertation indicates a topical theme in current designing and architectural practice. The recognition of aesthetics in technology represents untapped potential and a possible future trend. A modest application offers various ways for mechanical reorganisation of exhibition venues to achieve more new cultural programmes. The construction is made of mobile and fixed sets, which is new. Today, technology is mainly concerned with plans and is often not visible in the finished project.

This presented solution provides reasonable answers to questions from a research perspective. Machines are everywhere; they accelerate, facilitate, and work in accordance with the dynamics of life. In architecture, they offer new opportunities aesthetically, in construction, and in the use of buildings.



MRINAL CHAKRABORTY

Magistrsko delo

UPRAVLJANJE UČINKOVITOSTI

Mentor: Udayan Raut-Roy, glavni predavatelj
Somentor: Andrew Collins, višji predavatelj
Univerza Anglia Ruskin

V raziskavi so kritično ovrednotene vloge vodenja proizvodnje pri upravljanju učinkovitosti. Prikazano je, kako motivacijski koncepti in teorije vplivajo na upravljanje učinkovitosti. Na začetku je predstavljeno upravljanje učinkovitosti in njegov pomen v organizaciji. Temu sledi pregled literature, ki jasno predstavi vse faktorje, povezane z upravljanjem učinkovitosti in jih morajo upoštevati vodje proizvodnje.

V naslednji fazi raziskave je razložena metodologija, uporabljena pri raziskavi. Gre za mešano raziskavo z induktivno metodo.

Avtor v prvem delu analize nakaže, da so zadovoljstvo na delovnem mestu, predanost in motivacija ključni dejavniki, ki vplivajo na učinkovitost posameznika. Priznavanje, cenitev, dostopnost virov, plačilo, napredovanje, socialno skrbstvo, možnosti za nadaljnji razvoj kariere in zagotovljeno delovno mesto so nekateri izmed najpomembnejših ukrepov, ki jih mora zagotoviti vodstvo proizvodnje za večje zadovoljstvo pri delu.

V drugem delu analize avtor s pomočjo Maslove hierarhične teorije prednostno razvrsti potrebe in opredeli tiste potrebe, ki se zdijo posameznikom v določenem obdobju njihovega delovanja v organizaciji najbolj pomembne.

V nadaljevanju se raziskava osredotoča na motivacijo in razvoj obveznosti, da bi zagotovili najboljšo učinkovitost v organizaciji. Razložena in izvedena je motivacija z uporabo modela KITA. Edini način za motiviranje zaposlenih je omogočanje samomotivacije med zaposlenimi. Le-ta prinaša več predanosti in boljše učinkovitost zaposlenih v organizaciji.

Dissertation

PERFORMANCE MANAGEMENT

Mentor: Udayan Raut-Roy, Principal Lecturer
Co-mentor: Andrew Collins, Senior Lecturer
Anglia Ruskin University

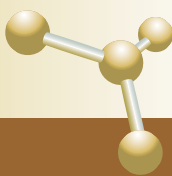
The research critically evaluated the roles of line management in performance management and how the motivational concepts and theories influence performance management. Initially this report explained performance management and its importance in an organisation. This is followed by the literature review that clearly mentions all the factors related to performance management that are to be followed by line managers.

In the next stage of this research the methodology adopted for this research was explained. A mixed research was applied, using the inductive method.

From the first part of the analysis we see that job satisfaction, commitment and motivation are the key factors that influence performance of individuals. Recognition, appraisals, availability of resources, payment, promotion, welfare, career development opportunities, and job security, are some key measures that the line management need to ensure better job satisfaction.

In the second part of the analysis - with the help of Maslow's hierarchy of needs theory, we can prioritise what are the needs and which needs individuals prefer at times during their performance in an organisation.

After this, the research focused on motivation and there by developing commitment to ensure ultimate performance in an organisation. Motivation using KITA is explained and that the only way to motivate employees is to enable self motivation from within the employees, so that it creates better commitment and performance of employees towards the organisation.



MATEJ ČERNE

Magistrsko delo

MODEL AVTENTIČNEGA VODENJA: EMPIRIČNA PREVERBA

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

Raziskovalni model avtentičnega vodenja (konstrukt, ki ga sestavljajo štirje elementi - samozavedanje, samoregulacija, pozitivni psihološki kapital, pozitivno modeliranje) razlikuje vpliv različnega zaznavanja avtentičnosti vodje in njegovih sledilcev na avtentično sledenje in na rezultate z vidika zaposlenih. Simultan način merjenja je v raziskovanju avtentičnega vodenja uporabljen prvič.

Empirično potrjevanje raziskovalnega modela je avtor po deskriptivni in potrditveni faktorski analizi opravil z linearnim strukturnim modeliranjem, pri čemer je uporabil kvantitativne podatke iz raziskave, ki jo je opravil na vzorcu vodij in njihovih sledilcev v slovenskem podjetju.

V magistrskem delu je uvedel nov konstrukt, usklajenost zaznavanja avtentičnosti vodje, in ga operacionaliziral z absolutnimi razlikami med povprečji spremenljivk lastne in zaznane avtentičnosti. Statistično značilne razlike so pokazale, da zaznavanje avtentičnosti s strani vodje samega in njegovih zaposlenih ni enako in da vodje sami sebe zaznavajo kot bolj avtentične, kot jih zaznavajo sledilci. Koeficienti poteka v ločenih strukturnih modelih so pokazali, da ima zaznana avtentičnost močnejši pozitiven vpliv na avtentično sledenje kot lastna avtentičnost. Poleg tega zaznana avtentičnost neposredno pozitivno vpliva tudi na rezultate z vidika zaposlenih.

Dissertation

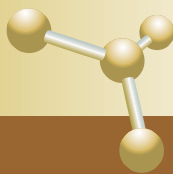
THE MODEL OF AUTHENTIC LEADERSHIP: AN EMPIRICAL CHECK

Mentor: Assistant Prof. Sandra Penger, PhD
Co-Mentor: Assistant Prof. Miha Škerlavaj, PhD
University of Ljubljana, Faculty of Economics

The research model of authentic leadership (a construct that consists of four elements - self-awareness, self-regulation, positive psychological capital, and positive modeling) examines the different effect of a self-ascribed and perceived leader's authenticity on authentic followership and on results, from the employees' perspective. Such simultaneous measuring is used for the first time in authentic leadership research.

After exploratory and confirmatory factor analysis, the empirical testing of the research model was conducted with structural equation modeling. Quantitative data was used that was gathered from a sample of leaders and followers in a Slovenian company.

A new construct - the consistency of a perceived leader's authenticity - was presented for the first time, and operationalized with the absolute differences between the means of measurement items of own and perceived authenticity. The statistically significant differences have shown that a leader's self-ascribed and perceived authenticity are not the same, and that leaders perceive themselves as more authentic than they are perceived by their followers. The path coefficients demonstrate the stronger effect of perceived authenticity on authentic followership in comparison with the effect of self-ascribed authenticity. In addition, perceived authenticity has a direct effect on the results from the employee's perspective.



ALEKS JAN

Magistrsko delo

EKONOMSKA ANALIZA PODPORNEGA OKOLJA ZA GRADNJO SONČNIH ELEKTRARN V SLOVENIJI

Mentor: prof. dr. Nevenka Hrovatin
Univerza v Ljubljani, Ekonomska fakulteta

Sončne elektrarne predstavljajo eno izmed tehnologij, ki ima dolgoročno največji potencial pri pridobivanju električne energije iz obnovljivih virov energije (OVE). EU ima enkratno priložnost, da razvije obsežen, trajnostno naravnan in inovativen ekonomski sektor.

Namen magistrskega dela je bil pokazati, da OVE predstavljajo dobro alternativo, saj gre za proizvodnjo energije z nič ali minimalnimi izpusti toplogrednih plinov. Izrabljajo se naravni in lokalni viri, kar omogoča zmanjševanje uvozne odvisnosti od fosilnih goriv ter ustvarja lokalna delovna mesta.

Glavni cilj magistrskega dela je prikazati ekonomsko upravičenost sončnih elektrarn in predstaviti sektor sončnih elektrarn kot donosno in perspektivno panogo. Proizvodnja opreme za sončne elektrarne je priložnost tudi za slovenska podjetja. Uporabljene metode dela pri izdelavi magistrskega dela temeljijo na proučevanju teoretičnih podlag spodbujanja obnovljivih virov energije, posebej na področju sončnih elektrarn. Uporabljene so standardne metode ocenjevanja upravičenosti investicij.

Za intenzivnejši razvoj v Sloveniji bi bilo potrebno pripraviti razpise za podporo podjetij pri investiranju v proizvodnjo tehnološke opreme za proizvodnjo komponent in sistemov sončnih elektrarn. Nadgraditi in spodbuditi je treba sodelovanje med proizvodno panogo in fakultetami ter raziskovalnimi institucijami.

Dissertation

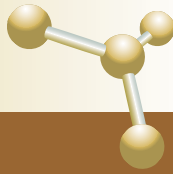
ECONOMIC ANALYSIS OF THE SUPPORT ENVIRONMENT FOR BUILDING PHOTOVOLTAIC POWER PLANTS IN SLOVENIA

Mentor: Prof. Nevenka Hrovatin, PhD
University of Ljubljana, Faculty of Economics

Photovoltaics represent one of the most promising technologies with the highest long-term potential for electricity production. The EU has a unique opportunity to develop a sustainable and innovative energy sector where this kind of development requires an ambitious and wide political approach to stimulate technical development, support mechanisms, and promotion.

The goal of this dissertation is to present renewable energy sources (RES) as a good alternative to low emission energy production. Using RES means using natural and local sources and consequently lowers consumption of fossil fuels, lowers import dependency, and increases local employment. However, RES need support. The main goal is to show the economic analysis for photovoltaic power plants and present the photovoltaic sector as a profitable and promising sector where Slovenian companies have the opportunity to join the world elite.

Sustainable and long term development of the PV sector demands stimulation for investors and in parallel also appropriate stimulation for the PV industry sector. Slovenia has the opportunity to become a member of a global PV sector, which can be realized only by cooperation between domestic companies and research Institutes and Faculties.



