UNIVERSITY OF NOVI SAD

FACULTY OF TECHNICAL SCIENCES

OVERVIEW OF INTERNATIONAL PROJECTS 2017/2018

Certified integrated quality system

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Faculty of Technical Sciences
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OVERVIEW OF INTERNATIONAL PROJECTS

University of Novi Sad
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FOREWORD

As the origin of the word University is coming from the Latin *universitas* 'the whole' or in late Latin 'society, guild', development of the university education is closely connected with the research of 'the whole'. Namely, universities are the places where the researchers and educators are searching for the new knowledge taking in account no borders. Around the world, countries have recognised that research universities are the key to the knowledge economy what is one of the most important goals of the EU.

Faculty of Technical Sciences from the University of Novi Sad is such a place where the research spirit is nurtured in order to maintain the basic idea of universal knowledge. As it is widely known, research can be split, at the most basic level, into two types, 'pure research' and 'applied research' but at the Faculty of Technical Sciences we are performing both of them. In such a way, we are part of an active community of institutions that share values, foci, and mission.

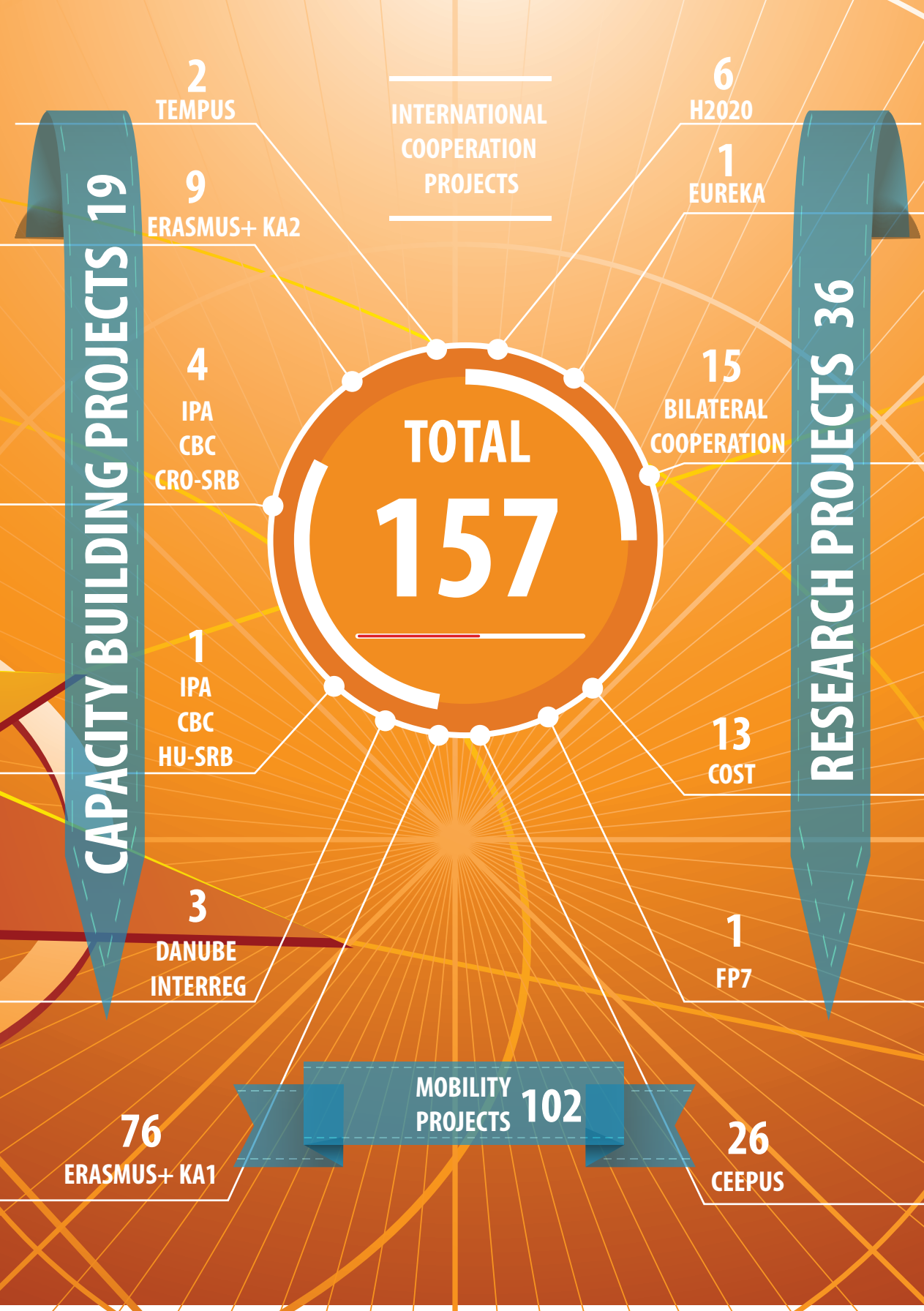
It is particularly important for the research universities in low- and middle-income countries, such as Serbia, to have crucial role in developing effective academic systems in order to make it possible for their countries to join and compete in sophisticated knowledge economies.

Researchers from the Faculty of Technical Sciences are committed to the creation and dissemination of knowledge in a range of disciplines and fields. In that sense, Faculty of Technical Sciences is providing the appropriate laboratories, libraries, and other infrastructures that enable teaching and research at the highest possible level.

Besides, Doctoral studies, at the Faculty of Technical Sciences, are very developed encompassing a large number of PhD students that have to be included in up to date research. With the internationalization of research what is mostly done with international projects and other ways of international cooperation, PhD students, as well as assistants and young researchers, have opportunity to be included in current scientific trends in their fields of research. Also, Faculty of Technical Sciences, with this involvement, is steadily improving reputation and competitiveness on the international stage

With this publication, Faculty of Technical Sciences is representing the current state in the field of international research that is undertaking in our laboratories.

Prof. Dr. Dragan Šešlija
Vice-dean for Science and International cooperation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Horizon 2020
European Union funding
for Research & Innovation

Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market.

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.

Seen as a means to drive economic growth and create jobs, Horizon 2020 has the political backing of Europe's leaders and the Members of the European Parliament. They agreed that research is an investment in our future and so put it at the heart of the EU's blueprint for smart, sustainable and inclusive growth and jobs.

By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation.

Horizon 2020 is open to everyone, with a simple structure that reduces red tape and time so participants can focus on what is really important. This approach makes sure new projects get off the ground quickly – and achieve results faster.

The EU Framework Programme for Research and Innovation will be complemented by further measures to complete and further develop the European Research Area. These measures will aim at breaking down barriers to create a genuine single market for knowledge, research and innovation.

Horizon 2020
European Union funding
for Research & Innovation

1. FUll Duplex Active Cancellation for wireless communication and co-exisTence - FUDACT

Description: The development of fifth-generation (5G) wireless networks is expected to provide technologies to support 1000x increase in data rates. To support the vision of hundreds of billions of connected devices after year 2020, many of the new technologies need to be developed. 5G is expected to utilize many more spectral bands, several of them at millimeter-wave frequencies, and much denser deployment of wireless infrastructure. As a result, co-existence between systems will be the key problem to be addressed at the physical level. In "Full Duplex Active Cancellation for wireless communication and co-exisTence" (FUDACT) we explore a set of new co-existence technologies culminating in a new radio transmission paradigm to improve spectrum efficiency. The FUDACT goal is to support two Europe 2020 flagship initiatives: Digital agenda for Europe by addressing some of the H2020 Future Internet challenges and Innovation Union by paving the way to innovation-friendly environment. FUDACT aims at a fundamental understanding of limitations of active self-cancellation techniques under conditions of simultaneous transmission and reception in close or overlapping frequency bands. The project's primary goal is to deliver a solution for a shared antenna system capable of cancelling at least a 1W transmitter (densely deployed small cells in wireless infrastructure) in the receive band, a great research challenge advancing the state of the art by at least 2 orders of magnitude.

Contact person: Doc. Dr. Mirjana Videnović Mišić
Period of realization: 2015 – 2018
ID: 656940 — FUDACT — H2020-MSCA-IF-2014

Horizon 2020
European Union funding
for Research & Innovation

2. SENSors and Intelligence in BuiLt Environment - SENSIBLE

Description: The goal of this project is to develop novel information sensing research and innovation approaches for acquiring, communicating and processing a large volume of heterogeneous datasets in the context of smart buildings, by building an international, inter-disciplinary and inter-sectoral collaboration network through research and innovation staff exchanges and seamless exchange of ideas, expertise, data, testbeds, and know-how. The need to sense and process ever increasing amount of data requires novel engineering that goes far beyond conventional centralised methods, where signal acquisition, communications and data processing are performed centrally and independently. Building on integrating signal acquisition, communications and information extraction into an overarching smart sensing approach, the project will provide a holistic decision support framework for non-residential buildings of the future. The key challenges of providing intelligence to the building lie in ubiquitous sensing, inside and outside the building, and connecting the sensing technology to people and outside world via meaningful decision support. Though significant research has been dedicated to developing novel sensing and instrumentation technologies, further research and innovation advances are needed to integrate physical sensing to data processing via distributed estimation and fusion approaches, giving actionable meaning to the suite of collected data. In that context, it is necessary not only to continuously monitor the environment, equipment, systems and processes, but also to sense occupants' behaviour inside and outside the building and provide timely response and feedback.

Contact person: Prof. Dr. Dejan Vukobratović
Period of realization: 2016 – 2020
ID: *H2020-MCSA-RISE-2016 – 734331*

Horizon 2020
European Union funding
for Research & Innovation

3. COolest Of Labs Hottest Of Theories — COOLandHOT

Description: The project proposal under the title Cool & Hot (COlest Of Labs & Hottest Of Theories) mixes, blends and unites faces, voices, results and energies of many generations of researchers in offering the public at large, regardless of their age and scientific background, the opportunity to get up-close and personal with researchers. However, a special emphasis in this project will be given to inspiring and motivating next generations of scientists. Since young adults are all about what is hot and what is cool, we have chosen to focus on those specific aspects of science and researchers. The outlined concept and the content planned will help achieving the following specific objectives:

• To break and demystify the persistent and repeated stereotypes about researchers;

• To bring out the actual researchers in Serbia, engage them publically and increase their recognition in Serbian society – locally, but globally as well;

• To promote research carried out in Serbia and researchers as role models;

• To unveil the motives behind becoming a researcher;

• To entice the young to embark on scientific careers;

• To raise public awareness of the researchers' contribution to progress and development;

• To raise public awareness about climate changes and global warming;

• To highlight the importance of the EU's manifold support to researchers and scientific research work in Serbia;

• To improve networking with other national/international projects involved in science popularization, through mutual support of events and exchange of ideas, experiences and people.

Contact person: Vladimir Todorović
Period of realization: 2016 – 2017
ID: *H2020-MCSA-PEOPLE-2016 – 722945*

Horizon 2020
European Union funding
for Research & Innovation

4. Action understanding in human and robot dyadic interaction - ACTICIPATE

Description: Humans have fascinating skills for grasping and manipulation of objects, even in complex, dynamic environments, and execute coordinated movements of the head, eyes, arms, and hands, in order to accomplish everyday tasks. When working on a shared space, during dyadic interaction tasks, humans engage in non-verbal communication, by understanding and anticipating the actions of working partners, and coupling their actions in a meaningful way. The key to this mind-boggling performance is two-fold: (i) a capacity to adapt and plan the motion according to unexpected events in the environment, (ii) and the use of a common motor repertoire and action model, to understand and anticipate the actions and intentions of others as if they were our own.

ACTICIPATE addresses the challenge of designing robots that can share workspaces and co-work with humans. We rely on human experiments to learn a model/controller that allows a humanoid to generate and adapt its upper body motion, in dynamic environments, during reaching and manipulation tasks, and to understand, predict and anticipate the actions of a human co-worker, as needed in manufacturing, assistive and service robotics, and domestic applications. These application scenarios call for three main capabilities that will be tackled in ACTICIPATE: a motion generation mechanism; a framework to combine primitives and execute coordinated movements of head, eyes, arm and hand, and the ability to understand and anticipate human actions, based on a common motor system/model that is also used to synthesize the robot's goal-directed actions in a natural way.

Contact person: Doc. Dr. Mirko Raković
Period of realization: 2017 – 2018
ID: *752611 — ACTICIPATE— H2020-MSCA-IF-2016*

Horizon 2020
European Union funding
for Research & Innovation

5. Cost-effective microfluidic electronic devices for optimal drug administration based on fractional pharmacokinetics for leukemia treatments - MEDLEM

Description: The project entitled: "Cost-effective microfluidic electronic devices for optimal drug administration based on fractional pharmacokinetics for leukemia treatments", with acronym MEDLEM, has a general objective to foster exchanging knowledge and sharing different culture and approaches in reaching high level of excellence, in research and innovation, in the framework of this field.The project is aimed at strengthening research collaboration through active networking, staff exchange and dissemination activities between 4 European organizations from Serbia, Germany and France as well as 2 non-European institutions from Thailand and Australia, in linking the fields of microfluidic electronic devices, optimal drug administration, fractional pharmacokinetics, and leukemia treatments. The project will exploit complementary competencies and synergies of the participants, and enable knowledge sharing via international/inter-sectoral mobility, based on secondments of research staff. The consortium offers a unique opportunity that creativity and entrepreneurship will flourish and will help exchanged personnel to turn creative ideas into innovative electronics products, reaching breakthroughs in modelling, drug administration and improvements in therapy protocols.

Contact person: Prof. Dr. Goran Stojanović
Period of realization: 2016 – 2019
ID: *690876 — MEDLEM— H2020-MSCA-RISE-2016*

Horizon 2020
European Union funding
for Research & Innovation

6. Oasis Innovation Hub for Catastrophe and Climate Extremes Risk Assessment

Description: Globally, there is increased concern of the potential impacts of extreme climate events and their impact on loss and damage of people, assets and property as a result of these events. Therefore, natural partners in using climate services to assess risk are the Global Insurance Sector, who are key implementers in increasing societies resilience and recovery of extreme events and who are integral, co-design partners in this programme. This project intends to operationalize a system, called the Oasis Loss Modelling Framework, that combines climate services with damage and loss information and provides a standardized risk assessment process that can assess potential losses, areas at most risk and quantify financial losses of modelled scenarios. We intend to prove the Oasis LMF system through undertaking a range of demonstrators linked and codesigned to 'real' situations and end-user communities in the insurance, municipalities and business sectors (see list of partners & collaboratorsWe also intend to further expand access by all sectors to the models, tools and services developed within this programme and the broader climate services sector by operationalizing an open eMarket place and matchmaking facility for catastrophe and climate data and models, tools and services and through broadening awareness in the climate modelling and end-users communities to the Framework, and the transparent and comparable standard it offers to support evidence based risk assessment and adaptation planning.

