Univesity of Maribor

Faculty of Civil Engineering, Transportation Engineering and Architecture

University of Maribor Press

Faculty of Civil Engineering,
Transportation Engineering
and Architecture

University of Maribor

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content

dean

faculty of civil engineering, transportation engineering and architecture

word from the dean

It was back in 1960, when the higher education program of Civil Engineering begun at the just founded Higher technical school. One hundred and twenty eight freshmen started their study in a tight leased classroom with no laboratories and with very modest equipment. The teaching staff was scarse and mostly constituted of excellent practitioners from the design and building firms, and research was only at the very beginning.

Eight years later the Department of Civil Engineering got its first laboratory. Since then, the Civil Engineering study programme underwent rapid changes. In 1973, the Technical College was transformed into a Higher Technical School, while in 1975 first students were enrolled in second degree studies. It was the same year that we became full members of the recently established University of Maribor and seven years later we were able to introduce a postgraduate study. In 1985, the school was given the name Technical Faculty of the University of Maribor.

A milestone for the university occurred in 1993; beside the conventional Civil Engineering study programme, two new programmes were introduced – Traffic Engineering and Industrial Engineering within Civil Engineering. The latter was carried out in cooperation with the Faculty of Economics and Business of the University in Maribor.

In 1995, four departments of the Technical Faculty agreed to be constituted into independent faculty bodies. Among them was the Faculty of Civil Engineering in Maribor. Over the next ten years, the Faculty experienced rapid growth reflected in the increase of the number of students and graduates; taking into account all the levels and stages of the study programme, more than 3000 students attended the school since its beginnings in 1960. Correspondingly, the scientific and research activity was rapidly growing as well and the involvement of the faculty in international relationships intensified. The year 2007 saw another important step - study programmes were reformed in accordance with the Bologna Declaration and several new study programmes were introduced. Another milestone was introducing the study programme Architecture is becoming an integral part of the study programmes offered by our Faculty.

Our Faculty is aware that contentment with the objectives we have already achieved means the end of our continuous development. Therefore, we gaze into the future. We firmly believe that our development will be further stimulated by the reorganization and integration of natural science and technical studies in Maribor.

Prof. PhD
Miroslav Premrov

Mission
of the Faculty

The Faculty of Civil Engineering, Transportation Engineering and Architecture at the University of Maribor strives to create, develop and expand engineering know-how in the field of civil engineering, architecture and traffic engineering and transfer it in the best way possible to our students and to the profession, thus enriching to our students and to the profession, thus enriching the lives and creative work of our graduates and of the economy.

Moreover, the Faculty of Civil Engineering, Faculty of Civil Engineering, Transportation Engineering and Architecture pursues the goal to carry out its scientific and research activity in a manner that would contribute to the global treasury of knowledge at an international scale and that would be reflected in innovative design and learning which are fundaments for the progress of society in the field of our activity.

Vision of the Faculty

The Faculty of Civil Engineering, Transportation Engineering and Architecture at the University of Maribor shall be recognizable both nationally and internationally by its activities in the field of civil engineering, architecture and traffic engineering, while other specific fields shall be comparable with world's best faculties. Educational and research programmes shall be developed and executed in accordance with the highest engineering standards and human values and in close cooperation with the profession and related institutions. By fostering a responsible mentor-student relationship and collegial relations between the staff, the faculty shall create conditions for activating and stimulating motivation, potential, knowledge, understanding, creativity and competences of students, teachers and researchers alike to the fullest extent possible.

History
of the Faculty

1960

The newly founded Technical College in Maribor started enrolling students into its study programme Civil Engineering.

1973

The Technical College was transformed into a Higher Technical School.

1975

Faculty became full member of the recently established University of Maribor. First students were enrolled in second degree studies.

1982

The postgraduate study was introduced.

1985

The school was given the name Technical Faculty of Universitiy of Maribor.

1993/94

The new programmes were introduced - Traffic Engineering and Industrial Engineering within Civil Engineering.

1995

The department of Civil engineering agreed to be constituted into independent faculty body of the Technical Faculty.

2007

The study programmes were reformed in accordance with the Bologna Declaration and new Architecture study programme was introduced.

Activities o

f the Faculty

educational activities

The activities of the Faculty of Civil Engineering, Transportation Engineering and Architecture at the University of Maribor focus on higher education and research in the field of civil engineering, traffic and transportation engineering as well as architecture. The Faculty carries out university study programmes such as Civil Engineering, Traffic and Transportation Engineering and Architecture, whereas the interdisciplinary programme Industrial Engineering within Civil Engineering is carried out together with the Faculty of Economics and Business.

Faculty study programmes at all three levels in accordance with the Bologna guidelines are:

undergraduate study programmes:

level 1

Professional programme:
- Civil Engineering
- Traffic and Transportation Engineering

Bachelor's programme:
- Civil Engineering
- Traffic and Transportation Engineering
- Industrial Engineering within Civil Engineering
- Architecture

postgraduate study programmes:

level 2

Master's programme:
- Civil Engineering
- Traffic and Transportation Engineering
- Industrial Engineering within Civil Engineering
- Architecture

level 3

PhD programme:
- Civil Engineering
- Traffic and Transportation Engineering

scientific research activities

Additionally, we execute international, national and regional scientific and development research programmes and draw up elaborates as well as issue expert and professional opinions for institutions, companies and other clients all within the framework of our research programmes. The Faculty's efforts for constant improvements are steeped in principles of consistency, integrity, open-mindedness and international compatibility.

Scientific research activities takes place in the context of the research program, basic, applied and targeted research projects supported financially by the Public Research Agency, Ministry of Transport and the Ministry of Environment and Spatial Planning. Research the college has conducted with the financial support of other ministries, but in this case it is largely for quite specific tasks related to the use of knowledge and to a lesser extent, by creating a new (ie it is a useful and developmental tasks). The results of the research are published regularly in scientific articles in international scientific periodicals and represent them in the papers at international (and domestic) congresses and symposiums.

Scientific research activity at the Faculty of Civil Engineering, Transportation Engineering and Architecture is carried out through two laboratories and 9 centres.

Laboratory for:

- Soil Mechanics
- Research of construction materials and structures

Centre for:

- Geotechnical analysis
- Geodesy
- Organization, technology and economics of building
- Traffic construction
- Traffic engineering and traffic safety
- Technology and organization of traffic
- Mobility research
- Transport Economics
- Urban Development and Environmental Protection

international activities

International activities are reflected in the number of concluded agreements about interuniversity cooperation in Europe and worldwide. Participation in several international scientific research projects and programmes results in creation of new knowledge and international experiences as well as publications and citations in the most renowned world scientific journals.

International cooperation of students, lectures and staff is increasing due to a growing number of exchanges. In the study year 1999/2000, our faculty joined the European exchange programme Erasmus and later Erasmus+.

The most important programme aims are:

- Internationalization of study
- Openness of educational system of European universities to the world
- Bringing internationalization of students and lecturers' experience 'home', etc.

Our International office provides administrative support for students, guest teachers and other foreign guests. Erasmus coordinators cover fields of civil engineering, transportation engineering and architecture and organize reception for incoming students twice a year. They help students to plan their schedules and give them all necessary information.

Erasmus + student exchange programme brings students long-lasting effects on their personal and expert development and enhances their skills and employability.

International research cooperation

- Seventh Framework Programme - FP7
- Sixth Framework Programme - FP6
- Intelligent Energy Programme
- EUREKA Programme
- TEMPUS Programme
- Leonardo da Vinci Programme
- European Territorial - Transnational cooperation

International academic cooperation

- Internationalization

Student and teacher exchange

- ERASMUS +
- NEPTUNE
- CEEPUS Programme

Study

programmes

Civil Engineering

Traffic and Transportation Engineering

Industrial Engineering

Architecure

Civil

Engineering

civil engineering

This study programme provides future civil engineers with knowledge and competences to plan and erect buildings and engineering structures, design and make construction products in terms of suitable form, quality and price. Their theoretical knowledge will be comprehensive, their specific knowledge profound and comparable to knowledge gained at related institutions in Europe.

professional programme

Graduates of this undergraduate study programme are experts with a wide range of practical knowledge and special knowledge in Civil Engineering. They possess experiences to take on duties in design of project documentation and project realization. Acquired knowledge is comparable with knowledge in undergraduate programmes of related institutions in Europe.

bachelor's programme

Graduates of this bachelor's programme possess skills to design and construct building objects, and construction products in proper form, quality and price. They acquire broad theoretical knowledge and in-depth specific knowledge required for autonomous and innovative duties in the field of civil engineering. Their knowledge is comparable to the knowledge gained at related institutions in Europe.

master's programme

The masters of Civil Engineering are experts in planning, designing, projecting, building and maintaining of building objects. They possess indepth knowledge in various fields of civil engineering. They are able to design and produce construction products in terms of optimal shape, quality and price. This programme provides students with broad theoretical and in-depth specific knowledge required for autonomous and innovative performance of specific duties all over Europe.

PhD programme

The aim of this programme is to educate top experts in civil engineering with wide, but field-related knowledge which enables profound understanding of theoretical and methodological concepts and prepares students to develop new knowledge autonomously and to solve the most demanding problems in civil engineering.

professional programme

Graduates of this undergraduate study programme are experts with a wide range of theoretical knowledge and special knowledge in construction. They possess experiences to take on duties in design of project documentation and project realization. Acquired knowledge is comparable with knowledge in undergraduate programmes of related institutions in Europe.

This programme provides basic theoretical and specific knowledge as well as project work. The graduates are able to take on duties in team work. During the study, the graduates work at projects and also in companies in order to cope with practical problems and their solutions. They are able to solve practical problems creatively and innovative.

Graduates are competent and qualified for:

- engineering works in construction, organization and technology of construction works
- planning, designing, construction and maintenance of roads and other traffic surfaces
- designing, planning, construction and maintenance of structures (building and engineering objects)
- preliminary studies, organization, management and supervision of construction works
- jobs in production of construction materials and elements
- jobs in local or state administration in management and organization of object building
- counselling in construction, organization and building technology work
- uniform licensing of certified engineers

bachelor's programme

Graduates of this bachelor's programme possess skills to design and construct building objects, and construction products in proper form, quality and price. They acquire broad theoretical knowledge and in-depth specific knowledge required for autonomous and innovative duties in the field of civil engineering. Their nowledge is comparable to the knowledge gained at related institutions in Europe.

This programme educates and prepares students for further studies in a postgraduate programme. It offers a wide range of fundamental professional knowledge to help them choose a suitable specialized course.

The programme educates modern European civil engineers who can be involved in economy in Slovenia and in EU.

Graduates can work as:

- managers of smaller construction sites;
- project leaders and planners;
- experts in local or state administration;
- experts in other placements related to construction.

master's programme

This study programme upgrades knowledge in basic natural sciences, IT and fundamental courses of civil engineering and absorbs in-depth knowledge and new expertise in specific courses. It enables student to use modern mathematic and engineering methods when solving complex engineering problems in construction.

Post-graduates are competent and qualified for creative and innovative problem solving in:

- designing, planning, building and maintaining structures;
- preparation and organization of construction works;
- supervision of construction;
- work safety and environment protection regulations;
- supervision, investments, construction inspectorate.

PhD programme

The aim of this programme is to educate top experts in civil engineering with wide, but field-related knowledge which enables profound understanding of theoretical and methodological concepts and prepares students to develop new knowledge autonomously and to solve the most demanding problems in civil engineering.

Besides, experts will be able to lead scientific-research and development projects. The basic goal is to educate new researchers and qualify acknowledged scientists and experts from this field to develop and apply new knowledge.

In the means of specific competences, students will gain:

- In-depth understanding of theoretical and methodological concepts;
- ability to master research methods, procedures and processes in construction;
- ability to use acquired theoretical knowledge autonomously in order to solve practical problems;
- ability to estimate strategic decisions in construction;
- autonomy in scientific research work;
- ability to cooperate within a group;
- ability to work and create in international environment;
- curiosity for knowledge and life-long learning,
- ability for time-management as well as management with material, human and financial resources;
- ability to be a mentor to younger colleagues at university and in economy;
- ethical reflexion and deep conviction of professional ethics.

Transportation

Traffic and
n Engineering

traffic and transportation engineering

This programme educates traffic and transportation engineers who can combine different areas in transportation engineering and mobility. They will possess knowledge to plan and manage traffic systems and transportation services and to work in a team together with experts in transportation, environment, safety, construction, social science and other areas.

professional programme

Undergraduate Professional study programme Traffic and Transportation engineering offers contents that will assure graduates to solve general and concrete problems in the field of mobility which requires knowledge of transport system features, planning of transport system and subsystems and management of traffic and traffic flows together with traffic infrastructure planning and maintenance, traffic safety analysis with measures and means of transport.

bachelor's programme

Graduates of this bachelor's programme possess skills in planning, designing and construction of transportation routes, transport planning and in management of traffic and traffic flows. Their knowledge is comparable to the knowledge gained at related institutions in Europe.

master's programme

The masters of Traffic and Transportation Engineering possess broad theoretical knowledge and in-depth specific knowledge required for duties in planning, traffic management and traffic subsystems all over Europe. Graduates will be able to analyse and evaluate traffic system processes, design sustainable mobile plans (SUTP), plan mobility, transport routes and transport as one of the key components of social sustainability.

PhD programme

The programme focuses on understanding of theoretical knowledge, its practical usage for real problem solving, individual research and scientific work, expert decision making and management in European traffic system. In the means of specific competences, postgraduates acquire in-depth knowledge in mathematics, multi-modal traffic systems, management of integrated traffic system, transport policy of EU and many other fields.

professional programme

It connects knowledge in the field of transport with other sectors, according to a new social, environmental, spatial, safety requirements, as well as the needs and demands of the movement, sustainability and economy. Programme "Traffic and Transportation Engineering" is a three-year training program with two modules: road transport and rail transport.

Graduates of the professional study programme Transportation Engineering can:

- cooperate in technical bases for municipal, urban, regional and national space and development plans;
- independently design urban and regional sustainable mobility plans;
- analyse characteristics of traffic systems and independently plan urban and regional traffic systems;
- independently dimension roads, traffic surfaces and terminals;
- independently analyse traffic flows and capacities and plan required traffic infrastructure;
- plan maintenance of traffic infrastructure;
- independently conduct road safety analyses and prognoses;
- cooperate in technological procedures and in transportation processes, manage and organize traffic services, especially in road and railway traffic;
- independently study market according to transport and traffic needs;
- optimize all transport and logistics processes;
- make analyses in transport economy and business profitability;
- cooperate in development and production of equipment for transportation and transport telematics.

bachelor's programme

This study programme provides fundamental technical knowledge for planning and organizing traffic and mobility in cities, states, public services and companies, for planning and management of traffic infrastructure, about traffic impact on environment, safety and economy, in natural and social sciences, and general knowledge from IT and economy. An important objective is to educate and prepare students for further studies.

