



**WBCInno**

*Catalogue of research and  
innovation potential of the  
University of Montenegro*





# *Catalogue of research and innovation potential of the University of Montenegro*



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WBCInno – Modernization of WBC universities through strengthening of structures  
and services for knowledge transfer, research and innovation

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# Preface

The University of Montenegro, together with sixteen partners from Europe and the Western Balkans Region, has been implementing the TEMPUS project WBCInno entitled: "Modernisation of WBC Universities Through Strengthening of Structures and Services for Knowledge Transfer, Research and Innovations" since October 2012. One of the innovative goals of the Project is developing the Regional university innovative platform, preceded by mapping of research and innovation potentials at five universities in the Region, which participate in the Project: the University of Montenegro, the University of Kragujevac, the University of Novi Sad, The University of Banja Luka and the University of Zenica.

The first step was developing mapping methodology and the corresponding questionnaire, with well-structured questions which provide collecting data on research infrastructure, laboratories, centres, research teams with significant results and/or innovation potential. Another goal is also to collect information on valuable research results, developed technologies, software, patents, licences, specific methodologies, training, commercial services, laboratory tests which can be both commercialized and offered to users outside the University, above all to the regional enterprises, as well as to the users at the University, aiming at knowledge transfer, research and innovations.

Except for the review of a part of the research in this printed edition of the Catalogue, developing of the electronic catalogue (HTML), which enables continuous data entering, managing and generating specific reports for the needs of monitoring research and innovation activities at University, is in progress. Beside that, searching data base according to various criteria by external users as well as easy connection of stakeholders (researchers, enterprises, innovators, investors etc.), which encourages commercialisation of research results and innovations in the market, will be possible.

The Catalogue is structured in three chapters. The first introductory chapter refers to basic information about the University of Montenegro. The second chapter provides a review of the established structures and mechanisms at the University, which engage in and encourage knowledge transfer, advanced research and innovations. The third chapter represents the essential part of the Catalogue and presents the centres and laboratories of the University of Montenegro describing contents of their activities, results, resources, projects (domestic and international), key personnel, as well as provided commercial services, technical solutions, patents, prototypes and other measurable results of the research that have commercial and innovation potential.

# *Preface*

The intention is to publish editions of the Catalogue annually, so that the said edition presents the centres and laboratories which have responded to this initiative and submitted the necessary information by filling in the questionnaires for quality presentation of their potential. We expect the continuous process of mapping research resources of the University in the future to result in finding interest of other research groups at the University in being presented in the Catalogue, which will allow a better long-term application of research results in the region, knowledge transfer and innovation development.

On behalf of the Project team of the University of Montenegro we would like to thank all the colleagues from the WBCInno Project Team who prepared the project materials as well as to the colleagues from the University of Montenegro who submitted the materials on behalf of the centres and laboratories which they represent and in that way contributed to the quality of this Catalogue.

In Podgorica, 2013.

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# 1. *The University of Montenegro*

The University of Montenegro was founded on 29 April 1974. In the same year three faculties: Faculty of Economics, Faculty of Engineering and the Faculty of Law from Titograd, two colleges: Teaching College and Maritime Studies College) and three independent scientific institutes (for History, for Agriculture and for Biological and Medical Research), signed the Agreement on Association into the University in Titograd. A year after it was founded, it changed its name into the University "Veljko Vlahović", and in 1992 it was named the University of Montenegro. During thirty years of its existence it has developed with the spirit of the time and growing needs of Montenegro.



Today the University of Montenegro includes faculties, independent study programmes, academies and institutes.

In the undergraduate studies students enrol into 77 study programmes, out of which 61 are academic (79%) and 16 are applied study programmes (21%). Teaching is organised in 10 Montenegrin cities - in Podgorica, Niksic, Kotor, Bijelo Polje, Berane, Pljevlja, Herceg Novi, Bar, Budva and Cetinje. The total number of students is 20475. There are 1.170 employees at the University.

The University of Montenegro is organised in the same way as most European universities. The Managing Board governs the University and the Rector manages it. The supreme academic body is the University Senate. Deans are heads of faculties and directors are heads of institutes. The highest academic bodies at faculties i.e. at institutes are councils for teaching-scientific issues, i.e. for teaching-artistic issues. The highest student body is the Student Parliament. Representatives of students are elected in all bodies of the University and of the faculties.

***Faculties***

- Faculty of Electrical Engineering
- Faculty of Mechanical Engineering
- Faculty of Metallurgy and Technology
- Faculty of Natural sciences and Mathematics
- Faculty of Civil Engineering
- Faculty of Architecture
- Faculty of Economics
- Faculty of Law
- Faculty of Political Sciences
- Faculty of Medicine
- Faculty of Philosophy
- Faculty of Maritime Studies
- Faculty of Tourism and Hotel Management
- Music Academy
- Faculty of Drama
- Faculty of Fine Arts
- Faculty of Applied Physiotherapy
- Faculty of Biotechnology
- Faculty for Sport and Physical education
- Faculty of Pharmacy

***Autonomous study programs***

- Geodesy
- Teacher Training in Albanian

***Institutes***

- Marine Biology Institute
- Institute of Foreign Languages
- Historical Institute



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## ***2. Structures and mechanisms for support of knowledge transfer, research and innovation***

### ***Support of knowledge transfer***

In order to understand the existing mechanisms for support, it is necessary to provide a brief overview of the organisation and functioning of the University. Namely, before the year 2003 the University of Montenegro had had a disintegrated organisation, in which each of the Faculties and Institutes functioned as a separate legal entity, under the University as the umbrella organization. Since 2003, the University has changed the way of organising, introducing an integrated model ie. functioning as a single legal entity. However, a certain level of independence of the academic units still exists, which is most notably reflected in scientific-research activities, ie. activities which are supported by the competent Ministries through their programmes. On the other hand, there are currently not any mechanisms of state support to the supporting mechanisms which are provided to all University units from the central level.

At the central level there is the Service Centre for Support of Research and Development (R&D Service Centre), which is established through EU Project Support (TEMPUS Programme), and which is recognised as the core of the Technology Transfer Centre. At the moment, the Centre is more focused on service function, which is reflected in assistance in preparing applications for various EU grants, conducting structural projects at the University level, together with other central units - the International Cooperation Office, Quality Assurance Centre, Centre of Information Systems and University Library. A large part of these joint activities refers to reforming and strengthening research and innovation component of the University, such as training young researchers, issues of plagiarism, computer literacy, standardisation of evaluation in research and innovations, training of evaluators etc.

Through different types of training, the Centre is associated with business entities in the country, and also with the representatives of different agencies, as well as with individuals, and currently, through the RTDI evaluation activities, the establishment of cooperation with a certain number of small and medium enterprises is underway.

### ***Activities in the fields of research and innovation***

The University of Montenegro is an institution which includes faculties, institutes, centres and teams from different fields of science - natural, technical, medical, social, humanistic sciences and also from arts. At each of the faculties and institutes various research groups work, and they are in different ways connected with enterprises, but also with the Government, by means of providing expert services in the field of policy making, current negotiations for EU membership in different chapters, as well as services in various training, projects and cooperation with business entities.

## ***Centres of Excellence***

Centres of Excellence in Montenegro are defined by specific provisions of the Law on Scientific and Research Activity. At the institutional level there are not any criteria for defining and establishing the centres. Bearing in mind the size of the country and the research system, it is not surprising.

The Ministry of Science has, for the first time, recently announced a competition for financing the centres of excellence, which is financed by the loan from the World Bank. A centre of excellence is defined as "Institution or group of researchers in the institution, which is engaged in research at the highest level in the country, whose aim is achieving competitiveness in the international context, creating the best practices and providing technical support and training in a specific field of science." The value of the competition is a little over 3.7 million euro. Priority areas for the application are: energy, ICT, food and agriculture, sustainable development and tourism and medicine and human health.

Beside the R&D Service Centre, at the University units there are teams engaged in different activities intended for enterprises and other economic entities. It should be noted that training through lifelong learning has recently enabled at the University, where economic entities can be found as the initiators of the programme, so that in the upcoming period of time and through that bond, one can expect new activities of connecting the academic community with economy.

## ***Procedures for submitting patent applications***

There are no procedures for submitting patent applications at the University. At the state level this procedure is the responsibility of the Intellectual Property Office of Montenegro. Since a patent owner can be either legal or natural person, and with the absence of procedures and support in the procedure of submitting applications at the institutional level, unfortunately, there is no insight into the patent applications. Relevant national legislation has accepted the question of patentability in detail on the basis of scientific research.

As one of the measures, the Ministry of Science also stimulates patent applications and innovative solutions, through annual competition for financing scientific-research activities.

## ***Intellectual property protection structures***

Regarding the fact that the intellectual property protection, especially the protection of the results of innovation activities, is still at the very beginning even at the national level, there are currently no special units at the University that deal with this topic. Legislation and practices at the national level are still underdeveloped, especially regarding the intellectual property rights on the basis of scientific activity. It is encouraging that Montenegro's EU accession negotiations are under way, and that specific recommendations for improving legislation and environment in this area have already been obtained.

The intellectual property issues may currently arise within the international scientific projects, and in such cases the support is provided by the Service Centre, in cooperation with the Legal Department of the University Rectorate.

## ***Clusters, science and technology parks, business incubators***

The issues of clusters, science and technology parks, incubators etc. in Montenegro are treated at the state level, so that through the Ministry of Science, the construction of the first technological park is under way in Niksic.

Clusters also gain the importance through different sector strategies and related activities. One of the strategic documents that deals with this issue is the Strategy for Sustainable Economic Growth through Introduction of Clusters by 2016. Through mapping activities, potential clusters have been determined in the following areas: buyers and processors of mushrooms, producers of organic buckwheat, freshwater fish growers, wood processors, meat industry and olive oil producers.

We should also mention the activities of the Faculty of Biotechnology within EU Food Cluster Initiative.

## ***Events dedicated to innovation***

The University supports different activities dedicated to innovation, such as the Fair for Young Researchers, which is held annually, then it supports projects of line ministries for the best innovative solutions, such as competitions of the Ministry of Information Society.

As part of activities of the Rectorate various lectures are organized on the following themes: technology transfer, finding appropriate TTO models, co-operation with industry through inter-sector mobility and scientific-innovation activities etc.



### 3. Organizations to support entrepreneurship and innovation - Business Incubators

#### *Business incubator "Inventivness" - Podgorica*

During the last 5 years, since its foundation, the Business Incubator "Inventivness" has carried out a number of activities with the aim to further promote the Project both in the country and abroad. Beside the promotion, the Incubator has worked on the improvement of its tenants as well as on monitoring their business activity. During the last 5 years the economic situation has been very difficult in terms of finances and organization of business organisation of enterprises in a very small place which the Incubator presently possesses. For those reasons the expansion of the Incubator has not been possible, but only maintaining the present state with maximum effort to overcome numerous difficulties which the Incubator faces.

The Incubator now has ten tenants with active business. The tenants of the Incubator are the companies: Mont Inžinjering Ltd., Defacto consultancy Ltd., Info Ltd., Programmer Ltd., Bild Studio Ltd., Data Design Ltd., Fresh Ltd., Vakom Ltd., Maximillion Studio Ltd., HEX Ltd. In 2012 we also supported the company Adria Management group, which left the Incubator due to the impossibility to expand within the existing offices. Since the foundation of the Incubator establishing the total of 14 microenterprises has been supported. Out of the 14 mentioned, only one has closed so far. A part of them have left the Incubator and another part have switched into virtual tenants.

The physical occupancy of the Incubator is 100% which means that 5 of the mentioned enterprises are physically present in the Incubator, while the other 5 are only virtually there. Virtual tenants perform a part of their activities inside the Incubator, while the other 'soft' support of the Incubator is always available to them.

The Capital City has provided a part of the space for the Incubator, with the total area of 50m<sup>2</sup> on location at the former Dairy Podgorica. The rest of 120 m<sup>2</sup> has been provided by NGO Narodna Tehnika.

In the mentioned 14 enterprises more than 40 people have been employed permanently or temporarily. The Total annual turnover of all the tenants of the Incubator is approximately 250.000 euro, depending on the success of individual enterprises. The most successful enterprise within the Incubator is 'BILD STUDIO' Ltd., an IT company specialising in the development of web-based information systems. Since its foundation within the Incubator in 2010 and with its two founders, the Company has become an enterprise which permanently or temporarily employs 15 people. The subsidy obtained by the Incubator enterprises on a monthly basis ranges from 100 to 150 euro on average per enterprise. After staying in the Incubator for a maximum of 5 years, enterprises have to leave it and compete in the market independently.