VALENTIN KOBLAR

Magistrsko delo

OCENJEVANJE KAKOVOSTI GRAFITNIH POLIZDELKOV Z RAČUNALNIŠKIM VIDOM IN S STROJNIM UČENJEM

Mentor: izr. prof. dr. Bogdan Filipič
Univerza v Novi Gorici, Poslovno-tehniška
fakulteta

V magistrskem delu je bil zasnovan, razvit in preizkušen nov postopek za nadzor kakovosti obdelave grafitnih polizdelkov, ki so bistveni sestavni deli grafitnih komutatorjev za elektromotorje. Motivacija za delo izhaja iz potrebe po avtomatiziranem postopku nadzora kakovosti, ki bi v proizvodnji nadomestil nadzor s strani delavcev in povečal zanesljivost nadzora kakovosti.

Zasnovali so rešitev, ki za nadzor kakovosti uporablja računalniški vid in strojno učenje. V programskem okolju LabView so sestavili program računalniškega vida za analizo digitalnih slik površine polizdelkov. Z njim so iz vzorca večjega števila slik polizdelkov pridobili vrednosti atributov, ki vsebujejo informacije o kakovosti obdelave grafitnih polizdelkov. Zbrane podatke so nato analizirali s programom strojnega učenja Weka in določili povezavo med atributi in kakovostnimi razredi. Rezultat te analize je več odločitvenih dreves za uvrščanje polizdelkov v kakovostne razrede. S sistematičnimi poskusi so pokazali, da imajo odločitvena drevesa klasifikacijsko točnost nad 97 odstotkov in zaradi majhnega števila vključenih atributov omogočajo učinkovito računalniško izvedbo.

Dissertation

ASSESSING THE QUALITY OF GRAPHITE SEMI-PRODUCTS USING COMPUTER VISION AND MACHINE LEARNING

Mentor: Associate Prof. Bogdan Filipič, PhD
University of NovaGorica, Faculty of Engineering
and Management

In this dissertation a new procedure for quality control of graphite semi-product treatment was designed, implemented, and tested. The considered semi-products are essential parts of graphite commutators in electric motors. The work was primarily motivated by the need for an automated quality control procedure to replace the human control and increase the reliability of the control.

A solution based on computer vision and machine learning, as the key methodologies, is proposed. Using the LabView software environment, a computer vision program for analyzing digital images of semi-product surfaces was developed. This program was applied to a large sample of semi-product images to extract the values of attributes, carrying information on the quality of the graphite semi-product treatment. The collected data was then analyzed by means of the Weka machine learning software, and a correlation between the attributes and the quality classes was determined. The analyses resulted in several decision trees for classifying graphite semi-products into quality classes. Systematic tests showed that the decision trees have a classification accuracy of over 97 percent and, due to the low number of attributes involved, enable efficient computer implementation.

Magistrsko delo

**VPLIV TRŽNE ZNAMKE PRI USPEŠNEM
PRODORU SLOVENSКИH PODJETIJ NA
TUJE TRGE**

Mentor: doc. dr. Mihael Kline
Univerza v Ljubljani, Fakulteta za družbene vede

V magistrskem delu je predstavljen vpliv blagovne znamke pri uspešnem prodoru podjetij v tujino. Poskuša odgovoriti na vprašanja: če, zakaj in kako uspešna podjetja gradijo na tujih trgih blagovne znamke, če se podjetja, ki delujejo na potrošniških, razlikujejo od tistih, ki delujejo na medorganizacijskih trgih, kaj je značilno in skupno za najbolj uspešne in kateri dejavniki z vidika blagovnih znamk so odločilni za uspeh na tujih trgih.

V teoretičnem delu avtorica predstavi pregled teorij o vlogi in pomenu blagovnih znamk. Na osnovi teoretskih spoznanj predstavi tudi lastni model ključnih dejavnikov, ki pomembno vplivajo na prodor podjetij na tuje trge, seveda s poudarkom na dejavnikih, ki vplivajo na blagovno znamko.

Teoretične poglede uspešno povezuje s primeri iz prakse in jih nadgradi v nova, produktivna vprašanja in dileme ter poda nanje tudi predloge za prakso delovanj podjetij na tujih trgih.

Magistrsko delo želi s svojo analizo in raziskavo pomagati podjetjem, ki si prizadevajo nacionalne znamke razviti v mednarodne ali celo globalne, uspešno prodreti na tuje trge, si tam zagotoviti čim večji tržni delež in si s tem ustvariti nove poslovne priložnosti, ki jim omogočijo višjo dodano vrednost in dobiček ter s tem dolgoročno rast in razvoj.

Dissertation

**BRAND INFLUENCE ON THE SUCCESS
OF SLOVENE COMPANIES IN FOREIGN
MARKETS**

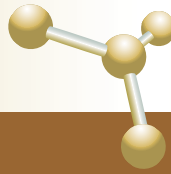
Mentor: Assistant Prof. Mihael Kline, PhD
University of Ljubljana, Faculty of Social Sciences

This dissertation presents the effect of branding on the success of companies' entry campaigns into foreign markets. It seeks to provide answers to the following questions: Do successful companies build strong brands in foreign markets? Is there any difference in this regard between companies operating in B2C and B2B markets? What are the common traits of the successful ones? Which brand related aspects are of key importance for success in foreign markets?

In the theoretical part of the thesis the author presents an overview of theories from the field, dealing with the role and importance of brands. These theoretical findings provide a basis for the author's own model of key aspects that are identified as being essential for a company's penetration beyond national borders, stressing particularly the aspects that affect the brand.

The author successfully combines theoretical aspects with practical examples, forms new and productive questions and dilemmas, and suggests some proposals for company operational practices in foreign markets.

The aim of the analysis and research in this dissertation is to help companies that seek to develop a national brand into an international or even global brand and successfully penetrate foreign markets, gain a large market share, and thus create new business opportunities that give higher added value and profit, and thus long-term growth and development.



SLAVKO MILANOVIC

Magistrsko delo

ANALIZA ETFE TEHNOLOGIJE: FASADNI OVOJ ŠPORTNIH AREN

Mentor: prof. Paola Ronca
Somentor: arh. Cédric Lodewickx
Politehnična univerza v Milanu, Oddelek za
visoke gradnje

Raziskava temelji na inovativni tehnologiji, ki bi z nadaljnjim razvojem lahko suvereno stopila ob bok tehnologiji stekla.

V magistrskem delu je podrobno izdelana raziskava ETFE tehnologije na primeru fasadnega ovoja zmagovalnega natečajnega projekta nove športne arene Lamezia Terme. Korektno je izdelana analiza samega ETFE materiala. Zbrani in ovrednoteni so posamezni arhitekturni primeri oziroma fasadni sistemi, ki s pomočjo ETFE tehnologije omogočajo izdelavo kompleksnih, modernih arhitekturnih oblik.

Ali se bo uporaba ETFE tehnologije ustalila v arhitekturni praksi in bo postala konkurenčna ostalim tehnologijami gradnje lahko zaenkrat le ugibamo. Vendar pa izvedeni primeri svetovno znanih arhitektov dokazujejo, da tehnologija poleg oblikovne svobode sledi usmeritvam trajnostnega razvoja in si tako utira pot na tržišče.

Dissertation

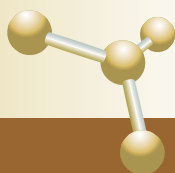
ETFE TECHNOLOGY ANALYSIS: CASE STUDY OF A SPORT ARENA'S ENVELOPE

Mentor: Prof. Paola Ronca
Co-Mentor: arch. Cédric Lodewickx
Politecnico di Milano, Department of Structural
Engineering

The research is focused on the innovative and emerging technology that is, for the first time, offering a valuable substitute in the technology of glass.

This dissertation uses the winning project of the Lamezia Terme's new Sport Arena competition, currently under development, and explains comprehensively the ETFE technology, both theoretically and by applying it to the arena's envelope. Starting from chemical analysis and physical properties, to a different system description, and different example analysis, the new sport arena envelope is a perfect case study to test the unique properties of ETFE, using the project's complex geometry.

Whether the ETFE will follow the path of other bold technologies of the 20th century that promised a lot and ended up at the margins of architectural practice, is too early to tell. It is certain that ETFE follows and enhances today's need for sustainable design and energy-saving, with low weight and extremely low maintenance cost, and should have a long and secured future on the market.



Magistrsko delo

ODPRTO INOVIRANJE V SLOVENIJI

Mentor: doc. dr. Igor Prodan
Univerza v Ljubljani, Ekonomska fakulteta

Magistrsko delo podrobneje predstavlja model odprtega inoviranja ter prouči stanje omenjenega koncepta v Sloveniji.

Prvi del empirične raziskave se nanaša na predstavitev uspešne vpeljave koncepta odprtega inoviranja s strani podjetja Trimco. Drugi del empirične raziskave je sestavljen iz anketnega vprašalnika med slovenskimi visokotehnološkimi podjetji ter poglobljenih intervjujev z domačimi in tujimi strokovnjaki s tega področja.

Raziskava med mikro in majhnimi visokotehnološkimi podjetji je pokazala, da večina podjetij koncepta odprtega inoviranja ne pozna oziroma je zanj le slišala. Prav tako jih večina po konceptu zavestno ne deluje. Iz analize poglobljenih intervjujev pa je razvidno enotno mnenje sogovornikov glede glavnih prednosti odprtega inoviranja, ki so predvsem možnost dostopanja do precej širšega znanja, hitrejši dostop na trg, boljša izkoriščenost notranjih virov, ohranjanje konkurenčne prednosti, možnost vstopa na mednarodni trg ter posledično boljši rezultati poslovanja podjetja.

Na koncu so v treh točkah podani predlogi za vpeljavo in razvoj odprtega inoviranja v slovenska podjetja, pri čemer prvi korak predstavlja ozaveščanje slovenskih podjetij o pomenu, prednostih in koristih omenjenega koncepta, drugi korak predstavlja vpeljavo odprtega inoviranja v podjetje, pri čemer so potrebne velike spremembe v organizacijski strukturi in kulturi, tretji korak pa predstavlja vlogo države.

Dissertation

OPEN INNOVATION IN SLOVENIA

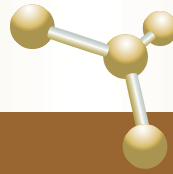
Mentor: Assistant Prof. Igor Prodan, PhD
University of Ljubljana, Faculty of Economics

This dissertation presents a model of open innovation and examines the situation of this concept in Slovenia.

The first section of the study comprises a theoretical presentation of the open innovation concept. It describes the basic differences between closed and open innovation, the different aspects of open innovation, identifies the reasons for the implementation of the concept, and the necessary steps for successful introduction of the concept and the obstacles the companies may face during implementation.