Contact person: Prof. Dr. Maja Turk Sekulić
Period of realization: 2016 – 2019
ID: *H2020-SC5-2016-730381*

EUREKA

innovation across borders

EUREKA is a publicly-funded, intergovernmental network, involving over 40 countries. EUREKA's aim is to enhance European competitiveness by fostering innovation-driven entrepreneurship in Europe, between small and large industry, research institutes and universities. By doing this, EUREKA concentrates the existing potential of experts, of knowledge, research facilities and financial resources in a more efficient way. EUREKA is constantly proving its value through a wealth of success stories – innovative products, processes and services that have been launched onto the market over the last 30 years, creating additional turnover and jobs for European companies, small and large – and by supporting the internationalization of businesses with innovative ideas.

EUREKA is a leading open platform for international cooperation in innovation. It is present in over 40 countries and remains to this day the only initiative of its kind committed to the 'bottom-up'principle - ensuring that any R&D project with a good business plan receives the support it deserves, independent of its technological nature, or the type of organisations involved.

EUREKA
innovation across borders

1. A platform for the applications of speech technologies on smartphones for the languages of the Danube region - DANSPLAT

Description: The field of speech technology applications has been significantly extended by the emergence of smartphones, which require an efficient voice user interface, e.g. for RSS feed reading, SMS/tweet/email reading or name dialing. The utility of such applications and ultimately their success depends on their ability to support individual languages, and this is one of the problems that will be treated within this project. The project will give rise to a synergy and the exchange of experience, resources and knowledge between partners in order to develop a platform for a range of useful applications of speech technologies on mobile devices using different operating systems, adaptable to the needs of different types of users, from different languages to the persons with complex communication needs. Joint activities on the improvement of the expressiveness and flexibility of text-to-speech synthesis (TTS) will lead to its easier application in a wider range of services. Similarly, increased accuracy and robustness of automatic speech recognition (ASR) in particular domains of interaction, as well as its adaptation to the voice of its user, will increase the range of its application. Many people whose communication capabilities are severely reduced for any of a variety of reasons, use augmentative alternative communication (AAC) instead of conventional means of communication between humans, i.e. speech or written language. They prefer a speech enabled application converting strings of visual symbols into meaningful sentences. The platform based on ASR, TTS and AAC will be developed within a coordinated effort of all project partners, each participating country will adapt it to its language(s), and the project will thus have a significant impact on all multilingual regions within the Danube Region.

Contact person: Prof. Dr. Vlado Delić
Period of realization: 2016 – 2019
ID: *9 944*

CEEPUS is an acronym for "Central European Exchange Program for University Studies".

CEEPUS is based on lean management. The highest ranking decision making CEEPUS body is the Joint Committee of Ministers that meets once a year and takes all strategic decisions. Coordination, evaluation, program development and advertising are the main tasks of the Central CEEPUS Office (consisting of only two persons). Each country has a National CEEPUS Office in charge of national implementation. In order to avoid setting up new administrative bodies, the National CEEPUS Offices are integrated into already existing structures, usually national agencies.

The main activity of CEEPUS are university networks operating joint programs ideally leading to Joint Degrees, esp. Joint Doctoral Programs. CEEPUS covers mobility grants for students and teachers in this framework.

The main objectives are:

Focus on joint PhD programs.

Promote cooperation in the framework of the EUSDR.

1. Image Processing, Information Engineering & Interdisciplinary Knowledge Exchange

Description: CIII-AT-0042-00-1617 exists since 20 years and represents an interdisciplinary network consisting of medical and engineering departments and grows by adding new partners every year – this time four new partners joined. The main efforts are educational by organizing several unique schools and workshops (for this application five) and one academy. All that schools and workshops are targeted to different topics as well as different education level – eg the "CEEPUS Summer Academy of Pediatric Medicine" to students, others to residents or on Master respective PhD level. In addition to these efforts CIII-AT-0042-00-1718 is trying to promote, advertize and enhance individual student mobility between partners during the lecture free time. There is continued scientific cooperation of partners and all together about 150 papers (congress contributions and book chapters were published. Due to the involved institutions there is a strong focus on pediatric medicine. All partners share their experience and eg the network knowledge is used to enhance patient care eg by operation simulations, improving algorithms – a sketch of these activities were recorded as a movie for the CEEPUS 20 years celebration (https://www.youtube.com/watch?v=duEVBet4gsA&feature=youtu.be). Moreoever a closer cooperation with the American Austrian Foundation (AAF) – Open Medical Institute (http://www.aaf-online.org/) since there is a considerable overlap between the educational activities of CIII-AT-0042-00-1718 and AAF. Univ.- Prof.Dr.Erich Sorantin, acting head of the Division of Pediatric Radiology, Department of Radiology, Medical University Graz /A is also the Co-President for AAF Pediatric Radiology courses – together with the Children's Hospital of Pennsylvannia in Philadelphia/US (CHOP http://www.chop.edu/). Since for the AAF course recommendations are needed, there is the possibility for the CEEPUS partners to share information about proper candiates.

Contact Person: Prof. Dr. Nataša Sladoje Matić
Period of realization: 2017 - 2018
ID: CIII-AT-0042-11-1718

2. Applications and diagnostics of electric plasmas

Description: What is plasma and where can we find it? Electrical plasma consists of ionized matter and is frequently called the fourth state of matter. Every gas assumes this state when a sufficiently strong electric current is passed through it or when it is heated to more than about 10000 K or when it is exposed to intensive ionising radiation (UV, X-rays, gamma-rays). More than 99 % of the visible matter of the universe is in the plasma state. The most common method to produce physical, technical or industrial plasma is the application of a dc or ac voltage to a more or less diluted gas and to produce a gas discharge in which electron impact ionization (frequently supported by secondary electron emission) produces sufficient charge carriers to pass an electric current through the gas. Recently, atmospheric plasma has become more important, i.e. discharges in gases at atmospheric pressure, which makes the use of expensive vacuum systems obsolete. Plasma consists of free positive and negative electric charge carriers – most commonly positive single-charged ions and electrons (as the negative charge carriers). But there are also plasmas with a large fraction of negative ions or clusters, which can be of high relevance for technical applications in reactive plasmas. It is the presence of negative and positive charge carriers which determines the behaviour of plasma decisively, since for its theoretical description not only the laws of fluid mechanics, thermodynamics and statistics are required but also those of electrodynamics. For very hot plasmas such as fusion plasmas, also nuclear physics is required (fusion reactions) and, under extreme conditions, plasma particles can even become relativistic. An additional characteristic of plasmas is that the negative charge carriers (most frequently electrons) are much lighter than the positive charge carriers; in the case of hydrogen plasma the mass ratio of electron to ion is 1836. Due to the presence of electric charge carriers, plasma can be manipulated, confined and utilised by electric and magnetic fields.

Contact Person: Prof. Dr. Branko Škorić
Period of realization: 2017 - 2018
ID: CIII-AT-0063-13-1718

3. Modern Trends in Education and Research on Mechanical Systems - Bridging Reliability, Quality and Tribology

Description: Mechanical engineering is one of the oldest and most diverse branches of engineering and supports industrial development in such areas as manufacturing and production, energy generation and conversion, chemical engineering, transportation, automation, robotics, etc. Nowadays, the existence of general crisis enhances the increasing and continuous need for improved methods of determining the reliability and predicting the lifetime and quality of elements, machines and production systems. This is especially valid for the European countries, particularly in Danube region, and in Central and East European regions. Attention will be turned to the role of tribology for the large and complex scope of reliability engineering and the different tribology-related methods to improve reliability and quality, such as reliability design, component lifetime, condition monitoring, and diagnostics. One of the tasks of tribology is to study and find the advantages from a full investigation of industrial failures, and using tribological knowledge and understanding to establish the causes and the ways of healing them. It is frequently possible to improve reliability and quality substantially by not so complex procedures, once the real cause of the mechanism of the failure is revealed and understood. An illustration can be given in the following consideration. What is wear? The tribological interactions of a solid surface's exposed face with interfacing materials and environment results in loss of material from the surface. The process leading to loss of material is known as wear, one of the most menacing tribological processes. Wear can be minimized by modifying the surface properties of solids by one or more of surface engineering processes or by use of lubricants. Engineered surfaces extend the working life of both original and recycled and resurfaced equipments, thus saving large sums of money and leading to conservation of material, energy and the environment. Methodologies to minimize wear include systematic approaches to diagnose the wear and to prescribe appropriate solutions.

Contact Person: Doc. Dr. Milan Rackov

Period of realization: 2017 - 2018

ID: CIII-BG-0703-06-1718

4. Computer Aided Design of automated systems for assembling

Description: Application of the results from the project The working team for the project has the required experience for the project's execution which is apparent from the presented publications of books on the reviewed subject. Also, the team has experience of mutual work with PhD studenrs and companies from the respective industry. Some of the team members have participated in projects of CEEPUS II and International Summer School on 'Advanced Manufacturing Operation' in Bulgaria. II The main elaborations with applicability are the following: A main task is to provide conditions for increase of the creativity of the engineering specialists (students, PhD students and teachers). We will develope the following activities in the long program: > Mobility within the training of students, PhD students and teachers between the teams of the universities of the partner countries; > Application of creative methods and technologies for computer-based designing of mechanical products within the process of training; > Algorithms and applied software products for optimal computer-based designing of mechanical products, and selection of an optimal structurally set scheme, and a system for automated assembling; > Computer-made geometrical models of mechanical products by the use of virtual designing and experimental determination of the behavior of the compound parts during designing of assembled units by a dynamic analysis of resilient elements and hydrodynamic products; > Development of a set of design documents for designing and automated assembling of a mechanical product within a CAD environment, methodology assets and deduction materials; >The concise course of lectures for use expert systems and Product Lifecycle Management in engineering design; > Test control in training of students on Computer-Aided Design and Automated System for Assembling and testing throughout the training for 'Bachelor' and 'Master' degrees. III The network activities: Intensive Courses Lectures and Visiting Professors In the project is made provision that professors from University partners will read a concise course of lectures on related problems.

Contact Person: Prof. Dr. Siniša Kuzmanović

Period of realization: 2017 - 2018

ID: CIII-BG-0722-06-1718

5. Knowledge Bridge for Students and Teachers in Manufacturing Technologies

Description: Technology is one of the most important fields of knowledge at the whole world. It determines manufacturing of various machines and mechanical equipment. The development of manufacturing methods is dependent on the intensity of research. At present time many central European companies and research centers is based on conventional technologies. Numerically controlled machine tools and modern CAM systems are being employed in the analysis and simulation of technological progressive processes. It is also possible to check the manufacturing accuracy (product dimensions, shape, and surface quality) and test the final products, and also test the durability and reliability of machines and devices. To this thinks should be contribute and can be realized by this project Knowledge Bridge for Students and Teachers in Manufacturing Technologies.

Construed CEEPUS project with name "Knowledge Bridge for Students and Teachers in Manufacturing Technologies" make a goal to create condition to successful cooperation for student, university teachers and young researchers from participant's universities within frame of network and for others universities within frame of freemover mobility. It is possible only by kind of interdisciplinary educational knowledge and multilateral co-operation among universities the European engineers.

Contact Person: Doc. Dr. Igor Budak
Period of realization: 2017 - 2018
ID: CIII-CZ-0201-10-1718

6. Concurrent Product and Technology Development - Teaching, Research and Implementation of Joint Programs Oriented in Production and Industrial Engineering

Description: According to CEEPUS III Work Programme our developed and promoted university network CEEPUS HR 108 is designed to stimulate academic mobility, in particular regional student mobility i.e. joint programmes in the frame of CII HR 108 network leading up to double i.e joint degrees and joint thesis supervision and planned mobility actions will be set in that direction. We have finalized our curriculum and we are preparing and developing common teaching materials in the frame of curriculum. We unified the methodology of the modern industrial praxis, educational-technological knowledge and curricula. Successful connecting the educational-technological knowledge with the modern industrial praxis and the important topics in industry in the frame of our joint curricula. On the level of joint program strong industrial collaboration of the majority of project partners enabled high educational level. Specialization of each project participant and its implementation into new joint curriculum is promoted. Determining of the optimal structure of our curricula will enable set-up of Join Degree Diplomas, issued by partner universities in participating UE countries. Only with such kind of interdisciplinary educational knowledge and multilateral co-operation among universities the European engineers will be sufficient innovative and enough competitive to successfully implement the Lisabon declaration and the Bologna curriculum process, Education and Training 2020 strategy (ET2020) and Europe 2020 strategy. Through this network we have coordinate our network activities in line with three of five key priorities according to the Education and Training 2020 strategy (ET2020): improving the quality and relevance of teaching and learning, promoting mobility of students and staff and cross-border cooperation and strengthening the "knowledge triangle", linking education, research, and innovation.

Contact Person: Doc. Dr. Mladomir Milutinovic

Period of realization: 2017 - 2018

ID: CIII-HR-0108-11-1718

7. Contemporary manufacturing and measuring technologies in quality management systems

Description: General Information Technology, one of the most important fields of knowledge of the modern world, determines the manufacture of various machines and mechanical equipment. The development of manufacturing technologies is dependent on the intensity of research, the aim of which is obtaining high-quality products in mass production at as low costs as possible. Therefore, the investigations carried out by the majority of European research centres concentrate on basic loss and non-loss technologies as well as prospective unconventional manufacturing techniques. Numerically controlled machine tools and also modern computer-aided manufacturing systems are being employed in the analysis and simulation of technological processes. The development of technology and, accordingly, measurement technology enables monitoring of particular stages of the technological process, inspection of the technical conditions of technological machines and devices and control of the production cycle of machine elements. It is also possible to check the manufacturing accuracy (product dimensions, shape, surface quality), evaluate the quality of materials used for the manufacturing of particular machine elements, evaluate and test the final products, and also test the durability and reliability of machines and devices. The functioning of market economy requires that goods should be not only of high quality but also safe, reliable and durable. It is necessary, therefore, to meet the conditions given in appropriate standardisation documents and specifications. Following the guidelines of the ISO 9000 series standards by manufacturing companies is the fundamental factor of integration of the companies from Central Europe with the European Union economy. The implemented standards enable companies to apply the quality assurance systems and, accordingly, receive a certificate for their manufactured products or rendered services. All those who have implemented or are implementing the quality assurance systems know how difficult it is to conduct reliable measurement, control and testing.