## ***Business Incubator of The Business Center Bar***

Bar is the first city in Montenegro, which started the project of the business incubator!

NGO SPARK from Holland and The Municipality of Bar within the BSC Bar opened incubator in year 2009. The goal of the incubator was to support the development of entrepreneurship, employment and development of small and medium enterprises. Incubator was organized in the way that entrepreneurs, new and existing enterprises, can stay in the business incubator under preferential terms. Such preferential incubation program is unique in Montenegro. Specifically, the purpose is to provide the services to tenants of incubator in the critical period of their operations for a period of 3 to 5 years, through various kinds of support, such as:

- Subsidized rental of office space
- Consulting services
- Access to bank loans
- Free company registration
- Business Training programs
- Support for development and creation of foreign partnerships

Incubator has capacity to provide work space for 35 companies. At about 1100 m<sup>2</sup>, in a representative environment, is situated 35 modern equipped offices. All business units are equipped with telephone and intranet / Internet access, and tenants will be available modern computer and audiovisual equipment, rooms for meetings and seminars, as well as professional support the management.

Our purpose is to help entrepreneurs in the very beginning of their business in a way to facilitate the process by lower costs, but not for free, to immediately experience the reality of business life. Among others, the objectives of incubators are to facilitate entrepreneurs to start their own business, especially young people after graduation. We are doing this by: providing advice, facilitating the financing of activities by the BSC Bar Credit Guarantee Fund, and the possibility of presenting products and services at trade fairs and unique web site of the BSC Bar.

Currently BSC Bar has 35 companies (incubator tenants) in incubator with about 120 employees. We have to emphasize that even at the beginning of the implementation of this business model we have noticed that it was extremely successful. Its success reflects through the success rates of companies that were working in incubator and using its services, which is above 90%. Also we have to underline that over 20 companies left incubator and successfully works on market. However its greatest significance lies in the possibility to transfer the knowledge and experience in creating successful networks of small and medium-sized enterprises.

## ***4. Presentation of centres, laboratories and research groups***

- Centre of Information System of the University of Montenegro
- R&D Service Centre at the University of Montenegro
- Centre for International Projects
- Centre for Accounting and Auditing
- Centre for Career Development
- Centre for statistical research, modelling and prognoses
- Centre for extracurricular education at the Faculty of Economics
- Centre for telecommunications
- Centre for social research at the Faculty of Political Sciences
- Centre for science at the Faculty of Applied Physiotherapy
- Institute for Sociology and Psychology
- Laboratory of developmental research and mariculture
- Laboratory of chemistry, biochemistry and molecular biology
- Laboratory of ichthyology and marine fisheries –Institute for Marine Biology
- Laboratory of General Biology and Marine Conservation
- Centre for Energy
- Centre for transport mechanical expertise
- Centre for transport machines and metal constructions - CETIM
- European Centre for Information and Innovation - EIICM
- Cooperative training centre - CTC
- Laboratory for automatization and mechatronics
- Laboratory for Turbulent Flows

# Centre of Information System of the University of Montenegro

Research field - classification code:

**FOS102 | Computer and information sciences**

The Centre of Information System of the University of Montenegro has started research in the field of information and communication technologies, parallel programming and eLearning, joining the FP6 and FP7 projects and intensifying the cooperation with international partners. The main objectives and activities are:

## Activities

- developing and integrating new ICT technologies
- establishing national and regional eInfrastructure
- research in the field of virtualisation and parallel programming, so far on the examples of the analysis of parallel applications from various fields (DNA analysis, algorithm switches simulation, wind direction forecast - Weibull distribution, Fuzzy C-means algorithms).
- comparative analyses and introducing and implementing new eLearning methods and services
- establishing scientific cooperation

## Results

- Launching infrastructure to support parallel programming and eLearning
- Analysis of technologies in the field of parallel programming and their implementation on the application in more scientific research disciplines (DNA analysis, switching technologies...)
- Analysis in the field of communication technologies
- Research papers in these areas

## Projects

- "South East Europe Research and Education Network – SEEREN2", financed by EU in the FP6, 2006 - 2008.
- "South East Europe GRID – SEEGRID2", financed by EU in the FP6, 2006 - 2008.
- "SEE-GRID eInfrastructure for regional eScience – SEE-GRID-SCI", financed by EU in the FP7, 2008 - 2010.
- "Multi-Gigabit European Research and Education Network and Associated (GEANT 3)", financed by EU in the FP7 Programme, 2009 - 2013.
- "Integrated Sustainable Pan-European Infrastructure for Researchers in Europe (EGI-Inspire)", financed by EU in the FP7 Programme, 2010 - 2014.
- "High-Performance Computing Infrastructure for South East Europe's Research Communities (HP SEE)", financed by EU in the FP7 Programme, 2010-2012.
- "South East European Research Area for eInfrastructures (SEERA-EI)", financed by EU in the FP7 Programme, 2009-2012.
- "FORSEE - Regional ICT Foresight exercise for Southeast European countries", financed by EU in the IPA Programme, 2012-2013.
- "Enhancing the quality of distance learning at Western Balkan higher education institutions (DL@WEB)", financed by EU in the TEMPUS Programme, 2012-2013.
- "Developing information Literacy for lifelong learning and knowledge economy in Western Balkan countries (RINGIDE)", financed by EU in the TEMPUS Programme, 2010-2013.



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## Resources

- Blade Server (HP ProLiant BL685c - 24 CPU, 64 GB RAM, 2 \* 300 GB HDD), software for virtualisation. Blade Server is used for the research in the field of virtualisation and parallel programming, so far in the examples of numerical analysis of parallel applications in a number of areas
- Computer cluster (MREN-01-CIS) is the first academic cluster in Montenegro. It was used for research in various FP7 projects, and is now used within the EGI-Inspire project. It is composed of 25 computers and servers for data processing, storage and monitoring elements.

## Key personnel

- Prof. dr Božo Krstajić (Director of the Centre)
- He graduated from the Faculty of Electrical Engineering in Podgorica in March 1992, and earned a master's degree at the same Faculty in 1996. He defended his doctoral thesis 'A new approach to adaptive LMS algorithm with variable step-size' in 2002 at the Faculty of Electrical Engineering in Podgorica. He was appointed assistant professor on 9 July 2003, and elected to the position of associated professor on 2 October 2008 at the University of Montenegro. As an author or co-author he has published over 110 papers in international and national journals and conferences. He has coordinated 10 international projects.
- mr Luka Filipović
- He graduated from the Faculty of Electrical Engineering of the University of Montenegro in 2004, and earned a master's degree in computer science in 2009. He is engaged in research in the field of parallel programming and distributed computer systems. He has published 9 papers in international and national journals and conferences. He participated in the Projects SEE GRID2, SEE-GRID-SCI, HP SEE, EGI Inspire, Euraxess.
- Vladimir Gazivoda
- He graduated from the Faculty of Electrical Engineering in Podgorica, Department of Electronics. He is currently developing master's thesis on the analysis of crossbar switches with adopted real Internet traffic. He has published 7 research papers. He participated in the Projects SEEREN 2, GEANT, GEANT 3+.
- Aleksandra Radulović
- She graduated from the Faculty of Electrical Engineering of the University of Montenegro, at the graduate studies in applied computer science. She has worked in The Centre of Information System since 2009. She participated in the Projects ELEARNING PROJECT (eLP) of WUS Austria, FP7 (GEANT3 and SEERA-EI). She is currently participating in the Projects: Tempus (DL@WEB), FP7 (GEANT 3+) and IPA (FORSEE).
- Miloš Mrdović
- He graduated from the Faculty of Electrical Engineering of the University of Montenegro in 2008 (Department of Electronics, Telecommunications and Computers). He is a graduate student of computer science. He deals with research in the field of service-oriented architecture and distributed computer systems. He participated in the Projects: Tempus CONGRAD (JP517153), Tempus NLSWBU (JP158764), IPA NQF&QA.

## Commercial services, technical solutions, patents, prototypes

- Analysis of the current state, elaborating conceptual designs and proposing implementation of information systems or parts of information systems
- Training in the field of information-communication technologies

# R&D Service Centre at the University of Montenegro

Research field - classification code:

**FOS509 | Other social sciences**

## Djelatnost

- Promoting and enhancing research culture at the University, values, research mission and vision and leadership within the priorities of the University, in cooperation with the Advisory Board of the Service Centre
- Organisation and preparation of university planning in research, and development of key research policies
- Collecting information and reporting related to research activities at the University level, development of measures for the progress and efficiency of research, developing central research database for monitoring project proposals submitted to different agencies, publications and citations
- Financial, department and other administrative services, including management of human resources and major procurement at the University level
- Promoting research at the University level (PR)
- Supporting researchers in preparing project proposals
- Organising workshops intended for writing project proposals, which will be led by leading experts, organising research training and mentorship on how to conduct good research, financial capabilities and responsible conduct of research contracts
- Orientation of new researchers
- Monitoring coordination of the University activities with standards related to human and animal case studies, toxic substances and environmental hazards
- Encouraging and coordinating interdisciplinary and multidisciplinary research, with the assistance of the Service Centre Advisory Board
- Enabling participation of faculties in the research expert database, in co-operation with faculties and institutions
- Maintaining links with Government agencies in order to enable the University to fill its role in economic and social development
- Negotiating major contracts with foundations and industry
- Commercialisation of research, including intellectual property rights, in order to facilitate the conduct of research supported by industry.

## Results

- Implementation of several European projects;
- Support in applying for several European projects to different units of the University of Montenegro;
- Organisation of different training at the University of Montenegro;
- Promotion of research potentials of the University of Montenegro;
- Support in the development of certain strategic documents at the University of Montenegro



## Contact

**Vladimir Jaćimović**

R&D Service Centre at the University of Montenegro

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web: [www.rd.ac.me](http://www.rd.ac.me)

## Resources

- The Centre provides support and information to partners from Montenegro and abroad for utilization of the equipment which is owned by the University of Montenegro.

## Projects

- FP7: Evolunimont ([www.evolunimont.ac.me](http://www.evolunimont.ac.me));
- TEMPUS: „Development of R&D Capacities and Instruments for Boosting HE-Economy Partnership” ([www.rd.ac.me](http://www.rd.ac.me));
- TEMPUS: OPUS ([opus.unizg.hr](http://opus.unizg.hr));
- TEMPUS: “Quality in Research” ([www.qinr.ac.me](http://www.qinr.ac.me));
- IPA: Eval-Inno ([www.eval-inno.eu](http://www.eval-inno.eu)).

## Key Personnel

- Prof. Vladimir Jaćimović, part-time manager in the Centre;
- Tatjana Knežević, part-time manager in the Centre,
- Jovana Vujičić, assistant in the Centre.

## Commercial services, technical solutions, patents, prototypes

- The Centre offers services to the University of Montenegro and its units on a non-commercial basis. The Centre is mostly financed from the budget of the University of Montenegro.
- The Centre organises training in different fields, including entrepreneurial training on an irregular basis. So far a significant number of courses have been organized, with participation of trainers from Montenegro and abroad. Courses are intended for students and researchers from the University of Montenegro.

# Centre for International Projects

Research field - classification code:

**FOS502 | Economics and business**

The main goal of establishing the Centre is to enhance the scientific research at the Faculty and to make it better organized, as well as to enable implementation of the most demanding scientific-research projects. With the efficient organisation of the Centre performance, the Faculty will be positioned in the international market as a leading domestic scientific-research institution, based on the knowledge and skills, which will be recognized as a member or partner of numerous faculties and research institutes, not only in Europe, but worldwide, in different projects financed by European and world funds. The result of enhancing the scientific research of international character may also be a rich publishing activity of the Faculty.

## Activities

The activities that will be carried out within the Centre for International Projects are the following:

- Continuous monitoring and review of the tendering application of international scientific-research projects, informing academic staff of the same, with the aim of getting resources funds from international funds (TEMPUS, IPA, FP7, EUREKA...);
- Engagement in creating project ideas in the preparation and application of international projects;
- Preparing administrative documentation and managing the complete correspondence regarding the application and implementation of the project;
- Monitoring and recording the results of projects, preparation of reports on the results of the projects and help to conduct, coordinate activities and presentation of international projects;
- Create and maintain a database of international projects of the Faculties;
- Organization of workshops, lectures, and ( international ) conferences on projects in cooperation with relevant institutions;
- Publication of books and proceedings of papers related to the project;
- Fostering of partnerships with relevant institutions in the country and abroad.