The empirical part of the study examines the state of open innovation in Slovenia. The first part of the empirical research presents the successful implementation of open innovation by a Slovenian company, Trimco. The second part of the empirical research consists of a questionnaire of Slovenian high-tech firms and in-depth interviews with domestic and foreign experts in the field. The survey of micro and small high-tech firms shows that most companies are not familiar with the open innovation concept. The in-depth interviews show the common opinion of interviewees on the major benefits of open innovation, which are mainly connected with the possibility of accessing much wider knowledge, faster access to the market, better utilization of internal resources, maintaining a competitive advantage, the possibility of entering the international market faster, and consequently better business performance.

At the end, suggestions for the introduction and development of open innovation in Slovenian companies are described. Awareness about the importance of the concept and its advantages and benefits among Slovenian companies should be raised; the second step consists of the introduction of open innovation in Slovenian SMEs, while major changes in the organizational structure and culture are needed. Additionally the state incentives play a crucial role.



URSZULA ANNA STEFANIUK

Magistrsko delo

MUZEJ MODE V TOKIJU, JAPONSKA

Mentor: prof. dr. Stefan Kuryłowicz, u.d.i.a.
Somentor: dr. Piotr Grodecki, u.d.i.a.
Univerza v Varšavi, Fakulteta za arhitekturo

V magistrskem delu je obdelana povezava med arhitekturo, modno industrijo in sodobno tehnologijo gradnje. Mobilnost, spremenljivost, sodobnost, funkcionalnost in estetika so termini, ki zaznamujejo modno industrijo, v arhitekturi pa ustvarjajo unikatni, moderen prostor. Sodobna arhitektura je dobila svobodo v oblikovanju fasadnega ovoja, kjer so se meje med oblikovanjem fasade in dizajniranjem obleke začele prepletati.

Magistrsko delo sestavljata dva glavna sklopa: teoretični del in idejni projekt novega muzeja mode v Tokiju. Koncept muzeja izhaja iz trendov v modni industriji in vsebuje moderne rešitve, ki so prikazane v realizaciji idejnega projekta.

V magistrskem delu so zajeti sodobni trendi oblikovanja fasadnega ovoja.

Dissertation

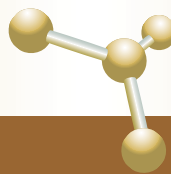
FASHION MUSEUM IN TOKYO, JAPAN

Mentor: Prof. Stefan Kuryłowicz, PhD, BSc (Architecture)
Co-Mentor: Piotr Grodecki, PhD, BSc (Architecture)
Warsaw University of Technology, Faculty of Architecture

This dissertation describes the connection between the architecture, ideas of the project, fashion theory, and contemporary technology. It is divided into the author's two parts which are the theoretical analysis of the topic, and the architectural project.

The design concept of The Fashion Museum in Tokyo was created on the basis of the topic analysis of fashion in architecture and human life. The architectural concept of The Fashion Museum comprises the ideological principles of the project, as well as the spatial form of the building.

The dissertation contains modern solutions, applied in a novel way in practical realisation of the design concept. Mobility, changeability, modernity, functionality, and aesthetics are the elements essential both in both architecture and in fashion. They make the design space unique.



Magistrsko delo

VODENJE OBLIKOVALSKIH RIR PROCESOV V INTERDISCIPLINARNIH SKUPINAH

Mentor: prof. Saša J. Mächtig
Univerza v Ljubljani, Akademija za likovno
umetnost in oblikovanje

Pričujoče magistrsko delo je plod večletnih izkušenj s področja industrijskega oblikovanja in oblikovalskih procesov, pridobljenih na Akademiji za likovno umetnost in oblikovanje Univerze v Ljubljani. Omenjene izkušnje je avtorica integrirala z veščinami vodenja skupin in skupinskih procesov. Delo je razdeljeno na analitično-raziskovalni in teoretični del. Praktični del zajema sodelovanje in sovođenje zgoraj naštetih procesov, z opisi preizkusov tehnik, orodij in modelov pa se prepleta v teoretični del naloge.

V analitično-raziskovalnem delu je avtorica z namenom, da bi raziskala načine in metode vodenja skupin, analizirala vodenje RiR procesov sedmih izbranih projektov, pri katerih je sodelovala v dodiplomskem in podiplomskem študijskemu programu. V teoretičnem delu se poleg managementa prepletajo še mehke znanosti sociologije, psihologije, ekonomije in NLP.

V zaključku magistrskega dela avtorica ugotavlja, da za tako kompleksno vodenje ne obstaja čudežni recept, obstajajo pa številne sestavine in prijemi, ki pripomorejo k uspehu projekta.

Dissertation

MANAGING DESIGN R&D PROCESSES IN INTERDISCIPLINARY TEAMS

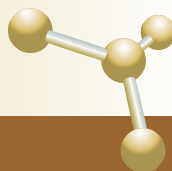
Mentor: Prof. Saša J. Mächtig
University of Ljubljana, the Faculty of Fine Arts
and Design

The dissertation is a result of several years of experience in the fields of industrial design and design processes that were primarily acquired at the Faculty of Fine Arts and Design, University of Ljubljana. The dissertation "Managing design R&D processes in interdisciplinary teams" is divided into an analytical research part and a theoretical part.

The practical part describes the collaboration and co-managing of the above-mentioned processes. The theoretical part describes the techniques, tools and models used.

The analytical research part analyses various approaches and methods of managing teams. The aim of the theoretical part was to determine the success of the R&D projects that were dealing with industrial clients. The theoretical part describes the methods and tools for managing teams that were used in 7 projects. In addition, this part describes management and soft sciences, such as sociology, psychology, economics and NLP.

The conclusion is that managing teams is a very complex process and there is no magic pill for it; however, there are numerous components and approaches that contribute to the success of the project.



Magistrsko delo

PRAVNI VIDIKI PATENTNEGA VARSTVA V SLOVENIJI IN V EVROPI

Mentor: doc. dr. Špelca Mežnar
Mednarodna fakulteta za družbene in poslovne
študije Celje

Trg nam danes ponuja pestro izbiro najrazličnejših izdelkov, ki so večinoma zaščiteni z določeno pravico. Pravice industrijske lastnine so si med seboj podobne, toda za vse zahteva zakonodaja poseben postopek priznavanja, ki ima poseben vpliv na informacijsko vrednost pridobljenih pravic. Industrijska lastnina je dokaj širok pojem, zato se je avtorica v magistrskem delu omejila na patente in patentno varstvo.

Za uspešno zaščito patentov je potrebno temeljito poznavanje posameznih poti pridobivanja patentnega varstva, kar bo pomembno vplivalo na razvoj znanosti, ustvarjalnosti, konkurenčni uspešnosti in sposobnosti nosilca patenta.

V empiričnem delu avtorica s pomočjo komparativne metode razišče in prikaže najugodnejšo pot pridobivanja patentnega varstva v posameznih odločitvah. Prav tako avtorica v empiričnem delu primerja slovensko zakonodajo na področju patentov z evropsko zakonodajo ter kritično opozori na pomanjkljivosti ter neskladja med posameznimi zakonodajami.

Magistrsko delo predstavlja kritično oceno patentnega varstva v Sloveniji in v širšem evropskem okolju. Izbrana tema je aktualna in relevantna še posebej zaradi gospodarske krize, ki je vnovič opozorila na pomen inovativnosti v poslovnem okolju in zaradi neuspešnega poenotenja patentnega varstva na ravni ES.

Dissertation

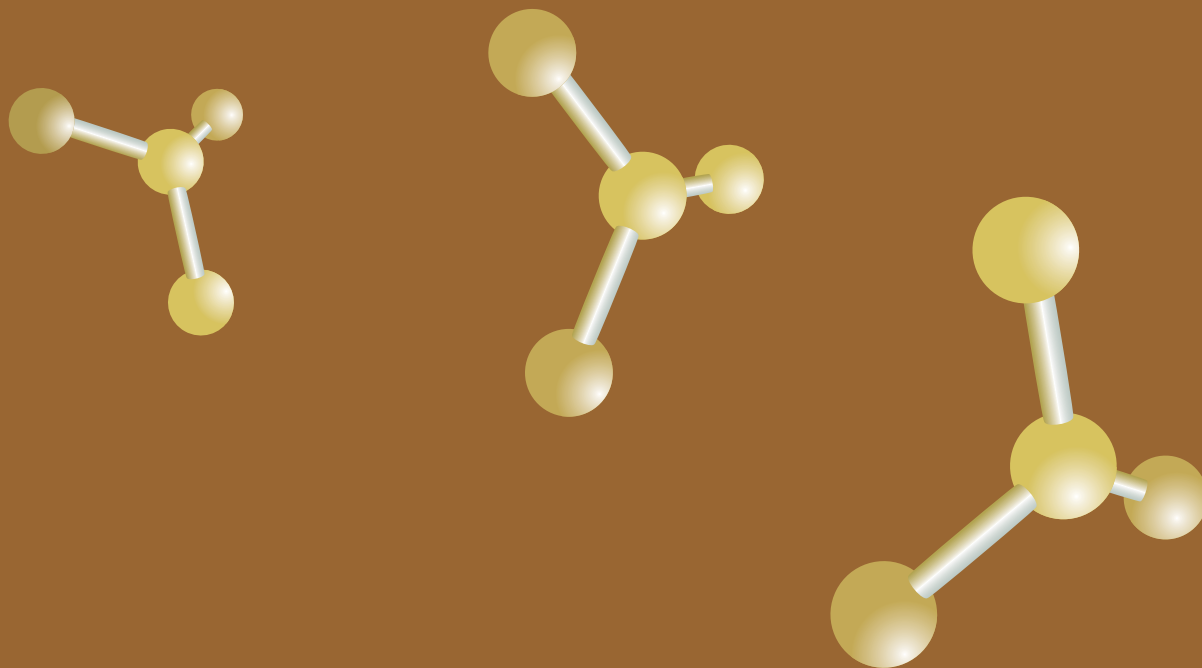
LEGAL ASPECTS OF PATENT PROTECTION IN SLOVENIA AND IN EUROPE

Mentor: Assistant Prof. Špelca Mežnar, PhD
International School for Social and Business Studies,
Celje

Successful patent protection requires thorough knowledge of the specific means of obtaining patent protection, which will significantly affect the progress of science, encourage creativity, and ensure a base for more competitive success and the capability of the patent holder.