Contact Person: Prof. Dr. Igor Budak
Period of realization: 2017 - 2018
ID: CIII-PL-0007-13-1718

8. Development of Mechanical Engineering

Description: Small and medium industrial companies (SMC), according to the opinion of many experts, are the base of developing countries economy. It concerns especially the economy of Central Europe countries, which formerly had non market economy. Development of mentioned industrial enterprises nowadays depends on proper level of mechanical engineering (design, manufacturing engineering and production management) and, in particular, on proper logistics. All of this demand good level of education from proper specialized institutions especially universities. Exchange of ideas, knowledge, results of investigations, students, teachers etc. is the condition sine qua non of high level of research and education in particular university. Thus, existence of the possibility of mentioned exchange is very important from the point of the development of economy. Technology, one of the most important fields of knowledge of the modern world, determines manufacturing of various machines and mechanical equipment. The development of manufacturing methods is dependent on the intensity of research, the aim of which is obtaining high-quality products in mass production at as low costs as possible. Therefore, the investigations carried out by the majority of European research centres concentrate on basic conventional technologies as well as prospective unconventional manufacturing techniques. Numerically controlled machine tools and also modern computer-aided manufacturing systems are being employed in the analysis and simulation of technological processes. The development of technology enables monitoring of particular stages of the technological process, inspection of the technical conditions of technological machines and devices and control of the production cycle of machine elements. It is also possible to check the manufacturing accuracy (product dimensions, shape and surface quality), evaluate the quality of materials used for the manufacturing of particular machine elements, evaluate and test the final products, and also test the durability and reliability of machines and devices.

Contact Person: Doc Dr. Milan Rackov
Period of realization: 2017 - 2018
ID: CIII-PL-0033-13-1718

9. Engineering as Communication Language in Europe

Description: The prolong of Network “Engineering as Communication Language in Europe” is a continuation of successful cooperation between Universities on the base of Network PL-0701 which was established in 2012. There many native languages in Europe however, very often engineers use their own slang, which is quite well understandable to them, regardless of their nationality. I have noticed, that technical tutorials, brochures or other documents which are written in technical English can by understood by people, who have only basic knowledge of English. The goal of the new CEEPUS Network “Engineering as Communication Language in Europe” is to create communication and cooperation between engineers dealing with various engineering branches, thanks to what we would be able to create Interdisciplinary Engineering Teams. A strong background in engineer techniques applicable to a wide variety of complex problems is in demand along with engineers who understand more than one discipline and are prepared to work at the intersection of two or more engineering and science disciplines. Nowadays research and industry sectors have high requirements towards engineers. Often a single engineer is not able to solve complicated interdisciplinary problems, but there is a great possibility that Interdisciplinary Engineering Teams would make it better and faster. We would like to involve teachers from partner Institutions in order to create team projects that would be main part of the program. We would also like students to take benefit from our Program. Thanks to it, students would be able to freely communicate and work - communicating with their supervisors e.g. during trainings, summer schools, excursions, etc. "Engineering as Communication Language in Europe” gives the opportunity to create successful cooperation not only between teachers but also students from the universities which are to participate in the network, as well as between beneficiaries of the freemover mobility. Teacher and student mobility within this network enables learning and research experiences exchange within related fields, helps to build personal connections, broaden professional horizons and what is more, gives the opportunity to develop the curriculas.

Contact Person: Doc. Dr. Borislav Savkovic

Period of realization: 2017 - 2018

ID: CIII-PL-0701-06-1718

10. Teaching and research in advanced manufacturing

Description: This network aims to contribute to the objectives of the Europe 2020 Strategy, by develop strategies and partnerships considering that a comprehensive internationalization strategy should cover key areas grouped into the following three categories: 1. international student and staff mobility; 2. the internationalization and improvement of curricula and digital learning; 3. strategic cooperation, partnerships and capacity building. These categories should not be seen as isolated but as integrated elements of a comprehensive strategy, which can be subordinated to the Salzburg Principles and the Salzburg II Recommendations of the European University Association (EUA). Of course, the comprehensive internationalization strategies will only be successful if they are the result of a collaborative effort of all participants into the framework of this network. Mobility brings manifold benefits to the institution and individual. It is an instrument for increase the international experience, the acquisition of new competences, languages and teaching methods. Mobility, and in particular credit mobility, should be used as a strong incentive for improving the quality of European higher education. Considering that mobility is always limited to a relatively small percentage of the student and teachers, our CEEPUS network must increasingly focus on the integration of a global dimension in the design and content of all curricula and teaching/learning processes. Digital learning and the widening use of ICT technology can open up the curriculum to knowledge, materials and teaching methods, fostering new forms of partnerships, exchanges across disciplines and faculties that would otherwise be difficult to establish. Increased openness and access through technology will improve competition and transparency, and allow to adjust teaching methods and materials to the needs of students who will work in a globalised labor market. Evidence shows that Joint and double degrees are powerful tools: to promote quality assurance and mutual recognition of qualifications; to attract talent and deepen partnerships; and to enhance the international experience, intercultural competence and employability of graduates.

Contact Person: Doc. Dr. Ivan Matin

Period of realization: 2017 - 2018

ID: CIII-PL-0901-04-1718

11. Teaching and Research of Environment-oriented Technologies in Manufacturing

Description: "The world is changing and becoming increasingly smaller as the technology and allow free movement for people to be interconnected in any corner of the world through GLOBALIZATION. The next target is the globalization of higher education. More specifically, it is about the internationalization of QUALITY ASSURANCE in higher education." Steve O. Michael, Rector of Arcadia University, Philadelphia, USA. Global world brings global problems in Quality in Manufacturing Engineering. Economic pressures urge manufacturers to make more customized products of high quality, in smaller series, with shorter lead time and of course, without increased costs. Time is becoming rapidly the most strategic topic of companies. Costs are also important, more important are competitive price and the most significant are marketability of manufactured products. Therefore producers look for tools to increasing a competitive advantage of enterprises. Naturally the universities have to know to respond on global problems and to be prepared to educate the specialist. The new methods of Manufacturing Engineering, Rapid Prototyping, Rapid Machining and Virtual Prototyping are indeed strong tools for solving the global problems. Such as the production is global also education has global dimension. New forms of education such as e-learning give good possibility to extend collaboration among universities. All activities concerning the “e” (electronic) are keys for solving of global problems of producers and global problems of universities. Except global problem in education it is needful to solve legislative frame of common interest. Joint programs give a good platform for increasing of collaborated universities. Therefore the subject of new CEEPUS network is titled “Design, implementation and use of joint programs regarding Quality in Manufacturing Engineering“. The main goal is the elaboration and implementation of Joint programs in study area of Manufacturing Engineering and Quality in Manufacturing Engineering.

Contact Person: Prof. Dr. Milenko Sekulic

Period of realization: 2017 - 2018

ID: CIII-RO-0013-13-1718

12. Implementation and utilization of e-learning systems in study area of Production Engineering in Central European region

Description: Introduction-Motivation: “Globalization, new technologies and demographic developments constitute an enormous challenge; one of the answers to this problem is the access to lifelong learning."(Ján Figel European Commissioner for Education, Training & Culture, 2004-2009) Access to lifelong learning can be solve using the e-learning systems. Information and communication technologies (ICT), properly used, contribute to the quality of education and training and to Europe’s move to a knowledge-based society. The universities have to know to respond on global problems and to be prepared to educate the specialist. Many of the new methods used in production engineering and in CA systems and technologies as rapid machining, virtual prototyping, CAD/CAM/CAE/CMMS are based on “e” (electronic) activities because reduce the time (time is becoming rapidly the most strategic topic of companies) and increase the quality of products without increasing the costs. E-learning comprises all forms of electronically supported learning and teaching. E-learning applications and processes include Web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration. The main action lines of the e-learning systems in study area of production engineering are based on • Information and Communication Technologies (ICT): • Digital literacy as e-books, e-papers, e-courses, etc. • The teaching process must be based on e-presentations (slide-shows, paper show system, etc.). • Development of virtual laboratories especially in case of equipment’s with large dimensions. • Development of simulations for improves the functions parameters. • Using the virtual tests for find the possible errors in design. • Using the simulations for improve the maintenance and reliability of machines and equipment’s. • Implementation of virtual laboratories specific for each University and realization of virtual laboratory network between Universities.

Contact Person: Doc. Dr. Aco Antić

Period of realization: 2017 - 2018

ID: CIII-RO-0202-11-1718

13. Intelligent Automation for Competitive Advantage

Description: The original objective was the reduction in direct labour costs. But now other reasons are more prominent (uniform quality, safety, efficiency, etc.). Today, IntACA partners are turning to the human size of manufacturing automation, seeking for "out of the box" approach in establishing better quality of life. Products currently available on the market are so complex, that they are developed very often by the number of cooperating multidisciplinary design teams in different countries. Such characteristics of the product development necessitate the exchange not only information about the products but also the knowledge about the projects and particular design phases, including the specifications, design rules as well as knowledge acquired during the previous projects. The knowledge is often distributed across the boundaries of the company. The complexity of products and the distribution of the design teams enforce the use of the new software tools covering more development phases. To prepare the students for the work in a geographically distributed environment, the modification of the existing study programs is necessary. The students must also familiarize with the PLM/PDM software used for the execution of such works. Intelligent automation products and technology add value for users by applying advanced technology solutions to complex problems that increase machinery availability, reduce operating costs and improve safety, together with bringing back man to the central stage of production purpose. High quality education is the crucial factor in these intentions. Aims of the IntACA network The main aim of the network is to share and divide the knowledge and experiences in the different fields for both, educational and research purposes, to improve the cooperation between partner institutions with joining use of laboratory equipment of partner institutions (learning special techniques which are not available at the home institutions) and to improve the quality of lectures by means of intensive cooperation on development of joint courses, course materials and distance learning courses on English language.

Contact Person: Prof. Dr. Bojan Lalić

Period of realization: 2017 - 2018

ID: CIII-RS-0065-12-1718

14. Technical Characteristics Researching of Modern Products in Machine Industry (Machine Design, Fluid Technics and Calculations) with the Purpose of Improvement Their Market Characteristics and Better Placement on the Market

Description: Market globalization has affected on product assortment extension on the market, which brought many benefits to the consumers. They are enabled to buy products of different quality, price, design and terms of delivery. Major manufac-turers have received globalization with a great pleasure, because globalization enabled them expansion of the market and all the preferences that follow with this. Small and medium manufacturers are the most affected with globalization, because of presence of concurrents, so they can't place their products anymore in such amount like before, or even they can't do it at all. Due to globalization, they had to reduce their assortment and intensively to develop existent products, so they could become more competitive. All who didn't succeed this, had to change their production program, or simply to close their factories. Global world brings global problems in industrial production. Economic pressure urges producers to make more customized products of high quality, in smaller series, with shorter lead time and of course, without increased costs. Time is becoming one of the most important point of the companies strategy. Costs are also important. More important is competitive price and the most significant are marketability of manufactured products. Therefore, producers look for different ways (new design, modern tools, etc.) to increase a competitive advantage of their products. In most of the cases, leading concurrents bought all perspective companies (their potential concurrents), so they continued to produce, but, after this, different products. So, if small and medium manufacturers want to stay on globalized market, they intensively and incessantly must develop their products, apply new technologies and nourish aggressive marketing, because it is the only way to subsist at the market.

Contact Person: Prof. Dr. Siniša Kuzmanović

Period of realization: 2017 - 2018

ID: CIII-RS-0304-10-1718

15. Research and Education in the Field of Graphic Engineering and Design

Description: The graphic industry in the developed world takes a high profit place and its products greatly influence the other industry product marketing. It has a special importance in the economies of developing countries with a large number of small and medium enterprises. The particular place belongs to the packaging because it presents product to the customers and it is one of the most important deciding factor when buying is in a question. This project mainly aims to form proper network through which the advance of the knowledge will be enabled and significantly improved. The improvements will have a basis inconstant research and knowledge along with modern programming tools and systems. Key research will include the important areas of graphic engineering and design. The basic research will include the field of design, prepress, press, postpress and packaging. Research in the field of design will include graphic product and industrial design in a correlation with prepress,press and postpress demands. Photography, typography and realization of multimedia contents will be also the objectives of the research.Important focus is going to be put on the type design of different lettering(e.g., Latin, Cyrillic) and a various number of a critical marks. Impact of different materials used for enhancement of printed images, like special and UV pigments, will be investigated. In recent years there is increasingly significant research in this field in order to achieve visually attractive products in graphic industry. Determination of achieved value of gloss and colour range will help solving the problem of revisualisation of products in the design face. Special attention will be paid to the market trends in terms of current requests concerning visual identity and production ability. Prepress activities will consist of defining the proper software for image processing, vector based pictures processing and final layout. Also, the research will be addressed to usual problems from the graphic industry with printing plates for different printing techniques and possible improvements in every day usage.

Contact Person: Doc. Dr. Živko Pavlović

Period of realization: 2017 - 2018

ID: CIII-RS-0704-06-1718

16. Fostering sustainable partnership between academia and industry in improving applicability of logistics thinking (FINALIST)

Description: Supply chain management is a fact of business, with logistics as a most powerful tool for achieving ultimate strategic advantage. Today's business is constantly changing and evolving in response to change in technology, social and economic environments, and climate. Changes in business models drive a "new" supply chains. That novelty could be described through several major characteristics: (1) supply chain role has moved from being tactical to being strategic; (2) supply chain complexity and dynamics are constantly growing; (3) supply chain completely focuses on value from customers' point of view. Hence, new paradigms in business evolve new logistics and supply chain management strategies. To understand and apply those new logistics thinking, appropriate way of dissemination of logistics knowledge to future and current employees should be created. Hence, the overall objective of this project is to promote the innovation and implementation of sustainable knowledge transfer between academia and industry, with the final aim to improve regional logistics competence through better applicability of logistics thinking. Long program description Dynamics of market changes dictated by globalization, liberalization and constant technological development places the effectiveness of logistics and supply chain in the centre of economic success and competitiveness of a country or region. Logistics effectiveness is based on the appropriate level of excellence regarding logistics infrastructure, applied logistics practices and technologies, logistics culture and logistics competence. Logistics competence implies understanding of new strategic role of logistics activities in contemporary strategies for supply chains management. Understanding and application of the principle of contemporary logistics management requires creation of appropriate dissemination of new logistics knowledge among future and at the moment employed logisticians (creation of logistics human capital).