Apart from the organised workshops on project management, the activity of the Centre may also be directed towards support in applying for the projects to interested organisations and individuals, financed from the European Union funds. The activities carried out by the Centre in this part refer to project preparation, project implementation and co-operation within implementation of the project itself.

## Results

Since the Centre has just been founded, it has not achieved any significant results.



**EKONOMSKI FAKULTET PODGORICA**

## Contact

### Milena Radonjić

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 E-mail: milena87@t-com.me  
 web: www.ekonomija.ac.me

## Projects

The Centre has just been founded, so it has not had any significant projects yet.

## Key personnel

- Milena Radonjic, born on 4 December 1987 in Podgorica. She graduated from the faculty of Economics, Department Finances (average grade 10.00) in 2010. From 2010 - 2012 she was a graduate student of 'Banking', the Faculty of Economics, Podgorica, the University of Montenegro. She is eaching associate in the teaching of Economy and Economy of Public Sector, the Faculty of Economics, Podgorica, the University of Montenegro. She has been awarded the following fellowship: EXPO in Shanghai-China, Wirtschaftsuniversität Wien in Vienna, London School of Economics and Political Science in London - Course 'Finances'.

## Commercial services, technical solutions, patents, prototypes

Apart from the services directed towards internal academic staff, the Centre may also offer services to those interested outside the Faculty (different state institutions, enterprises, individuals...) This is primarily related to organising workshops and courses on applying and leading international projects (financing projects of the European Union, techniques for planning and leading projects, leading project finance, risk management etc.). Beside the workshops, the Centre may organize similar workshops according to the specific requirements of the customer. In order to achieve its goals, the Centre will cooperate with the relevant institutions at home and abroad. Apart from foreign faculties and EU institutions, it will co-operate with local institutions such as the Ministry of Foreign Affairs and European Integration, the Ministry of Science, the Ministry of Education etc. as well as with economic entities, local governments and state institutions interested in participation in international projects, especially in the projects financed from the EU funds. Also, when organising workshops, the Centre may engage renowned organisations from home and abroad, specialized for performing activities that are the subjects of the workshops.

# Centre for Accounting and Auditing

Research field - classification code:  
**FOS502 | Economics and business**

## Activities

- The objective of the Centre for Accounting and Auditing can be viewed from two perspectives: educational and market. In this sense, the general purpose is enabling graduate students as well as those who are still 'developing' to effectively implement the acquired knowledge in the field of accounting disciplines, and thus provide the offer of highly qualified accountants, and also prepare them for the labour market, not only in companies (of any profile), agencies and institutions in Montenegro, but also much broader. In the sense of market, the objective is for the Accounting Centre of the Faculty of Economics to be recognisable in the market, so that it will, both individually and in co-operation with other centres of the Faculty, have the opportunity to offer quality and comprehensive services to the market users.

## Results

- The Centre has just been founded, so it has not had any significant activities yet.

## Projects

- The Centre has just been founded, so it has not had any significant projects yet.

## Key personnel

- Selma Demirovic, born on 4 March 1987 in Pljevlja, teaching associate at the Faculty of Economics, Podgorica, field: accounting. She is a secretary of Applied Graduate Management studies and the director of the Centre for Accounting and Auditing.



EKONOMSKI FAKULTET PODGORICA

## Contact

**Selma Demirović**

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## Commercial services, technical solutions, patents, prototypes

The product of the Centre should be as follows:

In the sense of education, students who will participate through the Centre for Accounting and Auditing will be qualified for practical and professional performance (through virtual enterprises and the existence of the adequate IT support), such as:

- keeping general ledger and subsidiary ledgers;
- keeping analytical records of customers' and suppliers' accounts;
- conducting inventories of materials and merchandise;
- production accounting;
- keeping analytical records and calculating depreciation of tangible and intangible non-current assets;
- preparation of financial statements;
- accounting costs and impact;
- calculations and choice of optimal business decisions;
- financial analyses;
- financial planning etc.

Through market principles, which will be implemented by the following services:

- consulting services in accounting and auditing matters;
- preparation of investment projects and business plans;
- financial analysis and planning service;
- enterprise valuation service;
- calculating cost price service;
- monitoring the effects of certain activities.

# Centre for Career Development

Research field - classification code:

**FOS502 | Economics and business**

The Centre for Career Development, as an expert advisory body of the Faculty of Economics, gives support to students and graduates in developing abilities, knowledge and skills which are crucial for gaining work experience and employment, as well as information on possibilities of further education, understanding the 'world of business', open competitions and offers for jobs and practices, corresponding scholarships, graduate studies and current seminars at home and abroad. The Centre was founded with the idea to help all interested students to evaluate their own abilities, interests and personal values, to help them prepare for the future labour market and requirements of employers in accordance with the required competences. In that way, the Centre for Career Development prepares students for entering the labour market after graduation, connects them with employers and gives them support in acquiring the knowledge and qualifications necessary in the contemporary world of business, which leads to overall improvement of the career system and contributes to the improvement in the state of the labour market in Montenegro. Another mission of the Centre is to improve the links between the academic and business communities, to create the 'network' of students, professors, potential employers and other subjects, who may contribute to the development of individual knowledge and skills. The Centre develops co-operation on an equal footing, with maximum protection of professional, moral and material interests of all natural and legal persons included in its activities.

## Activities

The main tasks of the Centre are systematised through 10 key objectives, related to students, graduates, employers, but also to wider environment:

- Counselling and training students to manage personal career
- Continuous education of students
- Creating conditions for practice during the studies
- Providing professional assistance to employers in the process of optimal selection of human resources
- Networking
- Implementation of the programme of employing the best graduates
- Promotion of students and graduates, as well as of the Faculty of Economics
- Creation of database of students and employers with current data
- Organising a job fair in the premises of the Faculty
- Improvement of overall level of work and quality of both the Faculty of Economics and the University of Montenegro

In the end, the role of the Centre for Career Development is to assist students in preparation for the world of business and career development, as well as to provide relevant information about employment opportunities, while it is up to students to realize those opportunities in the direct contact with the employers. The Centre does not represent a direct employment intermediary (except for the Best Students). All services of the Centre are free of charge for students.dente generacije). Sve usluge Centra su studentima besplatne.



**EKONOMSKI FAKULTET PODGORICA**

## Contact

### **Doc. dr Boban Melović**

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## Results

Since 2013 the Centre for Career Development has participated in the project implementation programme for the following: engaging guest speakers and implementation of student practice. So far 10 professors of the Faculty of Economics have participated in the activity, in the manner of nominating (engaging) 14 associates and 11 guest speakers, as well as 17 companies for implementing student practice. Also, during the year 2013 the following has also been realized:

- CV writing training
- Cover letter (of motivation) writing training
- Preparation for the interview (the employer) - The most common employers' questions? The most common candidates' mistakes

## Key personnel

- Doc. Dr Boban Melovic (Director of the Centre) - in charge of the overall activities, strategic contact with employers, engaging experts etc. He is in direct contact with the Dean and Vice Deans of the Faculty. For more detailed biography, visit [www.ekonomija.ac.me](http://www.ekonomija.ac.me)

# Centre for statistical research, modelling and prognoses

Research field - classification code:  
**FOS502 | Economics and business**

The Centre provides services regarding statistical analysis to academic staff, students (particularly of PhD studies), through organization of lectures, trainings, seminars etc. The focus of the Centre is on modern statistical theory and its implementation, aiming to promote research, participation in national and international projects, consulting.

## Activities

The main activities of the Centre are:

- Conducting research upon request, mainly requests made by national companies and other subjects;
- Organization of courses in applied statistics for PhD students and employees of the Faculty, in order to acquire knowledge about the basic statistical tool and its appliance in research;
- Commercial courses and workshops on statistical methodologies and software (SPSS, STATA, Eviews etc.);
- Applying for national and international projects in cooperation with other centres at the University, in order to strengthen research in area of statistics and econometric modelling.

## Results

- The Centre has been established few months ago, and is currently working on the preparing of courses in the application of statistical and econometric methods in SPSS and E-views.

## Resources

- Software packages (Eviews, SPSS)
- PC room (equipment)



EKONOMSKI FAKULTET PODGORICA

## Contact

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## Key staff

- prof. dr Vesna Karadžić
- prof. dr Maja Bačović
- prof. dr Svetlana Rakočević
- prof. dr Vladimir Kaščelan
- dr Saša Vujošević
- dr Zdenka Dragašević
- Tamara Backović-Vulić, MSc
- Milena Lipovina-Božović, MSc
- Julija Cerović, MSc

## Commercial services, technical solutions, patents, prototypes

- Projects and studies based on contemporary methods of analysis and research that are of interest to the Faculty of Economics and the University of Montenegro;
- Courses in applied mathematics, statistics and econometrics designed for PhD students and employees of the Faculty;
- Conferences aiming to promote national applied research.
- Commercial courses and workshops on statistical methods and software (SPSS, STATA, Eviews i dr.) designed for wider public, those interested and in need for services in research designing, planning and implementation of statistical analysis, statistical results archiving, the use of statistical software for analysis, development of economic models, etc.

# Centre for extracurricular education at the Faculty of Economics

Research field - classification code:

**FOS503 | Educational sciences**

## Activities

- Centre for extracurricular education at the Faculty of Economy, provides additional knowledge in the area of economic theory and practice to all interested persons that are already employed or are in the process of attaining any degree diploma. The Centre is based on the premises and principles of lifelong learning as the basis for development of qualified human resources that are in demand at the labour market. Its activities are carried out within the capacities of the Faculty of Economy, enabling the Faculty to become closer to the real world, real economy and contemporary environment.

## Results

- The Centre is a relatively young organization, operational within the Faculty of Economics since year 2013. So far, within its activities, project "Winter school of entrepreneurship" has been realized, with 40 attendees, out of which 30 were representatives of various organizations and private sector from Montenegro.
- The Centre organizes seminars and trainings that will be used for promotional purposes also, aimed to the most successful graduates from high schools in Montenegro. In this way, through various activities, entrepreneurship values and principles as the framework of modern economy systems are promoted.



**EKONOMSKI FAKULTET PODGORICA**

## Contact

### **Radivoje Drobnjak, MSc**

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## Key staff

- Radivoje Drobnjak, MSc, Head of the Centre. Teaching associate at the Faculty of Economy, courses: Business, Entrepreneurship and Investment Management
- Dr Ana Lalević Filipović, lecturer at the Faculty of Economy, course: Accounting
- Jovan Đurašković, MSc, Teaching assistant at the Faculty of Economy
- Magdalena Raičković, MSc, PR manager of the Faculty of Economy

## Commercial services, technical solutions, patents, prototypes

- Training of employees in area of Entrepreneurship, Marketing, Accounting and Auditing.
- Training programmes for development of investment studies, business plans, marketing planning.

# Centre for telecommunications

Research field - classification code:

**FOS202 | Electrical engineering, electronic engineering, information engineering**

## Activities

Main objectives:

- Research and education in area of traditional and new communication technologies
- Defining open platform for research, education and innovations, with the aim to develop new ways of implementation of the convergent information communication technologies.

Activities leading to achievement of objectives:

- Interdisciplinary joint research
- projects
- publications
- exchange of students and staff
- PhD studies
- Cooperation with industry
- Participation in relevant national and international scientific conferences

## Results

- Owing to the professional team, tradition and the existing infrastructure, the Centre is recognized not only at the national level but also at the international level. Partnerships with relevant institutions, participations in international and national projects prove the reputation. The Centre is one of the first Montenegrin participants in the COST programme, as well as the SCOPES programme. Also, LEXNET project <http://www.lexnet-project.eu/> is one of few scientific projects within the FP7 programme. Further, the Centre has a very significant role in the implementation of the FOREMONT project, recently approved for funding under the FP7 programme, within the category „Capacities“.

## Projects

- FP7-ICT-2011-8 – LEXNET - Low EMF Exposure Future Networks
- COST - IC1004 - Cooperative Radio Communications for Green Smart
- COST - IC0803 - RF/Microwave Communication Subsystems for Emerging Wireless Technologies (RFCSET)
- SCOPES - Scientific cooperation between Eastern Europe and Switzerland project in cooperation with the EPFL (Ecole polytechnique federale de Lausanne): Fostering Development of an ICT Centre of Excellence in Montenegro
- Bilateral projects with: Austria, Bosnia and Herzegovina, Croatia, Slovenia



## Contact

### **Prof. dr Milica Pejanović Đurišić**

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## Resources

- Amongst other, there is also a Laboratory for electromagnetic field measurements operating within the Centre.