Graduates are competent and qualified for

- ensuring population mobility;
- planning and managing of traffic systems;
- planning, designing, building and maintaining roads;
- management of traffic and traffic flows;
- planning transportation and providing transportation services;
- combining principles of sustainable development, basic economics, legal regime, problems of space development and settlement, problems of environmental protection with population mobility and competiveness of economy.

master's programme

The students of Master's study programme of Traffic and Transportation Engineering are experts in planning of sustainable mobility on local, national and global level. They possess in-depth knowledge in various fields of traffic and transportation engineering. AAs well as organization and use of modern technologies in enterprises and social systems together with traffic safety, traffic safety planning and traffic safety analysis.

Masters of Traffic engineering possess broad theoretical knowledge and in-depth specific knowledge required for duties in planning, traffic management and traffic systems all over Europe.

Graduates are able to:

- analyse and evaluate transportation system processes;
- manage transportation system performance, consider social subsystems, evaluate impact of transportation systems;
- design sustainable mobile plans (SUTP), plan mobility, transport routes and transport as one of the key components of social sustainability;
- conduct transport review considering origin and distribution of traffic flows, properties of traffic flows, capacity of transport routes and means of transport, methods and techniques of planning, evaluation and prognosis in traffic and transportation engineering;
- conduct safety concepts and elaborat them, considering causes, consequences, possibilities and methods of taking measures to ensure traffic safety;
- study traffic impact on the environment considering interactions between environment, space, health, economy and traffic.

PhD programme

The programme focuses on understanding of theoretical knowledge, its practical usage for real problem solving, individual research and scientific work, expert decision making and management in European transportation system.

During studies, postgraduates get qualifications to lead the most demanding working systems and scientific research projects from interdisciplinary and multidisciplinary scientific field of traffic, transport and logistics.

Besides general competences, students will gain:

- profound understanding of theoretical and methodological concepts of research methods, procedures and processes in traffic and transportation engineering;
- ability to estimate strategic decisions in traffic and transportation engineering;
- ability to solve real problems with the help of modern scientific methods and procedures;
- autonomy in scientific research work;
- ability to lead large expert and research groups;
- ability to be a mentor to younger colleagues at university and in economy;
- creativity and innovativeness as a result of study interdisciplinarity;
- ethical reflexion and deep conviction of professional ethics.

Industrial

Engineering

industrail engineering

The Industrial Engineering study, course Civil Engineering is an interdisciplinary programme which is carried out in cooperation between Faculty of Civil Engineering, Transportation Engineering and Architecture together with Faculty of Economics and Business. The programme has long and successful tradition in educating industrial engineers with wide range of competences in the fields of civil engineering and construction business. Graduates are well accepted experts in industry, consulting companies, public services as well as in real estate, insurance and banking sectors.

Education process is organized as a two-stage study program. The first part represents a 3-year bachelor's program while the following 2 years are intended for master's programme. The study is internationally comparable with similar programs at foreign reputable universities.

bachelor's programme

The programme provides the profile of the industrial engineer who is able to integrate knowledge (basic and specific) from various theoretical and scientific fields. Students gain technical and technological skills as well as economic and business knowledge for planning and managing the construction projects, industrial production and building sites.

master's programme

The Master study upgrades bachelor's programme in educating experts who will be able to cope with most challenging tasks of industrial engineering. Graduates will possess advanced knowledge in the field of construction management, technology and economics including modern contents from building information modelling (BIM), sustainable building, optimization and real estate.

bachelor's programme

Graduates of Bachelor's Industrial Engineering program (course Civil engineering) are experts with comprehensive interdisciplinary knowledge capable of responding to challenges of modern business environments that are characterized by the phenomenon of advanced production processes, research work and progress in information and communication technologies, new business models and globalization. European enterprises lack experts who are able to apply their technical and technological expertise to practice and seize business opportunities.

Graduates are able to:

- perform various technical and commercial tasks in construction companies;
- plan and manage construction projects in fields of investing, consulting, public services as well as in real estate, insurance and banking sectors;
- conduct project design and manage building sites;
- supervise constructions and assume responsibility for quality control and assurance;
- execute technical, financial and quality control in the industrial production of construction products.

master's programme

The Master study Industrial engineering (course Civil engineering) upgrades the bachelor's program. Programme educates highly qualified experts who are able to find solutions for challenging interdisciplinary problems that require technical and technological knowledge as well as business management skills. The masters of industrial engineering have a wide range of specific competences, which are able to take on highly demanding professional tasks due to their advanced technological know-how and economic knowledge.

Masters are able to:

- take on challenging responsibilities in management, organization, control and maintenance of construction projects;
- plan and manage highly demanding construction projects in fields of investing, consulting, public services as well as in real estate, insurance and banking sectors;
- occupy managerial positions in technical and commercial sectors in construction companies;
- supervise complex constructions and assume responsibility for quality control and assurance;
- carry out technical, financial and quality control as well as development and marketing in industrial production of construction products;
- manage research and development projects.

Architecture

architecture

The Architecture Programme at the Faculty of Civil Engineering, Traffic engineering and Architecture, University of Maribor is based on a two-degree study programme, created in accordance with the Bologna Declaration. The first degree (Bachelor) presents the 3-year- programme, while the second degree (Master) presents the 2-yearprogramme of Architecture. Both study programmes educate for an engineering profile of the architect, who is able to integrate basic knowledge and specific skills from diverse theoretical and professional areas. Within both programmes, the students are trained to be able to participate in the process of architectural design, urban planning, spatial planning and to certain extent, in building construction management and supervision.

The first degree programme also provides the basic skills for continuing the study on second level, which offers an in-depth study aimed at integrated tasks connected to the profile of an architect.

bachelor's programme

The 1st level study program of architecture combines the knowledge from different areas of architectural design, urban and spatial planning.

master's programme

The Master Programme in Architecture is focused on the specialization in different fields of architecture planning and design according to selected field (architectural design, urban planning, landscape architecture, etc.) The study programme is combination of knowledge and practice, offering two thematic moduls with emphasis on: Sustainable Building and Sustainable City.

bachelor's programme

The Bachelor's Programme lasts 3 years and provides the knowledge and skills for the professional profile of the architect who is able to integrate the basic and specific from various theoretical and scientific disciplines. The graduated students possess knowledge required for the architectural practice of design, urban planning in architectural offices, agencies as well as, to certain extend, the managing and supervising of architectural and urban design projects on the building site.

The graduates are qualified for:

- solving less demanding problems in architectural design and urban planning, based on theoretical knowledge, specific design methods and professional practice;
- cooperating in architectural design processes in architecture and urban planning;
- overtaking individual, less demanding tasks within a project team;
- creating solutions and design of less demanding details in architecture and building construction;
- comprehensive approach which enables qualification in architectural, urban and spatial planning, in terms of aesthetics and engineering, based on history and theory of architecture.

master's programme

After successful defense of Master Thesis, the graduates are capable to overtake individual tasks in architectural design and urban planning. The Master Programme in Architecture demonstrates multi-disciplinary concepts of education, integrating different fields, important for the profession of an architect, such as:

- Architectural design (sustainable architecture, contemporary residential and public building, architectural constructions, etc.)
- Urban planning and Spatial Development (methods and concepts of town planning, rehabilitation and regeneration of urban space, spatial structures and urban development etc.)
- Natural sciences and engineering (building physics, contemporary materials and innovative technologies etc.)
- Humanities (historical development of architectural and urban form, architectural critics etc.)

The architect's profile belongs to one of the most regulated professions in Europe and in the world, as general. The education requirements are regulated by the EU-Directive, which prescribes the five-year-education process comprising a range of subjects of specific knowledge and skills. In accordance to that, the Master Programme in Architecture fulfills all the requirements as the precondition for obtaining the licence of an authorized architect.

Students

Student Council

Students' Society

Student Projects

Exchange Students

Student Council

The Student Council of the Faculty of Civil Engineering, Transportation Engineering and Architecture is a body of faculty students and is provided for by the Higher Education Act, the University Statute and the Student Council Rules of Procedure. The members are representatives of the opinions and interests of all students within faculty's bodies.

The Student Council works in line with the moto "from students for students", they solve students' problems, are committed to the welfare of students and contribute to a friendly study environment.

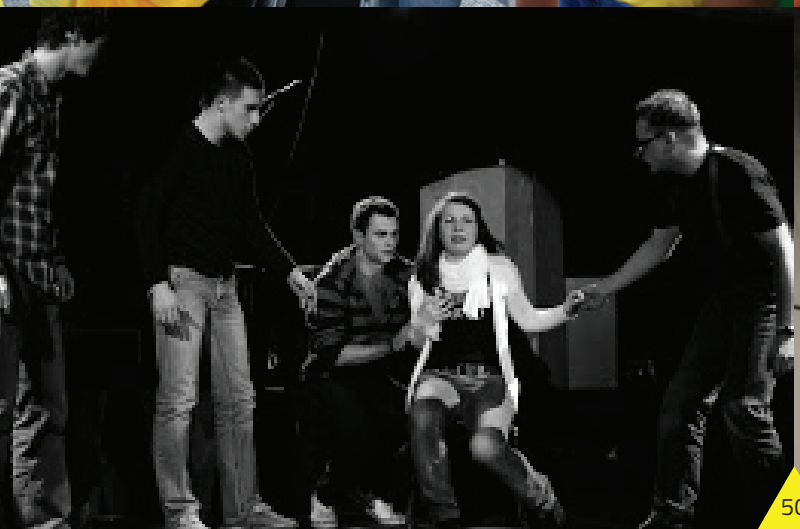
ORGANIZATION

The Student Council includes Student Vice-Dean who is also a president of the Student Council and representatives of study programmes for each year.

FUNCTION

The Student Council:

- discusses and submits its opinion in all matters relating to the rights and obligations of students to the relevant faculty bodies,
- puts forward an opinion on the candidates for a rector and a dean,
- nominates candidates for their working bodies,
- gives an opinion about the processes and activities of the faculty self-evaluation,
- gives an opinion about the process of award of the titles.



Students' Society

Faculty of Civil Engineering, Transportation Engineering and Architecture Students Association was founded with the aim of integration and cooperation between students and professors at FGPA, implementation of extracurricular activities, providing information about events at FGPA, organisation of excursions, meetings, and seminars with the students of related faculties at the national and international levels, as well as organization of sporting, cultural and social events, etc.

With a wide spectrum of diverse projects the association is trying to offer students opportunities for off-campus activities, professional development and more. In the implementation of projects Students Association is closely cooperating with the FGPA Student body, FGPA and other organisations that carry out various programs aimed at students.

Student association's projects:

- professional excursions (Krakow, Columbia University, Stanford University, Al Ain University),
- organization of social event Gradbenijada,
- tutors participation in roundtables and other projects,
- traditional freshman party and get-together,
- orientation and final picnic for all students,
- positive promotion of the faculty as a whole to the general public.

Student Projects

In addition to participation in the bodies of the faculties, and advocacy of student opinions and expressions, the Student Council is preparing a variety of extracurricular activities for students in order to spend quality time and encouragement of socialization among students.

Other major projects include:

- Courses for useful construction and other programs (Autocad, Archicad, Allplan, Cinema, Photoshop);
- "Grabenijada" (meeting of students of civil engineering and related disciplines from former Yugoslavia states);
- How strong is the bridge? - an international competition in building bridges from spaghetti;
- Language courses for students
- Awards for successful students
- International Excursion (Zagreb, Munich, Vienna, Innsbruck, Garmisch Partenkirchen)
- Bowling competition for students and professors
- "Prometnijada" (meeting of students, professors and graduates of study program Traffic and Transportation Engineering)
- Humanitarian events
- Tutoring

Student Projects

HOW STRONG IS THE BRIDGE

HOW STRONG IS THE BRIDGE is an international competition for students of technical disciplines in building the most sturdy bridge from spaghetti and plastic adhesives. Competitions is organized by students of the Faculty of Civil Engineering, Transportation Engineering and Architecture UM. Competitors have three days to make a bridge that can withstand the maximum load. Before the start of the competition teams get familiar with the specific details of the bridge: its range, the height above the road, the height of the road, traffic profile and the maximum weight of the bridge. Students have to show their ingenuity and skills in three days. The last day of the competition is reserved for checking of the built bridges load capacities. Each bridge is gradually loaded until it crashes. The bridge that can withstand the maximum load wins.

PROFESSIONAL EXCURSIONS

Each academic year the Student Council, along with Students Association and the Faculty, organizes several excursions to construction sites in Slovenia and abroad. Excursions last one day or multiple days. Students visit the sites under professional supervision of professors and representatives of the companies. The project has been very successful, since all excursions are quickly overbooked. Project also serves as an excellent way for students to learn actual workings of companies and daily construction tasks.

SOCIAL EVENT GRADBENIJADA

This is the largest gathering of students of civil engineering, architecture, geodesy and transportation engineering from former Yugoslavia states. Gradbenijada took place in Ulcinj, Montenegro, Sunny beach in Bulgaria, Ohrid, Macedonia and Budva, Montenegro. In a week men's and women's competitions in team and individual sports are carried out. Besides every day parties, students take part in knowledge quizzes, competing for their faculties. In the future we would strive to enable students to meet peers from former Yugoslavia in order to get experiences, establish international relations which would help them find work and cooperation in international projects.


NK MARIBOR

Exchange Students

International cooperation of students of the Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor, is increasing due to growing number of exchanges. In the study year 1999/2000, our Faculty joined the European exchange programme Erasmus.

The most important programme aims are:

- Internationalization of the study,
- Openness of educational system of European universities to the world,
- Bringing internalisation of students and lecturers' experiences "home", etc.

The study in a foreign country is acknowledged as a part of study obligations at the Faculty of Civil Engineering, Transportation Engineering and Architecture. Academic acknowledgment is easier due to European credit point system which enables students to transfer their academic obligations between partner institutions.

Exchange programme brings students long-lasting effects in their personal and expert development and enhances their skills and employability.

Erasmus +

The new Erasmus+ programme combines all the EU's current schemes for education, training, youth and sport, including the Lifelong Learning Programme (Erasmus, Leonardo da Vinci, Comenius, Grundtvig), Youth in Action and five international cooperation programmes (Erasmus Mundus, Tempus, Alfa, Edulink and the programme for cooperation with industrialised countries). This will make it easier for applicants to understand the opportunities available, while other simplifications will also facilitate access.

Duration of the program:

- study from 3 months to 12 months
- traineeships and internships

The purpose of the program:

- support the realization of a European Higher Education Area;
- improve the quality and increase the mobility of students and teaching staff;
- improve the quality and increase the volume of multilateral cooperation between higher education institutions in Europe;
- increase the degree of transparency and compatibility between the qualifications awarded in education and in advanced vocational education in Europe
- strengthening the contribution of higher education and vocational education at the higher levels of the process of innovation.

Tutoring

The tutorial system at the Faculty of Civil Engineering, Transportation Engineering and Architecture has a long tradition, but we completely renewed it in 2014. Tutoring is divided into two parts – first-step tutoring and subject tutoring. Student tutors are mostly hardworking, communicative students, who, along with teacher tutors (and other professors) are helping to improve the level of the educational process in our faculty.

At the beginning of their studies the students get in touch with initial tutors, their tasks consist of:

- to facilitate the integration of students in a university environment
- helping students with studying and giving them advice to resolve general problems that occur during the course of study
- help building the relationship between students and teachers in order to achieve better cooperation between them, as well as the achievement of study objectives
- advice for studying abroad.