Contact Person: Doc. Dr. Marinko Maslarić
Period of realization: 2017 - 2018
ID: CIII-RS-1011-03-1718

17. Building Knowledge and Experience Exchange in CFD

Description: The known fact is that beside costs, time is one of the most important aspects of one company's strategy. More important is competitive price and the most significant is marketability of product. Therefore companies look for tools that could increase a competitive advantage of their enterprises. One of these tools is computational fluid dynamics (CFD) which could reduce the development costs of many different products like devices, machines, systems etc. Computational fluid dynamics (CFD) already significantly replaces experiments in the many engineering fields: fluid mechanics, mechanics, thermodynamics, heat transfer, mass transfer etc. The reason for this is that the application of CFD reduces development costs of different products compare to experimental development. Due to lower costs there is a trend at the universities and development centers of large companies to reduce the share of experiment and increase the share of CFD application. Because of reduction of development costs of products, recently CFD is experiencing intense development and it is becoming the topic of many research projects around the world. Leading world universities already established CFD laboratories and study programs with subjects which deal with CFD. Many of these universities even issue diplomas of computational fluid dynamics engineer. This is reason why seventeen universities from eleven countries of Central and South-East Europe region suggest establishing of new network with title "Building Knowledge and Experience Exchange in CFD". Proposed network would bring many benefits to partners universities: establishing contacts between scientists who deal with CFD; exchanging information, knowledge and experience in the field of CFD; participating to the common research projects and other activities; assisting with work on M.Sc. and Ph.D. thesis in the field of CFD; organizing lectures, seminars, summer courses, schools, scientific conferences and workshops.

Contact Person: Doc. Dr. Siniša Bikić
Period of realization: 2017 - 2018
ID: CIII-RS-1012-03-1718

18. Architecture Landscape Interiors Culture Emotions

Description: The most important focus of the platform is on its interdisciplinarity, joining different fields of art and design - interior design, product design, industrial design, textile and fashion design, graphic design, visual communications, illustration, etc. In the academic year 2013/2014 the platform consists of ten full partners and one silent partner: Full partners Faculty of Design in Ljubljana, an independent institution of higher education University of Split, Academy of Arts University in Sarajevo, Academy of Fine Arts University of Zagreb, Faculty of Forestry, Wood technology Department Poznan University of Life Sciences, Department of Furniture Design Faculty of Natural Sciences and Engineering, Department of Textiles University of Belgrade, Faculty of Forestry, Department of Wood Processing Non-state Academy of Fine Arts, Belgrade Chisinau "Ion Creanga" State Pedagogical University from Republic of Moldova, Faculty of Fine Arts and Design University of Novi Sad, Faculty of Technical Sciences Silent partner Saint-Petersburg State University of Technology and Design, Russia The principal goals of the platform consist of: - establishing a network of stable, reliable partners with common fields of study, goals, problems and topics in question; - the exchange of knowledge – sharing good practices, presenting different teaching approaches and new professional knowledge; - offering to all participating partners the possibility to partake in an international student project related to a chosen topic; - organising biannual student project competition related to a chosen group topic; - organising biannual scientific conference to exchange ideas, share problems, present new concepts, etc.; - publishing a catalogue of the student projects presented and selected by the international jury committee; and/or a catalogue of scientific papers presented at the scientific conference; - organising a biannual exhibition along with the award giving ceremony for the best project from each participating institution; - to prepare a joint MA programme between three/four partner institutions.

Contact Person: Doc. Dr. Živko Pavlović

Period of realization: 2017 - 2018

ID: CIII-SI-0719-06-1718

19. From preparation to Development, implementation and utilization of Joint Programs in study area of Production Engineering

Description: Global world brings global problems in production engineering. Economic pressures urge manufacturers to make more customized products of high quality, in smaller series, with shorter lead time and of course, without increased costs. Time is becoming rapidly the most strategic topic of companies. Costs are also important, more important are competitive price and the most significant are marketability of manufactured products. Therefore producers look for tools to increasing a competitive advantage of enterprises. Naturally the universities have to know to respond on global problems and to be prepared to educate the specialist. The new methods of production engineering, CA systems and technologies, Rapid machining, Virtual prototyping are indeed strong tools for solving the global problems. Such as the production is global also education has global dimension. New forms of education such as e-learning give good possibility to extend collaboration among universities. All activities concerning the "e" (electronic) are keys for solving of global problems of producers and global problems of universities. Except global problem in education it is needful to solve legislative frame of common interest. Joint programs give a good platform for increasing of collaborated universities. Therefore the subject of new CEEPUS network is titled "From preparation to Development, implementation and utilisation of Joint Programs in study area of Production Engineering – contribution to higher flexibility , ability and mobility of students in the Central and East European region". The principal motive is elaboration and implementation Joint programs in study area of Production engineering. All presented activities / organizing of conferences and workshops, seminaries for students and PhD students, support for elaboration and finishing of PhD thesis, excursion/ will be henceforward supported and will be effort to increase their level in framework of Joint programs.

Contact Person: Doc. Dr. Đorđe Vukelić

Period of realization: 2017 - 2018

ID: CIII-SK-0030-13-1718

20. Applied Economics and Management

Description: Based on the very positive feedback received from network partners and from new universities interested in joining the network, we found it effective to work out the proposal of prolongation. Thus, we are planning: - to continue and expand cooperation within the network with 23 universities and carry out coordinating network activities; - to enable undergraduate, graduate, doctoral and lecturer exchanges to facilitate the emphasis areas at the host institutions, with using the library and other available resources; - to organize and manage the work of experts' groups in applied economics and management (namely in the field of macroeconomics, merchandising and applied agri-sector economics); - to prepare, adapt and deliver common curricula and teaching materials to wider educational community in the field of managerial courses, agricultural economics, finance, marketing and business studies; - to share distance learning experience; - to maintain the developed international Master study program "Business Economics" offered by 5 universities of the network; however, because of legislation difficulties in partner countries and some personal changes in the management of partner institutions still the final version of the program not available – ongoing discussion how to adjust the program to make it accessible as much as possible; - to introduce PhD theses with CEEPUS partners as consultants; - based on the module cooperation within doctoral study program Economics and Management between the Slovak University of Agriculture in Nitra and Agricultural University in Cracow we plan to use CEEPUS mobilities in categories: doctoral mobilities and staff mobilities to support this kind of PhD program; - to promote freemover mobilities based on acceptance letters: the network will enable also universities out of the network to offer their English courses in the relevant field and thereby promote selected English Modules and involve them into the operating network; - providing practical experience as a part of international practical short term excursion introduced into the practice of university studies in the future, as an inevitable part of university studies.

Contact Person: Doc. Dr. Slavica Mitrović
Period of realization: 2017 - 2018
ID: CIII-SK-0044-12-1718

21. Advances in Machining

Description: The Network SK 0067 had started its activities since September 2005. When ongoing this project main stress will be done on continual improvement in all planned activities as well as on promotion of high level technical education according to market demand. All partners included to the network have confirmed yearly their willingness to cooperate and all have endeavoured to fulfil objectives stated in project with larger or smaller success. Universities included in this project have long term cooperation each to other on various levels (education, research, personal contact). The main areas of cooperation were established during this network:

1.Team of teachers actively and regularly have lectures in participating institutions as a part of regular education

2.Yearly scientific workshop is held in CUT for PhD and Master students with the participation of teachers

3.Courses in English for MSc students at TUKE

4.Excursion for students started in academic last academic year Applied mobility, common seminars and workshops, assistance with master and PhD thesis, interest of students to study abroad and take a part on CEEPUS mobility, publishing of Research Report are the main outcomes of this cooperation. Every year of this project bring us towards to be more experienced in common tasks defined as project objectives.

Contact Person: Prof. Dr. Pavel Kovač
Period of realization: 2017 - 2018
ID: CIII-SK-0067-13-1718

22. Renewable energy sources

Description: Primary motivation for creation Network “Renewable Energy Resources” was based on the fact that in one of the most popular and important area of technical sciences – field of Renewable Energy Resources – there was no running Network. From that time till present days enlarge the number of participants 5 times and each academic year there was big amount of student and teacher mobility. Preventing dangerous climate change is a strategic priority for the European Union. For 2020, the EU has committed to cutting its emissions to 20% below 1990 levels. This commitment is one of the headline targets of the Europe 2020 growth strategy and is being implemented through a package of binding legislation. Moreover, EU leaders agreed on 23 October 2014 policy framework for climate and energy, as proposed by the European Commission in January 2014. This 2030 policy framework aims to make the European Union's economy and energy system more competitive, secure and sustainable and also sets a target of at least 27% for renewable energy and energy savings by 2030. From this point of view the main aim of the CEEPUS network “Renewable energy sources” for 2015/16 is to continue in the development of strong partnership where participated universities work together not only in the frame of undergraduate, graduate and postgraduate students exchanges and teachers mobility, but they are involved in wide diapason problems concerning renewable or alternative energies and relevant science areas. We can describe the main objective of our CEEPUS Network as an effort to enhance quality of study and research in the field of “Renewable energy sources”.

Contact Person: Prof. Dr. Pavel Kovač
Period of realization: 2017 - 2018
ID: CIII-SK-0405-09-1718

23. Urban Innovations Network

Description: The Urban Innovations Network is tended as an instrument to strengthen the cooperation between concerned partners from different countries in the eponymous subject of Urban Innovations those cover a framework of three different spheres of urban space. Namely its physical structure, social structure and functional structure. The main goal of this network is to establish an interface between those spheres and strategical documents such as territorial agenda and Leipzig Charter to contribute to the territorial cohesion through the academical cooperation program CEEPUS.

Therefore, the main targets in collaboration will focus on topics such as:

- Integrated urban development as a prerequisite for successful urban sustainability
- Strategies for upgrading the physical environment in deprived urban areas
- Strengthening the local economy and local labour market policy in deprived urban areas
- Proactive education and training policies on children and young people in deprived urban areas
- Sustainable urban transport
- Territorial cohesion

Programme operational objectives:

- To improve the quality and to increase the volume of mobility throughout the network area
- To improve the quality and to increase the volume of co-operation between partners of the Urban Innovations Network
- To facilitate the development of innovative practices in the field of education
- To improve the transparency and recognition of qualifications and competences
- To form joint degrees
- To encourage the learning of modern foreign languages

Contact Person: Prof. Dr. Milena Krklješ
Period of realization: 2017 - 2018
ID: CIII-SK-0606-07-1718

24. Research, Development and Education in Precision Machining

Description: The key change drivers in the case of machining technology include: diminishing component size, enhanced surface quality, and tighter tolerances and manufacturing accuracies, reduced costs, diminished component weight and reduced batch sizes. The trends towards higher precision are occurring in virtually all areas of manufacturing. Higher precision is needed for several reasons · To obtain the high motion required in high-accuracy machine tools, computer peripherals, etc. · To guarantee robustness (optimal functionality under varying circumstances · To guarantee part interchange ability (avoid adjustments), and hence to allow mass production at low price. The need for high precision products leads to two technological evolutions i) the emergence of prominent new engineering discipline: precision engineering, with own underlying design principles and rules, and ii) the emergence of high-precision manufacturing processes, need to obtain the required dimensional and surface accuracies. Metal machining industry is under increasing preasure as a result of competition, stricter environmental regulation, supply chain demand for improved environmental performance and falling skill levels within industry. Adopting sustainable manufacturing practices offers mmaterial machining companies a cost effective route to improve their economic, environmentaly and social performance. The alternative sustainable production, have to put all three levels on the same equal level. Sustainability products principles are considering manufacturing costs, energy consmption, wastemanagement, environmental impact, operation safety and personal health.

Contact Person: Prof.. Dr. Pavel Kovač
Period of realization: 2017 - 2018
ID: CIII-RS-0507-07-1718

25. Applied Hydroinformatics

Description: The main goal is the modernization and internationalization of Applied Hydroinformatics program through the cooperation with CEEPUS partners. The modernized program will be a good tool for utilizing in a unity the excellent and the specific methods of education and research in engineering elaborated by the individual partner institutions. The mobility and integration of students and teachers in the Danube region, the Central, Eastern and SouthEastern European regions will enable to achieve results in education and research on a higher level. The students will be able to solve problems of hydrology, hydraulics and environmental engineering for better water management using simulation modeling and IT. Therefore, the basic aim of the proposed project is to improve the international cooperation in education between CEEPUS partners, increasing the mobility and giving the possibility to the PhD students to develop and finish of joint PhD theses through the new developed Joint PhD Programme named “Applied Hydroinformatics”.

Contact Person: Prof. Dr. Ljubomir Budinski
Period of realization: 2017 - 2018
ID: CIII-RS-1112-02-1718

26. Chemistry and Chemical Engineering

Description: The main objectives of the Ceepus network CIII-SI-0708 would be as follows:

• to establish a research center of excellence in the fields of process efficiency, renewable resources, new products and materials, cycle economy and sustainable development,

• to promote research work among students at all three levels in order to build a research excellence from Bachelor level through Master level up to Doctoral level. Students should acquire the competencies for independent and innovative research work,

• to establish research synergies among participating institutions in order to develop holistic, integrated, efficient and sustainable process solutions for some of the most challenging problems, such us depletion of fossil fuels, depletion of important chemical elements, transition from linear to circle economy, preservation of environment, efficient production, development of new products and materials.

Contact Person: Doc. Dr. Dunja Sokolovic
Period of realization: 2017 - 2018
ID: CIII-SI-0708-05-1718

COST is the longest-running European framework supporting trans-national cooperation among researchers, engineers and scholars across Europe.

It is a unique means for them to jointly develop their own ideas and new initiatives across all fields in science and technology, including social sciences and humanities, through pan-European networking of nationally funded research activities. Based on a European intergovernmental framework for cooperation in science and technology, COST has been contributing - since its creation in 1971 - to closing the gap between science, policy makers and society throughout Europe and beyond. As a precursor of advanced multidisciplinary research, COST plays a very important role in building a European Research Area (ERA).

It anticipates and complements the activities of the EU Framework Programmes, constituting a “bridge” towards the scientific communities of COST Inclusiveness Target Countries. It also increases the mobility of researchers across Europe and fosters the establishment of scientific excellence.