## Key staff

- Prof. dr Milica Pejanović-Đurišić, milica@t-com.me  
Profil: <http://www.cftmn.ac.me/Pejanovic-Djurisic.html>
- Prof. Zoran Veljović, veljovic@ac.me  
Profil: <http://www.cftmn.ac.me/Veljovic.html>
- Prof. Igor Radusinović, igorr@ac.me  
Profil: <http://www.cftmn.ac.me/Radusinovic.html>
- Prof. Milutin Radonjić, m.radonjic@ieee.org  
Profil: <http://www.cftmn.ac.me/Radonjic.html>

## Commercial services, technical solutions, patents, prototypes

Consultant services:

- Development of studies
- Developmental, scientific and technological projects

Clients: telecom operators, privately owned companies, state agencies and regulatory bodies, professional and scientific bodies.

# Centre for social research at the Faculty of Political Sciences

Research field - classification code:

**FOS506 | Political Science**

Empirical research in the area of social and political sciences in Montenegro, as well as regional countries, are not at a very high level. Reasons for this are many, but the main reason is probably a dominant theoretical orientation of the largest number of scientists in social sciences. Modern social science and comparative international practice impose standards which, besides a strong theoretical tradition, rely also on strengthening of empirical orientation in social and political research. Not only that – research is considered to be one of the key pillars for decision makers in public area of work, and generally in leading public administration.

## Activities

The Centre for Social Research is established in order to strengthen research capacities at the Faculty of Political Sciences, as well as to improve linking of knowledge that is accumulated in academic community with wider social structures in order to enhance public policy planning in Montenegro. Therefore, the Centre strives to meet demands of modern trends in social sciences, as well as the needs of institutions and organizations of our society as a whole.

The Centre for Social Research has the following concrete objectives:

- Organization and realization of scientific and applied research at national and international level,
- Strengthening of research capacities at the Faculty of Political Sciences,
- Education of students within the activities of the Centre,
- Promotion of empirical research for public administration needs,
- Promotion of the Faculty as a leader in the area of empirical research, at national and international level.

## Rezultati

- Social research trainings for students.

## Resources

- Software packages (Eviews, SPSS)
- PC room (equipment)



## Contact

**Doc. dr Olivera Komar**

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## Projekti

- European Value Survey
- Study on the behaviour of voters in Montenegro (national project)
- Identity and values of student population in Montenegro (national project)
- COST: The True European Voter

## Key staff

- All professors and associates of the Faculty are engaged.

## Commercial services, technical solutions, patents, prototypes

Commercial research on public opinion. So far, two were realized:

- Ecological consciousness in Montenegro (for the Green Home),
- Exit poll at the parliamentary elections held on 14th October 2012 (for national television)

# Centre for science at the Faculty of Applied Physiotherapy

Research field - classification code:  
**FOS305 | Other medical sciences**

## Activities

- Providing support to students in the preparation of final, specialist and scientific research work.
- Training for database search.
- Enhancement of professional and critical thinking: systematic approach, reliability, confidentiality, falsifiability, criticism.

## Results

- Training for students on the use of various measurement tools in physiotherapy in everyday clinical practice (Berg balance scale, Fugl-Mayer assessment at hemiplegia, assessment of motor recovery, FIM- functional independence measure, measuring the volume of limbs, mobility of joints, the Aschwort measurement of spasticity, estimation of the posture, HAQ, QIF (Quadriplegia index of function), VAS scale, NMR scale.

## Resources

- 24 PCs – obtained within the period of previous 1-3 years, with internet connection, available to professors, associates and students
- Library of the Faculty (530 books)
- Diagnostic and therapeutic equipment (computerized balance platform, bicycle ergometer X5, Spirometer Superlab III with SPO2, Oxy-9 GIMA pulse oximeter, 14 devices for physical therapy, kinesis equipment...)

## Projects

- "Labour Market Oriented Curriculum Programme" (LMOCP) (2008-2010) (ADC; WUS-Austria)
- Brain Gain Plus programme (2, 2009-2010) (ADC; WUS-Austria)
- Development of Lifelong learning module "Preventive Physiotherapy" within the DELLCO Tempus project realized by the University of Montenegro
- Implementation of the SIMAG magnetic therapy in the treatment of gonarthrosis



## Contact

**Doc. dr Dušan Mustur**

Centre for science at the Faculty of Applied Physiotherapy

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## Key staff

- Dr Dušan Mustur, vice dean for scientific and research activities at the Faculty of Applied Physiotherapy, specialist in the field of physical medicine and rehabilitation.
- Vesović-Potić V, Mustur D, Stanisavljević D, Ille T, Ille M. Relationship between spinal mobility measures and quality of life in patients with ankylosing spondylitis. *Rheumatol Int.* 2009 Jun;29(8):879-94.
- Mustur D, Vujasinović-Stupar N, Ille T. Influence of physical treatment on disease activity and health status of patients with chronic arthritis. *Srp Arh Celokup Lek.* 2008 Mar-Apr;136 (3-4):104-9.
- Mustur D, Vesović-Potić V, Stanisavljević D, Ille T, Ille M. Assessment of functional disability and quality of life in patients with ankylosing spondylitis. *Srp Arh Celokup Lek.* 2009 Sep-Oct;137 (9-10):524-8.
- Doc. dr Boban Mugoša
- Ljaljević A, Zvrko E, Mugosa B, Matijević S, Andjelić J. Prevalence of smoking and other smoking-related behaviours among students aged 13 to 15 years in Montenegro: results from the Global Youth Tobacco Survey of 2008. *Arh Hig Rada Toksikol.* 2010 Jun;61(2):203-9.
- Baćak V, Laušević D, Mugoša B, Vratnica Z, Terzić N. Hepatitis C virus infection and related risk factors among injection drug users in Montenegro. *Eur Addict Res.* 2013;19(2):68-73.
- Zehender G, Sorrentino C, Lai A, Ebranti E, Gabanelli E, Lo Presti A, Vujošević D, Lausevic D, Terzic D, Shkjezi R, Bino S, Vratnica Z, Mugosa B, Galli M, Ciccozzi M. Reconstruction of the evolutionary dynamics of hepatitis C virus subtypes in Montenegro and the Balkan region. *Infect Genet Evol.* 2013 Ju;17:223-30.
- Sbutega-Milosevic G, Djordjevic Z, Marmut Z, Mugosa B. Iodization of table salt and attitudes and habits in relation to the use of salt in general population. *Srp Arh Celokup Lek.* 2010 Mar-Apr;138(3-4):225-9.
- Doc. dr Saša Raičević
- Arsenijević S, Vukčević-Globarević G, Volarević V, Macuzić I, Todorović P, Tanasković I, Manojlović M, Raicević S, Jeremić B. Continuous controllable balloon dilation: a novel approach for cervical dilation. *Trials.* 2012 Oct 22;13:196.
- Raicević S, Cubrilo D, Arsenijević S, Vukčević G, Živković V, Vuletić M, Barudžić N, Andjelković N, Antonović O, Jakovljević V. Oxidative stress in fetal distress: potential prospects for diagnosis. *Oxid med Cell Longev.* 2010 May-Jun;3(3):214-8.

## Commercial services, technical solutions, patents, prototypes

- Development of survey and tests for estimation of functional status and quality of life of Norwegian patients at the Institute in Igalo
- Development of wellness programme for Dutch patients in the Institute in Igalo
- Cultural adaptation of the survey (BASFI, BAS-G, MHAQ, NHP,....)
- Preventive physiotherapy (for physiotherapists, bachelors of applied physiotherapy)

## Activities

As a research unit within the Faculty of Philosophy, the Institute for Sociology and Psychology is oriented towards a comprehensive study of the global characteristics of Montenegrin society. Thus, the Institute for Sociology and Psychology is open to interdisciplinary research and cooperation with other scientific institutions. Strategic goals of the Institute are:

- Comprehensive research on the most significant phenomena of social reality, their causes and consequences that has significant influence to the social status of citizens, families, institutions, organizations, and total progressive development of Montenegrin society;
- Development of thematic applied research in certain areas of social reality;
- Establishment and presentation of data basis, established in previous projects;
- Establishment and expanding of cooperation with national and international scientific institutions, NGOs and foundations in preparation and realization of joint projects;
- Continuous cooperation with undergraduate, postgraduate and doctoral Sociology studies (research performed in preparation of master and PhD thesis), improvement of sociology and psychology studies at all levels of education;
- Publishing: publication of research findings and further affirmation of the journal "Sociološka luča";

## Results

In the chronology of science and research mission, the Institute for Sociology and Psychology was the initiator of several scientific and research projects that are of national significance. The most significant results are:

- Montenegro in the era of competitiveness (project realized in cooperation with the Montenegrin Academy of Science and Arts);
- Comparative sociology research of property and entrepreneurship in post-socialist period (Montenegro – Russia) (project realized in cooperation with Moscow State University Lomonosov)
- Cultural identification of Montenegro and branding of the nation – national, European and global relation
- Sociological aspects of demographics and population policy in Montenegro;
- Contemporary village (rural settlement) type and village perspectives in Montenegro;
- Research on endangered social groups, their number, classification, needs and current status of social services (Nikšić, Bijelo Polje);
- Sustainable tourism development and protection of environment in northern part of Montenegro and south Bosnia and Herzegovina;
- Humanitarian (socially endangered social groups);
- Scientific and research activities at the University in the function of teaching and experiences with implementation of the Bologna Declaration;
- Gender, violence and democracy in Western Balkans – Faculty of Philosophy, Institute for Sociology and Psychology in cooperation with the University of Oslo;

## Key staff

- Goran Ćeranić, MSc, Head of the Institute for Sociology and Psychology  
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## Projects

- Comparative sociology research of property and entrepreneurship in post-socialist period (Montenegro – Russia) (project realized in cooperation with Moscow State University Lomonosov)
- Sustainable tourism development and protection of environment in northern part of Montenegro and south Bosnia and Herzegovina; (project realized in cooperation with COSV)
- Research on endangered social groups, their number, classification, needs and current status of social services (Nikšić, Bijelo Polje) (project realized in cooperation with COSV);
- Gender, violence and democracy in Western Balkans – Faculty of Philosophy, Institute for Sociology and Psychology in cooperation with the University of Oslo;
- Montenegro in the era of competitiveness (project realized in cooperation with the Montenegrin Academy of Science and Arts);
- Sociological aspects of demographics and population policy in Montenegro (project realized in cooperation with the Montenegrin Academy of Science and Arts);
- Society, family, individual (project realized in cooperation with the Montenegrin Academy of Science and Arts);
- Contemporary village (rural settlement) type and village perspectives in Montenegro (project realized in cooperation with the Ministry of Agriculture and Rural Development);
- Cultural identification of Montenegro and branding of the nation – national, European and global relation (project finance through the call published by the Ministry of Science);

## Commercial services, technical solutions, patents, prototypes

The Institute for Sociology and Psychology, as an internal unit of the Faculty of Philosophy, has been established on February 8th 2010 with the aim to provide significant support to scientific and research work. In this period of transition, it represents an original and complete autochthonous striving to indicate direction of Montenegrin society development, on the basis of lucidly detected sociologic, psychological, anthropological antimony of modern society. In a short period of time, the Institute for Sociology and Psychology has succeeded to establish scientific, as well as business cooperation with the most eminent institutions. Such wide area of work is a result of the fact that each scientific and business client is approached as an unique entity that has specific needs and receives services according to them.

Scientific cooperation with the Faculty of Sociology of the Moscow State University Lomonosov was established, representing an acknowledgement for previous work and understanding the spirit of the times, aiming to highlight the sociological thought and especially elaborate scientific and research practice of the Institute for Sociology and Psychology. All main activities of the Institute for Sociology and Psychology: publishing, scientific and research activities, organization of scientific conferences are directly interlinked and represent an inevitable component of teaching process within the sociology and psychology studies, meaning the participation of students in all areas of activities. This is particularly important because all activities, besides scientific, also have a practical component which is particularly emphasised in the actual research, with a clear goal to change social reality.

The Institute for Sociology and Psychology advocates the idea that master and doctoral thesis at postgraduate and PhD studies should be considered as a scientific project, and in this manner multiple benefits could be gained both for science and society, but especially for master and PhD students, material and other resources for development of their work.