In the empirical part, the author uses a comparative method to explore and illustrate the most beneficial way of obtaining patent protection in individual decisions. The author also compares Slovenian and European legislation in the field of patents and critically points out the deficiencies and inconsistencies between particular legislation.

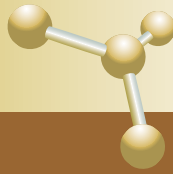
This dissertation presents a critical assessment of patent protection in Slovenia and in the wider European environment. The chosen theme is topical and relevant, especially because of the economic crisis that has once again highlighted the importance of innovation in the business environment, as well as because of an unsuccessful attempt of uniform patent protection at the EC level.



ZBORNİK POVZETKOV NAGRAJENIH DEL
ABSTRACTS OF THE PROJECTS AWARDED

DOKTORSKE DISERTACIJE

DOCTORAL THESES



Doktorska disertacija

METODA KONČNIH ELEMENTOV ZA RAČUN MEJNE NOSILNOSTI IN LOKALIZIRANE PORUŠITVE PLOSKOVNIH KONSTRUKCIJ

Mentor: izr. prof. dr. Boštjan Brank, univ. dipl.
inž. gradb.
Univerza v Ljubljani, Fakulteta za gradbeništvo
in geodezijo

V doktorski disertaciji je obravnavan račun mejne nosilnosti in mejne duktilnosti konstrukcij z metodo končnih elementov. Račun mejne nosilnosti je povezan tako z modeliranjem standardnih neelastičnih materialnih efektov kot tudi z modeliranjem lokalizacijskih efektov v materialu, ki se jih pogosto označuje kot mehčanje materiala.

Razvitih je več končnih elementov in algoritmov za simulacijo različnih konstrukcijskih elementov (paličja, okvirji, stene, plošče, lupine) iz različnih gradbenih materialov (jeklo, armiran beton, beton, kompozitni material) med drugim tudi elastoplastični končni element za analizo jeklenih nosilcev. Zadnji izpeljani končni element je elastoplastični štirivozliščni končni element za ravninska telesa, ki ima vključene nezveznosti v pomikih.

Numerični primeri dokazujejo, da je mogoče z izpeljanimi končnimi elementi in s pripadajočimi algoritmi učinkovito in na dokaj robusten način izračunati tako mejno nosilnost konstrukcije, kot simulirati popolno porušitev konstrukcije. Med drugim je predstavljen primer računa nastanka in širjenja razpoke v krhkem materialu in primer strižne porušitve v duktilnem materialu.

Doctoral thesis

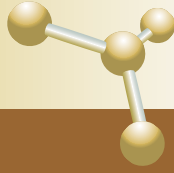
FINITE ELEMENT ANALYSIS OF LIMIT LOAD AND LOCALIZED FAILURE OF STRUCTURES

Mentor: Associate Prof. Boštjan Brank, PhD.,
BSc. (Civil Eng.)
University of Ljubljana, Faculty of Civil and Geodetic
Engineering

The doctoral thesis deals with load limits and the analysis of the ductility limits of structures by the finite element method. The study of load limits is thus related to modeling both standard in-elastic material effects, as well as the modeling of the localized failure of material, often referred to as material softening.

The analysis of several finite element formulations for different structural components (bars, beams, walls, plates, shells) made of different materials (steel, reinforced concrete, concrete, composite material) was derived, including a finite element for analysis of steel beams.

Numerical simulations show that the derived finite elements, along with the accompanying numerical algorithms, are an efficient and rather robust tool for load limits and failure analysis of structures. Among other examples, a simulation of crack growth in brittle material and a simulation of shear band failure in ductile material is presented.



MAJA KRESLIN

Doktorska disertacija

**VPLIV VIŠJIH NIHAJNIH OBLIK PRI
NELINEARNI POTRESNI ANALIZI
KONSTRUKCIJ STAVB**

Mentor: prof. dr. Peter Fajfar
Univerza v Ljubljani, Fakulteta za gradbeništvo
in geodezijo

V doktorski disertaciji je bila predlagana razširitev N2 metode za visoke stavbe, kjer imajo višje nihajne oblike pomemben vpliv. Predpostavljeno je bilo, da je nelinearen vpliv pomemben pri osnovni nihajni obliki, medtem ko je obnašanje v višjih nihajnih oblikah pretežno elastično. Z drugimi besedami: vpliv višjih nihajnih oblik v neelastičnem območju je po predpostavki enak vplivu višjih nihajnih oblik v elastičnem območju.

Na podlagi te hipoteze je bil pripravljen postopek računa. Vpliv višjih nihajnih oblik je bil določen iz rezultatov standardne modalne analize s spektri odziva.

Predlagan postopek za upoštevanje višjih nihajnih oblik po višini stavbe je združljiv z razširjeno N2 metodo za nesimetrične konstrukcije v tlorisu, kar nam omogoča, da lahko z eno standardno modalno analizo zagotovimo korekcijske faktorje za upoštevanje višjih nihajnih oblik tako v tlorisu kot po višini stavbe. To je tudi glavna prednost tega postopka.

Doctoral thesis

**INFLUENCE OF HIGHER MODES IN
NON-LINEAR SEISMIC ANALYSIS OF
BUILDING STRUCTURES**

Mentor: Prof. Peter Fajfar, PhD
University of Ljubljana Faculty of Civil and
Geodetic Engineering

In this doctoral thesis, the extension of the N2 method for structures with important higher mode effects along their elevation is proposed. The estimation of higher mode effects is based on the assumption that the structure remains in the elastic range when vibrating in higher modes. In other words, it is assumed that the higher mode effects in the inelastic range are the same as in the elastic range.

Based on this assumption, a computational procedure was prepared. The influence of higher modes is determined by a standard elastic modal analysis and applied in terms of correction factors which are used for the adjustment of results obtained by the normal pushover analysis.

The proposed procedure is consistent and compatible with the extended N2 method for asymmetrically planned buildings. A single standard elastic modal response spectrum analysis can provide correction factors for taking into account the higher mode effects both in plan and in elevation. This point is considered as the main advantage of the proposed approach.

Doktorska disertacija

ANALIZA ENERGIJSKEGA IZPLENA FOTONAPETOSTNIH MODULOV

Mentor: prof. dr. Marko Topič, univ. dipl. inž. el.
Univerza v Ljubljani, Fakulteta za elektrotehniko

Doktorska disertacija se ukvarja s študijo vplivnih dejavnikov na zmogljivost in energijski izplen različnih fotonapetostnih (PV) modulov. V splošnem sta zmogljivost in energijski izplen modulov odvisna od izbranega PV modula, izbrane lokacije, orientacije in načina montaže PV modula ter vremenskih pogojev.

Opravljen je bil obsežna analiza spektra sončnega sevanja pri različnih vremenskih pogojih, vpliva spremembe oblike spektra sončnega sevanja na zmogljivost PV modulov sestavljenih iz eno- in večspojnih sončnih celic. Pri analizi je prikazan vpliv vpadnega kota svetlobe različne valovne dolžine, vpliv različnih vremenskih parametrov, vpliv montaže ter obratovalnega režima PV modula na njegovo delovanje.

Združeni so bili električni, spektralni in temperaturni model v celovit močnostni in energijski model PV modulov. Celovit močnostni model tako zajema vse vhodne parametre, ki vplivajo na trenutno moč obravnavanega modula, energijski model pa dodaja še integracijo moči po času ter upošteva vpliv izbrane lokacije in vpliv načina postavitve PV modula.

Doctoral thesis

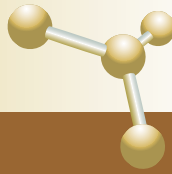
ENERGY YIELD ANALYSIS OF PHOTOVOLTAIC MODULES

Mentor: Prof. Marko Topič, PhD, BSc (Electrical Eng.)
University of Ljubljana, Faculty of Electrical Engineering

This doctoral thesis focuses on the study of influence factors on performance and energy yields of various photovoltaic (PV) modules. In general the performance and energy yield of PV modules depends on the PV module actually chosen, the selected location, orientation, module mounting conditions, and weather conditions.

An extensive analysis of the solar irradiance spectra, in different weather conditions, was performed. The influence of the changed spectra on the performance of different PV modules consisting of single- and multi-junction solar cells was analysed. The impact of the incidence angle of light at different wavelengths, and the influence of various weather parameters, PV module mounting, and of PV module operating regimes, on the PV module behaviour, was analysed.

The electrical, spectral, and temperature models were integrated into a complete PV module power and energy yield model. The complete PV module power model includes all the input parameters that influence the output power of the selected PV module. The energy model adds the integration of power over time and considers the influence of the chosen location and influence of the PV module mounting conditions.



Doktorska disertacija

VISOKO KONCENTRIRANE ČASOVNO-FREKVENČNE DISTRIBUCIJE IN NEKATERI VIDIKI APLIKACIJE

Mentor: prof. dr. Srdjan Stanković
Univerza v Črni Gori, Fakulteta za elektrotehniko

Namen tega dela je podati nekatere nove in splošne pristope k časovno-frekvenčni analizi nestacionarnih signalov. Visoko koncentrirane distribucije za analizo trenutne frekvence, ki se hitro spreminja, temeljijo na argumentu kompleksnega časa. Delo analizira vplive diskretizacije Cauchyjeve integracijske formule na koncentracijo časovno-frekvenčne distribucije.

Kot rezultat te diskretizacije nastanejo nove oblike distribucije kompleksnega časa poljubne vrste. Poleg tega se z uporabo raznih zaporednih integracij doseže L-oblika distribucije. Avtorica razširi predstavljene koncepte znotraj domene spremenljivk in predlaga vrsto časovno-frekvenčnih distribucij z argumentom kompleksnega časa. Ta temelji na prikazu domene spremenljivk realnega in kompleksnega časovnega momenta, ki sta združena, da bi ustvarila križni prosti prikaz za večkomponentne signale. Nova oblika kompleksne časovno-frekvenčne distribucije N-tega reda sledi kot dvodimenzionalna inverzna Fourierova transformacija predlaganega prikaza domene dvoumnosti. Ob upoštevanju različnih obstoječih jeder je definirana celotna skupina distribucij kompleksnega časa. Predlagane distribucije se primerja z različnih vidikov, med drugim z odpornostjo na hrup.