Tutors tasks are as follows:

- the implementation of tutor exercises for certain objects
- help in finding literature
- help with issues related to studies

bodies of the faculty

Faculty Senate is the highest academic and professional body, with the participation of university teachers as representatives of scientific, artistic disciplines and professional areas and student representatives. The work of the Senate is convened and chaired by the Dean, Prof. PhD Miroslav Premrov.

Senate:
President: Prof. PhD Miroslav Premrov, Dean
Members: Prof. PhD Stojan Kravanja, Prof. PhD Tomaž Tollazzi, Prof. PhD Renata Jecl, Prof. PhD Matjaž Šraml, Assoc. Prof. PhD Stanislav Božičnik, Assoc. Prof. PhDMetka Sitar, Assoc. Prof. PhD Matjaž Skrinar, Assoc. Prof. PhD Andrej Štrukelj, Assoc. Prof. PhD Matej Mencinger, Assoc. PhD Uroš Lobnik, Assist. Prof. PhD Andrej Tibaut, Assist. Prof. PhD Samo Lubej, Assist. Prof. PhD Borut Macuh, Assist. Prof. PhD Marko Pinterič, Nastja Belak, vice-dean student, Nejc Hanžel, student, Matic Reberčnik, student

Executive Board:
President: Prof. PhD Miroslav Premrov, Dean
Members: Prof. PhD Tomaž Tollazzi, Assist. Prof. PhD Marjan Lep, Assist. Prof. PhD Borut Macuh, Assist. Prof. PhD Vesna Žegarac Leskovar, Zdenko Zorič, v.d. Nastja Belak, vice-dean student

Associate Deans:
For International and inter-university cooperation:
Prof. PhD Matjaž Šraml
For Financial affairs:
Assoc. Prof. Phd Stanislav Škrabl
For Research activity:
Prof. PhD Stojan Kravanja
For Educational activity:
Assist. Prof. Phd Borut Macuh

the commissions

The Academic Affairs Commission
President: Assist. Prof. PhD Borut Macuh
Legal Secretary: Tatjana Rojs
The Academic Affairs Commission addresses all issues related to the pedagogical process with first-level Bologna study programs: proposes accreditation changes, proposes rules and instructions regarding the curricula, examines student applications, etc.

Commission for Post-Graduate Studies
President: Assist. Prof. PhD Borut Macuh
Legal Secretary: Simona Kosi, Martina Pečovnik
The Commission for Post-Graduate Studies deals with all issues related to the pedagogical process of second and third level Bologna study programs: proposes accreditation changes, proposes rules and instructions regarding the implemented study programs, deals with student applications, etc.

Commission for Science and Research
President: Prof. PhD Stojan Kravanja
Legal Secretary: Martina Pečovnik, Simona Kosi
The Commission for Science and Research deals with issues in this field and proposes to the Senate of the Faculty appropriate solutions, doctoral dissertation topics and other issues in this field. If the University Statute so stipulates, the Commission may also decide independently for scientific and research matters.

Quality Assessment Committee of the Faculty
President: Katja Hanžič
Legal Secretary: Martina Pečovnik
The Quality Assessment Committee of the Faculty monitors and performs institutional and programmatic assessments of the quality and effectiveness of the educational, scientific, research and artistic work of members of the university and the university as a whole.

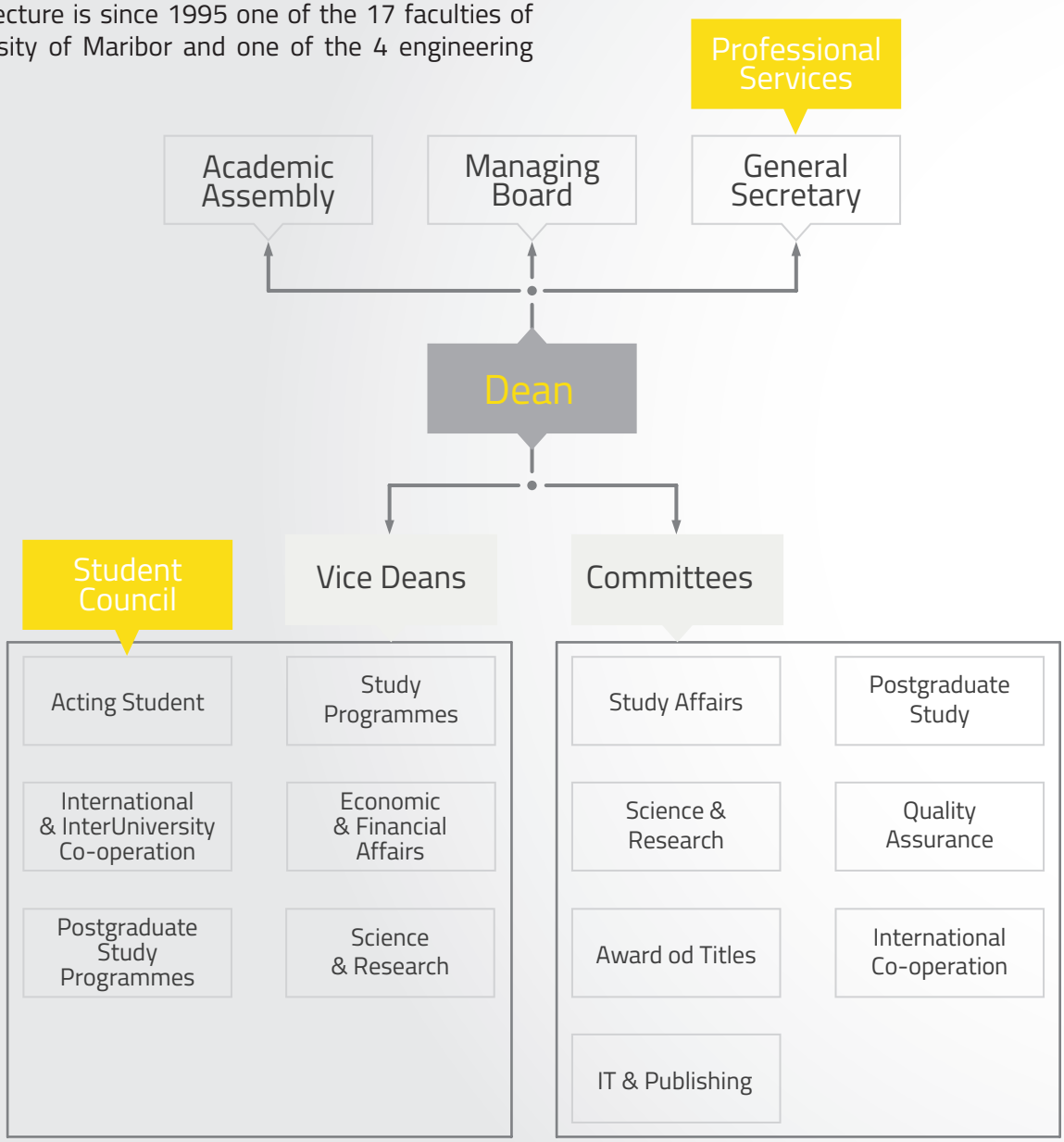
Commission for Habilitation Affairs and Human Resources
President: Prof. PhD Renata Jecl
Legal Secretary: Martina Pečovnik, Barbara Trčko
The Commission for Habilitation Affairs and Human Resources examines proposals for the election of higher education teachers, scientific workers and higher education staff in appropriate titles in cases stipulated by the law and the Statute of the University, and propose to the Senate of the Faculty the appropriate decision.

Commission for International Cooperation
President: Prof. PhD Matjaž Šraml
Legal Secretary: Damijana Zlatolas
The Committee for International Cooperation at FGPA examines the role of faculty and students in their international activities as follows:
Erasmus+ projects, Ceepus, Summer and Winter schools, International research projects, Bi-lateral agreements between Universities and Research Institutions etc.

Commission on Publishing and Information activities
President: Assist. Prof. PhD Andrej Tibaut
The Commission on Publishing and Information activities carries out activities in the issuing of printed and electronic publications: textbooks, exercises collections, laboratory practicals, etc. The Commission proposes to the Faculty Senate, which publications are prepared for the issue and propose technical editors of various publications.

organisation chart

Faculty of Civil Engineering, Transportation Engineering and Architecture is since 1995 one of the 17 faculties of the University of Maribor and one of the 4 engineering faculties.



Faculty consists of 3 departments and 5 institutes.

Civil Engineering

- Geotechnics
- Hydraulic Engineering
- Mechanics of Structures
- Building Structures
- Metalic Structures
- Materials
- Transportation Infrastructures
- Construction management, technology and economics
- Geodesy

- Civil Engineering Infrastructure
- Civil Engineering Technology & Structures
- Geotechnics

Transportation Engineering

- Traffic Engineering and Safety in Traffic
- Transportation Technology and Organisation

- Traffic Sciences

Architecture

- Architecture
- Spatial Planning

- Architecture & Spatial Planning

Other

- Basic Sciences
- Applied Physics
- Construction & Transportation Informatics

Civil

department Of Engineering

chair of geotechnics
chair of hydraulic engineering
chair of structural mechanics
chair of building structures
chair of metalic structures
chair of materials
chair of traffic infrastructures
chair of construction management, technology and economics
chair of geodesy

chair of geotechnics

Chair of geotechnics coordinate educational activities in the fields of geology, soil mechanics and geotechnical engineering and with those areas associated scientific-research activity. Chair of geotechnics develops appropriate related scientific discipline and profession responsible for the development and transfer of knowledge into practice with efforts to promptly engage this knowledge in the educational process.

The knowledge that students acquire during lectures, laboratory and computer lab lessons and in the course of preparing their thesis, comprises:

- fundamentals of geology, engineering geology and rock mechanic,
- theoretical soil mechanics,
- rheology of soils - experimental determination of soil properties,
- stability of slopes and embankments,
- foundation structures - static interaction structure-ground,
- solving practical geotechnical problems,
- computer programming in the field of geotechnical engineering and
- preparation of geotechnical reports and projects.

head of the chair

Assoc. Prof. *PhD*
Bojana Dolinar

members of the chair

Assoc. Prof. *PhD*
Stanislav Škrabl

Assoc. Prof. *PhD*
Bojan Žlender

Assist. Prof. *PhD*
Borut Macuh

Assist.
Sašo Kos

Edi Šketelj

important **publications**

scientific articles:

[1] *The matrix potential of fine-grained soils at the liquid limit.* Dolinar B., Škrabl S., Engineering geology, ISSN 0013-7952, 15 May 2012, vol. 135-136

[2] *A simplified method for determining the external specific surface area of non-swelling fine-grained soils.* Dolinar B., Applied clay science, ISSN 0169-1317, [Print ed.], Aug. 2012, vol. 64

[3] *Cost optimization of the underground gas storage*. Žlender B., Kravanja S., Engineering structures, ISSN 0141-0296. [Print ed.], Sep. 2011, vol. 33, iss. 9

[4] *Prediction of the soil-water characteristic curve based on the specific surface area of fine-grained soils.* Dolinar B., Bulletin of engineering geology and the environment, ISSN 1435-9529, [Print ed.], August 2015, vol. 74, iss. 3

[5] *Practical application of the results for optically measured total suspended solids concentrations in the Drava River.* Dolinar B., Journal of water resource and protection, ISSN 1945-3108, [Online ed.], May 2014, vol. 6, no. 7

[6] *Planning geotechnical investigation using ANFIS.* Žlender B., Jelušič P., BOUMEZERANE, Djemalddine M., Geotechnical and geological engineering, ISSN 0960-3182, Aug. 2012, vol. 30, iss. 4

[7] *Passive earth pressure determination : application of the corresponding state theorem for calculating upper-bound values.* Macuh B., Škrabl S., Acta geotechnica Slovenica, ISSN 1854-0171, [Print ed.], 2010, vol. 7, no. 2

[8] *Limit analysis approach for passive earth pressure determination in three-dimensional conditions.* Vrecl-Kojc H., Škrabl S., International journal of geotechnical engineering, ISSN 1938-6362, [Print ed.], July 2010, vol. 4, iss. 3

[9] *Influence of movements in tectonic fault on stress-strain state of the pipeline ČHE Kozjak.* Žlender B., Macuh B., RMZ - Materials and geoenvironment, ISSN 1408-7073, 2010, vol. 57, no. 1

[10] *Limit analysis of cantilever retaining walls with spaced piles.* Vrecl-Kojc H., Škrabl S., Proceedings of the Institution of Civil Engineers - Geotechnical engineering, ISSN 1353-2618, [Print ed.], Dec. 2009, vol. 162, issue 6

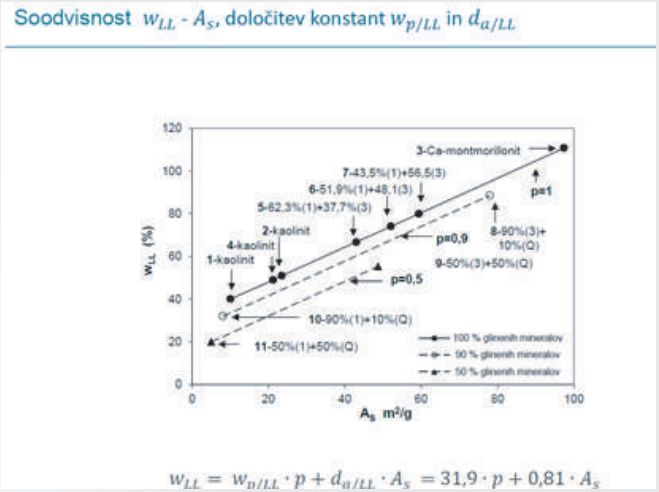
[11] *Upper-bound solutions of three-dimensional passive earth pressures.* Škrabl S., Macuh B., Canadian geotechnical journal, ISSN 0008-3674, Oct. 2005, vol. 42, no. 5

[12] *Prediction of permanent deformation of pavement's unbounded layers based on cyclic triaxial tests.* Žlender B., American journal of applied sciences, ISSN 1546-9239, 2008, 5, 1

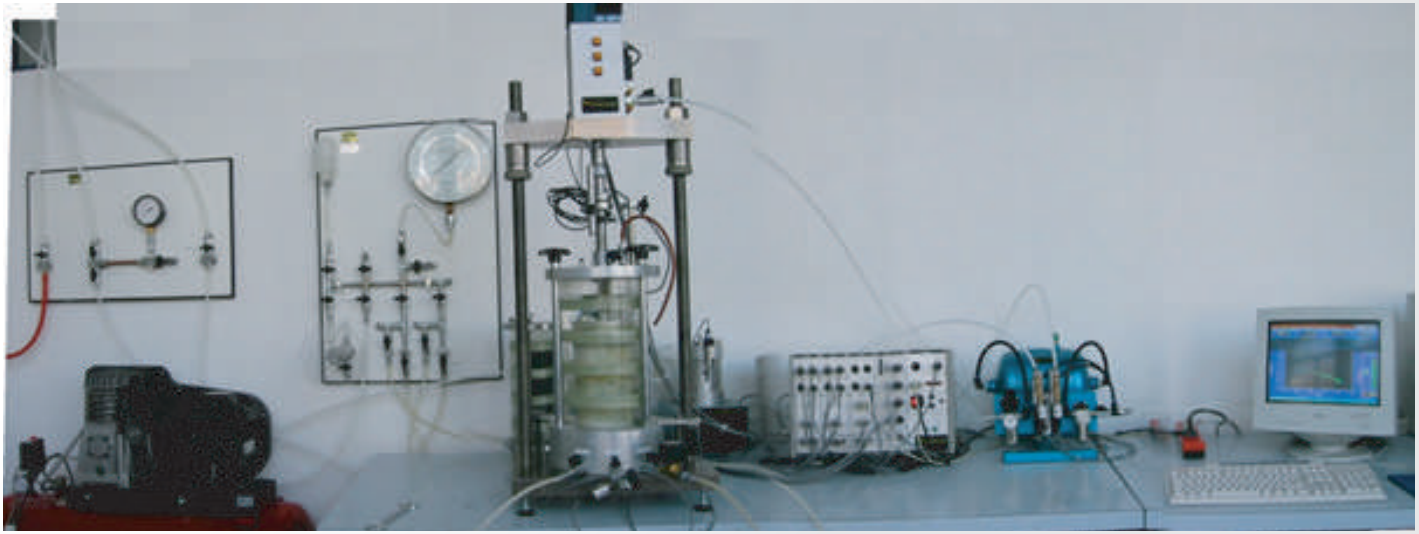
[13] *Predicting the normalized, undrained shear strength of saturated fine-grained soils using plasticity-value correlations.* Dolinar B., Applied clay science, ISSN 0169-1317, [Print ed.], Feb. 2010, vol. 47, iss. 3/4

performed **works**

Excavation of three caissons in order to improve security conditions in a deep excavation cutting between profiles P284 and P294 at the highway section Razdrto - Vipava



Exceptional scientific achievement in 2012: Bojana Dolinar – A simplified method for determining the external specific surface area of no swelling soils



Cylindric dynamic triaxial apparatus

chair of hydraulic engineering

The members of the Chair of Hydraulic Engineering are involved in the activities in the fields of fluid mechanics, hydraulics, water supply, sewage and surface water regulation. They coordinate research and professional work and implement the knowledge into the educational process.