The former science organization which was structured into nine science and technology domains has been replaced by a new organization aiming at guaranteeing a fully open and bottom-up approach through the establishment of a single Scientific Committee. This also includes a renewed evaluation and selection procedure aiming at identifying breakthrough ideas and favoring interdisciplinary and multidisciplinary projects.

1. Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe

Description: The main aim of this Action is to bundle capacities across Europe to investigate and extend the impact of the scientific, educational, policy, and civic outcomes of citizen science with the stakeholders from all sectors concerned (e.g., policy makers, social innovators, citizens, cultural organizations, researchers, charities and NGOs), to gauge the potential of citizen science as enabler of social innovation and socio-ecological transition. The Action will explore the potential transformative power of citizen science for smart, inclusive, and sustainable ends, and will provide frameworks for the exploitation of the potential of European citizens for science and innovation. The relevance and timeliness of the Action derive from the recent explosion of activity around citizen science, as ordinary people and researchers begin to understand the power of technological devices which allow them to record the environment around them and share and collectively interpret data and knowledge to advance science and society.

Given the trans-disciplinarity of citizen science, the Action will benefit from the different contributions and perspectives from a range of disciplines and research cultures. As the latter rarely overlap and engage directly, the Action provides an ideal means for knowledge sharing and focused development on the topic by enabling better integration of separate national activities at a European and international scale.

Contact person: Doc. Dr. Imre Lendak
Period of realization: 2016 – 2020
ID: CA COST Action CA15212

2. Adaptive Facades Network

Description: Multi-functional and adaptive building envelopes can provide step-change improvements in the energy efficiency and economic value of new and refurbished buildings, while improving the wellbeing of building occupants. They therefore represent a significant and viable contribution to meeting the EU 2020 targets. There is a critical mass of European knowledge, expertise, resources, and skills in the fields relevant to adaptive facades, but the research efforts across the multi-disciplinary topics and the wide range of novel technologies are scattered across several R&D centres in Europe. This Action aims to harness this knowledge and will thereby generate new ideas and concepts at a fundamental and product/system development level. This will be achieved by creating a research network with a strong multidisciplinary approach, involving academics, industrial partners from the facade supply chain, and other stakeholders. The COST Action will facilitate the sharing of experimental data, the development of modelling and simulation techniques, and the sharing of common evaluation methods. The work of this COST action is expected to from the basis for exploiting recent technological developments in adaptive facades and energy efficient buildings, and will help to train the future generation of facade R&D professionals in Europe.

Contact person: Doc. Dr. Aleksandar Anđelković

Period of realization: 2014 – 2018

ID: TUD COST Action TU140

3. European network for shallow geothermal energy applications in buildings and infrastructures (GABI)

Description: The increased need for renewable energy sources has led to expansion of shallow geothermal applications for heating and/or cooling of buildings. The integration of heat exchangers in those elements of the structure that interface with the ground, such as foundations, tunnels and diaphragm walls, is particularly attractive because of the inherent cost saving involved in combining a required structural component with the harvesting of geothermal energy. Thermoactive geostructures present the additional benefit of relying on localized resources (the ground) and therefore do not need additional infrastructural investments. By providing an alternative to fossil fuels and reducing peak demand from the grid, they also provide an attractive tool towards energy independence and distributed generation with no adverse impact on the environment. However, the widespread application of this sustainable technology is currently hindered by the large heterogeneity in the development and regulatory framework in European countries.

By sharing knowledge and experiences, the use of thermoactive geostructures will increase, especially in countries with less experience. This newly created network will ensure an inclusive and open platform for scientific discussion to define European best practice rules for geothermal applications, promote public awareness and confidence in this technique, and foster advancement in knowledge through collaboration.

Contact person: Doc. Dr. Aleksandar Anđelković
Period of realization: 2015 – 2019
ID: TUD COST Action TU1405

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

4. Overcoming Barriers to Nanofluids Market Uptake (NANOUPTAKE)

Description: Nanofluids are defined as fluids that contain nanometre-sized particles with enhanced heat transfer properties. Since 1995, active research on this topic has been conducted (more than 1,700 papers in the last 3 years). Nanofluids improve the efficiency of heat exchange and thermal energy storage systems and they are specifically mentioned in the Strategic Energy Technology Plan and the Materials Roadmap to enable Low-Carbon Technologies as potential elements to improve the efficiency of heat exchange and thermal energy storage systems. Consequently, nanofluids address the European Horizon 2020 Energy and Climate objectives (Societal Challenges 3: Secure, efficient and clean energy; and 6: Climate action, environment, resource efficiency and raw materials). In addition, nanofluids fall within one of the Key Enabling Technologies (KET) supported by the European Commission. Although some nanofluid commercial applications currently exist, most of the current nanofluids are at Technological Readiness Levels (TRL) 1 to 3. Most of the nanofluids research in COST countries has been conducted by Research, Development and Innovation (R+D+i) centres through national funding. Additional coordinated research and development efforts are required to develop nanofluids up to higher TRL levels and to overcome commercial application barriers. If these barriers are overcome, nanofluids will be an important player in the Value Added Materials (VAM) for the energy sector.The objective of the NANOUPTAKE COST Action is to create a Europe-wide network of leading R+D+i institutions, and of key industries, to develop and foster the use of nanofluids as advanced heat transfer/thermal storage materials to increase the efficiency of heat exchange and storage systems.

Contact person: Doc. Dr. Siniša Bikić

Period of realization: 2016 – 2020

ID: CA COST Action CA15119

5. Fire safe use of bio-based building products

Description: Bio-based building products have a very long history, e.g. as timber structural members. Combustibility was the main reason why bio-based building materials were banned from many applications. When performance based design (PBD) became possible many building regulations opened the market for bio-based building products. However, large differences between regulations in countries exist and the use of combustible building products is still very limited.

Modern living offers attractive, flexible buildings and aims for cost efficient building techniques. Sustainability of building products became an issue. Consumers demand renewable products; however the Fire Safety of the end-product has to remain on a high level.

Fire Safety Engineering (FSE) has achieved large acceptance in the recent years. FSE allows a PBD with customized building solutions. However, the available techniques are often limited to non-combustible materials.

During the last decade the portfolio of building products made from bio-based raw materials has increased enormously. The material properties affecting a possible fire development vary which has been confirmed in many development projects including European researchers.

This Action wants to create a platform for networking, exchange and collection of performance data, experiences, authority- and climate requirements which affect the design with respect to the Fire Safe Use of Bio-based Building Products. By systematically organisation knowledge in this area will advance at a significant higher rate. The Action will Exchange researchers, organize Workshop and create comprehensive dissemination material.

Contact person: Prof. Dr. Tanja Kočetov-Mišulić

Period of realization: 2014 – 2018

ID: FPS COST Action FP1404

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

6. Solutions for Critical Raw Materials Under Extreme Conditions (CRM-EXTREME)

Description: Difficulties in the access to critical raw materials (CRMs) are expected to depress industrial sectors vital to Europe.
The Action focuses on the substitution of CRMs (like Cr, Co, Nb, W, Y) in high value alloys and metal-matrix composites used under extreme conditions of temperature, loading, friction, wear, corrosion, in Energy, Transportation and Machinery manufacturing industries.
The Action aims to set up a network of expertise to define the state of knowledge and gaps in multi-scale modelling, synthesis, characterization, engineering design and recycling, that could find viable alternatives to CRMs and promote the industrial exploitation of substituted materials.
The Action envisions a fully Sustainable Value Chain approach for:

- Machinery manufacturing industry
- Alternatives for Co and W in WC/Co cemented carbide wear resistant tool materials (Hard Metals and Cutting Tools)
- Alternatives for chromium- and tungsten-alloyed tool steels
- Energy Industry
- Reduction of Cr and Y in high-strength steel alloys
- Alternatives for Cr and other CRMs by hard, wear and corrosion resistant surface coatings
- Transportation Industry
- Alternatives for Nb in high-strength low-alloy (HSLA) steel (Automotive)
- Alternatives for high-temperature Ni-based superalloys (Aerospace)

A four-year Action oriented to strengthen collaboration between active researchers working in the different areas of investigation involving CRMs, is the most suitable initiative to seed the initial catalytic nucleus of growth for EU excellence in strategic CRMs substitution.
Contact person: Doc. Dr. Dragan Rajnović
Period of realization: 2016 – 2020
ID: CA COST Action CA15102

7. Reversible Computation: extending horizons of computing

Description: Reversible computation is an emerging paradigm that extends the standard forwards-only mode of computation with the ability to execute in reverse, so that computation can run backwards as naturally as it can go forwards. It aims to deliver novel computing devices and software, and to enhance traditional systems by equipping them with reversibility. The potential benefits include the design of revolutionary reversible logic gates and circuits - leading to low-power computing and innovative hardware for green ICT, and new conceptual frameworks, language abstractions and software tools for reliable and recovery oriented distributed systems.

Landauer's Principle, a theoretical explanation why a significant proportion of electrical power consumed by current forwards-only computers is lost in the form of heat, and why making computation reversible is necessary and beneficial, has only been shown empirically in 2012. Hence now is the right time to launch a COST Action on reversible computation. The Action will establish the first European (and the world first) network of excellence to coordinate research on reversible computation. Many fundamental challenges cannot be solved currently by partitioned and uncoordinated research, so a collaborative effort of European expertise with an industrial participation, as proposed by this Action, is the most logical and efficient way to proceed.

Contact person: Prof. Dr. Jovanka Pantović

Period of realization: 2015 – 2019

ID: ICT COST Action IC1405

8. European Network for Game Theory (GAMENET)

Description: With the rapid advancement of technological innovations, modern societies rely more and more on the proper functioning of complex networks (i.e., social, telecommunication and transportation networks). Since the state and the dynamics of these networks are determined by independent decision makers, a solid understanding, control and optimization of such networked systems constitutes a major challenge for modern societies.

Game theoretic concepts are nowadays used in the analysis of networked systems, such as the computation of traffic equilibria in large-scale transportation networks, the prediction of content popularity in social networks and online services, and the analysis of the spreading of diseases and epidemics. Since there are many applications from different fields exhibiting similar network structures (e.g., biological, technological and social networks) and each of these applications has field-specific characteristics, our Action needs to bring together researchers from different fields of science, such as, applied mathematics, algorithmic computer science, engineering and economics.

The key objective of this Action is to facilitate interactions and collaborations between different groups of game theorists, to provide game theoretic expertise to industrial partners, and to establish a large and vibrant interconnected community of excellent scientists in these different fields. This Action will be the first European network where computer scientists, applied mathematicians, economists, and operations researchers will join forces on problems with significant technological and socio-economic impact. On a meta-level, the aim is to create a broad community of game theorists across Europe and at every stage of their career and to facilitate contact with stakeholders.

Contact person: Prof. Dr. Dejan Vukobratović

Period of realization: 2017 – 2021

ID: COST Association COST Action CA16228

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

9. Active and intelligent fibre-based packaging - innovation and market introduction (ActInPak)

Description: Research and development of new fibre-based packaging materials with active and intelligent features have shown huge potential to optimise the supply chain, and increase the shelf-life of foodstuff and enhance consumer consciousness of food utilisation. Very few of the potential solutions have, however, been able to reach the market.

This Action aims to identify and focus on the key technical, social, economic and legislative factors relevant for a successful deployment of renewable fibre-based functional packaging solutions. This will be achieved by conducting research and development into active and intelligent packaging, encompassing both scientific and technical solutions, addressing the opportunities for, and obstacles to, market introduction. The innovative approach of this Action lies in the sharp focus on the integration of active and intelligent solutions in papermaking in order to create next-generation functional fibre-based packaging. The Action will achieve the objectives by providing an open multidisciplinary platform for the complete paper and board packaging value chain and aims at strong involvement of industrial partners throughout Europe. Sustainable fibre-based packaging materials with new and active functionalities may help to introduce new products on the market with higher value and profits for paper and board manufacturers than traditional products.

Contact person: Doc. Dr. Nemanja Kašiković

Period of realization: 2015 – 2019

ID: FPS COST Action FP1405

10. Interdisciplinarity in research programming and funding cycles (INTREPID)

Description: This Actions will bring together communities of researchers, and research policy makers, contributing to advance our understanding and effective application of interdisciplinarity. A range of actions is designed to draw upon the Network's knowledge of barriers, as well as success and good practices, leading to the building of a critical mass of researchers and funders working to strengthen the European Research Area's capacity for interdisciplinarity.

Contact person: Doc. Dr. Gojko Vladić

Period of realization: 2015 – 2019

ID: TD COST Action TD1408

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

11. The transfer of engineered nanomaterials from wastewater treatment & stormwater to rivers

Description: Concerning the transfer of Engineered Nanomaterials from wastewater Treatment & stormwatEr to Rivers (ENTER) the following issues require clarification: (i) which and (ii) what amounts of Engineered NanoMaterials (ENMs) are released, (iii) how persistent are they and (iv) to what extent do they cause in situ toxicity? Reasons for knowledge gaps are a lack of suitable analytical methods, insufficient databases on usage and release, and the absence of comprehensive monitoring networks. ENTER will help to advance scientific knowledge on release and fate of ENMs in the urban water cycle and to communicate expert knowledge in an appropriate manner to the non-scientific community. ENTER will break down barriers between scientific and public pressure groups by an intensified scientific exchange via, e.g., the position papers. The ENTER products are needed to improve the decision-making process by supporting end users such as politicians, the EU and national public servants. ENTER will clearly aid to advance the understanding on the transport and transformation processes of ENMs released to the urban wastewater systems and to understand the transfer of ENMs to the aquatic environment. This Action will improve the collaboration between scientists and the public by striking a new path towards an efficient knowledge exchange.

Contact person: Prof. Dr. Miljana Prica

Period of realization: 2013 – 2017

ID: ESSEM COST Action ES1205

12. Chemical On-Line cOmpoSition and Source Apportionment of fine aerosoL

Description: It is well known that exposure to aerosols exerts a negative impact on human health and that aerosols affect climate and the environment. These effects are dependent on the composition and sources of these fine atmospheric aerosols (particulate matter with aerodynamic diameter below 2.5um, PM2.5). The main challenge of the Action is to consistently assess their spatial variability (across Europe), their temporal variability (at a one hour time resolution or better), their seasonality (using long term datasets), their phenomenology (chemical composition) and their sources. To this end many research groups and some air quality monitoring networks in Europe and across the world have acquired recently-developed chemical composition measurement instrumentation. These include the Aerosol Chemical Speciation Monitor (ACSM) (based on Aerosol Mass Spectrometer (AMS) technology), which measures non-refractory ammonium, nitrate, sulfate, chloride, and organic mass, and instruments that measure the refractory black carbon, such as the Aethalometer and Multi Angle Absorption Photometer (MAAP). These new high time resolution techniques, which chemically characterize the aerosols, are capable of operating for long time periods and have only been available in 5-10 years. The processing and interpretation of the data from these instruments has matured to a stage where harmonized across Europe is now possible; this will be achieved by a network built through the present Action to jointly develop the capacity for the interpretation of the measurements gathered using these techniques. The outcomes of the Action will be relevant for air quality modellers and policy makers.