# Laboratory of developmental research and mariculture

Research field - classification code:

**FOS106 | Biological sciences**

## Activities

The main activities of the Laboratory are related to:

- Transfer of new technologies in shellfish farming
- Monitoring of water quality at fish and shellfish farms
- Protection of farms from predators
- Participation in making of the Law on Marine Fisheries and Mariculture, as well as its bylaws
- Participation in development of the Strategy on Fishery Development (2006), where mariculture is a comprising part
- Implementation of the CITES Convention and providing professional opinion regarding the protection of marine organisms (in cooperation with the Environmental Protection Agency of Montenegro)
- Preparation of the Study on Technologies and Possibilities of Marine Organisms Farming
- Close cooperation with the Ministry of Agriculture and Rural Development, in the area of mariculture development
- Membership in the Committee on Aquaculture CAQ of the Mediterranean and cooperation with the FAO department for aquaculture. Participation in the Dam and ShockMed projects, FAO
- Cooperation with shells farmers, with the Association of Montenegrin Mariculturists „MAREFARM“, providing professional advices.
- Education of students, elementary and secondary schools, as well as providing lectures for several regional faculties (Beograd, Novi Sad, Kragujevac, Banja Luka)

## Results

In more than 50 years of the establishment of the Institute for Marine Biology, the first experimental shellfish farming in Montenegro (mussels and oysters) was realized within the Institute. Although the name was changed since then, not only of the Laboratory but of the Institute also, possibilities for introducing new technologies of shellfish farming were introduced through a large number of national and international scientific projects, and cooperation with some of the leading countries and institutions dealing with mariculture was established. We will mention here just the most important results during the previous decade of scientific activities within the Laboratory.

Research results contributed to the development of mariculture, so today we have than 16 shellfish farms in Montenegro; since 2009, as a result of a scientific and research project, oysters were introduced in farming, while our goal is to introduce new autochthonous species in the process of farming.

Cooperation with the Federation of Italian Mariculturists from Trieste, which lasts for more than a decade, resulted in a reconstruction of the experimental shellfish farm located in the near vicinity of the Institute for Maritime Biology, as well as in gaining necessary equipment and literature. Cooperation with the Institute in Vigo (Galicia, Spain), which started in 2008, resulted in an experimental project on introducing new technologies in mussels farming in the Bay of Kotor.

As a result of cooperation with the FAO office in Rome and Budapest, realization of the project AZA – Allocated Zones for Aquaculture has started since July 2013.

In cooperation with the Coastal Zone Management Agency, and as a result of realization of national projects, locations suitable for mariculture programme were determined in 2007, which are part of the Spatial Plan for Special Purpose.

A significant number of studies and reports, as well as scientific papers were presented at national and international conferences and published in renowned scientific journals.



## Contact

### Head of Laboratory *dr Mandić Milica*

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## Resources

- Experimental shellfish farm, which is in the property of the Laboratory, is just in front of the Institute for Maritime Biology. Equipment necessary for farming is listed at the web site of the Institute [www.ibmk.org](http://www.ibmk.org). The rest of the equipment that is in property of the Laboratory: device for surface current measurement, sonde for measurement of the sea water temperature, braids for shellfish farming, crates for breeding oysters, lantern nets.

## Projects

- INTERREG III - AIA – Aquaculture in Adriatic (2007-2008). Improvement of the aquaculture and introducing new sorts of shellfish in the Adriatic area.
- FAO AZA – Allocated Zones for Aquaculture. (2013 - ongoing)
- BALCAN DEVELOPMENT Project. Development of mariculture in Montenegro and reconstruction of experimental shellfish farm (2011.- ongoing)

## Key staff

Dr Mandić Milica, scientific associate for fields: ichthyoplankton and mariculture, Head of the Laboratory of Developmental Research and Mariculture. She presented her doctoral thesis: »Seasonal aspects of ichthyoplankton diversity in the Bay of Kotor « on 29th of November 2011 at the Faculty of Biology of the University of Belgrade, where she was awarded with the academic degree Doctor of Science in biological sciences. In 2009, she has been delegated as the scientific responsible person at the Institute for Marine Biology for the implementation of the CITES Convention in Montenegro. She is a member of the FAO AdriaMed working group on the stock assessment of pelagic species in the GFCM area, and also member of the working group for negotiations with the EU for Chapter 13 – Fishery.

## Commercial services, technical solutions, patents, prototypes

For years, the Laboratory successfully cooperates with numerous shellfish farmers, offering complete professional assistance, consulting in order to achieve the most qualitative production. In this manner we are closely connected with industry, trying to increase production, brand products from mariculture through various activities and become renowned in region for the quality of healthy sea food.

For now, Laboratory provides free of charge consulting in establishing new farms and determination of potential locations for farming.

Preparation of the Study, i.e. Project on technical-technological possibilities for farming of specific species of sea organisms is commercial, while we are planning to organize training for farmers which should be a part of the Law on Amendments and Additions to the to Law on Marine Fisheries and Mariculture.

Also, approvals for shellfish harvesting are issued at the level of the Institute, where Laboratory has the role in decision making. Approvals are issued upon the request of an individual or company, charged with a small fee.

Numerous professional opinions that are provided upon the request of ministries or agencies are not commercial.

# Laboratory of chemistry, biochemistry and molecular biology

Research field - classification code:

**FOS104 | Chemical sciences**

## Activities

- Monitoring of coastal waters of Montenegro
- Protection of sea pollution applying chemical, biochemical and mol. biological methods
- Implementation of European directives and conventions relating to the sea
- Contribution to the development of the marine science in Montenegro and region,
- Development of new biotechnologies for treatment of modern medical diseases,
- Contribution to the development of scientific thought at the University of Montenegro
- Education on sea and coastal life processes
- Participation in various EU and regional projects regarding the Adriatic

## Results

- A significant number of scientific papers, studies and expertise regarding marine science, ecology and protection of coast and sea of Montenegro was published,
- Development of new bioactive materials from marine organisms
- Establishment of the national marine data basis, with more than 2 million data.
- Youth education

## Resources

- Research resources, equipment and other have been described within all projects realized since 2000 until today

## Projects

### National projects

- Biological testing of the influence of organic pollutants on aquatic organisms nervous system, 2005-2008
- JJI - South Adriatic I - Chemical analysis of seawater, sediments and biota (national project), 2009-11/2011
- KOTOR - Complex research of the ecosystem of the coastal sea of Montenegro (national project), 2012-2015

### International projects:

- Aquaculture Planning in Montenegro, 2000-2003
- Releasing Development Potentials at the Coast. A Path to Stabilization at the Eastern Adriatic 2002-2004
- MAMA - Mediterranean network to Assess and upgrade Monitoring and forecasting Activity in the region, 2001-2005
- MYTIAD- project is a part of MAP/MED POL project of Adriatic countries, 2006
- COWAMA - Coastal Water Management (Italy, Montenegro), 2006-2008
- ADRICOSM INTEGRATED RIVER BASIN AND COASTAL ZONE MANAGEMENT SYSTEM-EXTENDED, 2004-2005
- Metal complexes as antitumor drugs and biological evaluation. Bilateral project (Greece-Montenegro), 2006-2008
- ADRICOSM STAR - Adriatic Sea integrated coastal areas and river basin management system - Montenegro coastal area and Bojana river catchment (Italy, Albania, Montenegro), 03/2007-03/2010
- ADRICOSM STAR Intermediate - Adriatic Sea integrated coastal areas and river basin management system - Montenegro coastal area and Bojana river catchment (Italy, Montenegro), 09/2012-03/2013
- ECOPORT 8 - Environmental management of transborder corridor ports (SEE Transnational Cooperation Programme), 12/2009-05/2012
- TENECOPORT - Transnational Enhancement of ECOPORT8 network (SEE Transnational Cooperation Programme), 11/2012-03/2014



## Contact

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- MED POL - The Programme for the Assessment and Control of Pollution in the Mediterranean Region (UNEP/MAP), 2008-
- SEADATANET 2 - Pan-European infrastructure for Ocean and Marine Data management (EU FP7), 10/2011-09/2015
- HAZADR - Strengthening common reaction capacity to fight sea pollution of oil, toxic and hazardous substances in Adriatic Sea (IPA Adriatic CBC Programme 2007-2013), 10/2012-01/2015
- DIVOMA - Dynamics of Northern and Southern Adriatic Sea in relation to pollutants spreading and response of biomarkers (Slovenia, Montenegro), 2011-2013
- MOBIAS Modelling the circulation of coastal waters and biological effects of pollution in the bays of the northern and southern Adriatic- Bilateral project (Slovenia-Montenegro), 2012-2013
- ORJEN- Environmental monitoring and national legislation for the protection of ports and the surrounding sea aquatorium, compared to the EU directives and international convention- Bilateral Project (Montenegro- Bosnia and Herzegovina), 2012-2013
- ADRITORF- Molecular and physiological bacterial diversity of the trophic gradients in the Adriatic sea Bilateral project (Croatia - Montenegro), 1/2011-1/2013
- The role of native and recombinant lectins of marine invertebrate animals in the recognition of the relationship animal- microbe, Bilateral project (Montenegro-Austria), 1/7/2011- 30/6/2013
- EMODNET Chemistry. European Marine Observation and Data Network. Directorate-General for Maritime Affairs and Fisheries (DG MARE), (2012 -2015)

## Key staff

- Zoran Kljajic, scientific associate, Head of the Laboratory, PhD in organic chemistry, over 150 scientific references, coordinator and partner in more than 20 scientific national and international projects. His scientific papers were cited 152 times (selfcitation excluded), i.e. 196 times in total, h-index = 6 (selfcitation excluded), according to the web site SCOPUS on 10th of May 2013.
- Dr Danijela Joksimovic, PhD in chemistry, scientific assistant, with more than 50 scientific references, works on monitoring of heavy metals in sea, sediment and biota.
- Ana Bulatovic, MSc in engineering, scientific assistant, PhD student, works on examination of heavy metals in sea sediments in southern Adriatic
- Milena Mitric, MSc in biochemistry, scientific assistant, PhD student, involved in projects regarding the influence of pollutions to biomarkers
- Sandra Markovic, biologist, scientific assistant, student of master studies, involved in projects regarding the sea ecology monitoring
- Sara Backovic, biologist, scientific assistant, PhD student, working on examination of biologically active substances from marine organisms,
- Rajko Martinovic, biologist, internship, PhD student, working on physiological influence of pollutants to marine organisms.

## Commercial services, technical solutions, patents, prototypes

- The Laboratory participates in all development strategies regarding sea (ecology, evaluations of influences to environment, development of new biotechnologies etc.)
- Muller W.E.G., Gasic M.J., Kljajic Z., Verfahren zur herstellung und die Verwendung des Lectins von Chondrilla nucula zur Zytoprotektion von nicht-infizierten und Virus-infizierten limphozyten. Ger. off. - DE 39 19 342 (1990)

# Laboratory of ichthyology and marine fisheries -Institute for Marine Biology

Research field - classification code:

**FOS106 | Biological sciences**

## Activities

The Laboratory of ichthyology and marine fisheries currently employs four doctors of science, one PhD student and one technician. Research conducted within the Laboratory incorporate pelagic and demersal resources, as well as crustaceans and cephalopods habitats in the southern Adriatic, i.e Montenegrin coast. Long term monitoring of fish population, its distribution and abundance is conducted within the Laboratory, while special attention is given to economically significant species, whose biology, ecology and population dynamics are thoroughly studied.

The Laboratory conducts research on qualitative and quantitative composition of ichthyoplankton (eggs, larvae and fish postlarvae), which represents one of the most sensitive stage in the life cycle of fish.

Scientific and research work of the Laboratory provided participation in many national and international projects. Research and research results were recognized by the Ministry of Science and the Ministry of Agriculture and Rural Development as very significant for development of marine fisheries and sustainable management of the existing resources.

## Results

- Population dynamics, biomass and MSY evaluation (maximum allowed level of exploitation) of economically significant species of fish, crustaceans and cephalopods
- Composition of discards
- Management measures for marine living resources and their conservation based on the principles of sustainable development
- Analysis of the spawn composition in the Bay of Kotor
- Biomass evaluation of the pelagic resources, using the DEP (Daily Egg Production) method, as well as acoustic method (echo sounding)
- Determination of the selectivity and harmfulness of a certain fishing gear
- Monitoring of new species in south Adriatic

## Resources

- Boat for research purposes, 100-KT, 11.95 m long, with hydrographical equipment, hydrographic winch, sonar and GPS. It is used for terrain research of Montenegrin coast, transport to research locations, transport of divers and diving equipment, obtaining sea water and sediment samples, as well as samples of marine flora and fauna.
- Axio Imager Microscope with AxioImage ICC3 camera. Microscope is used for examination of subjects and making images.
- Device for cutting and polishing otoliths. It is used for cutting and polishing otoliths in order to determine the age of marine organisms.
- Ocean Seven 316Plus CTD, Multiparameter Probe for measuring conductivity, temperature, salinity, oxygen, and sea depth.
- Binocular magnifier PB International
- NIKON DS Camera Control Unit DS-L2 with DS Camera Head DS-Fi1 - Camera for microscope/magnifier with a control unit/screen.
- Calvet plankton net - for sampling of ichthyoplankton
- DST CTD Probe and Sea Star Graphical Supporting Software - Set of three probes with rubber basis and accompanying software
- NIKON SMZ 800 Stereomicroscope with MOTIC camera - Binocular magnifier with camera
- Petite Ponar Grab for sediment.
- Sartorius ED 4202S - Precise digital scale.