The research work is related to the fields of numerical modeling and simulations of transport phenomena in porous media. The main goal is the development of the Boundary Element Method for solving the complex diffusion convection problems of fluid flow in porous media domains.

Professional activities are related to the field of suspended sediment transport in Slovenian watercourses. The available measurement equipment enables sampling and indirect determination of suspended sediment concentration in a chosen cross section. Furthermore, the temporal and spatial variation of suspended sediment concentration depending on different governing parameters can be predicted.

head of the chair

Prof. *PhD*
Renata Jecl

members of the chair

Assist. Prof. *PhD*
Janja Kramer Stajnko

Sen. lect.
Matjaž Nekrep Perc

Assist.
Blanka Grajfoner

important **publications**

scientific articles:

[1] Boundary domain integral method for transport phenomena in porous media. Jecl R., Škerget L., Petrešin E. International journal for numerical methods in fluids, ISSN 0271-2091, 2001, 35

[2] Boundary element method for natural convection in non-Newtonian fluid saturated square porous cavity. Jecl R., Škerget L., Engineering analysis with boundary elements, ISSN 0955-7997., 2003, vol. 27, issue 10

[3] Boundary domain integral method for the study of double diffusive natural convection in porous media. Kramer Stajnko J., Jecl R., Škerget L., Engineering analysis with boundary elements, ISSN 0955-7997, 2007, vol. 31, issue 11

[4] Fluid dynamics in porous media : a boundary element approach. Škerget L., Jecl R., Kramer Stajnko J. Cellular and porous materials : thermal properties simulation and prediction. ISBN 987-3-527-31938-1, [S. l.]: Wiley, 2008

[5] Heat and mass transfer porous medium saturated with compressible fluid with boundary domain integral method. Kramer Stajnko J., Jecl R., Škerget L., Diffusion and defect data, solid state data. Part A, Defect and diffusion forum, ISSN 1012-0386, 2008, vols. 273/276

[6] Double diffusive natural convection in a horizontal porous layer with the boundary domain integral method. Jecl R., Kramer Stajnko J., Škerget L., Acta geotechnica Slovenica, ISSN 1854-0171, 2009, vol. 6, no. 1

[7] Simulation of 3D flow in porous media by boundary element method. Kramer Stajnko J., Ravnik J., Jecl R., Škerget L., Engineering analysis with boundary elements, ISSN 0955-7997, 2011, vol. 35, issue 12

[8] Three-dimensional double-diffusive natural convection with opposing buoyancy effects in porous enclosure by boundary element method. Kramer Stajnko J., Ravnik J., Jecl R., Škerget L. International journal of computational methods and experimental measurements, ISSN 2046-0546, 2013, vol. 1, no. 2

[9] Numerical simulation of convective flow in a non-darcy porous cavity filled with nanofluid. Kramer Stajnko J., Jecl R., Ravnik J., International journal of computational methods and experimental measurements, ISSN 2046-0546, 2016, vol. 4, issue 4

[10] Natural convection in a square cavity filled with a non-darcy porous medium saturated with nanofluid by the boundary element method. Kramer Stajnko J., Ravnik J., Jecl R. Journal of porous media, ISSN 1091-028X., 2017, vol. 20, issue 10

[11] Numerical simulation of three-dimensional double-diffusive natural convection in porous media by boundary element method. Kramer Stajnko J., Ravnik J., Jecl R. Engineering analysis with boundary elements, ISSN 0955-7997., March 2017, vol. 76

performed **works**

Equipment for measuring velocity, discharge and sediment concentration.

chair of structural mechanics

Chair of structural mechanics governs and coordinates educational activities in the field of structural mechanics, dynamics and stability of civil engineering structures, earthquake engineering and finite element method at all levels of studies. It also enhances corresponding scientific research disciplines, and is responsible for the development of the profession as well as for the transfer of knowledge into engineering practice, simultaneously introducing any advances in the pedagogical process.

Knowledge acquired by the students in class, lab and computer lab and the preparation of the selected thesis includes:

- theoretical structural mechanics with the basics of experimental mechanics,
- theoretical and experimental structural dynamics,
- analysis of statically and dynamically loaded structures,
- earthquake engineering,
- dynamic and stability of structures,
- data collection and preparation of relevant empirical models based on neural networks, without and with accounting for uncertainties,
- improvement of seismic resistance of historic structures.

head of the chair

Assoc. Prof. *PhD*
Matjaž Skrinar

members of the chair

Assist. Prof. *PhD*
Iztok Peruš

Assist. Prof. *PhD*
Mojmir Uranjek

Assist.
Denis Imamovič

important **publications**

scientific articles:

[1] *Prediction of site factors by a non-parametric approach.* Peruš I., Fajfar P., Earthquake engineering & structural dynamics, ISSN 0098-8847, [Print ed.], okt. 2014, letn. 43, no. 12

[2] *Determination of scrap/supply probability curves for the mechanical properties of aluminium alloys in hot extrusion using a neural network-like approach.* Peruš I., Terčelj M., Kugler G., Expert systems with applications, ISSN 0957-4174, [Print ed.], 2012, vol. 39, no. 5

[3] *On the inelastic torsional response of single-storey structures under bi-axial excitation.* Peruš I., Fajfar P., Earthquake engineering & structural dynamics, ISSN 0098-8847, [Print ed.], 2005, letn. 34

[4] *Computational analysis of multi-stepped beams and beams with linearly-varying heights implementing closed-form finite element formulation for multi-cracked beam elements.* Skrinar M., International journal of solids and structures, ISSN 0020-7683, [Print ed.], July 2013, vol. 50, iss. 14/15

[5] *Elastic beam finite element with an arbitrary number of transverse cracks.* Skrinar M., Finite elements in analysis and design, ISSN 0168-874X, [Print ed.], 2009, vol. 45, iss. 3

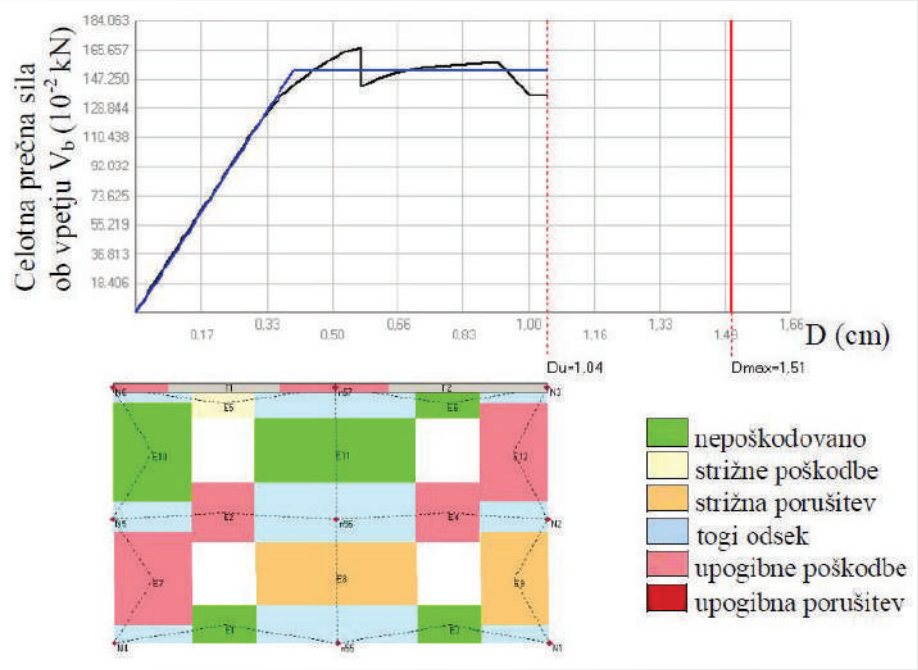
[6] *Analysis of cracked slender-beams on Winkler's foundation using a simplified computational model.* Skrinar M., Lutar B., Acta geotechnica Slovenica, ISSN 1854-0171, 2011, vol. 8, no. 2

[7] *Influence of freeze-thaw cycles on mechanical properties of historical brick masonry.* Uranjek M., Bokan-Bosiljkov V., Construction & building materials, ISSN 0950-0618, [Print ed.], jun. 2015, letn. 84

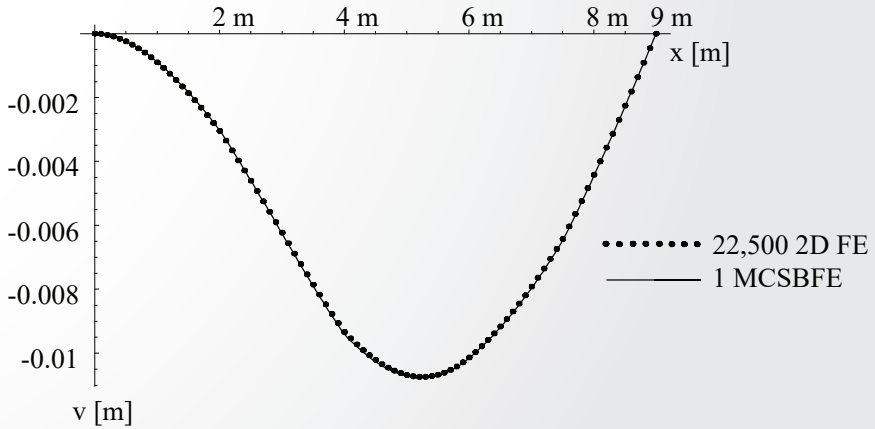
[8] *Seismic resistance of stone masonry building and effect of grouting.* Uranjek M., Žarnić R., Bokan-Bosiljkov V., Bosiljkov V., Građevinar, ISSN 0350-2465, 2014, letn. 66, no. 8

[9] *In situ tests and seismic assessment of a stone-masonry building.* Uranjek M., Bosiljkov V., Žarnić R., Bokan-Bosiljkov V., Materials and structures, ISSN 1359-5997, 2012, letn. 45, no. 6

performed **works**



Pushover curve of the structure in ungrounted state



Comparison of transverse displacements from two computational models

chair of building structures

Chair of Metalic Structures carries out the study and scientific research activities in the field of metal structures (steel and composite structures).

Knowledge acquired by the student in lectures and tutorials, includes:

- mechanical properties of steel, the development of the use of steel and steel construction,
- sizing and design of steel structures (Eurocode 3)
- the design of fasteners (Eurocode 3)
- dimensioning and design of composite structures (Eurocode 4)
- special steel structures (penstocks, gates, reservoirs, cranes, etc.)
- synthesis and optimization of structures
- non-linear programming and mixed-integer non-linear programming (NLP and MINLP)
- resistance of steel structures to the effects of fire,
- corrosion protection,
- steel construction: economic and commercial factors
- seminars and diplomas: conception and design of steel sections and structural elements, fasteners, steel sheds, steel skeletons and multi-storey skyscrapers, steel and composite bridges, towers, cranes, etc.

head of the chair

Prof. PhD
Miroslav Premrov

members of the chair

Assist. Prof.
Erika Kozem Šilih

Assist. Prof.
Milan Kuhta

Assist.
Mateja Držečnik

Assist.
Ana Brunčič

Assist.
Maja Lešnik

Assist.
Damjan Maučec

Assist.
Žiga Unuk

external members

Assist. *PhD* Katja Vogrinec
Assoc. Prof. *PhD* Peter Dobrila
Lect. *PhD* Boštjan Ber
Lect. Diana Zupanc

Lect. *PhD* Viktor Markelj
Lect. Marjan Pipenbaher
Lect. Aljoša Klobučar
Lect. Gorazd Humar

Lect. Dušan Rožič
Lect. Jernej Maher
Lect. Peter Henčič

important publications

scientific articles:

[1] Premrov M., Žigart M., Žegarac Leskovar V., 2018. Influence of the building shape on the energy performance of timber-glass buildings located in warm climatic regions. Energy, 149, pp. 496-504.

[2] Premrov, M., Leskovar, V.Ž. and Mihalič, K., 2016. Influence of the building shape on the energy performance of timber-glass buildings in different climatic conditions. Energy, 108, pp.201-211.

[3] Vogrinec, K., Premrov, M. and Šilih, E.K., 2016. Simplified modelling of timber-framed walls under lateral loads. Engineering Structures, 111, pp.275-284.

[4] Štrukelj, A., Ber, B. and Premrov, M., 2015. Racking resistance of timber-glass wall elements using different types of adhesives. Construction and Building Materials, 93, pp.130-143.

[5] Ber, B., Šusteršič, I., Premrov, M., Štrukelj, A. and Dujič, B., 2015. Testing of timber–glass composite walls. Proceedings of the Institution of Civil Engineers-Structures and Buildings, 168(7), pp.500-513.

[6] Pintarič, K. and Premrov, M., 2013. Mathematical modelling of timber-framed walls using fictive diagonal elements. Applied Mathematical Modelling, 37(16), pp.8051-8059.

[6] Leskovar, V.Ž. and Premrov, M., 2012. Influence of glazing size on energy efficiency of timber-frame buildings. Construction and Building Materials, 30, pp.92-99.

[7] Leskovar, V.Ž. and Premrov, M., 2012. Design approach for the optimal model of an energy-efficient timber building with enlarged glazing surface on the south façade. Journal of Asian architecture and building engineering, 11(1), pp.71-78.