Contact person: Doc. Dr. Dunja Sokolović

Period of realization: 2017 – 2021

ID: COST Association COST Action CA16109

13. Open Multiscale Systems Medicine (OpenMultiMed)

Description: Multiscale systems medicine assumes that the growing amounts of highly diverse (multiscale) data relevant to human health and disease are the key to address current and future medical challenges. Transforming these data into effective and economical medical solutions requires appropriate means for multiscale data modelling, integration and analysis. The overarching aim of the Open Multiscale Systems Medicine (OpenMultiMed) COST Action is to gather a critical mass of international researchers and coordinate them as a team that develops and evaluates a transdisciplinary framework for multiscale systems medicine, consisting of novel concepts, methodologies and technologies. The unique concept and ambition of the OpenMultiMed Action rests on three pillars: (1) A transdisciplinary strategy in which medical researchers, mathematical modellers, data scientist, and computer scientists work jointly using a shared conceptual framework and combined disciplinary-specific approaches. (2) A strong focus on multiscaleness across systems medicine, multiscale modelling, multiscale data science and multiscale computing. (3) An open-science approach, making scientific research, data and dissemination in multiscale systems medicine accessible to all levels of an inquiring European and international society. The potential impacts resulting from the OpenMultiMed Action include more effective and economical ways of health promotion, disease prevention and therapy; more effective and efficient concepts, methods and tools for multiscale systems and data modelling, and multiscale computing; and a strengthening of scientific excellence and industrial competitiveness of individuals and organizations in medical, analytical and technological areas.

Contact person: Prof. Dr. Tatjana Loncar Turukalo

Period of realization: 2016 – 2020

ID: CA COST Action CA15120

Erasmus+ Capacity-building projects in the field of higher education' build on the success of the former Alfa, Edu-link and Tempus programmes and aim to:

- Support the modernisation, accessibility and internationalisation of higher education in the Partner Countries;
- Promote cooperation between Programme Countries and eligible Partner Countries (as well as among eligible Partner Countries themselves);
- Promote voluntary convergence with EU developments in higher education;
- Promote people-to-people contacts, intercultural awareness and understanding.

Capacity-building projects in the field of higher education are transnational cooperation projects, based on multilateral partnerships, primarily between higher education institutions from Programme and eligible Partner Countries.
Joint Projects operate at micro level and target higher education institutions in the eligible Partner Countries specifically.
They aim to modernise and reform higher education institutions through activities such as:
Developing new curricula or improving existing ones; Improving governance and management systems; Building relationships between higher education institutions and relevant socio-economic actors.
Structural projects operate at macro level and target national higher education systems and policies in the eligible Partner Countries. They involve activities such as:
Modernisation of policies, governance and management of higher education systems; Strengthening relations between higher education systems and the wider socio-economic environment.
Projects can involve, where relevant, NGOs, SMEs and any organisations in the field of higher education.

1. Institutional framework for development of the third mission of universities in Serbia (IF4TM)

Description: The strategic objective: To establish an institutional framework for the third mission of universities in Serbia relating to innovation and knowledge transfer.

Specific objectives:

• Define the legal framework to support the development of the third mission of Serbian universities

• Develop and implement technology transfer and innovation, through the establishment of INNO platform at five universities, raising the level of technological readiness and student involvement in the development of creative ideas

• Develop and implement continual education to build capacity in the areas of entrepreneurship, innovation and intellectual property management

• Developing and implementing the social inclusion dimension of universities to encourage the creativity of young people, as well as unlocking and mobilizing resources for universities needs of companies and society.

Contact person: Prof. Dr. Goran Stojanović

Period of realization: 2015 – 2018

ID: ERASMUS+ KA2

2. Western Balkan Academic Education Evolution and Professional's Sustainable Training for Spatial Data Infrastructures (BESTSDI)

Description: The project aims to improve the curriculum of partnership faculties by introducing the concept of Spatial Data Infrastructure (SDI), and e-government as well as the extended concepts such as smart cities, a single digital market, the smart environment based SDI, etc. Project activities (cases) will refer to the two groups of students, students whose primary specialization is management of geospatial data (eg. Geodesy and Geomatics) and students of other faculties who use the SDI concept, for example. spatial planners, students of forestry, geography, agriculture, etc.

One of the bottlenecks of the current SDI development and e-government in the Western Balkans region is the lack of qualified specialists for the establishment of SDI, as well as their use for different purposes, thus maximizing their potential value. National cartographic cadastral agencies and other institutions responsible for the implementation of a number of directives and programs of partner countries are not at the level of European standards in developing SDI. Students who graduate under the new program will contribute to faster development of these "weak" infrastructure.

Contact person: Prof. Dr. Miro Govedarica

Period of realization: 2015 – 2018

ID: ERASMUS+ KA2

3. Students' Mobility Capacity Building in Higher Education in Ukraine and Serbia (MILETUS)

Description: Miletus is engaged in capacity building in the field of virtual, real and combined mobility program in Serbia and Turilli (the territory of Ukraine as recognized by international law) in higher education institutions. The creation of required documents at national and institutional level, Miletus will achieve the goal of improving employment opportunities Master graduates in companies that operate internationally and improve the quality of doctoral studies and research, and thereby makes its contribution to quality research in the partner countries.

Expected project results are:

- improved management of student mobility programs at the national and institutional levels
- framework for virtual, real and combined mobility program as a guide for future use (for higher education institutions that do not participate in the project)
- improved teaching methodology during mobility program
- a good foundation for learning for students who participate in mobility program
- easier access to mobility programs for students with disabilities
- enhanced employment opportunities for graduates and development of international skills
- a wider range of research cooperation for PhD students

Contact person: Prof. Dr. Goran Stojanović
Period of realization: 2016 – 2019
ID: ERASMUS+ KA2

4. Modernising GEOdesy education in WEstern Balkan with focus on competences and learning outcomes (GEOWEB)

Description: Within the project envisages promotion of regional cooperation and integration between the geodetic educational institutions and other partners of the project participants. The program will provide curriculum development with a focus on achieving expertise and improving the learning of geodesy and geomatics, with a focus on improving the learning system in geodesy and geomatics at the partner universities. Organizing summer schools for teachers to exchange knowledge and expertise in the field of geodesy and geomatics. The result of the project will be the implementation of a mechanism for ensuring quality in education in order to acquire the expertise and the introduction of e-learning based on problem solving. In cooperation geodetic educational institutions and other partners will be realized improving existing GIS applications in the management and use of land, water and environmental protection. The project involved research groups in the field of geodesy and geomatics, with complementary expertise.

The result of the project will be the launch of new programs for Master studies of geodesy at selected partner universities. Within the project it is planned to introduce e-learning based on problem solving (Problem-Based Learning (PBL)). The project envisages the exchange of students and teachers between the EU and universities in the Western Balkans. Also, the project will affect the improvement of the learning system in geodesy at the partner universities In cooperation with other partners and institutions on the project.

Contact person: Prof. Dr. Miro Govedarica

Period of realization: 2016 – 2019

ID: ERASMUS+ KA2

5. Development and implementation of system for performance evaluation for Serbian HEIs and system (PESHES)

Description: The project "Development and implementation of system for performance evaluation for Serbian HEIs and system - PESHES" has the general objective: Improving the management and functioning of institutions and systems of higher education in Serbia

The specific objectives are:

• Definition of indicators to measure the performance of high school institutions and systems in Serbia as a basis for value based management.

• Structuring and pilot implementation of a system for ranking institutions and study programs.

The link between the project application and action plan of the Strategy for development of education is reflected in the absolute correlation and connectivity goals of the project, work packages, activities and results with a set of implementation actions.

The wider objective of this project is the creation of a series of indicators that would be used for performance evaluation and ranking of study programs and higher education institutions and the entire education system. Based on a set of indicators would be defined the appropriate models and developed an information system that would support these objectives.

Contact person: Prof. Dr. Ivan Luković

Period of realization: 2015 – 2018

ID: ERASMUS+ KA2

6. Knowledge FOr Resilient soCiEty (K-FORCE)

Description: Natural and man-made disasters - floods, landslides, earthquakes, storm winds, hail, drought, wild fires and building fires are on the rise in the last decades in the Western Balkans. Human casualties, extensive damages to the urban areas, negative impact on the environment and further weakening of the regional economy are amongst indicators of increasing vulnerability. Preliminary surveys, done by project partners in the project preparation phase, have shown that the shortage of skills. Knowledge and skills of the existing staff in this area (state administration, public institutions and companies) is based on the education acquired from other engineering disciplines. We have noticed very different levels of knowledge and skills, with many people learning on the job in an unstructured way. These competences, knowledge and skills are insufficient to solve the growing problems in the field of Disaster Risk Management and Fire Safety Engineering (DRM&FSE). Moreover, the lack of safety culture in society in general is notable.

Decision No 1313/2013/EU on a Union Civil Protection Mechanism, in view of the significant increase in the numbers and severity of natural and man-made disasters in recent years and in a situation where future disasters will be more extreme and more complex with far-reaching and longer-term consequences as a result, in particular, of climate change and the potential interaction between several natural and technological hazards, emphasize an integrated approach to disaster management as increasingly important. Prevention is of key importance for protection against disasters and requires further action as called for in the European Parliament Resolution (2010) entitled a "Community approach on the prevention of natural and manmade disasters".

Contact person: Prof. Dr. Vlastimir Radonjanin
Period of realization: 2016 – 2019
ID: ERASMUS+ KA2

7. Information Security Services Education in Serbia (ISSES)

Description: In the past couple of years we received more and more news reports about serious security-related incidents in information systems. In December 2016 and January 2017 the media reports were full of the Yahoo security breach, which happened in 2013 and allowed hackers to access information about more than 1 billion Yahoo accounts. In the past, similar accidents happened at other, well-known companies whose operations are mainly Internet-based, e.g. Dropbox, LinkedIn, MySpace. Unfortunately, high technology criminal is not limited to online content only. Criminal organizations and state-funded hacker groups are diversifying their portfolios and attacking systems which were earlier thought untouchable. Multiple hospitals were hit with ransomware in 2016, in December 2015 hackers managed to access the Industrial Control Systems (ICS) of multiple electric power distribution systems in the Ukraine and turn off electricity to ~225,000 consumers and in 2010 the world witnessed the first malware attack against the Industrial Control Systems of the nuclear facilities in Natanz, Iran. As the amount of such attacks rises, it is ascertained that high technology criminal organizations carrying out such attacks are usually one step ahead of the security experts designing and implementing security controls.

The information security industry is shifting towards accepting the fact that such security breaches are going to happen and beside trying to stop them, the industry is now also focusing on developing proper detection, response and recovery techniques and solutions.

Contact person: Doc. Dr. Imre Lendak
Period of realization: 2017 – 2020
ID: ERASMUS+ KA2

8. Electrical Energy Markets and Engineering Education (ELEMEND)

Description: Models of a rising electricity market are shaped by state-of-the-art smart grid technologies, managed distribution management and micro networks. The education of engineers should be in line with these requirements in order to fulfill their role in society by linking scientific and technological achievements and the needs of the transition from conventional to modern smart grids. This project is focused on the region of the Western Balkans, intended for students of electrical engineering and non-engineering students in order to change their attitudes towards modern systems in the electricity market. The project includes: analysis of existing curricula; development of new courses and textbooks using new methods based on IT such as game mechanisms and e-learning content; training of teaching staff; design of joint ERASMUS master programs that include smart networks and micro network technology. ELEMEND will facilitate (1) the modernization and adaptation of corsets and teaching materials in accordance with the needs and scope of the partner countries' faculty of electrical engineering (2) the development of new applications and content. Industrial partners will help model the demands of users.

Contact person: Prof. Dr. **Vesna Spasić Jokić**
Period of realization: 2017 – 2020
ID: ERASMUS+ KA2

9. Boosting the Telecommunications Engineer Profile to Meet Modern Society and Industry Needs (BENEFIT)

Description: A thorough ex-ante analysis and project preparation revealed that the universities in the Western Balkan (WB) region that offer study programmes in telecommunications are experiencing a drop in the number of student enrolled, despite the fact that telecommunications are a pillar in modern economy. The major reason for this can be found in the fact that the telecommunications industry is undergoing significant changes and the labour market in the region requires a new profile for the telecommunications engineer. Traditional telecommunications evolved into information-communication technologies (ICT). To gain higher market penetration, ICT industry is developing new solutions that comprise both the telecom infrastructure and smart services. A great employment opportunity exists for a new class of experts. This consortium strongly believes that further industrial innovation and higher employment can be realized by strengthening the profile of telecommunications graduates to meet society and industry needs.

BENEFIT is a concrete response to the recently developed programmatic strategies of the WB countries for growth, stability and socio-economic integration in the EU.

Contact person: Prof. Dr. Vlado Delić
Period of realization: 2017 – 2020
ID: ERASMUS+ KA2

The Seventh Framework Programme of the European Community for research, technological development and demonstration activities (FP7) ran from 2007 to 2013. It was structured around four Specific Programmes supporting transnational collaborative research, investigator-driven research, career development of individual researchers, as well as training and mobility, and enhancement of research capacities in Europe.

From the total budget of €55bn:

- 82% (€45bn) has been allocated in open calls in the four specific programmes (€28.7bn Cooperation, € 7.7bn Ideas, €4.8bn People, €3.8bn Capacities)
- 18% was allocated to Euratom, JRC direct actions, ITER, the Risk Sharing Finance Facility and administrative expenditure.

Horizon 2020, the successor research and innovation programme to FP7, runs from 2014 to 2020. Over the seven years, the programme will make available €77 billion in funding for research and innovation, an almost 40% increase on FP7 in current prices.