## Contact

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## Projects

National projects realized within the Laboratory:

- Biological resources, edible and non-edible, in trawling fishing at Montenegrin coast
- Interaction of human influence and hydrographical conditions in the Bay of Kotor, and composition analysis of spawn as bioindicators of changes in the ecosystem
- Sustainable management and preservation of fish in Montenegrin coastal area
- Monitoring of the small scale coastal fishing and composition of spawn in the Montenegrin coastal area in order to preserve and provide sustainable management of marine fisheries resources (MORM-MONT)

International ongoing projects:

- FAO AdriaMed Project – Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea
- MEDITS – Mediterranean International Bottom Trawl Survey
- MEDIAS – Biomass evaluation of pelagic resources, using DEP and acoustic method
- Bilateral cooperation between Montenegro and Croatia: Analysis of the demersal resources of the east Adriatic coast, and recommendations for sustainable use and protection
- Bilateral cooperation between Montenegro and Croatia: Comparison of resources of small scale coastal fishing in east Adriatic coast (Croatia-Montenegro)
- NETCET Project on protection of marine mammals and sea turtles in the Adriatic
- HERD- Programme in Higher Education, Research and Development in the Western Balkans 2010-2013, Maritime Sector (HERD Maritime)

## Key staff

- Dr Aleksandar Joksimović (Head of the Laboratory), acting director of the Institute for Marine Biology since 2005, PhD degree obtained at the Faculty of Biology in Belgrade, PhD thesis: Population dynamics of red mullet (*Mullus barbatus*, Linnaeus 1758) in the Montenegrin coast shelf. Head of the negotiation group 13-Fishery with the EU.
- Dr Ana Pešić. Graduated at the Faculty of Natural Sciences and Mathematics in Kragujevac in 2003, study programme Ecology, PhD thesis »Fisheries-biology research of juvenile sardine (*Sardina pilchardus* Walbaum 1792.) in the Bay of Kotor « was presented in 2011 at the Faculty of Biology of the University of Belgrade.
- Dr Olivera Marković. Employed at the Institute since 2000. She presented her PhD theses »Biology of shrimp *Parapenaeus longirostris*, (Lucas, 1846) (Crustacea, Decapoda) in the Montenegrin coast shelf« in June 2012 at the Faculty of Biology of the University of Belgrade and was awarded the degree "doctor of biological sciences". She cooperates in national and international projects related to evaluation of demersal resources.
- Dr Mirko Đurović, biologist, employee of the Institute since 2004. Scientific area-living marine resources-pelagic resources. In July 2012 he obtained PhD degree on thesis: "Fishery- biological research of the juvenile anchovy (*Engraulis encrasicolus*) in the Bay of Kotor"
- Zdravko Ilica, engineer in marine fisheries (Department of Maritime studies of the University of Split) and engineer in maritime transport (Department of Navigation of the University of Split). He is employed at the Institute for Maritime Biology since 2008. He completed his PhD thesis („Population dynamics of octopus (*Eledone cirrhosa* (Lamarck, 1798) and *Eledone moschata* (Lamarck, 1798)) in the southern Adriatic ") and is waiting for the final presentation.

## Commercial services, technical solutions, patents, prototypes

Participation in making of the Fisheries Strategy of Montenegro and enhancement of capacities for implementation of Common Fisheries Politics of the EU, as well as making of the Law on Marine Fisheries and Mariculture, Official Gazette of Montenegro 56/09. Providing services regarding biomass estimations of economically significant species of fish, crustaceans and cephalopods in the Montenegrin fishing waters. According to these evaluations, the Ministry of Agriculture and Rural Development determines annual quotas (amount of catch) of these species, and determines number of licenses for agricultural fisheries.

Providing services regarding determination of the optimum mesh size of fishing nets, to allow juvenile fish from capture, and to try to ensure that sufficient fish survive to maturity. This is a very important measure in order to ensure population balance. Services are used by Association of professional sea fishermen and the Ministry of Agriculture and Rural Development.

# Laboratory of General Biology and Marine Conservation

Research field - classification code:

**FOS106 | Biological sciences**

Laboratory of General Biology and Marine Conservation has existed under this and similar names since the foundation of the Institute for Marine Biology. It investigates flora and fauna of pelagial and benthal, with a special focus on bio-ecological aspect of the living world in the sea and its conservation.

## Activities

Within 3 laboratory departments activities are in particular focussed on:

- Research of plankton phytocenosis
- Research of qualitative and quantitative composition of zooplankton
- Research of marine micro-algae, marine flowering plants and their biocenoses
- Research of zoobentos in the continental shelf of Montenegrin Seaside
- Research of marine microorganisms ecology (bacteria, cyanobacteria, heterotrophs nanoplankton), as well as reasearch of alochtone microorganisms, which reach the marine environment from various sources.

## Results

Research results of 5 departments have multiple direct application:

- They serve as indicators of environment situation in the aquatorium of Montenegrin seaside and are directly applied, and they indicate the manner in which the problems are to be resolved;
- They are used for the purpose of cooperation with similar institutions from the region and the Mediterranean
- For establishment of protected areas in the sea
- For the purpose of documentation
- They are applied in the assessment of sanitary state of the sea



## Contact

### Dr Vesna Mačić

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## Projects

- FP7-OCEAN-2011 - Towards COast to COast NETWORKS of marine protected areas ( from the shore to the high and deep sea), coupled with sea-based wind energy potential.

## Ključno osoblje

- dr Vesna Mačić, Head.  
Profil: [http://e-cris.cg.cobiss.net/search/rsr.aspx?opt=1&lang=eng\\_cg&id=779](http://e-cris.cg.cobiss.net/search/rsr.aspx?opt=1&lang=eng_cg&id=779)
- dr Slavica Petović  
Profil: [http://e-cris.cg.cobiss.net/search/rsr.aspx?lang=eng\\_cg&id=774](http://e-cris.cg.cobiss.net/search/rsr.aspx?lang=eng_cg&id=774)
- dr Dragana Drakulović  
Profil: [http://e-cris.cg.cobiss.net/search/rsr.aspx?opt=1&lang=eng\\_cg&id=1003](http://e-cris.cg.cobiss.net/search/rsr.aspx?opt=1&lang=eng_cg&id=1003)

## Commercial services, technical solutions, patents, prototypes

- The results can be directly applied in the decision making process regarding sea and coast conservation

# Centre for Energy

Research field - classification code:

**FOS203 | Mechanical engineering**

## Activities

- Measurements of basic parameters of flow-thermal processes;
- Calibration of sensors with hot wire in turbulent flows;
- Courses for energy auditors, laboratory teaching and measurements;
- Energy efficiency in building design and construction;
- Measurements of transitory processes in hydraulic systems;
- Investigation and modelling of flows in transport tunnels;
- Simulation of geothermal heat exchangers with the application of modern CFD models;

## Results

Centre for Energy is a research laboratory widely recognized above all for its references in renowned international journals in the areas of

- Measurements in fluids;
- Transitory processes in hydraulic systems;
- Heat and mass transfer in multi-component systems

Besides, the Centre has been recognized locally as the place for training of graduated engineers in the area of energy efficiency in building design and constructions. So far, in cooperation with the Ministry of Economy of Montenegro, the Centre has educated two generations of energy auditors who will soon start energy inspections of structures in Montenegro.

There are plans for the Centre for Energy to become in the future the focal point in cooperation with the Ministry of Economy, which intends to establish teams for inspection of structures, and future trainings in the area of energy efficiency in buildings design and construction.

## Resources

Equipment for work in the laboratory:

- Collectors for recording data;
- Measuring instruments for measuring flow, temperature, air flow velocity, humidity
- Ultrasound flow measurements;
- Infrared camera for measuring high temperatures;
- Hot wire anemometers;
- Devices for calibration and manometer testing;
- Software – and for work:
- LabView, National Instruments
- FLUENT, Ansys



## Contact

**Prof. dr Igor Vušanović**

Faculty of Mechanical Engineering - Centre for Energy

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## Projects

International bilateral projects MNE – SLO:

- **Advanced Modelling of Continuous Casting of Steel** (2012 – 2013), coordinator Prof. Dr Igor Vušanović
- **Multiscalar Modelling of Continuous Casting of Steel** (2010 – 2011), coordinator Prof. Dr Igor Vušanović
- **Modelling of Macro and Micro Segregation of Three Component Alloys Obtained Through Dc Casting Procedure and Continuous Casting of Bend** (2006 – 2007), coordinator Prof. dr Igor Vušanović
- **Modelling of Phase Transitions Phenomena in Al Alloys** (2004 – 2005), coordinator Prof. Dr Igor Vušanović
- **Investigation of the Phenomenon of Hydraulic Stroke on an Experimental Installation** (2012 – 2013), coordinator Doc. Dr Uroš Karadžić

National scientific projects:

- **Research of transition processes phenomena in hydraulic and aeromechanical systems**, coordinator Prof. Dr Petar Vukoslavčević, Doc. dr Uroš Karadžić (2012 – 2014)
- **Numerical and experimental research of the possibilities to use geothermal energy for the needs of heat pump operation**, coordinator Prof. Dr Igor Vušanović, (2012 – 2014)

## Key staff

Članovi Centra za Energetiku su:

- Prof. Dr Igor Vušanović, Head
- Academician Prof. Dr Petar Vukoslavčević
- Prof. Dr Dečan Ivanović
- Prof. Dr Vladan Ivanović
- Prof. Dr Nenad Kažić, full professor, retired
- Doc. Dr Uroš Karadžić
- Milan Šekularac, MSc
- Esad Tombarević, MSc

## Commercial services, technical solutions, patents, prototypes

Centre for Energy has been recognized in the local environment as a place for training of graduate engineers in the area of energy efficiency in structures design and construction. Two generations of energy auditors have been educated so far in cooperation with the Ministry of Economy of the Government of Montenegro, who will start energy inspections of structures in Montenegro in the near future.

There are plans for the Centre for Energy to become the focal point in the future in cooperation with the Ministry of Economy, which intends to establish teams for inspection of structures, as well as future trainings in the area of energy efficiency in structures design and construction.

The Centre for Energy has developed courses for training of auditors for the needs of energy efficiency in building design and construction, and for specialized measurements of current thermal parameters.

# Centre for transport mechanical expertise

Research field - classification code:  
**FOS203 | Mechanical engineering**

## Activity

- Expertise of court cases in the area of road transport;
- Producing expert opinions and findings in the area of road transport;
- Assessment of vehicle values and damages occurred on vehicles during traffic accidents and the like)
- Expertise of court cases in the area of mechanical engineering (general mechanical engineering, energy, mechanization...);
- Producing expert opinions and findings in the area of road transport (general mechanical engineering, mechanization...);

## Results

Centre for transport mechanical expertise was established by the end of 2008 and so far it has produced expertise on around 200 court cases in the area of road transport and mechanical engineering.

## Resources

During expertise of court cases in the area of road transport and mechanical engineering the available equipment of the laboratory of the Mechanical Engineering Faculty in Podgorica is used as needed.