Disertacija se osredotoča tudi na večokenske časovno-frekvenčne distribucije, kjer avtorica predlaga Hermitovo S-metodo. Optimalna okna se doseže z uporabo Hermitovih funkcij različnih vrst. Te funkcije kažejo številne zaželene lastnosti, kot je dobra časovno-frekvenčna lokalizacijska lastnost. Predlagana distribucija izboljša resolucijo standardnih kvadratnih distribucij (npr. spektrogram in S-metoda), ne da bi povečala distribucijski red in zato ohrani majhno kompleksnost računanja.

Na koncu avtorica predlaga ter analizira nekatere zanimive in dejanske primere aplikacije časovno-frekvenčne distribucije. Še posebej se osredotoči na naslednje aplikacije: časovno-frekvenčno analizo eno- in dvodimenzionalnih radarskih signalov, digitalni vodni tisk za zaščito podatkov v multimedijah, ki temelji na časovno-frekvenčni analizi, analizo biomedicinskih signalov in klasifikacijo.

Doctoral thesis

HIGHLY CONCENTRATED WEATHER- FREQUENCY DISTRIBUTIONS AND SOME ASPECTS OF CHANGE

Mentor: Prof. Srdjan Stanković, PhD
University of Montenegro, Faculty of Electrical
Engineering

This work proposes some novel and generalized approaches in the time-frequency analysis of non-stationary signals. The highly concentrated distribution for fast variable instantaneous frequency analysis based on the complex-lag argument. The effects of the Cauchy integral formula discretization on the concentration of time frequency distribution are analyzed.

As a result of this discretization, the new forms of complex-lag distribution with an arbitrary order are produced. Additionally, by using multiple successive integration, the L-form of distributions is obtained. By extending the concepts introduced within the ambiguity domain, a class of time frequency distribution with the complex-lag argument is proposed. It is based on the ambiguity domain representations of real and complex lag moment, combined to provide a cross-terms free representation for multi-component signals. A new form of the N-th order complex-lag time-frequency distribution follows as a two-dimensional inverse Fourier transform of the proposed ambiguity domain representation. More generally, by considering various existing kernels, the entire class of complex-lag distributions is defined. The proposed distributions are compared with respect to different aspects, including the robustness to noise.

Furthermore, a part of this work is dedicated to the multiwindow time-frequency distributions, where the HermiteSmethod has been proposed. The optimal windows are obtained by using Hermite functions of different orders. These functions show a number of desirable properties such as good time-frequency localization property. The proposed distribution improves the resolution of standard quadratic distributions (e.g. spectrogram and Smethod), without increasing distribution order and hence, preserving low calculation complexity.

Finally, some interesting and actual applications of time-frequency distributions are proposed and analyzed. Particularly, focus was on the following applications: time-frequency analysis of one-dimensional and two-dimensional radar signals, digital watermarking for multimedia data protection based on the timefrequency analysis and biomedical signal analysis and classification.

Doktorska disertacija

SPOSOBNOST ABSORPCIJE POSLOVNOINTELIJENČNIH SISTEMOV

Mentor: prof. dr. Jurij Jaklič
Univerza v Ljubljani, Ekonomska fakulteta
Somentor: prof. dr. Pedro Simões Coelho
Instituto Superior de Estatística e Gestão de
Informação da Universidade Nova de Lisboa

V preteklih letih je bilo veliko strokovnih prispevkov namenjenih različnim koristim, ki jih organizacijam prinaša uvedba poslovno-inteligenčnega sistema (PIS), pri čemer je empiričnih raziskav na temo koristi uvedbe PIS malo. Avtor raziskuje ključne dejavnike sposobnosti absorpcije PIS za uporabo kakovostnih informacij, ki jih zagotavljajo PIS za spremembe poslovnih procesov.

V prvem delu avtor z natančno in raznovrstno analizo literature navaja, oriše in sintetizira spoznanja s področja poslovne inteligence in PIS v konceptualni model zrelosti PIS. Avtor v drugem delu z uporabo konceptualnega modela primarno tezo o vplivu zrelosti PIS na kakovost informacij ter vpliv slednje na uporabo informacij za poslovno odločanje v poslovnih procesih organizacije tudi empirično dokaže. Empirična raziskava je vključevala podatke iz 181-ih slovenskih srednje velikih in velikih organizacij, s pomočjo katerih je bil analiziran strukturiran model z metodo delnih najmanjših kvadratov in orodjem SmartPLS.

Prispevki doktorske disertacije na področju informacijsko-upravljaljskih znanosti so teoretični, praktični in empirični. Konceptualni model in raziskava sta novost na področju poslovne inteligence in PIS, ki ponuja praktične napotke za uvedbo ali izboljšanje zmogljivosti PIS, opredeljuje, na katere vidike kakovosti informacij ima uvedba ali izboljšanje PIS večji vpliv in kakšen je vpliv zrelosti organizacije na povečanje uporabe informacij v poslovnih procesih.

Doctoral thesis

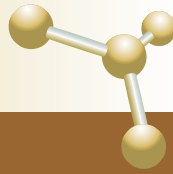
ABSORBABILITY OF BUSINESS INTELLIGENCE SYSTEMS

Mentor: Prof. Jurij Jaklič, PhD
University of Ljubljana, Faculty of Economics
Co-Mentor: Prof. Pedro Simões Coelho, PhD
Instituto Superior de Estatística e Gestão de
Informação da Universidade Nova de Lisboa

In the past few years, numerous literature sources, mainly written by practitioners, have reported on the wide benefits the introduction of business intelligence systems (BIS) brings to organizations. However, there are very few empirical studies in this field regarding the realization of benefits from the implementation of business intelligence systems. The author researches the key factors of the absorbability of BISystems that facilitate the use of the quality information enabled by BIS in changing business processes.

In the first part, the author synthesises a precise and diverse analysis of literature quotes, outlines, and dissertations from the field of business intelligence and BIS into a conceptual model of BIS maturity. In the second part, the author empirically establishes the use of a conceptual model as the primary thesis, i.e. that BIS maturity enables the use of quality information in changing business processes. Based on an empirical study of Slovenian medium and large-size organizations, the proposed structural model is analysed with data from 181 organizations employing the method of partial least squares and SmartPLS.

The contributions of the doctoral thesis to the field of information-management sciences are theoretically, empirically, and practically valuable. The conceptual model and research are a novelty in the field of business intelligence and BIS and offer practical directives for the implementation or improvement of BIS capabilities, respectively - they define what aspects of information quality the implementation or improvement of BIS have greater impact on, and define what impact the maturity of an organization has on the enhanced use of information in business processes.



Doktorska disertacija

VPLIV TOPOGRAFIJE NA TRIBOLOŠKE LASTNOSTI KONTAKTNIH POVRŠIN

Mentor: izr. prof. dr. Bojan Podgornik
Somentor: prof. dr. Jože Vižintin
Univerza v Ljubljani, Fakulteta za strojništvo

Ena od zelo pomembnih lastnosti površine je njena hrapavost oz. topografija ter vpliv le-te na trenje in obrabo. To pomeni, da je za pravilno konstruiranje kontaktnih površin potrebno poznati povezavo med parametri hrapavosti površine in njenim tribološkim obnašanjem.

Z namenom določiti tako pomembne parametre hrapavosti, ki vplivajo na tribološke lastnosti kontaktnih površin, kakortudi na njihovo medsebojno korelacijo, smo izdelali serijo preizkusov, s katerimi smo ugotovili, da lahko parametra hrapavosti R_{ku} in R_{sk} uporabimo kot smernici pri načrtovanju topografije površine za doseganje manjšega trenja. Z uporabo različnih stopenj in vrst mehanskih obdelav preizkušancev smo ugotovili, da se z ugodnim tribološkim obnašanjem odražijo površine, ki imajo čim nižjo vrednost parametra hrapavosti R_{sk} in čim višjo vrednost R_{ku} .

S pomočjo virtualnega obličenja površin je avtor preučil vpliv različnih parametrov obličenja na parametre hrapavosti. Rezultati so pokazali, da se z večanjem razmika med utori in ožanjem utorov doseže nižje vrednosti R_{sk} in višje vrednosti R_{ku} . Ta dognanja so s pomočjo laserskega obličenja površin preizkusili na jeklenih preizkušancih ter potrdili, da se veliki razmiki med utori in manjša širina utorov odražijo v nižjih vrednostih parametra hrapavosti R_{sk} in višjih vrednostih R_{ku} ter posledično tudi v boljših triboloških lastnostih.

Doctoral thesis

INFLUENCE OF SURFACE TOPOGRAPHY ON TRIBOLOGICAL BEHAVIOR OF CONTACT SURFACES

Mentor: Associate Prof. Bojan Podgornik, PhD
Co-Mentor: Prof. Jože Vižintin, PhD
University in Ljubljana, Faculty of Mechanical
Engineering

A very important property of a surface is its roughness and topography, and its influence on friction and wear. This means that for proper construction of contact surfaces it is necessary to know the relationship between the surface roughness parameters and tribological behavior.

In order to determine the influence of the surface roughness parameters which affect the tribological properties of contact surfaces as well as their mutual correlation, a series of tests were designed, where it was found that roughness parameters R_{ku} and R_{sk} can be used as guidelines when planning surface topography to achieve lower friction. By producing samples, using different grades and types of mechanical treatments, we found out that lower values of surface roughness parameter R_{sk} and higher values of R_{ku} reflect in favorable tribological behavior.

With the help of virtual surface texturing, the influence of various surface texturing parameters on the parameters of surface roughness were examined. Results show that the greater or narrower the spacing between grooves, lower values of R_{sk} and higher values R_{ku} can be expected. With the use of steel samples treated by laser surface texturing, these findings were tested and it was discovered that grooves with wider spacing between the grooves and smaller width actually resulted in lower values of the surface roughness parameter R_{sk} and higher values of R_{ku} and consequently better tribological properties.

Doktorska disertacija

ZNAČILNOSTI, VREDNOTENJE IN POTENCIALI POTRESNE ARHITEKTURE

Mentor: izr. prof. dr. Vojko Kilar
Somentor: doc. mag. Tadej Glažar
Univerza v Ljubljani, Fakulteta za arhitekturo

Disertacija predstavlja rezultate raziskav značilnosti in posebnosti arhitekture v kontekstu potresne odpornosti: raziskuje, analizira in vrednoti sodobne dosežke potresnega inženirstva, ki lahko pripomorejo k povečanju izraznosti arhitekturnega oblikovanja in t.i. »kulture tektonike« v protipotresnem smislu. Izhajamo iz teze, da bi morala imeti arhitektura na potresno ogroženih območjih svoje bolj ali manj izražene značilnosti, ki predstavljajo kreativen odziv arhitekture na potres.