1. ADVanced communicAtions and iNformaTion processing in smArt Grid systEms – ADVANTAGE

Description: Smart Grid systems represent a significant new technology to provide more energy efficient power delivery systems that reduce carbon emissions and can handle a mix of energy sources from small scale renewable energy to large power stations. The design and implementation of the smart grid will be very complex, involving a large number of systems, layers and relationships. In order to make the infrastructure of smart grid systems work effectively, engineers need to be trained to have a detailed understanding of both power engineering and communications issues. Many related research projects to date involve either mainly power engineers or mainly communications/signal processing researchers, limiting the interaction and knowledge exchange between these two communities. However, smart grid engineers should be able to appreciate the power network that the smart grid is designed for and how to communicate and process data concerning the power grid, so that it can be controlled effectively. This ITN project is a major interdisciplinary project between both power and communications engineers to train the next generation of engineers and scientists that will lead the development of this technology both within Europe and Internationally.

Contact person: Prof. Dr. Dejan Vukobratović

Period of realization: 2014 – 2017

ID: 607774 FP7-PEOPLE-ITN

Tempus is a European Union programme designed to help the process of higher education reform in Partner Countries. It supports projects between the higher education sector in the EU and its 27 partner countries to facilitate university modernisation, mutual learning between regions and peoples and understanding between cultures.

The Programme promotes voluntary convergence with EU developments in the field of higher education deriving from the Lisbon agenda and the Bologna process.

Tempus partner regions are:

- Western Balkans
- Eastern Europe and Central Asia
- North Africa and the Middle East

The first Tempus programme lasted from 1990 until 1994. The programme was consolidated and renewed for the 1994-1998 and 1998-2000 periods and, again, for the 2000-2006 period. It has become customary to refer to these periods of the programme as “Tempus I”, “Tempus II”, “Tempus II bis” and “Tempus III”.

1. Mastering innovation in Serbia through development and implementation of interdisciplinary post-graduate curricula in innovation management (MAIN)

Description: The general objective of the project is to foster Serbian innovative capacity by modernizing Serbian HE system and providing sustainable source of high-quality human resources. The project will achieve this by developing and realizing interdisciplinary postgraduate curricula in the field of innovation management based on best practice from existing EU study programs and according to the Bologna requirements at Serbian HE.

The specific objectives are:

1. To develop and implement interdisciplinary PhD program in innovation management as a joint degree of 4 Serbian universities,

2. To develop and implement interdisciplinary master program in innovation management as a joint degree of 4 Serbian universities,

3. To develop and implement certified innovation management courses for industry professionals to enable career development and increase employability.

These objectives should be achieved through synergetic partnership of 3 Serbian public and 1 private university, 1 college of applied sciences, 6 organizations representing key Serbian stakeholders, 4 well known EU universities and 2 non-academic EU partners with extensive experience in dealing with innovation and curriculum development.

Contact person: Prof. Dr. Bojan Lalić

Period of realization: 2013 – 2017

ID: 544278-TEMPUS-1-2013-1-RS-TEMPUS-JPCR

2. Fostering students' entrepreneurship and open innovation in university-industry collaboration (iDEAlab)

Description: The general objective of the project is to advance employment and self-employment potential of graduates from WBC and enhance innovativeness of companies by fostering students' entrepreneurship, creation of business start-ups and open innovation approach in collaboration between universities and enterprises. The project will achieve this by developing a co-creative and supportive environment - iDEA Lab network which will encourage and foster students' entrepreneurial intent and at the same time support open innovation approach.

Specific objectives are:

• To set up, equip and network co-creative centres (iDEA labs) to support students to generate, develop and commercialize their own innovative ideas through entrepreneurship and/or open innovation

• To foster student entrepreneurship and start-up creation at university settings by improving infrastructure, entrepreneurial culture and skills

• To introduce and implement open innovation as a new form of partnership among key stakeholders in knowledge triangle in WBC

• To revise and adapt curricula to include entrepreneurial skills and problem-based learning

The principal results will include: 6 iDEA labs and their network in WBC with trained staff; developed and realized trainings for students and companies, established regional Market for ideas, developed students' start-ups and open innovations with companies, revised and adapted curricula.

Contact person: Vladimir Todorović

Period of realization: 2013 – 2017

ID: 544373-TEMPUS-1-2013-1-RS-TEMPUS-JPHES

Interreg – IPA CBC
Hrvatska - Srbija

The Interreg IPA Cross-border Cooperation Programme Croatia-Serbia 2014-2020 is a new cooperation programme envisaged to be implemented during financial period 2014-2020. It represents continuation of successful cooperation between two countries established previous financial perspective.

The overall objective of the Interreg IPA Cooperation Programme Croatia-Serbia 2014-2020 is to strengthen the social, economic and territorial development of the cross-border area through the implementation of joint projects and activities to be supported within four priority axes:

- PA1 – Improving the quality of public social and health services in the programme area.
- PA2 – Protecting the environment and biodiversity, improving risk prevention and promoting sustainable energy and energy efficiency.
- PA3 – Contributing to the development of tourism and preserving cultural and natural heritage.
- PA4 – Enhancing competitiveness and developing business environment in the programme area.

Within four priority axes, the Programme defines five specific objectives that indicate specific changes that the Interreg IPA CBC Programme Croatia-Serbia 2014-2020 anticipates to achieve through implementation of specific actions and realization of related outputs.

Interreg – IPA CBC
Hrvatska - Srbija

1. Active SEnsor monitoring Network and environmental evaluation for protection and wiSe use of WETLANDS and other surface waters– SenS Wetlands

Description: The project addresses one of the most important common cross-border problems and challenges in environmental and biodiversity protection that is anthropogenic influence from rural and agricultural areas. Bačka (Serbia) and Western Srem (Croatia) are characterized by a high percentage of arable and agricultural land and intensive negative influence on the natural systems. This area is facing by continuing deterioration in environment quality, particularly water pollution. The biodiversity of wetland areas is especially endangered since they have reduced tolerance and adaptability to environmental condition variations. It is very difficult to measure the full scale of anthropogenic impact onto the natural aquatic systems, especially with cross-border impacts. There is deficiency of data valid for ecosystems in Pannonian region and similar neighbor biogeographical areas. The problem requires high interdisciplinary approach and joint cross-border activities. The project introduces new and challenging measures of ecological status for improvement of environmental protection by developing an integrated continuous monitoring network on cross-border wetland areas, consisted of wireless sensor system supported by standard laboratory analytical analyses in ecomonitoring. ith new data on contamination of wetlands, analysis of current vegetation and relevant target group's opinion, adequate measures for preserving ecosystem can be implemented, such as projecting of adequate green infrastructure essential for aquatic ecosystems optimal protection.

Contact person: Doc. Dr. Jelena Radić
Period of realization: 2017 – 2019
ID: 2017HR-RS135

2. Modernizing Laboratories for Innovative Technologies – DRIVE

Description: This project aims to improve competitiveness of the Programme area (Osijek, CRO – Novi Sad, SRB) through strengthening cooperation between business support institutions, clusters, education and research organizations and entrepreneurs. The project goal will be the development of the learning materials and curriculum for studies in automotive software engineering with the focus on developing laboratory exercises for the required courses. Laboratories at the participating institutions will be equipped with the state-of-the-art technology in automotive software engineering and students will have hands-on experience with the innovative technologies.

Contact person: Prof. Dr. Miroslav Popović
Period of realization: 2017 – 2019
ID: 2017HR-RS60

3. Agricultural Waste - Challenges and Business Opportunities – ECO BUILD

Description: The results of previous studies of pucolic activity and selected physical and chemical properties of ash resulting from combustion of biomass, as well as the strength of mortars, in which a part of the cement was replaced by biomass ash, were satisfactory when using wheat ash and mixtures of wheat and soy straw. However, in addition to the above properties, in order to give an assessment of the safe use of the biochemical for the preparation of cement composites it is necessary to examine their behavior in exploitation conditions. The subject of the research is plaster / concrete in which the part of the cement will be replaced by biochemical, and the ash quality of the ash and the exploitation properties related to durability will be checked.

The aim of the research is to demonstrate that the use of ash biomass as biochemical (partial replacement of cement with ash) does not worsen the properties of composites based on these binders in terms of dehumidification and selected exploitation properties. .

The general aim of the research is to determine the real possibilities for the use of this biochemical through the substitution of the part of the cement clinker with biopepel in order to reduce the dumps of this product, but also to influence the increased utilization of straw for energy production.

It is also aimed at reducing CO2 emissions and the consumption of non-renewable natural mineral resources in the process of cement production. Biopepeli is a material with zero CO2 emissions, which is particularly appreciated from the aspect of reducing the greenhouse effect,

Contact person: Prof. Dr. Mirjana Malešev
Period of realization: 2017 – 2019
ID: 2017HR-RS38

4. Cross-Border IT network for competitiveness, innovation and entrepreneurship – X- BIT

Description: The XBIT project tackles the issue of inadequate conditions for the optimal and structured development of the IT industry and entrepreneurship within the programme area, and its sub-optimal utilization as a generator of innovation and competitiveness. This project intervention is using an approach built around Cross-border IT Network (XBIT Network), defined as a congregation of key stakeholders relevant for establishing a favorable environment for the development of the IT industry, fostering entrepreneurship, creation of jobs and employment opportunities, increasing the retention of talent in the industry and increasing the number of skilled professionals.

Project objective: Creating favorable conditions for development of the IT industry and entrepreneurship, and their proper utilizing as generators of innovation capacity and an effective tool for increasing the overall competitiveness of the programme area's economy.

Contact person: Vladimir Todorović
Period of realization: 2017 – 2019
ID: 2017HR-RS129

Interreg–IPA Cross-border Cooperation Programme Hungary–Serbia (Interreg-IPA CBC Hungary- Serbia) is an initiative within the 2014-2020 European Union financial framework, under the Instrument for Pre-accession Assistance (IPA).

The Programme was approved by the European Commission by its decision C(2015) 9488 on December 15, 2015. It relies on the Regulation (EC) No 231/2014 of the European Parliament and of the Council and the Commission Implementing Regulation (EU) No 447/2014 (IPA II Implementing Regulation).

On the basis of "shared management system" of the participating countries – Hungary and Serbia, the Programme funds and supports co-operation projects of non-profit organizations located in the Programme-eligible area, including Hungarian NUTS III level counties Csongrád and Bács-Kiskun, and Serbian NUTS III equivalent regions: West Bačka, North Bačka, South Bačka, North Banat, Central Banat, South Banat and Srem.

Interreg-IPA CBC Hungary-Serbia is the fourth generation of the cross-border cooperation programmes in the Hungary-Serbia border region. Operating under the slogan "Good Neighbours Creating Common Future", the Programme supports the development of a stable and co-operating region and the overall quality of life in the border region. It enables economic collaboration of organizations from the two countries, nurtures the common identity, and cultural and historical heritage of the border region, and contributes to its environmental sustainability and safety. As such, Interreg–IPA CBC Hungary–Serbia may be perceived as a progression of the previous Hungary-Serbia IPA Cross-border Co-operation programme, implemented within the 2007-2013 EU financial framework.

1. Monitoring, forecasting and development of online public early warning system for extreme precipitations and pluvial floods in urban areas in the Hungarian-Serbian cross-border region – URBAN PREX

Description: Climate change is expected to increase the frequency and intensity of precipitation and pluvial flood occurrences in urban areas of Central Europe. Thus, the proposed project presents an outstanding opportunity to develop and implement an innovative monitoring, forecasting and online public early warning system for extreme precipitation and pluvial floods in urban areas of the Hungarian-Serbian Cross-border region. Through the project, two dense precipitation monitoring networks will be installed in the most-populous cities of the Programme area: Novi Sad (Serbia) and Szeged (Hungary). Continuous data recording, transmission and processing, as well as real time display of the processed data in a spatial (i.e. map) form will be useful for citizens (i.e. individual adaptation) and public institutions (e.g. traffic and water management, city government) of the Cross-border region. Real-time precipitation forecasting model for the whole programme area supplemented with the forecast of pluvial flood occurrences in Novi Sad and Szeged will be developed through the project based on the measured data from the networks and the remotely sensed data. Measured data will be used to fine-tune the remotely sensed data thus enabling the development of more precise forecast model for the Programme area. Measured and forecasted data will be freely available for everyone in real-time on the project website, project social pages and mobile android application giving an early warning to the citizens and public authorities in order to protect them and prepare their effective response to these extreme weather and water situations.

Contact person: Doc. Dr. Ivana Bajšanski
Period of realization: 2017 – 2019
ID: HUSRB/1602/11/0097

Interreg

EUROPEAN UNION

Danube Transnational Programme

The Danube Transnational Programme is a financing instrument of the European Territorial Cooperation (ETC), better known as Interreg. ETC is one of the goals of the European Union cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States.

The Danube Transnational Programme (DTP) promotes economic, social and territorial cohesion in the Danube Region through policy integration in selected fields.

In order to achieve a higher degree of territorial integration of the very heterogeneous Danube region, the transnational cooperation programme acts as a policy driver and pioneer to tackle common challenges and needs in specific policy fields where transnational cooperation is expected to deliver tangible results.

Considering its geographical coverage, this highly complex programme provides a political dimension to transnational cooperation which is unique in Europe, successfully facing challenges such as ensuring good mechanisms to contract partners who receive funding from different EU instruments.

The Danube Transnational Programme finances projects for the development and practical implementation of policy frameworks, tools and services and concrete small-scale pilot investments. Strong complementarities with the broader EU Strategy for the Danube Region (EUSDR) are sought.

Interreg

EUROPEAN UNION

Danube Transnational Programme

1. TRANSNATIONAL COOPERATION TO TRANSFORM KNOWLEDGE INTO MARKETABLE PRODUCTS AND SERVICES FOR THE DANUBIAN SUSTAINABLE SOCIETY OF TOMORROW – MADE IN DANUBE

Description: The rising population and associated demand for renewable biological resources make Bioeconomy a key element for smart and green growth in Europe and the Danube Region. Successful development of innovative services and new products in this field highly depend on an efficient collaboration between research organizations and regional companies.For this reason Made in Danube will try to improve the conditions for this cooperation by developing open innovation tools which will match the needs of companies with the expertise of research organizations; By integrating three existing regional initiatives:

1.Smart and innovative precision farming
2.Competence Center in Wood Sector
3. Biofuel

Made in Danube will further implement the developed tools and build 15 sustainable bioeconomy-based innovation partnerships involving 40 regional companies. This way Made in Danube will not only contribute to the competitiveness of SMEs in the South-Eastern Danube Region but also generate significant change for the entire area by supporting regional Smart Specialisation Strategies.