## Contact

### **Prof.dr Janko Jovanović, Secretary of the Centre**

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## Key staff

- Prof. Dr Sreten Savićević was born on 28/06/1956. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1982. He took his master degree from the Faculty of Mechanical Engineering in Belgrade in 1995, and his doctoral degree from the Faculty of Mechanical Engineering in Podgorica in 2001. In 2009 he obtained the title of an Associate Professor.
- Prof.Dr Goran Čulafić was born on 10/05/1952. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1976. He obtained his master and doctoral degree at the Faculty of Mechanical Engineering in Belgrade in 1980 and 1984 respectively. He obtained the title of a full professor in 1997.
- Prof.Dr Zoran Čulafić, was born on 10/05/1952. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1976. He took his master degree at the Faculty of Mechanical Engineering in Belgrade in 1980 and his doctoral degree at the Faculty of Mechanical Engineering at the Faculty of Mechanical Engineering in Podgorica in 1983. He became full professor in 1994.
- Prof.dr Vladimir Pajković was born on 24/12/1961. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1989. He obtained his master degree at the Faculty of Mechanical Engineering in Belgrade in 2000, and his doctoral degree at the Faculty of Mechanical Engineering in Podgorica in 2005. He has been a full professor since 2011.
- Prof.dr Janko Jovanović was born on 29/05/1966. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1991. He defended his master and doctoral theses at the Faculty of Mechanical Engineering in Podgorica in 1996 and 2006 respectively. He has been an Associate Professor since 2012.
- Dr Sreten Simović was born on 31/01/1969. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1995. He defended his master thesis at the Faculty of Mechanical Engineering in Podgorica in 2002, and his doctoral theses at the Faculty of Mechanical Engineering in Kragujevac in 2012. He has been an assistant teacher since 2002.
- Milanko Damjanović, MSc was born on 22/03/1971. He graduated from the Faculty of Mechanical Engineering in Podgorica in 1995. He defended his master degree at the Faculty of Mechanical Engineering in Podgorica in 2002. He has been an assistant teacher since 2002.

## Commercial services, technical solutions, patents, prototypes

- Expertise of court cases
- Producing expert opinions and findings

# Centre for transport machines and metal constructions - CETIM

Research field - classification code:

**FOS203 | Mechanical engineering**

## Activity

- Design, construction, development and investigation of constructions and inventions.

## Results

- Design, construction development and patents given under other items.

## Resources

- Computer and printer

## Projects

- Dr M.Burić, Najkovski Simeun, grad.eng. "Investigation of mechanical characteristics of reinforced concrete from the structure B1, tower M1 in Block VI in Podgorica" for the needs of RO "Radnik" Bijelo Polje, Podgorica 1992.
- Prof. Dr Milorad Burić, Prof. Dr Nikola Babin, Prof Dr Jovan Vladić "Project of slanted platform - KP-2500 N" for the needs of "Dairy" in Podgorica, Podgorica, December 1995.
- 3. Prof. Dr Milorad Burić, Prof. Dr Nikola Babin Design of a skip device of 5 kN bearing capacity for the needs of the Coal Mine in Pljevlja", Podgorica, 2003.
- Prof.Dr M.Burić,Docent Dr Darko Bajić,Docent Dr Radoje Vujadinović,Docent dr Uroš Karadžić "Investigation and development of rehabilitation project for strain location T- 8 on the third pipeline in HE Perućica",EPCG, 2007.
- Prof.Dr M.Burić,Docent Dr Darko Bajić,Docent Dr Radoje Vujadinović,Docent Dr Uroš Karadžić "Investigation of stress notation in characteristic sections of the pipeline - C3 with proposals for their further maintenance and rehabilitation in HE Perućica",EPCG,2007.



## Contact

**Prof.dr Milorad Mišo Burić, Head of CETIM-a**

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## Key staff

- Prof.Dr Milorad Mišo Burić Head of CETIM, is a full professor at the Faculty of Mechanical Engineering of the University of Montenegro. He was born on 19/04/1953 in Cetinje. In 1986 he defended his doctoral thesis at the Faculty of Mechanical Engineering in Titograd titled "Elastodynamics of welded braced girder of bridge cranes". It should be pointed out that he gained considerable knowledge and experience in resolving problems from economy, which is most obviously confirmed by constructions and devices he designed and which are successfully applied in Montenegrin Economy. It should also be pointed out that prof. Burić is successfully implementing software for constructions design and calculation on computers.
- Doc. Dr Radoje Vujadinović CETIM member
- Dr Sreten Simović CETIM member

## Commercial services, technical solutions, patents, prototypes

- Slanted platform – KP-2500 N" for the needs of "Dairy" in Podgorica, Podgorica, December 1995.
- Skip device of 5 kN bearing capacity for the needs of Coal Mine in Pljevlja", Podgorica, 2003.
- P-186/09 Lattices of Al alloy for distribution of electric power of 0,4 -110KV voltage, prof.dr Milorad A. Burić
- P-2011/137 Coupling for spatial constructions „SALAPEĐO" Prof.Dr Milorad A. Burić
- P-2011/138 Construction scaffold of Al alloy „BUTTERFLY" Prof.Dr Milorad A. Burić
- P-2011/183 Coupling for spatial constructions „VESALAPEĐO" Prof.Dr Milorad A. Burić
- P-2012-14 Lattices „BUMING" type I,II of steel or Al alloy for distribution of electric power of voltage equal or higher than 110KV prof.Dr Milorad A. Burić
- P-2012-29 Light bearing spatial construction of halls, roofs, roofs of buildings and other structures with two slants of roof „HAMING" of steel or Al alloy prof.Dr Milorad A. Burić
- P-2012-79 coupling for spatial constructions „ROTOR" prof.Dr Milorad A. Burić
- P-2012-80 Lighting posts „VEĐO" of Al alloy prof.Dr Milorad A. Burić
- P-2012-81 Lattices „LAĐO" of steel or Al alloy for distribution of electric power of voltage equal or higher than 110KV prof. Dr Milorad A. Burić

# European Centre for Information and Innovation - EIICM

Research field - classification code:

**FOS102 | Computer and information sciences**

## Activity

- The main objectives of the centre can be defined as providing information on the most important world technical-technological achievements, connecting companies from the territory of Montenegro with the world companies' members of the greatest world virtual business network, enabling access to European funds, technology transfer and knowledge transfer and other.

## Results

- During project lifetime (Faculty of Mechanical Engineering has been in the project for 5 years already) the centre has achieved all the results envisaged by the plan of the European coordinator and funder. A part of the results achieved through the activities of the Faculty of Mechanical Engineering refer to 12 technology agreements, 10 business agreements, 15 meetings (seminars, trainings) on the topic of innovations, knowledge and technology transfer, participation at 3 annual conferences and contribution through participation at numerous regional conferences and presenting the possibility of cooperation with EIICM, participation at annual expert meetings at the level of UN and presenting the possibility for development in Montenegro and other.



## Contact

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## Key staff

- Prof. Dr Zdravko Krivokapic – full professor, was born on 02/09/1958 in Nikšić. He completed his primary and secondary school in Nikšić with excellent grades. In 1981 he graduated from the Faculty of Mechanical Engineering of the University of Montenegro, Production Mechanical Engineering Department, as the first graduate of the generation. As the best student of the Faculty of Mechanical Engineering he obtained the student award "19. December" for the academic year 1980/81. He enrolled postgraduate studies in 1983 at the department Production Engineering of the Faculty of Mechanical Engineering in Belgarde. He defended his master thesis under the title "Planning and management of spare parts stock" on 27/03/1989. He obtained his doctoral degree on 08/10/1993 at the Faculty of Mechanical Engineering in Podgorica. The dissertation title was "Contribution to the automatic design of processing technological procedure of cutting by means of the expert-system ". During work on his dissertation he was a visiting researcher at the Institut fuer Recner-anwendung in Planung und Konstruktion Universitaet Fridricana (TH) Karlsruhe, as a DAAD fellow with Prof. Dr.-Ing. H.Grabowski
- Doc. dr Aleksandar J. Vujović, BA in mech. eng, was born on 08/10/1974 in Cetinje, Republic of Montenegro. He completed his primary and secondary school in Cetinje. He received "LUČA" award. In 2000, he graduated from the Faculty of Mechanical Engineering in Podgorica, at the Department of Production Mechanical Engineering, as the first graduate from his generation. During 3 years he received the scholarship awarded by "Ironworks-Nikšić" for students with an average grade higher than 8,5. He defended his master thesis under the title "Macro management of lack of coordination as the base of the model for improving QMS", at the Faculty of Mechanical Engineering in Podgorica in 2004. He received Siemens award for results at postgraduate studies. He took his doctoral degree at the Faculty of Mechanical Engineering in Podgorica in 2008. The title of his dissertation was "Improvement of performances of business processes on the base of management systems by applying artificial intelligence tools". For his doctoral dissertation he received the international competition award "Trimo". He spent a part of his doctoral studies at the Faculty of Mechanical Engineering in Ljubljana and the Universty Evry in Paris. Since 2000 to 2008 he was a collaborator in teaching, when he was elected assistant professor for the subjects: Industrial Engineering, Flexible Production Systems, Integrated Management Systems and Expert Laboratory Practice.

# Cooperative training centre - CTC

Research field - classification code:

**FOS203 | Mechanical engineering**

## Activity

- Training of staff and the external experts of CTC centre
- Implementation of development projects, services and consulting
- Spreading the network of virtual production users
- Development and implementation of expert trainings, seminars and workshops
- Development and implementation of Industrial Fellowship Programme - IFP
- Development and implementation of Practical Placement Programme - PPP
- Participation in international projects
- Promotion and marketing activities
- Quality control of training and services, IFP and PPP programmes

## Results

- CTC provided training in software package „CAD - Pro/ENGINEER“ for 10 students. The lecturer was Dr Nikola Šibalić.
- CTC provided 4 trainings in „OFFICE INFORMATIKA“ for 43 students. The lecturer was prof. dr Mileta Janjić.
- CTC organized a number of workshops and info-days.
- CTC is the co-organizer of Conferences of maintenance and production engineering - KODIP 2012 and 2013.
- Within the PPP programme CTC sent 4 students for internship in the countries of the region and Europe: Serbia (1), Croatia (1) and Slovenia (2).

## Resources

- Computer classroom with 10 computers
- DEFORM 2D and 3D CAE software package for the Final Elements Method
- Pro/ENGINEER University Plus Site License CAE software package
- Equipment for research in the area of FSW - Friction Ster Welding
- Equipment for research in the area of Processing by Deformation

## Projects

- WBC Virtual Manufacturing Network – Fostering an Integration of the Knowledge Triangle - TEMPUS project, number: 144684-TEMPUS-2008-RS-JPHES (2009-2012). Contact person: Prof. Dr Mileta Janjić
- Development of technological processes by application of information measurement systems and numerical simulations - National project (2012-2014). Coordinator: Prof. Dr Milan Vukčević.
- Modernization of WBC universities through strengthening of structures and services for knowledge transfer, research and innovation - TEMPUS project, number: 530213-TEMPUS-1-2012-1-RS-TEMPUS-JPHES (2012-2015). Contact person: prof. dr Mileta Janjić



## Contact

### Prof. dr Mileta Janjić

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## Key staff

- Prof. Dr Mileta Janjić is an associate professor at the University of Montenegro – Faculty of Mechanical Engineering, Head of the Cooperative Training Centre. He has published over 70 works at conferences and in journals in the area of Mechanical Engineering and Technologies. He went on several study and training visits abroad:
  - The University of Birmingham (UK),
  - International Language Schools - Nottingham (UK),
  - Montanuniversitaet Leoben (AT), Southern Methodist
  - University in Dallas-Texas (USA),
  - University of Ljubljana, C3M (SI),
  - Technical University of Denmark-IPU (DK).
- Prof. Dr Milan Vukčević, full professor of the University of Montenegro – Faculty of Mechanical Engineering. Currently he is the Director of the Centre for Diaspora of Montenegro. He published more than 150 works at conferences and in journals in the areas: Technology, Engineering Economics, Standardization, QMS and EMS. He has passed the following advanced trainings:
  - 14 months at the University Lomonosov in Moscow and
  - 8 months at the University in Birmingham during postgraduate studies.
  - He participated in over 20 scientific-research projects. He was the main manager for Montenegro of the EAR project: Strengthening management through quality, capacity building, and infrastructure in SMN (2004-2006).
- Dr Nikola Šibalić, is employed at the University of Montenegro – at the Faculty of Mechanical Engineering in Podgorica as the Senior expert collaborator. He defended his doctoral dissertation under the title: „Modelling and simulation of joining processes by deformation - FSW” in 2010 at the Faculty of Mechanical Engineering in Podgorica. During his work he has published around 20 scientific and expert works. He gives lectures in several subjects in the area of mechanical engineering and mechanical wood processing. saradnik. Doktorsku disertaciju pod nazivom: „Modeliranje i simulacija procesa spajanja deformisanjem - FSW” odbranio je 2010. na Mašinskom fakultetu u Podgorici. U toku dosadašnjeg rada objavio je ok 20 naučnih i stručnih radova. Izvodi pedavanja iz više predmeta iz oblasti mašinstva i mehaničke prerade drveta.

