

# UNIVERSITY OF KRAGUJEVAC

## **1. Current state at University of Kragujevac in the area of transfer of knowledge and technologies**

Among other efficient interfaces with the industry, the University of Kragujevac relies on its [Collaborative Training Centre](#) (CTC) and on its recent [Center for Virtual Manufacturing](#) (CeVIP), the latter founded in 2006 by the Mechanical Engineering Faculty. Both university units act as basic and highly specialized services provider to the Serbian industry. In line with its institutional mission, CTC and CeVIP support Serbian enterprises to become more innovative and competitive at the market by offering broad spectrum of services focused on advanced technologies and techniques of virtual development of products and process optimization. CAD/CAM/CAE<sup>2</sup>; RP/RT/RE technologies<sup>3</sup>; project management; advanced applications of digital/rapid technologies in product and process development; quality control and certification of products; innovative VM technologies; verification of design solutions through FE simulation<sup>4</sup> for concurrent design and manufacture of automotive parts; improvement of existing products and processes; rank among the highly specialized services offered to the Serbian economy, particularly to the manufacturing and automotive industries.

One of the activities of CTC centre within [WBC-VMnet](#) project was the development of methodology and the implementation of a comprehensive [TSNA analysis](#) (Training & Service Needs Analysis), which was carried out in all countries of the WBC region (Serbia, Croatia, Bosnia and Herzegovina, Montenegro). The proposed methodology included 5 steps, in accordance with accepted EU TNA methodology. The research covered a sample of 49 enterprises in Serbia, 30 in Croatia, 30 in Montenegro and 15 in Bosnia and Herzegovina, from different sectors. Besides considering the needs of enterprises and their employees as regards missing trainings and advanced services in innovative development of products and processes, the research included the target group of the unemployed. TSNA results showed that a high percentage of the surveyed follows trends in their area, approximately 95%, mainly through the Internet, participation in trade fairs, professional literature and cooperation with universities (research teams, centers ...). Weak information about the trainings available in the region was detected, because more than 70% of the surveyed answered that they weren't familiar with who carried out the trainings they needed, while only 17% declared that the trainings offered met their needs. 72% of managers plan their own development in the application of new technologies through collaboration with local teams of experts, and 96% of them would send their employees to trainings related to new technologies in the development of products and processes. About 90% of people surveyed thought it very important to have professional literature and software for the development of new products and services, and were planning to appear on new markets. The final result of TSNA (800 questionnaires in the field) is an insight into the real needs of enterprises, their employees, and labor market for the missing knowledge and skills, as well as specialized services in the development of products and processes. CTC offers [vocational trainings](#) for enterprises and unemployed .

In line with idea of network knowledge and transfer technologies, CeVIP has established [Virtual Manufacturing Network – VMnet](#) as efficient industrial-science link, which has already more than 900 members from the WBC region (large companies, SMEs, R&D organizations, NGO, Agencies for SMEs, entrepreneurs, experts, managers, engineers, researchers, students etc.). Broaden of VMnet is supported by CTC within WBC-VMnet project. Network gathers 16 experts from area of production technologies, materials, information technologies, software development, numerical FE/FV simulation of production processes, rapid prototyping, reverse engineering, design and marketing, who offer support for companies in their R&D activities to implement new technologies, thus improving their competitiveness on the global market. Apart from expertise offered within VMnet, by this network enterprises would get quality, timely and inexpensive development cycle and may optimize the existing products and processes, as precondition for increasing of competitiveness on increasingly requiring market. VMnet network members regularly receive up-to-date information via e-mail on the ongoing activities on projects, fairs, events, competitions, 15 electronic journals are also distributed). They also have access to Systematized knowledge base (150 documents on VM technologies, production, design, product development ...).

Working closely with the private sector, **Collaborative Training Centre** offers an [Industrial Fellowship Programme](#) (IFP) already recognized as an efficient measure to enhance university-enterprise cooperation, establishing sustainable partnerships among key players of the so called *knowledge triangle* (universities, enterprises and graduates). An initiative that proved to produce mutual benefits. Enterprises benefit from highly qualified graduates (or employed engineers who spend usually three months to one year at the university research centre, for professional development. Acting as industrial fellows, selected graduates are stimulated to participate in specific research projects targeted to industry needs and company business. They work as part of the enterprise team, supported by university experts aiming at introducing a culture for R&D activities and innovation in the enterprise environment, while bridging knowledge and technology transfer.

## **2. Organization structure**

In addition to the administrative departments of the University of Kragujevac, other structures that can contribute to the development of research activities and transfer of knowledge and technologies are:

**The Serbian Academy of Arts and Sciences and the University of Kragujevac** (<http://www.kg.ac.rs/sanu.asp>) established a **joint Research center** in 1992. The Center comprises ten sections, mostly directed toward research in areas which have not yet been encompassed by the typical teaching and research of the University. The Center's work is realized through the activities in research projects, publishing activities and organization of scientific meetings, lectures and round table discussions.

**The University Information Center** (<http://www.unic.kg.ac.rs/>), was founded in 1988 and is located at the Faculty of Mechanical Engineering in Kragujevac. It is the center of the university computer network and regional center of Serbian academic network with over 700 PCs on line. It provides computer support, computer networks of the University and all faculties, as well as provision of high-tech network services, organization of end-users' training, desk-top and electronic publishing, etc.

In July 2007, the University of Kragujevac established the **Center for Career Development and Students Counseling** ([www.razvojkarijere.kg.ac.rs](http://www.razvojkarijere.kg.ac.rs)), in cooperation with the Foundation of Crown Prince Alexander for Culture and Education. The main goal of the Centre is to establish a link between the employers and the recently graduated students, as well as to improve the level of employability of students, providing them with various opportunities for jobs, further education, scholarships, internship, voluntary work and practical placements in the leading innovative companies in order to develop practical skills and better position on the labor market. Besides, Centre organizes presentations of the companies and of their business policies

**Collaborative Training Centre** ([www.ctc.kg.ac.rs](http://www.ctc.kg.ac.rs)) was established in June 2010, as organizational unit of the University of Kragujevac. Its vision is to become a strong cooperative center that will initiate, mediate and maintain mutually beneficial partnerships between universities, that is its members, students and graduates on one hand and enterprises and other partners that support SME sector on the other hand. CTC mission is to develop efficient and effective mechanisms for cooperation between university and enterprises, through the projects' implementation, vocational trainings for enterprises and the unemployed, industrial scholarship programs (Industrial Fellowship Programme - IFP) and student practice (Student Practical Placement Programme - PPP).

## **3. Technology transfer office**

The role of the Technology Transfer office at University of Kragujevac should be:

- to establish a database of universities research results,
- to serve close research-industry contacts,
- to manage interdisciplinary forums and networks,
- to deal with patents and intellectual property rights and
- to promote the commercialization of research results.