

In this issue:

- ◆ Erasmus+ Capacity Building in Higher Education Project Representatives Meeting
- ◆ Calendar of events
- ◆ Current activities
- ◆ Meet our partners: UL, UTM, SPbPU

Calendar of events

Past events

- 19–21.12.2016** Kick-off meeting in Bremen
- 13-17.03.2017** Retraining in Bremen.

Upcoming events

- 24 -28.04.2017** Retraining in Madrid.
- 15- 19.05.2017** Retraining in Ljubljana
- 15-17.05.2017** Project meeting in Ljubljana



Erasmus+ Capacity Building projects in the field of Higher Education Call 2016

PROJECT & CONTRACT MANAGEMENT

*Grant Holders' Meeting
Brussels, 25-26 January 2017*



- The most interesting topics that were presented:
- Capacity building for Higher Education action: First Call for proposals results
- Presentation of the impact of the Tempus programme in a Partner Country
- Experience in project management from a Tempus and Capacity-building project coordinator perspective
- Ex-post audits

[The Presentations are available](#)

InMotion: First Project Results

The carried out **CMSE end-user-needs analysis** showed following:

- There is need in engineers in modeling and simulation in Industry and Education.
- 80% of questionnaire stated the demand in new specialists. In RU the demand for MSc is higher as for BSc, in MY the need for BCs is higher. The enterprises in RU have also interest in the PhD specialists
- The quality of graduate students does not correspond with demands of stakeholder now.
- Russian universities are traditionally strong in training physic-mathematical specialists and not so good in training engineers in the field of modeling and simulation.
- The training of engineers in modeling and simulation should be changed and coordinated with up-to-date demands of industry, special attention must be paid to the practical skills in CMSe

As a result of the **review and analysis of the CMSE curricula**, InMotion Partners have identified needs for the development of improved Syllabi which will be included in the updated Curricula for the engineers in the universities of the partner countries. The requirements for the curriculum being developed are determined: the optimal number of hours devoted to the individual work of students (IW), the number of contact hours - lectures, practices, laboratory works (CH), the number of ECTS counted for each developed program of the discipline.

[Continued on page2](#)

InMotion: First Project Results

(continued from page 1)

In addition, professional competencies which must be acquired by students in the course of studying special disciplines have been formalized.

It is planned to develop

5 Syllabi for Bachelor level:

- The basis of mathematical modeling;
- Modeling and Simulation of Dynamic Systems;
- Modeling and Simulation in Engineering using RMD;
- Simulation fundamentals;
- Modeling and Simulation in Engineering using Modelica;

4 Syllabi for Master level:

- Technologies of computer modeling;
- Computer modeling of complex dynamical systems;
- Modeling and Simulation in Engineering using Modelica;
- Modeling and simulation of hybrid systems;

The comparative analysis of the differences in the existing curricula of doctoral students at EU universities and partner countries universities results in the decision to improved curricula for doctoral students in CMSE field and develop improved individual plans for them.

We decided to develop the methodological guidelines, which will contribute to the improvement of the scientific and educational process in the field of training doctoral students who actively use CMS methods and packages for special engineering applications.

Following **guidelines for doctoral students** are planned:

- eScience approach and structured programs for the third educational level;
- Visual environments for modelling and simulation. Developer's approach. Doctoral level;
- The guidelines on the structure of the individual plans in terms of targets and training time;
- Comparative study of simulation tools (Recommendations on holding workshops for Doctoral students)

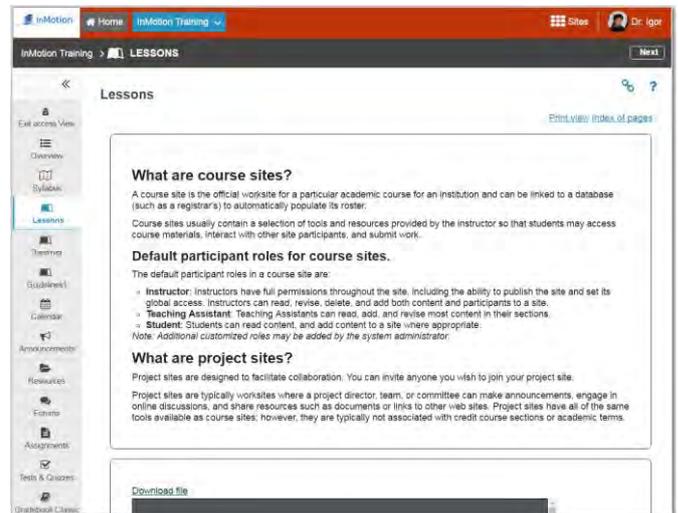
The work on the guidelines will contribute to the improvement of the following doctoral Syllabi:

- Visual modeling in Rand Model Designer 7;
- Computer modeling for marine engineering applications;
- Comparative study of simulation tools;
- Introduction to the theory of formal languages and compilers

Current Activities

Deployment implementation and maintaine of Open Modeling & Simulation Environment (OMSE)

The OMSE was installed in all partner universities.



Guidelines for use of OMSE for teachers and students are written. The development of special modules for course management system is going on. The examples of usage of different tools (Syllabus, Calendar, Lessons, Assignments, Tests&Quizzes, Gradebook, Resources, WiKi, etc.) for creation of the Course sites were developed.

The tools allow the usage of LaTeX language for mathematical formula.

Kick off meeting

A kick-off meeting of representatives of the Universities - participants of the new project in frames of the European educational programme ERASMUS+ was held on December 19-21, 2016 in the town of Bremen in the north of Germany. The project is devoted to the development of «Innovative teaching and learning strategies in open modelling and simulation environment for student-centered engineering education », in short - «InMotion».