[8] Špegelj, T., Premrov, M. and Leskovar, V.Ž., 2017. Development of the timber-glass upgrade module for the purpose of its installation on energy-inefficient buildings in the refurbishment process. Energy Efficiency, 10(4), pp.973-988.

[9] Špegelj, T., Leskovar, V.Ž. and Premrov, M., 2016. Application of the timber-glass upgrade module for energy refurbishment of the existing energy-inefficient multi-family buildings. Energy and Buildings, 116, pp.362-375.

scientific monographs:

[10] Leskovar, V.Ž. and Premrov, M., 2013. Energy-efficient timber-glass houses. Springer.

[11] Premrov M., Kuhta M. Experimental analysis on behaviour of timber-framed walls with different types of sheathing boards, Construction materials and engineering. Hauppage, N. Y.: Nova Science Publishers, cop. 2011.

[12] Leskovar, V.Ž., Premrov M. Architectural design approach for energy efficient timber frame public buildings. Maribor: Faculty of Civil Engineering, 2011.

developing projects for industry:

[13] Premrov, M., Leskovar, V.Ž., Držečnik, M., Žigart, M. Urban renewal of the school with CLT modular elements: sodelovanje na MASTER CLASS - International and interdisciplinary workshop, pro:Holz, Austria.

[14] Developing project House 2030 (for company Jelovica d.o.o.).

[15] CEEPUS II – Development of Methods for Timber Structures and Timber-Based Constructions Designing.

[16] Kresnik, M., Moharić, S., Leskovar, V.Ž., Premrov, M., Kozem, S. E., Pukšič, M., Mihalič, K., Developing project »Innovative passive house Marles«, Maribor: Faculty of Civil Eng., Transportation Eng. And Architecture, 2013.

[17] Leskovar, V.Ž., Premrov, M., Renčelj, M, Skalicky, V., Žigart, M. Exhibition of the student workroom PUNKT PODLEHNIK: in cooperation between the Municipality Podlehnik and Faculty of Civil Eng., Transportation Eng. And Architecture, 2018.

[18] Premrov, M., Leskovar, V.Ž., Ber, B., Lešnik, M., Žigart, M., Kutnar, A. Intelligent home of the new generation designed on smart appliances and wood (IQ Home), Research and Development project (RRP 5): Intelligent design of structures (TRL 3-4), Work package A 5.1: final report of the research project: 2018

performed **works**

Load Bearing Timber-Glass Composites - LBTGC

Load Bearing Timber-Glass Composites LBTCG – Assembly

Load Bearing Timber-Glass Composites LBTCG – Racking tests

chair of
metalic structures

Chair of Metalic Structures carries out the study and scientific research activities in the field of metal structures (steel and composite structures).

Knowledge acquired by the student in lectures and tutorials, includes:

- mechanical properties of steel, the development of the use of steel and steel construction,
- sizing and design of steel structures (Eurocode 3)
- the design of fasteners (Eurocode 3)
- dimensioning and design of composite structures (Eurocode 4)
- special steel structures (penstocks, gates, reservoirs, cranes, etc.)
- synthesis and optimization of structures
- non-linear programming and mixed-integer non-linear programming (NLP and MINLP)
- resistance of steel structures to the effects of fire,
- corrosion protection,
- steel construction: economic and commercial factors
- seminars and diplomas: conception and design of steel sections and structural elements, fasteners, steel sheds, steel skeletons and multi-storey skyscrapers, steel and composite bridges, towers, cranes, etc.

head of the chair

Prof. *PhD*
Stojan Kravanja

members of the chair

Assist. Prof. *PhD*
Tomaž Žula

external members

Assist. Prof. *PhD* Simon Šilih
Lect. Boris Visočnik

From left: Simon Šilih, Stojan Kravanja, Tomaž Žula, Uroš Klanšek in Boris Visočnik

important **publications**

scientific articles:

[1] *Optimal design of single-story steel building structures based on parametric MINLP optimization.* Kravanja S., Turkalj G., Šilih S., Žula T., 2013, Journal of Constructional Steel Research, ISSN 0143-974X, vol. 81

[2] *Cost optimization of industrial steel building structures.* Kravanja S., Žula T., 2010, Adv. eng. softw., vol. 41

[3] *Cost estimation, optimization and competitiveness of different composite floor systems*, Part 1, Self-manufacturing cost estimation of composite and steel structures. Klanšek U., Kravanja S., 2006, Journal of Constructional Steel Research, ISSN 0143-974X, vol. 62, iss. 5

[4] C*ost estimation, optimization and competitiveness of different composite floor systems*, Part 2, Optimization based competitiveness between the composite I beams, channel-section and hollow-section trusses. Klanšek U., Kravanja S., 2006, J. Constr. steel res., ISSN 0143-974X, vol. 62, iss. 5

[5] *The multilevel MINLP optimization approach to structural synthesis: the simultaneous topology, material, standard and rounded dimension optimization*. Kravanja S., Šilih S., Kravanja Z., 2005, Adv. eng. softw. (1992), vol. 36, iss. 9

[6] *Optimization of the Sultartangi sliding gates in Iceland.* Kravanja S., The international journal on hydropower & dams, 2002, vol. 9, iss. 2

[7] *The MINLP optimization approach to structural synthesis,* Part I, A general view on simultaneous topology and parameter optimization. Kravanja S., Kravanja Z., Bedenik B., 1998, Int. j. numer. methods eng., 43, no.2

[8] *The MINLP optimization approach to structural synthesis*, Part II, Simultaneous topology, parameter and standard dimension optimization by the use of the linked two-phase MINLP strategy. Kravanja S., Kravanja Z., Bedenik B., 1998, Int. j. numer. methods eng., 43, no. 2

[9] *The MINLP optimization approach to structural synthesis*, Part III, Synthesis of roller and sliding hydraulic steel gate structures. Kravanja S., Kravanja Z., Bedenik B., 1998, Int. j. numer. methods eng., 43, no. 2

[10] *Flap gates at Bou Hanifa*. Kravanja S., Bedenik B., Križanič M., 1995, Int. water power dam constr., 47, no. 8

world references (working designs) and optimization references:

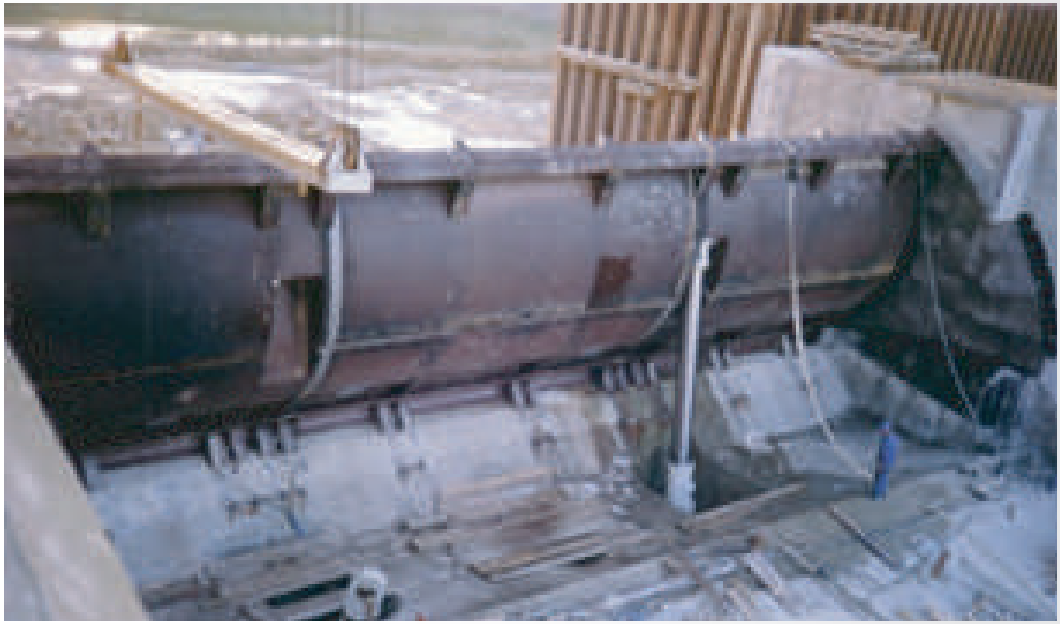
[11] *Bekhme Power Project, Iraq, Diversion Tunnel equipment, Closure Gate, Structural analysis and design.* Kravanja, S., Metalna Maribor, 1987-1989

[12] *Barrage de Bou Hanifia, Algerie, Deversoir, Flap gates, Structural analysis and design.* Kravanja, S., Bedenik, B., Metalna Maribor and TF, Faculty of Civil Eng., Transportation Eng. and Architecture, UM, 1989-1990

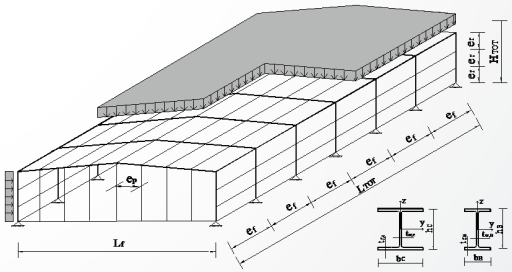
[13] *Sultartangi Hydroelectric Project, Iceland, Tunnel Intake Bulkheads, Draft Tube Gates*. Kravanja, S., The MINLP structural optimization. Shulze, Metalna Maribor, Faculty of Civil Eng., Transportation Eng. and Architecture, UM, 1997-2000

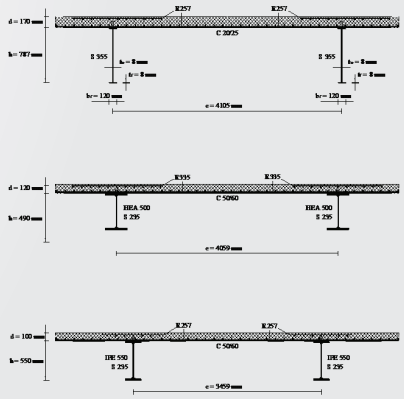
[14] *Steel penstock, Hydropower plant Kozjak, Slovenia.* Kravanja, S., The NLP optimization and recommendations for designers. Faculty of Civil Eng., Transportation Eng. and Architecture, UM, 2011-2012

performed **works**



One of the largest flap gates of their type in the world, Barrage de Bou Hanifia, Algerie





Optimization programs developed for the optimization of industrial steel buildings, steel trusses, composite I beams, hydraulic steel gates, steel penstocks and underground gas storages.

chair of materials

The Chair of Materials is the important Slovenian educational and research unit from the area of testing materials and structures. In the last few years it has become increasingly internationally recognized for its research in the field of composites materials.

With its educational work it has strong impact on the dissemination of knowledge about building materials among students as well as experts in the construction practice. With its research and development work in the area of composites materials (fiber reinforced polymer (FRP) composite materials, advanced composite materials) and classical structural materials (such as masonry, wood, steel, and concrete) it has considerable impact on the international knowledge treasury.

Today the Chair employs two teachers and one assistant in the educational process, and one full-time technical co-worker.

head of the chair

Assoc. Prof. *PhD*
Samo Lubej

members of the chair

Assoc. Prof. *PhD*
Andrej Ivanič

Assist. Prof. *PhD*
Primož Jelušič

Bojan Čelofiga

Aleš Hanzel

important **publications**

scientific articles:

[1] *The effect of delayed ettringite formation on fine grained aerated concrete mechanical properties.* Lubej S., Anžel I., Jelušič P., Kosec L., Ivanič A. Science and engineering of composite materials. 2016, vol. 23, no. 3

[2] *Comparison of various techniques for flexural strengthening of thin concrete members using continuous carbon fibers.* Ivanič A., Lubej S. 2nd International Conference on Materials Science and Engineering Technology., 2015.

[3] *Soil compaction optimization with soft constrain.* Jelušič P. Journal of intelligent & fuzzy systems. 2015, vol. 29, no. 2.

[4] *Measurement, prediction and modeling the impact of vibration as the possibility of protection cultural heritage objects.* Toplak S., Ivanič A., Jelušič P., Lubej S. International journal of physical sciences. 2014, vol. 9, no. 22

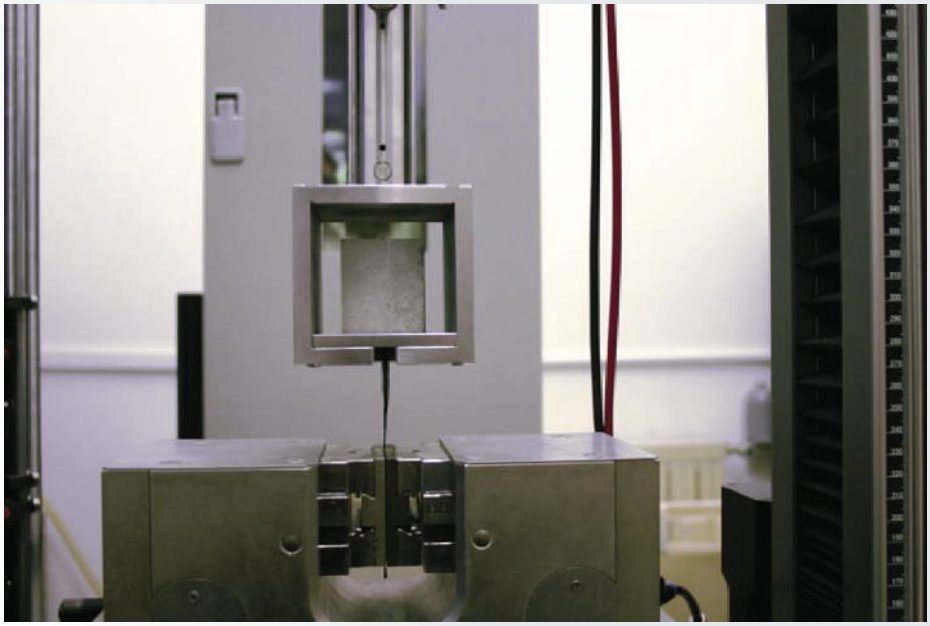
[5] *Rhodium platings - experimental study.* Rudolf R., Budić B., Čolić M. Ivanič A., Kosec B. Metalurgija. 2013, vol. 52, no. 3.

[6] *Influence of delayed ettringite formation on the mechanical properties of aerated concrete.* Lubej S., Ivanič A., Rudolf R., Anžel I. Materiali in tehnologije. 2012, Vol. 46, no. 6.

[7] *Bond behavior of carbon-fiber yarn embedded in cement mortar.* Ivanič A., Lubej S., Rudolf R., Anžel I., Sci. eng. compos. mater. [Print ed.], Sep. 2011, vol. 18, iss. 3.

performed **works**

Cementitious mortars reinforced with continuous carbon filaments



Measuring set for measuring the expansion of the test pieces in the climatic chamber

chair of traffic infrastructure

Chair of Traffic Infrastructure is engaged in professional and research work in the sphere of road and railway infrastructure objects planning, designing, construction, and maintenance. An important part of activity is dedicated to traffic safety problems solution. Teachers from department hold courses on bachelor, master and doctoral studies that deal with different aspects of road planning, geometric road design, pavement design, railway track structure and road maintenance management systems. Among holding lectures, members of the department are engaged in scientific research projects supported by the Slovenian ministries, international bilateral projects, and projects that are conducted in the cooperation with commercial entities. Scientific research activity of department comprehends fields, which are directly or indirectly connected with sphere of transportation infrastructure, designing, constructing and maintenance of roads, intersections, interchanges and railways.