Disertacija raziskuje pojav posebnega arhitekturnega jezika, ki se razvija izključno na potresno ogroženih področjih, in sicer arhitekture v kontekstu potresne odpornosti.

Če konceptualne, simbolne ali estetske principe v arhitekturi križamo z načini zasnove konstrukcij (tehnologija, inženirstvo), lahko ob ustreznem vrednotenju in razvoju občutka za tektoniko usmerjamo, vzpodbujamo in predvidevamo smeri razvoja projektantske prakse na potresnih področjih. Danes je le-ta izražena predvsem v močnem sodelovanju med arhitekturo in potresnim inženirstvom, pri čemer slednje pelje svoj razvoj v sofisticirane potresno-izolacijske sisteme in nove tehnologije, arhitektura pa v razvoj novih oblikovalskih usmeritev, ki konstrukcijo aktivno integrirajo v elemente prostora in prevzemajo zakonitosti potresno odporne gradnje kot določevalke arhitekture same. Metodologija vrednotenja in prepoznavne arhitekture v kontekstu potresne odpornosti naj bi ob vzpostavitvi definicije te t.i. potresne arhitekture predstavljala uporabno vrednost na aplikativni, deloma pa tudi na teoretski ravni.

Delovne hipoteze doktorske disertacije, postavljene v uvodu in dokazane skozi celoten tekst, potrjujejo, da potresna arhitektura že obstaja kot posebnost gradnje oziroma arhitekturnega izraza na potresnih področjih in jo kot tako lahko prepoznavamo, klasificiramo, vrednotimo in spodbujamo njen razvoj, da je potresna arhitektura ena od možnosti za povečanje identitete arhitekture seizmičnih območij ter obenem predstavlja argumentiran način oblikovanja arhitekture na potresno ogroženih območjih in da koncept potresne arhitekture izhaja iz konteksta kraja (lokacije) in je logična posledica seizmično aktivnega področja.

Doctoral thesis

CHARACTERISTICS, EVALUATION, AND POTENTIAL OF EARTHQUAKE ARCHITECTURE

Mentor: Associate Prof. Vojko Kilar, PhD
Co-mentor: Assistant Prof. Tadej Glažar, MSc
University of Ljubljana, Faculty of Architecture

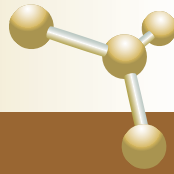
This thesis presents the results of research into characteristics and particularities of architecture in the context of earthquake resistance. It researches, analyses, and evaluates contemporary achievements in earthquake engineering, which can contribute to increasing the expression of architectural design and the so-called »tectonic culture« in the earthquake resistant sense.

The starting point is a thesis that architecture in earthquake prone areas should have its own characteristics, expressed to a greater or lesser extent, and which present a creative response in architecture to an earthquake.

One possible response of an architect to an earthquake threat is designing a special earthquake resistant construction, and, within frameworks, of original architecture.

The thesis researches the phenomenon of a special architectural language being developed exclusively in seismic areas, i.e. architecture in the context of earthquake resistance.

The working hypotheses of this doctoral thesis - established in the introduction and proved throughout the entire text - confirms that »earthquake architecture« already exists as a particularity of construction or architectural expression in earthquake-prone areas and can as such be recognised, classified, evaluated, and its development encouraged; that »earthquake architecture« is one of the possibilities for increasing the identity of architecture in seismic areas, and at the same time it presents an arguable way of shaping architecture in earthquake prone areas; and that the concept of »earthquake architecture« originates from the context of place (location) and is the logical consequence of a seismically active area.



Doktorska disertacija

POVEČANJE ZRELOSTI PROCESNE USMERJENOSTI S PRENOVO IN INFORMATIZACIJO POSLOVANJA

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

V disertaciji je bil podrobneje proučen vpliv procesne usmerjenosti na uspešnost poslovanja. Empirična raziskava procesne usmerjenosti in analiza podatkov s pomočjo linearnih strukturnih modelov je potrdila vpliv procesne usmerjenosti na uspešnost poslovanja. Natančneje - analiza je razkrila neposredni vpliv procesne usmerjenosti na nefinančno uspešnost poslovanja (zadovoljstvo zaposlenih, strank in dobaviteljev). Neposredni vpliv na finančno uspešnost statistično ni bil dokazljiv, pač pa je bil dokazan posredni vpliv procesne usmerjenosti na finančno uspešnost prek nefinančne.

Podrobneje je bil proučen tudi koncept procesne usmerjenosti, pri čemer je bil centralni cilj ugotoviti, kateri so ključni vidiki procesne usmerjenosti, ki naj jih organizacije upoštevajo pri vzpostavljanju le-te. V okviru disertacije je bil predstavljen razširjen okvir procesne usmerjenosti. Devet izhodiščnih ključnih elementov procesne usmerjenosti je bilo nadgrajenih na dvanajst končnih ključnih elementov. Ključni elementi procesne usmerjenosti so: strateški vidik, definiranost in dokumentiranost procesov, merjenje in management procesov, procesna organizacijska struktura, procesna organizacijska kultura (dva ločena elementa), upravljanje s kadri, informiranje zaposlenih, tržna usmerjenost, vidik dobaviteljev ter procesna informatizacija poslovanja (dva ločena elementa).

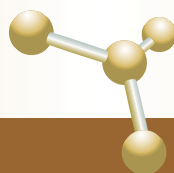
Doctoral thesis

BUSINESS PROCESS RE-DESIGN AND INFORMATIZATION AS A MEANS FOR INCREASING BUSINESS PROCESS ORIENTATION

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

The thesis analyses the impact of business process orientation (BPO) on organizational performance. Empirical studies and analyses with structural equation modelling has confirmed the positive impact of BPO on organizational performance. More precisely, it has been shown that BPO has a direct impact on non-financial performance (employee satisfaction, customer satisfaction, and supplier satisfaction), whereas a direct impact of BPO on financial performance was not confirmed. Instead, BPO's impact on financial performance was shown to be indirect through the mediation of non-financial performance.

An important goal of the thesis was to discover what are the key areas or elements of process orientation that organizations need to take into account when implementing it. Based on these a new extended BPO framework has been proposed in the thesis. Nine initial elements were expanded into a final twelve key BPO elements. They form the new extended BPO framework and are as follows: strategic view, process definition and documentation, process measurement and management, process organizational structure, process organizational culture (two distinct elements), people management, information dissemination (to employees), market orientation, supplier view, and process based informatization (two distinct elements).



BOJAN TEPAVČEVIĆ

Doktorska disertacija

VPLIV GEOMETRIJSKE REPREZENTACIJE PROSTORA NA SODOBNO ARHITEKTURO

Mentor: prof. Predrag Šiđanin
Univerza v Novem Sadu, Fakulteta tehniških
znanosti

V doktorski disertaciji avtor raziskuje vpliv nove, kompleksne geometrije na prostor moderne arhitekture. Prikazana je soodvisnost med novimi geometričnimi oblikami (ki se lahko realizirajo s pomočjo različnih tehnik in digitalnih orodij) ter trendi v sodobni arhitekturi.

Rezultat doktorske disertacije je obširno predstavljena raziskava, ki osvetljuje pomen implementacije sodobnih digitalnih tehnologij, in sicer v celotnem procesu nastajanja arhitekture: od zasnove oblike, sistemov (adaptivni, samoregulativni sistemi) pa vse do izvedbe. Poseben poudarek je na uporabi novih digitalnih orodij.

Z uporabo radikalno-revolucionarne geometrije se je pojavil popolnoma nov pristop k oblikovanju arhitekture. Avtor nazorno prikazuje, da se trendi v oblikovanju sodobne arhitekture osredotočajo na razvojne procese in sisteme, katerih osnova so digitalni inženiring, kompleksne geometrije in principi biologije.

Doctoral thesis

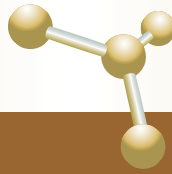
INFLUENCE OF GEOMETRIC REPRESENTATION OF SPACE ON CONTEMPORARY ARCHITECTURE

Mentor: Prof. Predrag Šiđanin
University of Novi Sad, Faculty of Technical
Sciences

The research presented explores the influence of geometric representation of space on modern architecture. The relationship between the new concepts of space, techniques and tools of representation, on one side, and new movements in architecture on the other, are presented in this thesis.

Special consideration has been given to new geometric forms in contemporary architectural design and their relationship with novel digital design tools. Defining crucial moments in the history of modern architecture determined by the evolution of architectural representation and systematisation of tools and techniques of architectural representation are the main results in this research.

The major significance of the results suggests re-positioning of the role of space representation in the process of architectural design and creating the groundwork for future inter-disciplinary research that includes cognitive science, computational geometry, and artificial intelligence.



Doktorska disertacija

DEJAVNIKI ZA DOLOČANJE GEOMETRIJE TELES NA OSNOVI LASERSKE TRIANGULACIJE

Mentor: prof. dr. Jožef Duhovnik
Somentor: prof. dr. Janez Možina
Univerza v Ljubljani, Fakulteta za strojništvo

Disertacija s teoretičnega in eksperimentalnega vidika obravnava dejavnike, ki vplivajo na določanje geometrije teles z uporabo laserskih triangulacijskih merilnih sistemov.

Prepoznan in predstavljen je vpliv posameznih dejavnikov, predvsem pa prikazuje njihovo medsebojno povezanost, kar je v nasprotju z dosedanjimi raziskavami, ki posamezne dejavnike obravnavajo izolirano in posamezno. Rezultati omenjene raziskave so prav tako zasejali dvom o točnosti specifikacij zmogljivosti tovrstnih merilnih oprem, ki jih običajno predstavljajo proizvajalci.

V nadaljevanju so izdelani in opisani tudi modeli za napoved kakovosti meritev za tri različne površine. Na podlagi opisanega postopka je možno izdelati matematični model za napoved velikosti naključne napake tudi za poljubni laserski merilni sistem ali površino. Model je možno integrirati tudi v algoritme za izdelavo avtomatiziranih merilnih strategij.