Contact person: Prof. Dr. Milan Martinov
Period of realization: 2014 – 2017
ID: DANUBE INTERREG

2. DBS GATEWAY REGION - REGIONAL AND TRANSPORT DEVELOPMENT IN THE DANUBE-BLACK SEA REGION TOWARDS A TRANSNATIONAL MULTIPORT GATEWAY REGION

Description: DBS Gateway Region project aims at supporting the Danube-Black Sea region to become an attractive gateway region for maritime and inland waterway transport between Central Europe and the Black Sea, the Caspian region and the Far East by facilitating the cooperation within and with the region and its actors. The joint effort shall improve accessibility of both the ports and the regions and strengthen interoperability between maritime and inland waterways as well as with their hinterland. Together with raising the awareness of the possibilities of intermodal transport, this will lead to shifting existing and attracting new cargo flows to environmentally friendly transport systems.

At present, aging infrastructure and inefficient, non-transparent intermodal services limit the potential of the water transport system. The project is built upon the belief that the cooperation of public authorities, ports and their related associations is the key success factor in order to raise quality, reliability and efficiency of the waterway transport system.

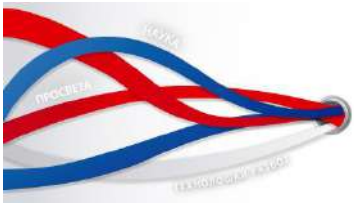
Cooperation in itself will not yet lead to the envisaged results. It needs to be elevated on a well-informed (Potential Analysis, Road Map), well-prepared (list of projects ready to be implemented, Funding Guideline), well-focused (Joint Vision, Joint Cooperation Strategy) and well-supported (Cooperation Platform beyond the lifetime of the project) level.

Contact person: Doc. Dr. Sanja Bojic
Period of realization: 2017 – 2019
ID: DANUBE INTERREG

3. DANURB - DANUBE URBAN BRAND

Description: The main goal of the project is to create a comprehensive spatio-cultural network, a "Danube Cultural Promenade" connecting all communities along the river, unifying these into one tourism destination brand, offering thematic routes and developing possibilities that can increase the number of visitors and can prolong their stay in the region. Project partners – relevant universities, research and development centres, regional municipalities, cultural NGOs, tourism boards and professional market based agencies - will create a network and common platform to work along a sustainable cultural and tourism strategy, proving that a common Danube urban brand can bring social and economic benefits at once. Very important in this process is that international knowledge and practice will be implemented in local conditions. The closest cooperation with communities and regional stakeholders from each 7 Danube countries, creation of common strategy based on individual approach and site specific, can guaranty durability of the project results expressed in sustainable maintenance of Danube Cultural Promenade by local neighbours with economic independency on basis of boosted development of tourism and cultural industry.

Contact person: Prof. Dr. Milena Krkljes
Period of realization: 2017 – 2019
ID: DANUBE INTERREG

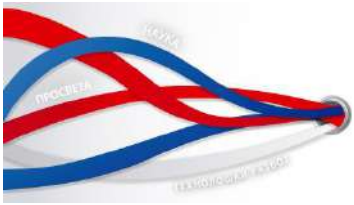


Министарство просвете,
науке и технолошког развоја

BILATERAL COOPERATION

Ministry of Education, Science and Technological Development contracts and financially supports projects of scientific and technological cooperation between domestic and foreign scientific and research organizations (NIO) on the basis of international bilateral agreements.

In cases where the NIO in such a way provide additional financial and material resources from abroad, the Ministry will proportionately in accordance with the budgetary possibilities, to provide our NIO additional incentives.



Министарство просвете,
науке и технолошког развоја

SERBIA – PORTUGAL

1. Implementation of Internet of Things on Tracebility Systems in Supply Chain of Food Production Industry

   Contact person: Prof. Dr. Stevan Stankovski

   Period of realization: 2015 – 2017

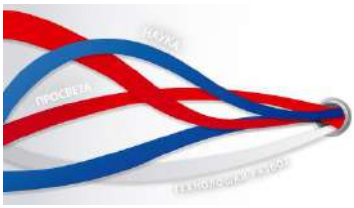
   ID: 451-03-01765/2014-09/09

SERBIA – CHINA

2. Application of multi-sensor technology for obtaining integrated information system of traceability quality fresh food products in the cold chain

   Contact person: Prof. Dr. Stevan Stankovski

   Period of realization: 2015 – 2017



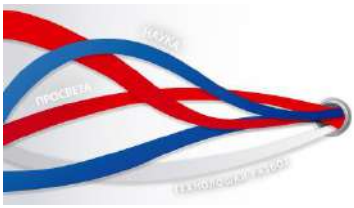
SERBIA – MONTENEGRO

3. Application of IoT technologies in order to increase the quality of identification and tracking of animals
   Contact person: Prof. Dr. Stevan Stankovski
   Period of realization: 2016 – 2018

4. Strengthening competitiveness in the stimulation of development of organic agriculture - a comparative study between Montenegro and Serbia
   Contact person: Doc. Dr. Slavica Mitrović
   Period of realization: 2016 – 2018

5. Information system to support collaborative courier services in urban areas
   Contact person: Prof. Dr. Dubravko Ćulibrk
   Period of realization: 2016 – 2018

6. Development and optimization of infrastructure for recharging electric and hybrid vehicles in urban and tourist areas in Serbia and Montenegro
   Contact person: Prof. Dr. Vladimir Katić
   Period of realization: 2016 – 2018



Министарство просвете,
науке и технолошког развоја

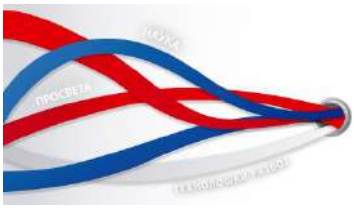
SERBIA - SLOVENIA

7. Fiber-optic sensor system for unauthorized localization downturn
   Contact person: Doc. Dr. Vladimir Rajs
   Period of realization: 2016 – 2017

8. Thermoelectric materials based on the multi-layered structures
   Contact person: Dr. Milica Vučinić Vasić
   Period of realization: 2016 – 2017

9. Security in Multiagent systems
   Contact person: Prof. Dr. Milan Vidaković
   Period of realization: 2016 – 2017

10. Mechanisms binding aggregate made of ash, geopolymer and cement binders
    Contact person: Prof. Dr. Miroslava Radeka
    Period of realization: 2016 – 2017



Министарство просвете,
науке и технолошког развоја

11. Two-handed management of the physical interaction between humans and robots for use in rehabilitation and industry

Contact person: Doc. Dr. Mirko Raković

Period of realization: 2016 – 2017

12. Evaluation of uncertainty of measurement for coordinate measuring machines, and interlaboratory comparison

Contact person: Prof. Dr. Miodrag Hadžistević

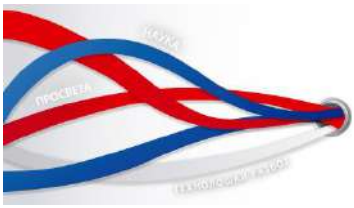
Period of realization: 2016 – 2018

SERBIA - GERMANY

13. Self-Adapting Interface Technology for the Integration of Machines and Information Systems

Contact person: Prof. Dr. Ivan Luković

Period of realization: 2016 – 2017



Министарство просвете,
науке и технолошког развоја

SERBIA - AUSTRIA

14. Development and evaluation of management scenario for bio waste in Serbia taking energy utilization and sustainable phosphorous management into account

Contact person: Doc. Dr. Nemanja Stanisavljević
Period of realization: 2016 – 2017
ID: 451-03-01039/2015-09/13

SERBIA – CROATIA

15. Development of a model for assessing the energy efficiency of buildings in terms of sealing

Contact person: Prof. Dr. Vlastimir Radonjanin
Period of realization: 2016 – 2017.

Key Action 1: Mobility of Individuals

This Action is all about providing opportunities for individuals to improve their skills, enhance their employability and gain cultural awareness.

Under Key Action 1 organisations can apply for funding to run mobility projects to enable organisations to offer structured study, work experience, job shadowing, training and teaching opportunities to staff and learners.

Beneficiaries are able to spend a period of time in another participating country gaining valuable experience of life, study and work with the aim of increasing the opportunities available to them in the future.

Key Action 1 covers the five fields of higher education, vocational education and training, schools, adult education and youth. It is important to note that target groups and activities for Key Action 1 vary by field.

Key Action 1 is the largest action in Erasmus+ with 63% of programme budget supporting its focus on increasing mobility and skills.

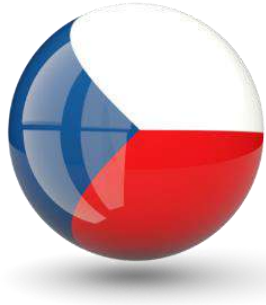
AUSTRIA

1. TU WIEN
2. KARL-FRANSENZ-UNIVERSITAT GRAZ (UNIVERSITY OF GRAZ)

BELGIUM

3. GHENT UNIVERSITY

CZECH REPUBLIC



4. UNIVERSITY OF WEST BOHEMIA

FINLAND

5. UNIVERSITY OF TURKU

FRANCE

6. UNIVERSITE PARIS DIDEROT
7. UNIVERSITY OF NICE SOPHIA ANTIPOLIS
8. UNIVERSITY COTE D'AZURE NICE
9. CLAUDE BERNARD UNIVERSITY LYON
10. LILLE CATHOLIC UNIVERSITY

GREECE

11. TECHNOLOGICAL EDUCATIONAL INSTITUTE OF STERA ELADA LAMIA
12. UNIVERSITY OF THE AEGEAN
13. ARISTOTLE UNIVERSITY OF THESSALONIKI

NETHERLAND

14. ROTTERDAM UNIVERSITY OF APPLIED SCIENCES
15. UNIVERSITY OF GRONINGEN
16. RADBOUD UNIVERSITY

CROATIA

17. "JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK
18. UNIVERSITY OF SPLIT
19. UNIVERSITY OF ZADAR
20. UNIVERSITY OF ZAGREB

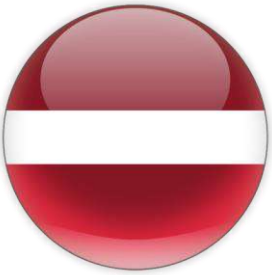
ITALY

21. POLITECNICO DI MILANO
22. UNIVERSITA DEGLI STUDI DI MILANO
23. UNIVERSITY OF NAPLES FEDERICO II
24. UNIVERSITY OF TRENTO
25. POLITECNICO DI TORINO
26. POLYTECHNIC UNIVERSITY OF BARI
27. ALMA MATER STUDIORUM UNIVERSITA DI BOLOGNA
28. SAPIENZA UNIVERSITY OF ROME
29. UNIVERSITA POLITECNICA DELLE MARCHE

CYPRUS

30. EUROPEAN UNIVERSITY CYPRUS

LATVIA



31. RIGA TECHNICAL UNIVERSITY

LIECHTENSTEIN

32. UNIVERSITY OF LIECHTENSTEIN

LITHUANIA

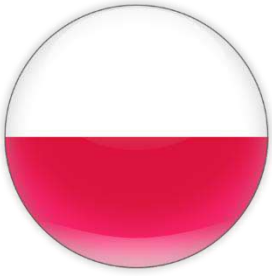
33. VILNIUS GEDIMINAS TECHNICAL UNIVERSITY
34. VILNIUS COLLEGE OF TECHNOLOGIES AND DESIGN
35. KAUNAS UNIVERSITY OF TECHNOLOGY - KTU
36. ALEKSANDRAS STULGINISKIS UNIVERSITY
37. ŠIAULIAI UNIVERSITY

HUNGARY

38. BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS
39. ÓBUDA UNIVERSITY
40. EOTVOS LORAND UNIVERSITY (ELTE)

GERMANY

41. TECHNISCHE HOCHSCHULE GEORG AGRICOLA
42. ULM UNIVERSITY OF APPLIED SCIENCES
43. SRH UNIVERSITY HEIDELBERG
44. UNIVERSITY OF HEIDELBERG
45. TECHNISCHE UNIVERSITÄT ILMENAU
46. OTTO-FRIEDRICH-UNIVERSITAT BAMBERG



POLAND

47. WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY
48. BIALYSTOK UNIVERSITY OF TECHNOLOGY
49. SILESIAN UNIVERSITY OF TECHNOLOGY
50. AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY
51. UNIVERSITY OF WARSAW
52. UNIVERSITY OF LODZ

PORTUGAL

53. UNIVERSITY OF AVEIRO
54. POLYTECHNIC INSTITUTE OF VISEU
55. CONSORTIA ERASMUSCENTRO (POLYTECHNIC INSTITUTES OF CASTELO BRANCO, COIMBRA, GUARDA, LEIRIA, PORTALEGRE, SANTAREM, TOMAR, VISEU)
56. UNIVERSIDADE NOVA DE LISBOA

ROMANIA

57. TECHNICAL UNIVERSITY OF CLUJ-NAPOCA
58. POLITEHNICA UNIVERSITY OF BUCHAREST
59. TRANSILVANIA UNIVERSITY OF BRAȘOV
60. POLITEHNIKA TIMISOARA
61. VASILE GOLDIȘ WESTERN UNIVERSITY OF ARAD
62. "1 DECEMBRIE 1918" UNIVERSITY OF ALBA IULIA
63. ALEXANDRU IOAN CUZA UNIVERSITY OF IASI
64. LUCIAN BLAGA UNIVERSITY OF SIBIU

SLOVAKIA

65. TECHNICAL UNIVERSITY OF KOŠICE
66. SLOVAK UNIVERSITY OF TECHNOLOGY BRATISLAVA
67. MATEJ BEL UNIVERSITY, BANSKA BYSTRICA

SLOVENIA

68. UNIVERSITY OF MARIBOR
69. UNIVERSITY OF PRIMORSKA

SPAIN

70. UNIVERSITY OF ALCALA
71. UNIVERSITY OF GRANADA
72. UNIVERSITY OF JAEN
73. UNIVERSITY OF VALENCIA

SWEDEN

74. LUND UNIVERSITY

TURKEY

75. MIDDLE EAST TECHNICAL UNIVERSITY (METU)
76. ISTANBUL GELISIM UNIVERSITY

Overview of international projects 2017/2018 is the result of the project: "Advanced teaching and research methods in academic and professional studies at the Faculty of Technical Sciences".

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Prof. Dr. Rade Doroslovački, dean

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10. Prof. Dr. Milan Martinov
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28. Miloš Karan
29. Dušan Bajić