In the context of professional activities we carried out all types of traffic counting, hidden speed measurements, road safety audit and inspection, quality checking of traffic signs and road markings, quality checking of pavement, simulations and visualizations, traffic studies, studies for selection of optimal solutions for intersections/road sections, and studies for »black spots«.

We perform specialized consulting and engineering services at the planning, design, construction and maintenance of transport infrastructure, intersections, interchanges and traffic calming measures. Our professional activity includes cooperation with the most important Slovenian institutions.

head of the chair

Prof. *PhD*
Tomaž Tollazzi

members of the chair

Assoc. Prof. *PhD*
Marko Renčelj

Sen. lect. *MSc*
Vlasta Rodošek

Assist. *MSc*
Sašo Turnšek

important **publications**

scientific articles:

[1] *Traffic safety analysis of powered two-wheelers (PTWs) in Slovenia.* Šraml M., Tollazzi T., Renčelj M., Accident anal. prev.. [Print ed.], Available online 30 January 2012, doi: 10.1016/j. aap.2011.12.013

[2] *New type of roundabout : roundabout with "depressed" lanes for right turning - "flower roundabout".* Tollazzi T., Renčelj M., Turnšek S., Promet (Zagreb), 2011, vol. 23, no. 5

[3] *Traffic safety of older drivers in various types of road intersections.* Tollazzi T., Renčelj M., Rodošek V., Zalar B., Promet (Zagreb), 2010, vol. 22, no. 3

[4] *The use of micro-simulation in determining the capacity of a roundabout with a multi-channel pedestrian flow.* Tollazzi T., Lerher T., Šraml M., Stroj. vestn., 2008, letn. 54, št. 5

[5] *Roundabout arm capacity determined by microsimulation and discrete functions technique.* Tollazzi T., Šraml M., Lerher T., Promet (Zagreb), 2008, vol. 20, no. 5

[6] *An analysis of the influence of pedestrians` traffic flow on the capacity of a roundabout using the discrete simulation method.* Tollazzi T., Lerher T., Šraml M., Stroj. vestn., 2006, letn. 52, št. 6

[7] *Roundabout with "depressed" lanes for right turning - "flower roundabout".* Tollazzi T., Renčelj M., Turnšek S., V: 3rd International Conference on Roundabouts, Carmel, Indiana, May 18-20, 2011. 2011 TRB Roundabout Conference. [S. l.]: TechAmerica, 2011

performed **works**

The second Slovenian Turbo Roundabout,city of Maribor 2008

chair of construction management, technology and economics of building

Chair of construction management, technology and economics coordinates educational activities for the operational construction, within which it covers general knowledge of the construction business, organization of construction work, construction technology and construction economics as well as scientific research related to these areas. During lectures, tutorials, lab and computer lab as well as through the final diploma work the student acquires the skills necessary for building operations, especially for the management of construction sites, supervising the construction works, for the engineering services of construction companies as well as research and development work in the field of organization technology and construction economics including building information modeling (BIM), optimization, experimental analysis of structures, real estate and life cycle cost estimation. In the context of education, the chair leads and coordinates the implementation of university undergraduate and postgraduate master's study program of Industrial Engineering in Civil Engineering.

The chair colaboraties with other chairs at the Faculty and with its research work participates in international, national and regional events and actively cooperates with related institutions in Austria, Czech Republic and Croatia. In particular, the cooperation is active with the Technische Universität in Graz and Vienna, Brno University of Technology, Technische Universität in Munich and the faculties of civil engineering of Universities in Ljubljana, Zagreb, Split and Osijek.

head of the chair

Prof. *PhD*
Andrej Štrukelj

members of the chair

Assoc. Prof. *PhD*
Uroš Klanšek

Assist. Prof. *PhD*
Nataša Šuman

Assist.
Zoran Pučko

Prof. *PhD*
Igor Pšunder

external members

Prof. *PhD* Mirko Pšunder
Lect. Nadja Ferlan
Sen. Lect. *MSc* Ksenija Golob
Sen. Lect. Stipan Mudražija

important **publications**

scientific articles:

[1] *A comparison between MILP and MINLP approaches to optimal solution of Nonlinear Discrete Transportation Problem.* Klanšek U., Transport, ISSN 1648-4142. [Print ed.], 2015, vol. 30, iss. 2

[2] Quality management of special purpose buildings: A case of National Forensic Laboratory in Ljubljana. Cajzek R., Klanšek U., International journal of industrial engineering and management, ISSN 2217-2661, 2014, vol. 5, no. 3

[3] *Building information modeling based time and cost planning in construction projects.* Pučko Z., Šuman N., Klanšek U., Organization, technology & management in construction, ISSN 1847-6228, Jun. 2014, vol. 6, iss. 1

[4] *MINLP optimization model for the nonlinear discrete time-cost trade-off problem.* Klanšek U., Pšunder M., Advances in engineering software, ISSN 0965-9978. [Print ed.], June 2012, vol. 48

[5] *Systematic approach for sustainable conservation.* Dvornik Perhavec D., Rebolj D., Šuman N., Journal of cultural heritage, ISSN 1296-2074, 2015, vol. 16, iss. 1

[6] *Historical building renovation as a construction project.* Dvornik Perhavec D., Šuman N., Journal of Civil Engineering and Architecture, ISSN 1934-7359. [Print ed.], June 2013, vol. 7, no. 6

[7] *The integrated approach for introducing innovation in construction industry.* Šuman N., Semič M., Organization, technology & management in construction, ISSN 1847-5450. [Print ed.], Dec. 2013, vol. 5, iss. 2

[8] *Racking resistance of timber-glass wall elements using different types of adhesives.* Štrukelj A., Ber B., Premrov M., Construction & building materials, ISSN 0950-0618. [Print ed.], September 2015, vol. 93

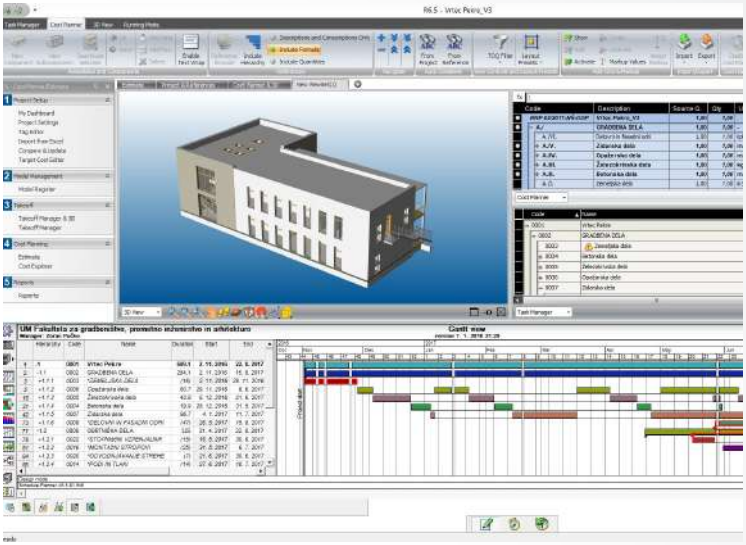
[9] *Experimental investigations of timber-glass composite wall panels.* Ber B., Premrov M., Štrukelj A., Kuhta M., Construction & building materials, ISSN 0950-0618. [Print ed.], Sep. 2014, vol. 66
Racking resistance of prefabricated timber-glass wall elements. Premrov M., Ber B., Štrukelj A., Institute for research and design in commerce & industry IIPP, ISSN 1451-4117. [Print ed.], 2014, vol. 12, iss. 1

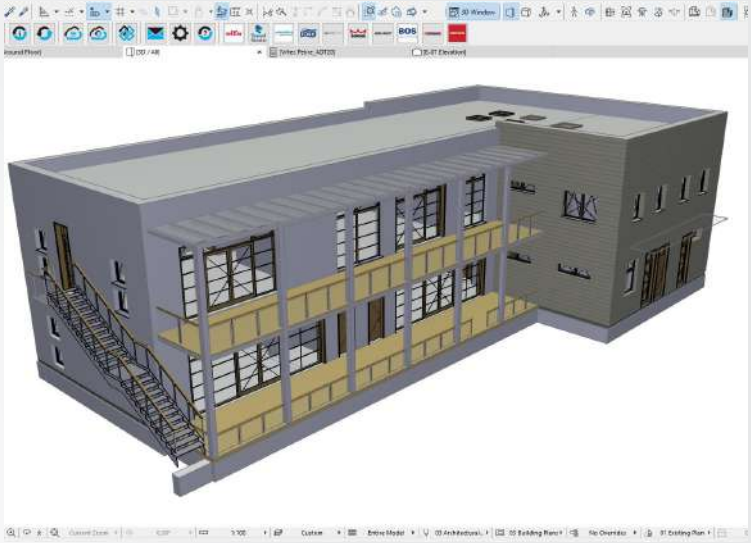
[10] *Project management software based on bim to evaluate construction time and cost.* Pučko Z., Štrukelj A., Šuman N., V: 12th International Conference Organization, Technology and Management in Construction, 02-05 September, 2015, Primošten, Croatia., Conference proceedings. Zagreb: Croatian Association for Construction Management: University of Zagreb, Faculty of Civil Engineering, cop. 2015

[11] REBOLJ, Danijel, PUČKO, Zoran, ČUŠ BABIČ, Nenad, BIZJAK, Marko, MONGUS, Domen. Point cloud quality requirements for Scan-vs-BIM based automated construction progress monitoring. Automation in construction, ISSN 0926-5805. [Print ed.], Dec. 2017, vol. 84, str. 323-334.

[12] ŠUMAN, Nataša, KLANŠEK, Uroš. Construction procedures for public goods on roads of local interest in Slovenia. Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku, ISSN 1330-3651, 2018, vol. 25, No. 2.

performed **works**





Testing of the pile behaviour under dynamic loading

chair of geodesy

Chair of Geodesy was established in 2011 from the Centre for Geodesy. We coordinate educational activities in the field of geodesy, especially in coordinate systems, land surveying, cartography, geographic information systems, environmental protection, etc. We also strive to create, develop and expand engineering know-how in environmental issues and transfer it to the students and professional engineers. Our work connects civil engineering, architecture, traffic and transportation engineering with environment and land use. We cover courses in surveying, geodesy, GIS, experimental analysis of structures and different courses in the field of environmental protection.

We perform lectures, field work, excursions and laboratory measurements so that our students obtain knowledge in theory and practise.

The chair encourages staff mobility and active participation in international associations, networks and projects, and at the same time it promotes and protects national identity and heritage.

head of the chair

Prof. *PhD*
Stojan Kravanja

members of the chair

Assist. Prof. *PhD*
Branka Trček

Assist. Prof. *PhD*
Rok Kamnik

Assoc. Prof. *PhD*
Boštjan Kovačič

important **publications**

scientific articles:

[1] *Deformation measurement of a structure with calculation of intermediate load phases.* Kovačič B., Kamnik R., Premrov M., Surv. rev. - Dir. Overseas Surv., Apr. 2011, vol. 43, no. 320

[2] *Interpolation methods for mathematical descriptions of measured vertical displacements of bridge objects.* Kamnik R., Kovačič B., Štrukelj A., Gubeljak N., AVN. Allg. Vermess.-Nachr., 2010, jhrg. 117, 3

[3] *Mathematical analysis of measured displacements with emphasis on polynomial interpolation.* Kovačič B., Kamnik R., Kapović Z., Geod. list, 2009, god. 63(86), no. 4

[4] *An estimation of sufficient impact toughness for the material of a turbine shaft.* Gubeljak N., Predan J., Kozak D., Vojvodič-Tuma J., Kovačič B., Konjatić P., Sertić J., Strojarstvo, 2009, vol. 51, no. 4

[5] *Measurement of displacements and deformations on the biggest Slovenian viaduct, with particular stress on accuracy calculations.* Kovačič B., Kamnik R., AVN. Allg. Vermess.-Nachr., 2006, 113, no. 10

[6] *Precision and results reliability analysis of different instruments for in vestigating vertical micro-displacement of structures.* Kovačič B., Kapovic D. Z., Surv. rev. - Dir. Overseas Surv., Jul. 2005, vol.38, no. 297

[7] *Analysis of instruments for determining the vertical displacement of structures.* Kovačič B., Premrov M., Slov. j. civ. eng., 2004, vol. 12, no. 2

[8] *Risk assesment of an urban aquifer based on environmental tracers.* Trček B., Auersperger P., Leis A., SüLtenfuss J. 2013. Geologija 56, no. 1

[9] Recharge of springs. Trček B., Zojer H., Groundwater hydrology of springs: engineering, theory, management, and sustainability. 2010, Burlington, MA: Butterworth-Heinemann

[10] *Flow and solute transport monitoring in the karst aquifer in SW Slovenia.* Trček B., Environ. geol. (Berl.), 2008, vol. 55, no. 2

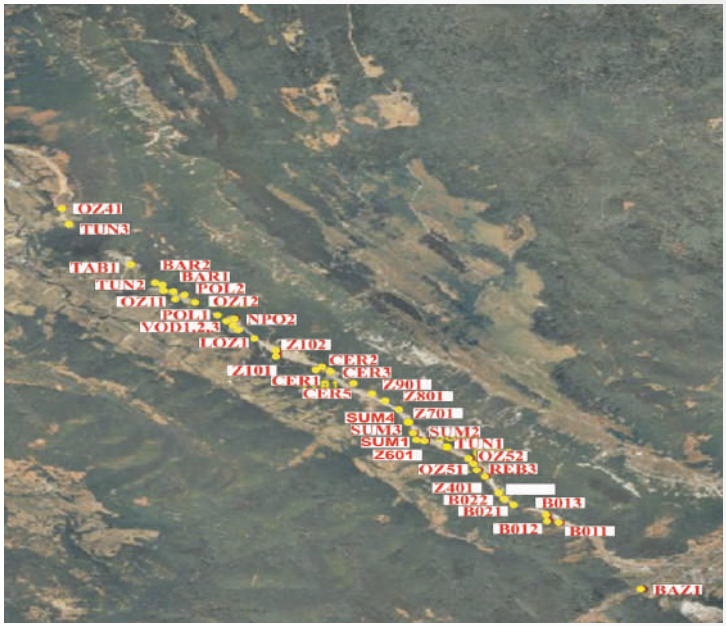
developing and research projects:

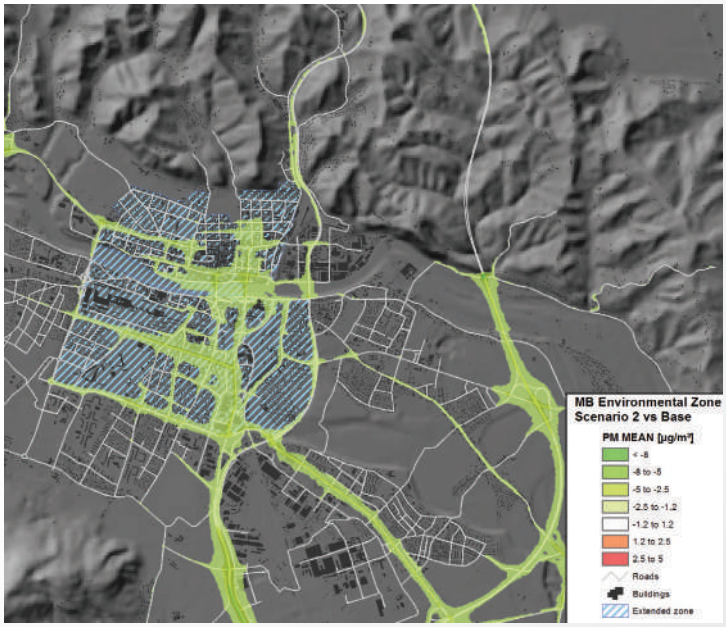
[11] *Best Management Practices-Pivovarna Union d.d. (BMPs-PU) (2005-2008).* K-ET-Water, Work Package 6.2.1., Phasingout 1.4 (2008-2009)

[12] *Assessing the risk of contaminant transport to drinking-water resources in urban areas* (2005-2008)

[13] *PMinter - The interregional ineraction of residential heating and traffic related measures with the PM-levels in the Slovenian-Austrian border region* (2010-2013)

performed **works**





Working with acoustic Doppler flow meter

Transportation

department Of

n Engineering

chair of traffic engineering and safety
chair of transportation and organisation

chair of traffic engineering and safety

Chair of Traffic Engineering and Safety deals with safety research in traffic, research of travelling habits and sustainable mobility planning. It also covers areas of transportation technique and intelligent transportation systems. In terms of education and providing new knowledge, the chair takes care of scientific research, development and expert work. The members are tutors and mentors to undergraduate and post graduate students of professional and Bachelor's programme Traffic and Transportation Engineering.