Doctoral thesis

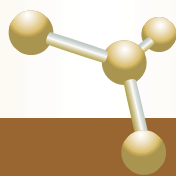
INFLUENCE FACTORS FOR LASER TRIANGULATION MEASUREMENTS OF SHAPE

Mentor: Prof. Jožef Duhovnik, PhD
Co-mentor: Prof. Janez Možina, PhD
University of Ljubljana, Faculty of Mechanical
Engineering

This thesis deals with the factors which influence the laser-triangulation body-shape measurement, from a theoretical and experimental point of view.

The influence of individual factors is recognized and introduced. However, the main goal of this thesis is to show their interaction in contrary to other research, which analyze those factors mostly individual and isolated. The results showed strong connections between different factors and their influences. These results also raised some doubts about the accuracy of the performance specifications which are usually given by manufacturers of measuring devices.

Further, the mathematical models for the quality of measurement of three different surfaces were created and described. According to the procedure described it is also possible to build a prediction model for any other surface or laser measurement system, as well as implement the model produced into algorithms for automated measurement strategies.



MARKO ZEBEC KOREN

Doktorska disertacija

MODELI ODDAJANJA DEL ZUNANJIM IZVAJALCEM NA PODROČJU INFORMACIJSKIH TEHNOLOGIJ

Mentorica: izr. prof. dr. Dana Mesner Andolšek
Somentorica: izr. prof. dr. Valentina Hlebec
Univerza v Ljubljani, Fakulteta za družbene vede

Zunanje izvajanje informacijskih tehnologij je prisotno že dalj časa. Delo podrobno in interdisciplinarno preučuje naravo razmerja med partnerji, pri čemer se domneva, da udeleženci presegajo transakcijsko naravo razmerja ter zaradi kompleksnosti in obsega procesa oblikujejo zaveznitva in partnerstva.

Obravnavana je teza, da razmerje med udeleženci pri zunanjem izvajanju informacijskih tehnologij vpliva na uspeh zunanjega izvajanja, pri čemer med dejavniki razmerja in uspehom zunanjega izvajanja informacijskih tehnologij obstaja vzročna povezava. Delo razižče dejavnike, ki vplivajo na uspeh, in kakšne so njihove medsebojne povezave ter kako močne so. Predvsem pa prispeva k boljšemu razumevanju procesa zunanjega izvajanja ekonomskih in poslovnih aktivnosti.

Rezultati imajo oprijemljivo vrednost v praksi, saj razmerje med partnerji ni zgolj skupek določil kvantitativne (merljive) narave, ki jih opredeljuje pogodba. Gre za zaveznitva in strateška partnerstva, zato je pomembno dobro upravljanje teh razmerij. Naloga pa prav na tem bolj mehkem delu razmerja ponuja smernice, ki vodijo k boljšim rezultatom.

Doctoral thesis

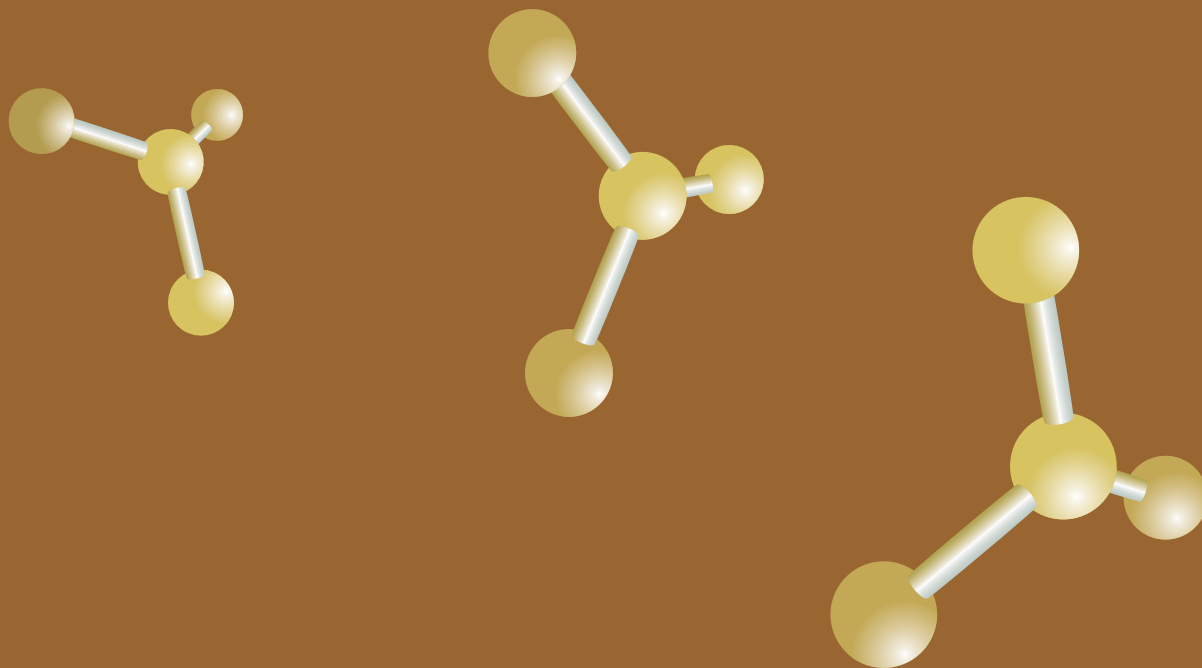
MODELS FOR OUTSOURCING WORK TO EXTERNAL CONTRACTORS IN IT

Mentor: Associate Prof. Dana Mesner Andolšek, PhD
Co-Mentor: Associate Prof. Valentina Hlebec, PhD
University of Ljubljana, Faculty of Social Sciences

Outsourcing of information technology has been present for some time. The work interdisciplinary and in detail examines the nature of the relationship between the partners, assuming that the participants go beyond the transactional nature of the relationship and because of the complexity and large scope of the process, form alliances and partnerships.

The work discusses the theory that the relationship between participants in outsourcing information technology affects the success of outsourcing, and that there is a dependent link between the relationship factors and success of outsourcing information. The work investigates the factors that influence the success and their mutual interaction, and how strong those links are. In particular, it contributes to a better understanding of the process of outsourcing of economic and business activities.

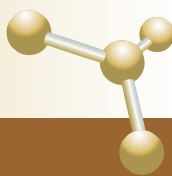
The results have a tangible value in practice, since the relationship between partners is not just quantitative (measurable), as defined by the contract. It is an alliance and strategic partnership, which is why it is important to have good management of these relationships. The work provides guidelines on the softer part of the relationship that lead to better results.



ZBORNİK POVZETKOV NAGRAJENIH DEL
ABSTRACTS OF THE PROJECTS AWARDED

POSEBNE NAGRADE ZA STROKOVNI PRISTOP

SPECIAL AWARDS FOR PROFESSIONAL APPROACH



Diplomsko delo

DRUŽINSKO PODJETNIŠTVO: RAZVOJ IN PREVERBA TREH STRUKTURNIH MODELOV

Mentor: doc. dr. Igor Prodan
Univerza v Ljubljani, Ekonomska fakulteta

Diplomsko delo v prvem teoretičnem delu predstavi pomen družinskih podjetij za današnje gospodarstvo, opredeli družinsko podjetje ter njegove lastnosti. V drugem empiričnem delu pa so razviti in preverjeni trije strukturni modeli, s katerimi avtorica analizira vpliv lastnosti podjetja, podjetnika in družine na namen nasledstva, rast in inovativnost družinskega podjetja.

Rezultati lastne raziskave izvedene med 340 slovenskimi družinskimi podjetji kažejo, da so kultura, podjetnikovo zadovoljstvo z delom, podjetnikova zavezanost družinskemu podjetju, prilagodljivost družine in število nedružinskih članov, ki delajo v družinskem podjetju, vse determinante, ki jih je potrebno spodbujati v družinskem podjetju, saj pozitivno vplivajo na namen nasledstva, rast ali inovativnost družinskega podjetja. Medtem ko sta prisotnost dvoumnosti in konfliktnosti glede delovanja v podjetju dve determinanti, ki se ju je potrebno izogibati, saj zavirata rast družinskega podjetja.

Pomembna je še ena ugotovitev, in sicer glede na to, da rezultati raziskave nakazujejo na negativen vpliv medgeneracijske avtoritete na inovativnost, vendar pozitiven vpliv na namen nasledstva, morajo podjetniki oz. starejše generacije določiti in izvajati pravšnjo mero avtoritete nad mlajšimi generacijami. Torej, medgeneracijska avtoriteta mora biti v družinskem podjetju prisotna do stopnje, da bo spodbujala namen nasledstva, a hkrati ne bo zavirala inovativnosti podjetja.

Diploma paper

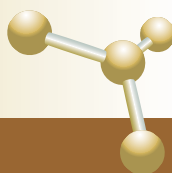
FAMILY BUSINESS: DEVELOPMENT AND VALIDATION OF THREE STRUCTURAL MODELS

Mentor: Assistant Prof. Igor Prodan, PhD
University of Ljubljana, Faculty of Economics

This Diploma paper first presents the importance of family businesses for today's economy, and determines family business and its characteristics, in its theoretical section. In the second empirical section three structural models are developed and validated, thereby analyzing the influence of firms, entrepreneurs and family characteristics on the intent to succeed, grow, and innovate in family businesses.

The results of this study, which was conducted on 340 Slovenian family businesses, show that family culture, entrepreneurial job satisfaction, entrepreneurial commitment to the firm, family adaptability, and the number of non-family members working for a family business, are all determinants that should be promoted in family business, since they have a positive influence on intention over success, growth, and innovation in family business.

Role ambiguity and role conflict are both determinants that should be avoided in order to achieve family business growth. There is one more important finding that should be mentioned. Namely, given that the results show a negative influence of inter-generational authority on innovation in a family business, but for a positive influence on intention over success, entrepreneurs or the senior generation should determine and implement the right amount of authority over younger generations. Thus, inter-generational authority should be presented to a degree that will promote intention over success, but at the same time it will not reduce innovation in family business.



Diplomsko delo

MEDICINSKI PRIPOMOČKI, ORTOZA ZA ZDRAVLJENJE SKOLIOZE

Mentor: izr. prof. Janez Smerdelj, univ. dipl. obl. Somentorica: izr. prof. dr. Metoda Dodič Fikfak, dr. med.