## Commercial services, technical solutions, patents, prototypes

- Professional trainings, seminars, workshops for the needs of companies
- Projects, professional and consulting services for the needs of companies

# Laboratory for automatization and mechatronics

Research field - classification code:

**FOS203 | Mechanical engineering**

## Activity

The aims of the laboratory for automatization and mechatronics are research, commercial affairs and services, and education of students and external users, in the following areas:

- Technical measurements
- Data acquisition
- Data processing
- Tasks of machines and processes management
- Improvement of management tasks of machines and processes
- Design and management of automatized machines and devices
- Design of mobile robots and management
- Vibrations analysis
- Technical diagnostics
- LLL courses in the following areas:
  - Pneumatics, basic level (supported by FluidSIM-P software)
  - Pneumatics, advanced level (supported by FluidSIM-P software)
  - Electropneumatics, basic level (supported by FluidSIM-P software)
  - Electropneumatics, advanced level (supported by FluidSIM-P software)
- Measurements in pneumatics
- Pneumatic servo-positioning, basic level
- Pneumatic servo-positioning, advanced level
- Hydraulics, basic level (supported by FluidSIM-H software)
- Hydraulics, advanced level (supported by FluidSIM-H software)
- Electrohydraulics, basic level (supported by FluidSIM-H software)
- Electrohydraulics, advanced level (supported by FluidSIM-H software)
- Measurements in hydraulics

Courses in the following areas are under preparation:

- PLC and PLC programming, basic level
- PLC and PLC programming, advanced level
- Mechatronics
- Process automatization

## Results

- Numerous management systems have been designed and implemented.
- A number of machines and devices have been designed for industrial partners.
- Technical diagnosis of the production equipment in the Thermal Power Plant Pljevlja is done on a regular basis.
- Among other, on-going work is done on the development of a field mobile robot.

## Resources

- National Instruments equipment for data acquisition and management. Equipment includes:
  - Software LabView with academic licence, producer National Instruments. Used for measurements and systems management.
  - Software FluidSIM-H v4.0, producer Festo
  - Software FluidSIM-P v4.0, Festo, with 13 licences
  - 1-channel functional wave generator, 30 MHz, producer Agilent.
  - 2-channel oscilloscope, 70 MHz, producer Agilent.
  - 4- channel oscilloscope, 200 MHz, producer Agilent.
- Instrument for diagnosis of the state of mechanical systems T 30, producer SPM-Sweden.
- Mobile PC measurement-acquisition device, A2 Logger, producer Electronic Desing, Serbia.
- System for laser centring, Damalini 525.
- Sensor for measuring vibration acceleration.
- Sensor for measuring the number of rotations.
- Diagnostic equipment for measuring oil leaking.
- Besides, the Laboratory has equipment for measurements in pneumatics and hydraulics, vibration measurement and analysis, as well as didactic equipment.



## Contact

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## Projects

- National project: PROJECT OF MULTIFUNCTIONAL SERVICE ROBOT „MNE-ROBECO“, 2012-2014, project coordinator prof.Dr Zoran Mijanović, active researchers prof.Dr Marina Mijanović Markuš, prof.Dr Radomir Vukasojević, Mr Darko Skupnjak.
- TEMPUS IV Project: 158644 -JPCR "Development of Regional Interdisciplinary Mechatronic Studies"-DRIMS, (2010-2013), project coordinator for the University of Montenegro prof.Dr Marina Mijanović Markuš.
- TEMPUS project EU, 2001-2003: Quality assurance in higher education in Montenegro

## Key staff

- Laboratory Manager is Dr Marina Mijanović Markuš, full professor at the Faculty of Mechanical Engineering of the University of Montenegro. She completed Faculty of Mechanical Engineering in Podgorica, and took her master degree in 1988 at the Faculty of Mechanical Engineering in Belgrade at the department for Automatic Management, with the work "Possibilities for application of programmable automats for managing tool machines ". She defended her doctoral dissertation under the title "Contribution to research of decentralized management system in flexible production systems "in 1995 at the Faculty of Mechanical Engineering of the University of Montenegro. Marina Mijanović Markuš is the author/co/author of two university textbooks and two course materials. Her field of interest: pneumatics/electro pneumatics, PLC and management, robotics, mechatronics. E-mail: marinami@ac.me
- Dr Zoran Mijanović is a full professor at the Faculty of Electrical Engineering. He is the author of numerous innovative solutions of machines and devices management applied in practice. Prof.dr Zoran Mijanović is the author and the co-author of a number of textbooks for faculties. His areas of interest include: controllers, microcontrollers, management, mechatronics. E-mail: zoranm@ac.me
- Doc.dr Radoslav Tomović is employed at the Faculty of Mechanical Engineering in Podgorica. He graduated in 1996 at the Faculty of Mechanical Engineering of the University of Montenegro, with the paper "Application of modern methods of construction in development in design of machines for cutting tobacco". He defended his master thesis under the title "Application of modern construction methods in development of machine industry productions" in 2000. He defended his doctoral thesis under the title "Research of the effects of construction parameters of rolling bearings on the state of their operation correctness" in 2010 at the Faculty of Mechanical Engineering of the University of Niš. He has the certificate for business technical diagnostics by means of SPM method and the vibration supervision method according to ISO 10816 and ISO 2372 standards. Field of interest: construction, vibration measurement and analysis, mechatronics. E-mail: radoslav@ac.me
- Mr Darko Skupnjak is engaged in the laboratory as an external collaborator, constructor in the factory DAIDO METAL KOTOR AD. Darko Skupnjak graduated from the Faculty of Mechanical Engineering of the University of Montenegro in 1999 on the topic Mathematical modelling of bridge crane dynamics, and took his master degree at the same faculty in 2009 with the paper Development of automated device for in-line control of sliding bearings. He developed a number of projects for the company he works for, participated in a number of projects implemented by the Faculty of Mechanical Engineering, and he also realized a number of projects for other companies in Montenegro. His fields of interest and work are: construction (tools, devices and machines), design, automatization and maintenance of machines and equipment. Computer software: Windows, Microsoft Office, AutoCAD, SolidWorks, Autodesk Inventor, CorelDRAW, Adobe Photoshop. E-mail: skupnjak@t-com.me
- Dr Janko Jovanović is an associate professor at the Faculty of Mechanical Engineering. He took his master degree at the Faculty of Mechanical Engineering in Podgorica in 1996, and his doctoral degree in 2006. He is the author of a number of university textbooks and textbooks for secondary schools. His field of interest: CAD/CAE, final elements, biomechanics. E-mail: janko@ac.me

## Commercial services, technical solutions, patents, prototypes

- Trainings for knowledge innovation and re-training in the area of pneumatics/electro-pneumatics, hydraulics/electro hydraulics, measurements in pneumatics and hydraulics, electro pneumatic servo positioning. Target groups are the employed and unemployed technicians and engineers, who need knowledge innovation and change of field of work.
- Attesting of mechatronic devices. Target groups are importers of mechatronic devices and the state.
- Design of machines and devices. Target groups are industrial partners, small and medium size companies.
- Vibrations measurements and data analysis. Target group are industrial partners.
- Technical measurements and data processing. Target group are industrial partners and all who need this kind of service.

# Laboratory for Turbulent Flows

Research field - classification code:  
**FOS203 | Mechanical engineering**

## Activity

- Design development and calibration of hot wire probes.
- Optimization of multisensor probes for measurement of the most complex turbulent current fields parameters.
- Measurement of basic parameters of turbulent flows at changeable temperatures and in supercritical conditions.
- Modelling of current fields in transport tunnels.
- Calibration of instruments for measuring velocity, pressure and temperature.

## Results

Laboratory for Turbulent Flows is a recognized research laboratory above all for its references in renowned international journals:

- Annual review of fluid mechanics
- Journal of fluid mechanics
- Experiments in fluids
- Measurements, Science and Technology.

Besides, the Laboratory has been recognized in the spaces of former SFRY, USA, Europe and South Korea as the place visited by researchers from the above states with the aim of familiarizing them with the development and application of hot wire probes and the implementation of scientific-research projects.

In cooperation with Maryland University – USA, this laboratory developed the first models of probes for velocity gradient measurements, measurements in the area of altering temperature and in supercritical conditions.

## Resources

Equipment for work in the laboratory:

- Anemometers for hot wire probes;
- Devices for calibration and testing of hot wire probes (aerodynamic tunnels, supercritical tunnels);
- Optic devices (various types of microscopes) for development of hot wire probes;
- Systems for data acquisition with simultaneous activation on multiple channels;
- LabView, National Instruments
- FLUENT, Ansys



## Contact

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## Projects

International projects :

- NSF grant, Roughness Effects on Flow Structure, University of new Hampshire, 2008
- DOE grant (US Department of energy ), Advanced computational thermal fluid physics for supercritical reactors, LAB NE-INERY-2001001, University of Maryland, USA, 2005.
- DOE grant, Fundamental Thermal Fluid Physics of High Temperature Flows In Advanced Reactors Systems, NERY Project 990254, Univ. of Maryland, USA, 2000.
- NSF grant CTS-8911892, Studies of Vortical Structure of the Turbulent Boundary layer and its Control, Univ. of Maryland, USA, 1990.

National scientific projects:

- Research of transitory processes phenomena in hydraulic and aeromechanical systems, Managed by Prof. dr Petar Vukoslavčević, Doc. dr Uroš Karadžić (2012 – 2014)
- Measurement of characteristics of turbulent current fields in pipes and channels: Ministry of Education and Science – Faculty of Mechanical Engineering, 2008-2011.
- Measurement of current fields in the conditions of high pressure: Ministry of Education and Science – Faculty of Mechanical Engineering, 2005.
- Simultaneous measurement of velocity and temperatures in turbulent fluid flows, Ministry of Education and Science, Faculty of Mechanical Engineering, 2000.

## Key staff

- Academician Prof. dr Petar Vukoslavčević
- Doc. Dr Uroš Karadžić
- Milan Šekularac, MSc
- Esad Tombarević, MSc

## Commercial services, technical solutions, patents, prototypes

- A nine-hot wire probe for simultaneous measurement of velocity and velocity gradient in turbulent flow of fluids
- A twelve-hot wire probe for simultaneous measurement of velocity and velocity gradient in turbulent flow of fluids
- Five-wire probe for simultaneous measurement of velocity and temperature field
- Two-wire probe for measurement of velocity and temperature in supercritical conditions

The above probes have not been patented. Details related to their construction, calibration and measurement are published in the most famous journals in this area, listed under item 4.

Development of various probes with hot fibres for the needs of research laboratories, calibration of instruments for measuring velocity, pressure and temperature of flow of fluids.

## 5. Appendix – Research Field Classification

*Field of science and technology classification (FOS 2007)*

### ***FOS1 Natural sciences***

FOS101 Mathematics  
FOS102 Computer and information sciences  
FOS103 Physical sciences  
FOS104 Chemical sciences  
FOS105 Earth and related environmental sciences  
FOS106 Biological sciences  
FOS107 Other natural sciences

### ***FOS2 Engineering and technology***

FOS201 Civil engineering  
FOS202 Electrical engineering, electronic engineering, information engineering  
FOS203 Mechanical engineering  
FOS204 Chemical engineering  
FOS205 Materials engineering  
FOS206 Medical engineering  
FOS207 Environmental engineering  
FOS208 Environmental biotechnology  
FOS209 Industrial Biotechnology  
FOS210 Nano-technology  
FOS211 Other engineering and technologies

### ***FOS3 Medical and health sciences***

FOS301 Basic medicine  
FOS302 Clinical medicine  
FOS303 Health sciences  
FOS304 Health biotechnology  
FOS305 Other medical sciences

### ***FOS4 Agricultural sciences***

FOS401 Agriculture, forestry, and fisheries  
FOS402 Animal and dairy science  
FOS403 Veterinary science  
FOS404 Agricultural biotechnology  
FOS405 Other agricultural sciences

### ***FOS5 Social sciences***

FOS501 Psychology  
FOS502 Economics and business  
FOS503 Educational sciences  
FOS504 Sociology  
FOS505 Law  
FOS506 Political Science  
FOS507 Social and economic geography  
FOS508 Media and communications  
FOS509 Other social sciences

### ***FOS6 Humanities***

FOS601 History and archaeology  
FOS602 Languages and literature  
FOS603 Philosophy, ethics and religion  
FOS604 Art (arts, history of arts, performing arts, music)  
FOS605 Other humanities



*Modernization of WBC universities  
through strengthening of structures  
and services for knowledge transfer,  
research and innovation*

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