The chair promotes the following areas:

- transportation technique,
- safety in traffic, and
- mobility management.

The mission of the Chair of Traffic Engineering and Safety is to train future traffic and other experts to solve problems in transportation technique, safety in traffic and mobility managements in practice.

We are actively involved in:

- Members of ICTCT (http://www.ictct.org/); in 2013 organised ICTCT 2013
- International Cooperation: University of Hasselt, University of Novi Sad, University of Plzen Czech Republic, IT Prague Czech Republic
- Organising City and Traffic
- International projects: PROCEED, TRAMOB, PMINTER, ATTAC, etc.
- Erasmus +, Ceepus
- Professional Software: PTI Software (VISUM, VISSIM, ...); AnalyserPro; OpenTrack, etc.

head of the chair

Prof. *PhD*
Matjaž Šraml

members of the chair

Assist. Prof. *PhD*
Marjan Lep

Sen. Lect. *MSc*
Stanko Laković

Sen. Lect. *MSc*
Beno Mesarec

Lect.
Mitja Klemenčič

external members

Assoc. Prof. *PhD* Vladimir Drozg
PhD Dušan Zalar
PhD Andrej Godec

MSc Ulrich Zorin
MSc Miran Roškar
MSc Marko Čelan

important **publications**

scientific articles:

[1] *Combining the grid-based spatial planning and network-based transport planning.* Mesarec B., Lep M., Ukio technol. ekon. vystym. (Spausd.). Print ed., 2009

[2] *Computer and android based real-time video traffic detection and counting.* Šraml M., Podbreznik P., Celan B., Jovanovič G., 27th ICTCT Workshop in Karlsruhe, Germany on 16-17 October, 2014, on Empirical data collection in the field-from hard core traffic conflicts till qualitative data collection. 2014

[3] *Travel behaviour and habits in the Municipality of Ljubljana and the Ljubljana Urban Region.*, Lep M., Mesarec B., April 2014, UM: Faculty of Civil Eng., Transportation Eng. and Architecture; Chair of Traffic Engineering and Safety (CPTVP), 2014.

[4] *Advantages of implementing RAMS-LCC analysis in design phase of railway safety critical systems*, Klemenčič M., 18th International Symposium on Electronics in Traffic, ISEP 2010, March 29, 2010, Ljubljana. The role of ITS in the near future : proceedings. Ljubljana: Electrotechnical Association of Slovenia, 2010.

[5] *Sustainable Urban Mobility Plan (SUMP) for Maribor (Slovenia).* Lep M., Mesarec B., Klemenčič M., Maribor: Faculty of Civil Engineering, Transportation Engineering and Architecture, UM, 2015.

[6] *Calibration of microsimulation traffic model using neural network approach.* Ištoka Otković I., Tollazzi T., Šraml M. Expert systems with applications, ISSN 0957-4174. [Print ed.], 1. Nov. 2013, vol. 40, iss. 15

[7] *Analysis of neural network responses in calibration of microsimulation traffic model.* Ištoka Otković I., Varevac D., Šraml M., E-GFOS, ISSN 1847-8948, 2015, no. 10

developing and research projects:

[7] *Expert guidelines for the management of the work sites on the AC / HC in the Republic of Slovenia.* Research project for Slovenian Motorway Company DARS; Renčelj M., Šraml M., Celan B., Dolinšek R., Pagon A., Petek A., UM, Faculty of Civil Eng., Transportation Eng. and Architecture; Chair of Traffic and Transportation Engineering, 2015.

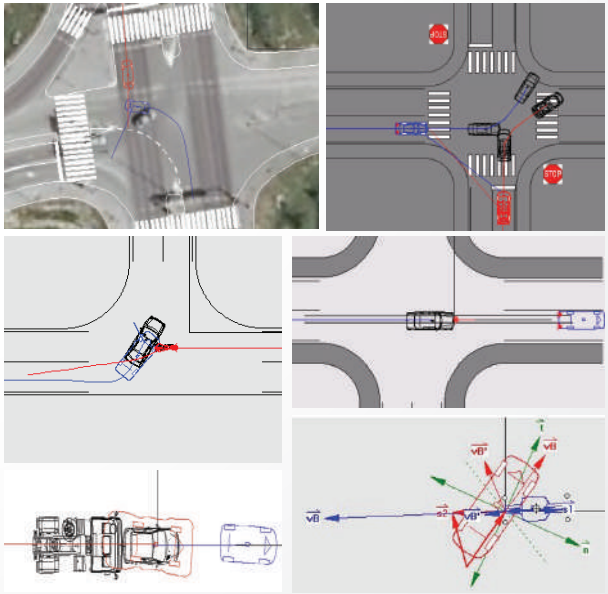
[8] *Principles of successful high quality public transport operation and development = PROCEED.* Deliverable 4, Final guidelines for European High Quality Public Transport in small and medium sized cities, (6th RTD Framework Programme, PROCEED). Directorate General for Energy and Transport, 2009; Lep M., Klemenčič M.

[9] *ATtractive Urban Public Transport for Accessible Cities = ATTAC.* Work Package 3, Mobility Toolbox: Sustainable Urban Mobility Plans and Public Transport recommendations, (European Regional Development Fund), (South East Europe, Transnational Cooperation Programme). Klemenčič M., Čelan M., Jurič B., Lep M., Maribor: Faculty of Civil Eng., Transportation Eng. and Architecture, UM, 2012

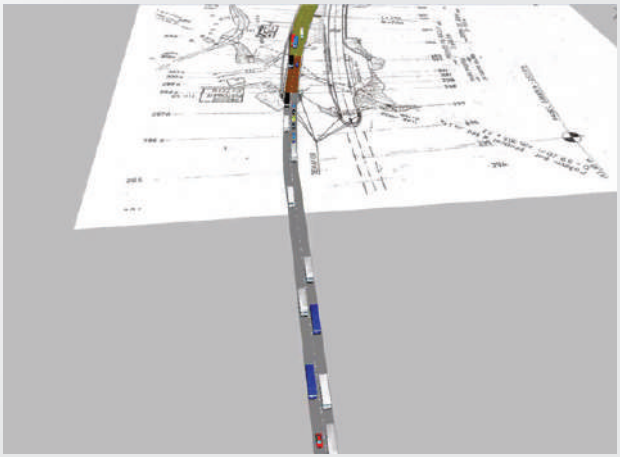
performed works

Implementing Real-time passenger information system in the city of Maribor

Sustainable urban mobility plan for the city of Maribor



Analysis of road traffic accidents



(Micro)simulations

chair of transportation and organisation

Chair of Transportation and Organisation implements activities related to undergraduate and postgraduate study programmes of Traffic and Transportation Engineering. It engages in scientific research and development in areas of Transport and Logistics with primal focus on Transportation technologies, Transportation economics, Transport and environment, Transport policy, Transport organisation and Transportation planning & development.

In addition to topics above, the chair engages in:

- optimisation of logistics processes in organisations,
- deployment of planning and monitoring tools for logistics and transport,
- spatial organisation of transport and related policy measures,
- international, national and regional research projects in the field of transport,
- performing studies and providing expert opinions for different institutions, companies and other clients.

head of the chair

Assoc. Prof. *PhD*
Stane Božičnik

members of the chair

Assoc. Prof. *PhD*
Drago Sever

Assist. Prof. *PhD*
Sergej Težak

Sen. Lect. *MSc*
Sebastian Toplak

Assist. *PhD*
Anamarija Ljubič Mrgole

Sen. Lect.
Tomislav Letnik

Katja Hanžič

Maršenka Marksel

Nina Pavletič

external members

Assist. Prof. PhD Dušan Jovanovič
Lect. MSc Dejan Jurkovič
Prof. PhD Tomislav Josip Mlinarić
Assist. Prof. PhD Peter Podgorelec

important **publications**

scientific articles:

[1] *Corporate social responsibility and requisite holism - supported by tradable permits.* Božičnik S., Mulej M., Syst. res. behav. sci., 2010, vol. 27, iss. 1

[2] *Influence of society changes on the model of hazardous goods road transportation.* Muha R., Sever D., Promet (Zagreb), 2010, vol. 22, no. 2

[3] *Model of sustainable growth and development of the cable way transport system in Slovenia.* Težak S., Zelenika R., Sever D., Promet (Zagreb), 2011, vol. 23

[4] *Measurement, prediction and modeling the impact of vibration as the possibility of protection cultural heritage objects.* Toplak S., Ivanič A., Jelušič P., Lubej S., International journal of physical sciences, ISSN 1992-1950, 30 Nov. 2014, vol. 9, iss. 22

[5] *Integration possibility of urban public bus system and cable car in Maribor.* Toplak S., Journal of Civil Engineering and Architecture, ISSN 1934-7359. [Print ed.], Mar. 2014, vol. 8, no. 3

[6] *NAPA ports developing challenges and opportunities for far Eastern transport market.* Božičnik S., Letnik T., V: The 3rd Annual Conference on Transport, Trade and Service Studies (ATTSS), 17-18 November, 2014, Hong Kong. ATTSS 2014. Hong Kong: Centre for Transport, Trade and Financial Studies, 2014

[7] *An evaluation of the research potential in the aeronautics transport mode in Europe.* Meško M., Hanžič K., Štiglic M., Božičnik S., Journal of distribution science, ISSN 1738-3110, 2014, vol. 12, no. 9

[8] *East west transport corridor - new option for better economic cooperation between China and Europe.* Božičnik S., V: Euro-Asia economic forum-2013, Xi`an, China : conference proceedings. [S. l.: s. n.], 2013

[9] *The EU Rail System Liberalisation and the Single EU Rail Transport market.* Božičnik S., V: SCHLIEPHAKE, Mobility in Space and Time - Interdisciplinary Studies on Transport, Logistics and Spatial Behaviour, Würzburg: Institut für Geographie und Geologie der Universität, 2013, Heft/Vol. 80

[10] *Model for road traffic CO[sub]2 emissions control by means of tradable permits.* Božičnik S., V: GOLINSKA, Sustainable transport : new trends and business practices, (Ecoproduction. Environmental issues in logistics and manufacturing, ISSN 2193-4614). Berlin: Springer, 2012

developing and research projects:

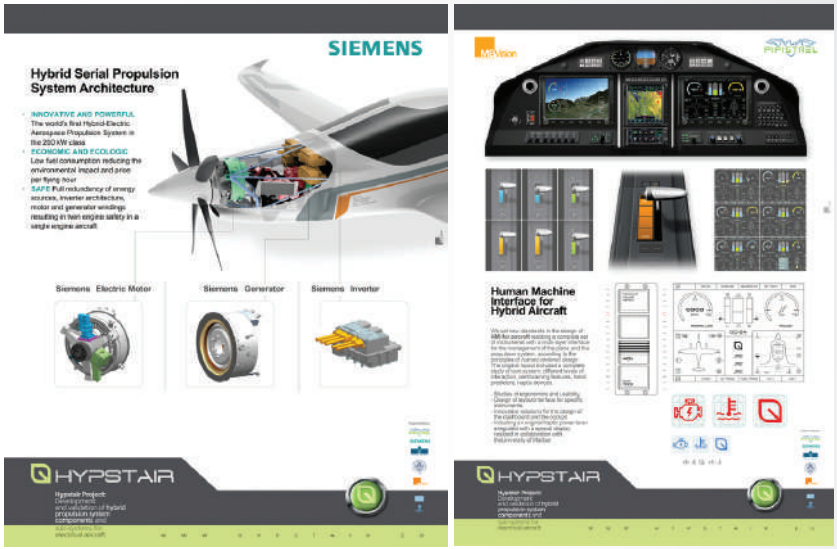
[11] *Support for realising New Member and Associated States' potentials in transport research (TransNEW)* 2010-2011, carrier: Božičnik S. *PhD*

[12] *Neutral Transport for the Alpine Space (CO2NeuTrAlp) 2008-2012*; carrier: Toplak S. *MSc*

[13] *Workshop SEETRANS 2011 - Transport Research Opportunities for South East Europe in the EU*

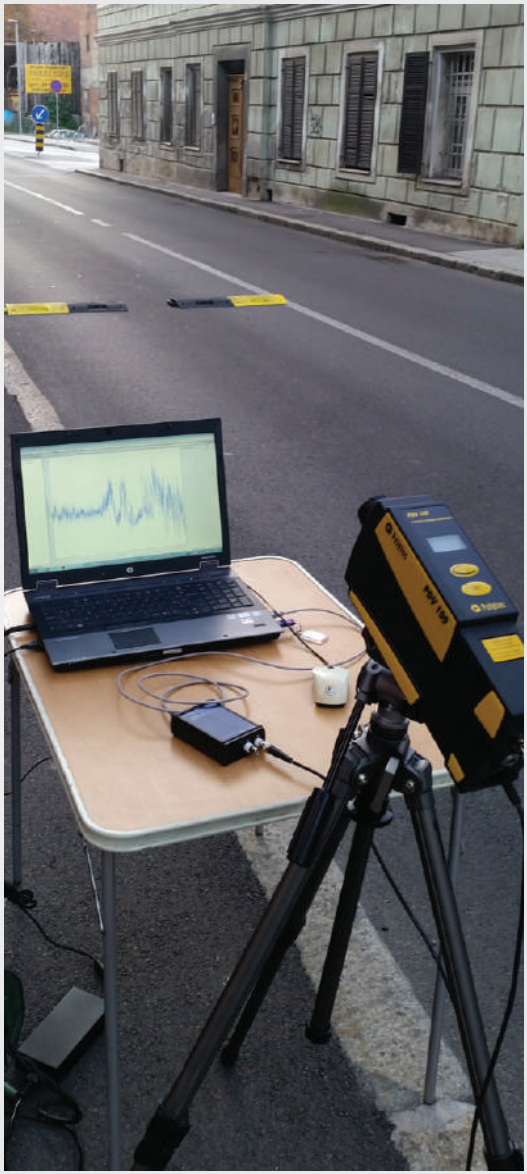
[14] *Award:* »Evropa trajnostne energije 2009« for CONNECT project

performed works



Hybrid serial propulsion system

Reducing noise and emissions by flying hybrid-electric aircraft



Measurement, prediction and modeling the impact of vibration

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Of

Architecture

chair of arhitecture
chair of spatial planning

chair of architecture

Chair of Architecture covers educational activities and research in wide field of architecture and urban development together with urban and spatial planning. It includes contents of various areas and activities in architectural design, planning and construction. Members of the chair are involved not only in educational but also in expert, artistic and scientific research work. Subjects are interdependent in terms of contents and programme design within architecture as well as other areas. The chair strives for transfer of theoretical achievements and knowledge into architectural and construction practice and vice versa. Therefore, many experts from the field and renowned architects from Slovenia and abroad cooperate in educational and research processes.