Univerza v Ljubljani, Akademija za likovno umetnost in oblikovanje

Ortoza je medicinski pripomoček, ki se uporablja za zdravljenje skolioze.

Avtorica pri razvoju nove ortoze upošteva tako osnovne zahteve za zdravljenje skolioze, kot tudi slabosti obstoječih medicinskih pripomočkov. Način zdravljenja z ortozo ohranja Lyonski princip oz. tip korekcije hrbtnice s pritiskom na treh ključnih točkah deformacije.

Zaradi dolgotrajnega zdravljenja je potrebna nastavljalivost v več smereh. Aluminijaste tračnice so nadomestile perforirane nosilce in tako omogočajo minimalne odmike za maksimalno prilagajanje pacientu. Pripomoček mora zaradi narave uporabe omogočati dihanje in pralnost vseh segmentov. Oblikovan predmet je zaradi tega na zunanji strani oblečen v PE, na notranji strani pa v snemljiv, pralen in barvni 3D tekstil. Vsi spojni elementi so nastavljalivi in uporabniku približani v tolikšni meri, da omogočajo intuitivno uporabo.

Bistvena dodana vrednost nove ortoze je upoštevanje psihološke stiske pacienta, zaradi videza pripomočka. Nadgrajena je z možnostjo individualnega prilagajanja posameznikom s pomočjo aplikacije potiskane folije. Ta se lahko popolnoma prilagaja željam posameznika. Rešitev je vsakomur cenovno dostopna in videz lahko prilagajamo tako hitro, kot se spreminja razvojno obdobje pacienta.

Diploma paper

MEDICAL EQUIPMENT, ORTHOSIS FOR CURING SCUILOSIS

Mentor: Associate Prof. Janez Smerdelj, BSc (Design) Co-Mentor: Associate Prof. Metoda Dodič Fikfak, PhD, Md

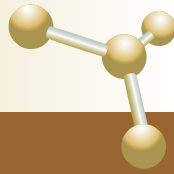
University of Ljubljana, Academy of Fine Arts and Design

An orthosis is an orthopaedic brace used for treating scoliosis - a medical condition in which a person's spine is curved from side to side.

When developing a new orthosis the author has taken into consideration the general demands for the treatment of scoliosis and also the weaknesses of the current generation medical braces; while retaining the Lyon principle- i.e. type of spinal correction, based on applying pressure to three key points of deformation.

The prolonged nature of the treatment demands multi-directional adjustability of the brace. Aluminium rails have replaced perforated brackets, thus enabling minimal deflection for maximum adaptability to the patient. Due to the nature of its use the brace must enable breathability and washability of all fabric segments. The end design therefore foresees a polyethylene exterior, while the interior consists of a detachable, washable, and coloured 3D textile. All connecting elements are adjustable and adaptable to the needs of the patient, to such an extent that the use of the brace is very intuitive and user-friendly.

The key added-value of the new orthosis lies in the fact that the design has been aimed at resolving the psychological crisis patients endure while using current generation medicinal braces. The new design features individual adaptability to the patient by enabling visual customisation through the application of print-on foils, which are entirely customisable in accordance with individual preferences. The proposed add on customisation is not only financially accessible to everyone, but can also be altered fast enough to keep pace with the development stages of young patients.



Magistrsko delo

PRENOS DOBRIH PRAKS MANAGEMENTA KAKOVOSTI V VISOKEM ŠOLSTVU: PRIMER EKONOMSKE FAKULTETE UNIVERZE V LJUBLJANI

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

Cilj magistrskega dela je prikazati model prenosa dobrih praks na področju managementa kakovosti v visokošolskem prostoru.

Visokošolski zavodi se v preteklosti niso preveč ukvarjali z ugotavljanjem kakovosti, sedaj je ta dejavnost postala obvezna in najpomembnejša. Pomembno je, kakšno dodano vrednost lahko visokošolski zavod ponudi gospodarstvu preko znanja svojih diplomantov.

Z vidika kakovosti je v slovenski ponudbi izobraževanja nabor ponudbe raznovrsten, a tudi pomenljivo različen v kakovosti. Zato je vloga vseh institucij, ki usmerjajo razvoj in zahteve kakovosti izobraževanja, prav v tem trenutku ključna. Brez zahtevnih meril in standardov kakovosti izobraževanja bo gospodarstvo namreč težko pridobilo kadre, ki bi ga usmerjali razvojno. Zato potrebujemo dobra temeljna in uporabna znanja, sposobnost in pripravljenost povezovanja različnih znanj, predvsem pa voljo za odprto, inovativno in kreativno razmišljanje na vseh ravneh izobraževanja.

Magistrsko delo ima znanstveni in praktični prispevek. Znanstveni prispevek je v združitvi dveh teorij, teorije managementa kakovosti v visokem šolstvu in managementa znanja. Praktični prispevek magistrskega dela daje celoten in celovit vpogled v primer dobre prakse. Prikazan je model managementa kakovosti, ki je z ustreznimi prilagoditvami prenosljiv na sorodne visokošolske zavode.

Delo je lahko pomemben prispevek podjetjem, ki gradijo svojo konkurenčno prednost na kvalitetno izobraženih sodelavcih, saj prispeva k napredku inštitucij znanja in napredku podpornega okolja podjetij.

Dissertation

THE TRANSFER OF BEST QUALITY MANAGEMENT PRACTICES IN HIGHER EDUCATION: A CASE FROM THE FACULTY OF ECONOMICS, THE UNIVERSITY OF LJUBLJANA

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

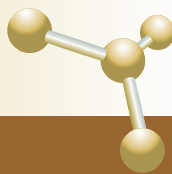
The goal of the dissertation is to demonstrate the model of good practice transfer in quality management in higher education.

In the past institutions of higher education were not very engaged in determining quality. However, now the activity is mandatory and extremely essential. It is important how much added value higher education can offer through knowledge from its graduates, for the economy.

In terms of quality, Slovenia offers a diverse range of educational supplies, but it also significantly differs in quality. So, at present the role of institutions that guide the development and application of quality education is crucial. Without demanding criteria and quality standards of education - the economy will face difficulties in obtaining human resources to guide the development. Therefore, good fundamental and applied knowledge, ability, and willingness to integrate the various skills, and especially the desire for open, innovative and creative thinking at all levels of education, is needed.

Thus, the UL and its members will need to take a huge step in the field of quality management; and FE, as an example of good practice, can co-ordinate activities associated with the transfer of knowledge, such as training seminars with acknowledged foreign and domestic experts; managing specific national development projects; studies of domestic and international examples of good practices, etc.

This dissertation has a scientific and practical contribution. The scientific contribution is to combine two theories - the theory of quality management in higher education and knowledge management theory. A practical contribution of the dissertation is a complete and comprehensive overview of good practice. The model of quality management that, with appropriate modifications, is transferable to other similar institutions of higher education, is displayed and explained in the dissertation.



Doktorska disertacija

FENOMEN TEČENJA V KONSTITUTIVNIH MODELIH CIKLIČNE PLASTIFIKACIJE

Mentor: prof. dr. Ivan Prebil, univ. dipl. inž.
Sommentor: doc. dr. Robert Kunc, univ. dipl. inž.
Univerza v Ljubljani, Fakulteta za strojništvo

Na podlagi rezultatov eksperimentalnega opazovanja napetostno-deformacijskega odziva materiala je zapisan konstitutivni model ciklične plastifikacije, v katerem je prvič predstavljen fenomenološki pristop popisa fenomena tečenja v konstitutivnih modelih ciklične plastifikacije.

Predstavljeni model je z uporabo sodobnih programskih orodij vključen v programsko kodo končnega elementa, kar omogoča uporabo modela na realnih konstrukcijskih problemih. Z namenom verifikacije predstavljenega konstitutivnega modela in prikaza doprinosa popisa fenomena tečenja v konstitutivnih modelih ciklične plastifikacije je prikazana ciklična plastifikacija konzolnega nosilca. Primerjava eksperimentalnih preizkusov in numeričnih simulacij potrdi doprinos popisa fenomena tečenja v konstitutivnih modelih ciklične plastifikacije. Doprinos predstavljenega popisa fenomena tečenja je prikazan tudi s primerjavo primerjalnih napetosti in akumulirane plastične deformacije, kar potrjuje doprinos modela tudi pri zanesljivejši oceni o dobi trajanja ciklično obremenjenih konstrukcijskih elementov.

Prikazana verifikacija in doprinos popisa fenomena tečenja v konstitutivnih modelih ciklične plastifikacije potrjujeta ne le ustreznost predstavljenega modela, temveč tudi smiselnost in potrebo po njegovi uporabi. Širok spekter uporabe materialov, ki izkazujejo fenomen tečenja, daje predstavljenemu modelu dobro popotnico za široko uporabo in nadaljnji razvoj.

Doctoral thesis

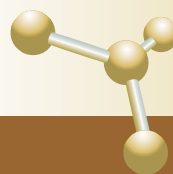
THE YIELD-POINT PHENOMENON IN CONSTITUTIVE MODELS OF CYCLIC PLASTICITY

Mentor: Prof. Ivan Prebil, PhD, BSc
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Based on the results of experimental observation of the material stress-strain response, a constitutive model of cyclic plasticity was formulated which is the first to implement the phenomenological approach to describing the yield-point phenomenon in constitutive models of cyclic plasticity.

The model presented is integrated into a finite element source code by means of modern software tools, which enables application of the model in real-life structural problems. In order to perform verification of the constitutive model presented and present the benefit of describing the yield-point phenomenon in constitutive models of cyclic plasticity, the cyclic plasticity of a console beam is described. A comparison between experiment and numerical simulation results confirms the benefit of describing the yield-point phenomenon in constitutive models of cyclic plasticity. The benefit is also evident from a comparison between the 'von Mises' stresses and the accumulated plastic strain, which further confirms the benefit of the model as a more realistic evaluation of the lifetime of cyclically loaded structural elements.

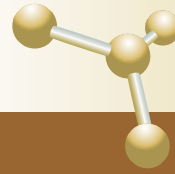
The verification and benefit of describing the yield-point phenomenon in constitutive models of cyclic plasticity confirm not only the appropriateness of the presented model but also the need for its application. Frequent application of materials exhibiting the yield-point phenomenon makes the model applicable for widespread use and further development.



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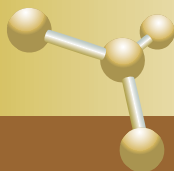
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