head of the chair

Assoc. Prof. *PhD*
Metka Sitar

members of the chair

Assoc. Prof. *PhD*
Vesna Žegarac Leskovar

Assoc. Prof. *PhD*
Igor Sapač

Assist. Prof. *PhD*
Kaja Pogačar

Assist. Prof. *PhD*
Nande Korpnik

Sen. Lect.
Tomaž Ebenšanger

Assist.
Nataša Šprah

Assist. *PhD*
Marko Jaušovec

external members

Assoc. Prof. *PhD* Petra Čeferin
Assist Prof. *MSc* Andrej Černigoj
Lect. Tomaž Jelovšek
Assist. Prof. PhD Janko J. Zadravec

MSc Aljoša Kolenc
Urban Mrdavšič
Werner Nussmueller

Assoc. Prof. Vojmir Pogačar
Assist. Prof. MSc Aleš Prinčič
Sašo Rek

important **publications**

scientific articles:

[1] *AThe dynamics of cross-border spatial development: a case study of the Maribor (SI) - Graz (A) development axis.* Pogačar K., Sitar M. (2009), Geod. vestn.. [Printed ed.] 2009, annual. 53, no. 3, p. 469-508, ilustr.

[2] *An approach in architectural design of energy-efficient timber buildings with a focus on the optimal glazing size in the south-oriented façade.* Žegarac Leskovar V., Premrov M. (2011), Energy and buildings, ISSN 0378-7788. [Print ed.], Dec. 2011, vol. 43, iss. 12

[3] *Influence of the building shape on the energy performance of timber-glass buildings in different climatic conditions.* Premrov M., Žegarac Leskovar V., Mihalič K. (2015), Energy, ISSN 0360-5442. [Print ed.], Accepted 6 May 2015

independent scientific compositions / chapters in monographs:

[4] *Maribor - housing strategies in a Slovenian city linking competitiveness with social cohesion.* Sitar M. (2008), Cities between competitiveness and cohesion : discourses, realities and implementation, (The GeoJournal library, 93). [Dordrecht]: Springer, cop. 2008

scientific monographs:

[5] *Urban future. 1. edit.* Sitar M. (ur.). (2008), Maribor: Faculty for Civil Engineering, 2008

[6] *Energy-efficient timber-glass houses, (Green energy and technology).* Žegarac Leskovar V., Premrov M. (2013), London [etc.]: Springer, cop. 2013. VI., Award: Odlični v znanosti 2013, Tehnika: Gradbeništvo (ARRS 2014)

professional monographs:

[7] *Educational projects on energy-efficient timber buildings : architectural workshop for the Municipality of Podlehnik.* Žegarac Leskovar V., Premrov M. (2013), Maribor: Faculty of Civil Engineering, 2013

published scientific conference contribution:

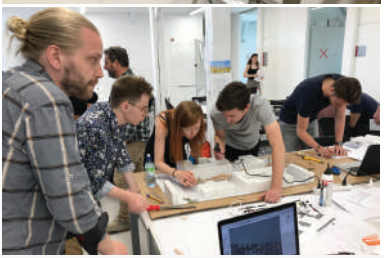
[8] *), Influence of building geometry on energy demand of timber-glass buildings for different climatic regions.* Žigart M., Premrov M., Žegarac Leskovar V. (2015), V: 8th International Conference on Sustainable Energy & Environmental Protection, SEEP 2015, 11-14 August 2015, Paisley. OLABI, Abdul G.(ur.). State of the art on environmental protection: proceedings of the 8th Int. conf. on sustainable energy & environmental protection - Part 2. Paisley: University of the West of Scotland, 2015

performed **works**









chair of
spatial planning

Chair of Spatial Planning covers educational activities in the fields of designing spaces of the city (urban morphology and architectural typologies), urban planning, landscape architectural design, spatial planning and the protection of environment - from the teaching and research of theories of spatial planning in urban development, methods and techniques of urban planning, teaching and exploration of architectural typologies, the basics of planning open spaces and urban equipment to the integration of a wide range of knowledge in the field of protection of the built and natural environment.
The chair performs research activities within mentioned scientific disciplines and takes care for professional development and its inclusion into educational process and practice (within Institute for Architecture and Spatial Planning).

head of the chair

Assoc. Prof.
Uroš Lobnik

members of the chair

Assist. Prof. *PhD*
Peter Šenk

Assist. Prof. *PhD*
Melita Rozman Cafuta

Assist. *PhD*
Vanja Skalicky

Assist.
Maja Žigart

external members

Asist. Prof. Saša Aleksander Ostan
Aleš Vrhovec
Tomaž Krištof

Asist. Prof. *PhD* Blaž Križnik
Asist. Prof. Boris Bežan

important **publications**

scientific articles:

[1] *Urban-architectural workshop as an opportunity for theoretical reflection : example of the international urban-architectural workshop Maribor-south.* Šenk P., Lobnik U., Igra ustvarjalnosti, ISSN 2350-3637, 2013, letn. 1, no. 1

indenpendent sceintific compositions / chapters in monographs:

[2] *The master plan for Maribor.* Lobnik U., Urbani izziv, ISSN 0353-6483. [Tiskana izd.], 1999, let. 10, št. 2
[3] *Compact development - vulnerability of the urban?* Lobnik U., Urbani izziv, ISSN 0353-6483. [Tiskana izd.], 2002, let. 13, št. 2
[4] *Mobility, place, city andn its edges.* Šenk P., V: LOBNIK, Mesto: rob = City: edge, (HAM publikacije). Maribor: Pivec, 2014
[5] *The concepts on quality of life in the Maribor post-WW2 housing estates.* Skalicky V., Sitar M., AR, ISSN 1580-5573. [Print ed.], 2012, no. 1
[6] *Public lighting in the communicative urban context.* Rozman Cafuta M., Informatologia, ISSN 1330-0067, 2010, vol. 43, no. 2
[7] *Visions for a sustainable city (2012-2022).* Lobnik U., Maribor : a city panorama of the European capital of culture 2012, (Architektur im Ringturm, 29). Salzburg; Wien: M. Salzmann, cop. 2012
[8] *Reorganization of the city (1992-2012).* Lobnik U., Maribor : a city panorama of the European capital of culture 2012, (Architektur im Ringturm, 29). Salzburg; Wien: M. Salzmann, cop. 2012

scientific monographs:

[9] *City: edge,* Lobnik U. (edit.), Šenk P. (edit.), (HAM publikacije). Maribor: Pivec, 2014
[10] *The house of architecture.* Lobnik U., Šenk P., RAZ:UM EPK 2012, Maribor: Univerza: = University, 2012

artistic activity / performed works and events:

[11] *Contructive Alps 2013 - International Prize for Sustainable Refurbishment and Construction in the ALPA - 3. preis.* Lobnik U.
[12] Iconic Awards 2015 Winner. Šenk P.

performed **works**

Ot

ther chairs

chair of basic sciences
chair of applied physics
chair of construction and transportation informatics

chair of basic sciences

The chair of basic sciences (CBS) consists of six members who implement courses in mathematics, foreign languages and sports; it is directly and indirectly involved in education in high professional and university study programmes of the first, second and third degree. Some external members collaborate in programmes of Civil Engineering, Architecture and Traffic Engineering as well as in interdisciplinary programme of Industrial Engineering which is carried out in cooperation with Faculty of Economics and Business. The chair of basic sciences has a special, binding role. Within study activities, students gain knowledge in mathematics in order to understand other fundamental and technical subjects in their field. Moreover, they acquire necessary knowledge in technical English and German. Besides teaching, CBS members prepare textbooks and other materials and are mentors to graduates on all study levels.

In terms of scientific and research work, the CBS members actively cooperate with Institute of Mathematics, Physics and Mechanics where they are involved in basic research programmes P1 0288, P1-0285, P1-0297 and Algebraic Methods for the Application of Differential Equations; grant no. N1-0063. The research work comprises areas of algebra, dynamic systems, topology and graph theory. CBS is proud of being the only chair at the Faculty of Civil Engineering with Zois Award (the highest national prize for excellent achievements in science) winner professor Borut Zalar.

The scientific research work of CBS members results in publication in the world's best scientific journals and participation at numerous international scientific conferences worldwide as well as in some bilateral projects of Republic of Slovenia.

head of the chair

Assoc. Prof. *PhD*
Matej Mencinger

members of the chair

Prof. *PhD*
Borut Zalar

Assist. Prof. *PhD*
Rija Erveš

Assist. *PhD*
Tina Sovič

Lector
Sabina Mulej

Lect.
Aleksander Pajtler

external members

Prof. *PhD* Jurij Planinšec
Assoc. Prof. *PhD* Simon Špacapan

chair of applied physics

Chair of Applied Physics conducts lectures in Physics, Building Physics and of use of physics principles in Architecture and Civil Engineering in all study programs of UM FGPA. The Chair's main research areas are: analysis and experimental studies of mechanical and electromagnetic properties of complex materials, advanced modeling using statistical principles, principles of mathematical physics, numerical methods and advanced calculation methods, as well as development of algorithms in different program languages for different platforms.

Prof. dr. Dean Korošak works in statistical and mathematical physics with applications to physiology of pancreatic beta cells as a member of research group at the Faculty of Medicine, University of Maribor (led by prof. dr. Marjan Slak Rupnik). Dean also works on quantitative understanding of urban dynamics and on advanced algorithms for Big Data analytics.

Doc. dr. Anita Prapotnik Brdnik research work includes phenomenological studies in high energy physics, more precisely heavy meson decays. Anita cooperates with a research group in Josef Stefan Institute, led by prof. dr. Svjetlana Fajfer, which cooperates with scientists all around the world. Recently, she started to work on energy efficiency in buildings.

Doc. dr. Marko Pinterič research includes study of low temperature collective electron states (in superconductors, spin liquids etc..). Marko cooperates with a research group at Institute of Physics in Zagreb (led by prof. dr. Silvija Tomič). He also collaborates with the research group from the Faculty on Mechanical Engineering at University of Maribor, led by prof. dr. Nenad Grubeljnak in studying mechanical material properties.

head of the chair

Prof. *PhD*
Dean Korošak

members of the chair

Assist. Prof. *PhD*
Marko Pinterič

Assist. Prof. *PhD*
Anita Praprotnik Brdnik

external members

Prof. Emeritus *PhD* Bruno Cvikl

chair of construction and transportation informatics

The Chair of Construction and Transportation Informatics (KGPI) was established in 2000. Since then, it has been developing and contributing to teaching, research and professional activities in the domains of construction and transportation informatics as well as e-learning in engineering. Construction informatics aims to systematically and consistently research and solve practical and theoretical problems in the construction industry using and developing methods and tools from computer science and informatics. Analogously, transportation informatics researches, develops and implements information technology in the transportation domain. The Chair also pays much attention to the development and implementation of e-learning concepts for engineering.

Research activities of the Chair are focused to: building information modeling, automated construction site monitoring, knowledge engineering, interoperability for public transport IT systems, automated manufacturing in construction, development of innovative e-learning concepts for IT in construction.

International collaboration involves research and educational activities with partners from University College Cork, Stanford University (CIFE), TU Graz, TU Delft, Universidade Nova de Lisboa, etc. Transfer of knowledge is demonstrated through research and development projects with leading Slovenian companies from construction and civil engineering industry.

head of the chair

Assist. Prof. *PhD*
Andrej Tibaut

Prof. *PhD*
Danijel Rebolj

Assist. Prof. *PhD*
Nenad Čuš Babič

Selected research publications:

[1] TIBAUT, Andrej, REBOLJ, Danijel, NEKREP, Matjaž P. Interoperability requirements for automated manufacturing systems in construction. Journal of intelligent manufacturing, ISSN 0956-5515, Feb. 2014, vol. 27, iss. 1, str. 251-262, doi: 10.1007/s10845-013-0862-7.

[2] TIBAUT, Andrej, KAUČIČ, Branko, REBOLJ, Danijel. A standardised approach for sustainable interoperability between public transport passenger information systems. Comput. ind.. [Print ed.], Oct. 2012, vol. 63, iss. 8, str. 788-798, doi: 10.1016/j.compind.2012.08.002.

[3] REBOLJ, Danijel, FISCHER, Martin, ENDY, Drew, MOORE, Thomas, ŠORGO, Andrej. Can we grow buildings Concepts and requirements for automated nano- to meter-scale building. Advanced engineering informatics, Apr. 2011, vol. 25, iss. 2, str. 390-398, doi: 10.1016/j.aei.2010.08.006.

[4] ČUŠ BABIČ, Nenad, PODBREZNIK, Peter, REBOLJ, Danijel. Integrating resource production and construction using BIM. Autom. constr.. [Print ed.], Aug. 2010, vol. 19, iss. 5, str. 539-543, doi: 10.1016/j.autcon.2009.11.005.

[5] PODBREZNIK, Peter, POTOČNIK, Božidar. Estimating correspondence between arbitrarily selected points in two widely-separated views. Advanced engineering informatics, Aug. 2010, vol. 24, iss. 3, str. 367-376, doi: 10.1016/j.aei.2010.03.001.

[6] REBOLJ, Danijel, TIBAUT, Andrej, ČUŠ BABIČ, Nenad, MAGDIČ, Aleš, PODBREZNIK, Peter. Development and application of a road product model. Autom. constr.. [Print ed.], Aug. 2008, vol. 17, iss. 6, str. 719-728. http://dx.doi.org/10.1016/j.autcon.2007.12.004, doi: 10.1016/j.autcon.2007.12.004.

[7] REBOLJ, Danijel, MENZEL, Karsten, DINEVSKI, Dejan. A virtual classroom for information technology in construction. Comput. appl. eng. educ., 2008, vol. 16, no 2, str. 105-114. http://dx.doi.org/10.1002/cae.20129, doi: 10.1002/cae.20129.

University of Maribor

Faculty of Civil Engineering,
Transportation Engineering
and Architecture