The main subjects of the workshop were:

- acquaintance of the main executors of the project, formation of the team-spirit;
- discussion of the project chapters, terms of their execution, obligations and responsibilities of the members;
- specification of works according to the project plan;
- defining the rules of collaboration of partners in frames of the project.



At the opening of the first work day representative of the International Department, Barbara Hazenmueller presented international programs where Bremen University takes part. Dr. Yildiray Ogurol, Managing Director of Centre for Multimedia in Higher Education (ZMML) presented the ZMML and expressed confidence in the final success of the project as a result of the high scientific qualification of all partners and great experience of participation in international projects. The Partners presented their Universities and after it the Work Package Leaders made the detailed presentations of the Work Packages, their activities and tasks. The partners took part in the discussion concerning the educational programs and standards in Malaysia, Russia and EU. The plan for the writing of the textbooks was suggested by Prof. Yuri. Senichenkov from Peter the Great St.Petersburg Polytechnic University (SPbPU). As a result of the discussion the partners decided to work on the six Textbooks. Two of them must be for the general basic courses at Bachelor and Master level (Basic of mathematical modeling for engineers (Bachelor) and Basic computer technologies of modeling and simulation of complex dynamical systems (Master)), the other four must deal with more specific subjects, related to special tools on computer modeling and simulation.

Prof. Vladimir Ryzhov from St. Petersburg State Marine Technical University (SMTU) made an interesting presentation on the eLearning Modules.

Retraining in Bremen

The retraining of the Russian and Malaysia participants of InMotion project was successfully carried out at the University of Bremen (UniHB) during March 13 – 17, 2017. The program of retraining started in the morning of Monday, 13th June. After the short procedure of opening, and welcome speech Dr. Ogurol informed the participants about the structure, organization and main activities in E-Learning, scientific and education activities of the UniHB. It was a stimulating and useful introduction to the whole retraining program followed by an intensive question and discussion round.



Dr. Igor Novopashenny made an introduction in Open Modeling & Simulation Environment by introducing different tools and showing some examples. After the presentation, the participants worked with the tools to have some practice, e.g. creating their own courses sites in the virtual research environment based on SAKAI CLE.

ZMML team presented different aspects of E-Learning, such as “Didactical E-Learning Patterns” and “Learning Commons – Introduction”



Kai Schwedes showed the Student Learning Rooms, the Learning Commons of UniHB, to the participants and explained the concept of group work and collaboration based on the Student Learning Rooms.



The visit of the retraining team to the E-Assessment / Testcenter of the UniHB was very interesting and productive. Dr. Jens Bücking explained the principles and methods of the E-Assessment service and the testing system used in the Testcenter. After answering questions about used technology and concepts, everybody get the opportunity to participate in some online tests showing the variety of question types.

could be prepared in frame of InMotion Project, were discussed.



Prof. Dr. Yuri Senichenkov (SPbPU) made an introduction in Rand Model Designer for Malaysia and Russian participants.



Alexander Hillmann presented the possibilities for lecture recordings, including automated capture systems and the film studio of UniHB with green screen concept. Possible subjects for lectures, which

Our partners' page



University of Ljubljana

University of Ljubljana (UL) is a public autonomous educational, scientific research and artistic institution of HE with a very rich tradition. It is the oldest and the biggest university in Slovenia. It was established in 1919 and it encompasses 26 full members (3 art academies and 23 faculties) and 3 associated members (National University Library, University of Ljubljana Central Technical Library, University of Ljubljana Innovation-Development Institute).

UL ranks among the top 500 universities according to: Times THSE-QS Ranking (500-600), Shanghai Academic Ranking of World Universities (400-500), Webometrics Ranking of World universities (top 200), URAP - University Ranking by Academic Performance (284).

In the 1st cycle it offers 128 universities, 32 higher professional and 7 long-cycle master study programmes. In the 2nd cycle it offers 215 university programmes and 13 joint study programmes, and 21 doctoral study programmes in the 3rd cycle.

UL is very active in national research and education programmes. In 2014 UL had over 250 research groups with over 3000 registered researchers (548 ESR), 156 national research programmes, 219 basic and 79 applied research projects, and 49 targeted research projects (CRP). UL is also very active in international R&D programmes: in the period 2007-2013 it was involved as partnering or coordinating institution in more than 750 European projects, among them 160 FP7 projects and 2 ERC grants. In 2014 UL cooperated in 562 running international projects, including 439 research and educational projects financed by EU Community programmes.

UL is represented in the consortium by the Faculty of Electrical Engineering with a very old tradition on all education levels and on many research areas, especially on Control Systems, Electronics, Telecommunication, Energetics, Mechatronics and Biomedical Engineering.



Universiti Teknologi Malaysia (UTM) is a public research University in Malaysia and a leading research-intensive university in engineering, science and technology. It is located both in Kuala Lumpur, the

capital city of Malaysia and Johor Bahru, the southern city in Iskandar Malaysia, which is a vibrant economic corridor in the south of Peninsular Malaysia. Universiti Teknologi Malaysia (UTM) is the largest engineering-based university in Malaysia offering a variety of programmes for all levels of education. Postgraduate and undergraduate programmes are offered in engineering (Civil, Mechanical and Electrical), bio-medical engineering, ICT, bio-science, built-environment, geo-information, education and management. There are more than 16,036 full-time undergraduate students, 6,350 postgraduate students and more than 5,000 enrolled on distance learning programmes as part-time students. UTM is now a graduate-focused university with 56% of its student population consisting of postgraduate students, the highest in Malaysia. As at 2015, UTM has more than 5,000 international students from more than 60 countries around the world, the highest among research universities in Malaysia. UTM is thus 'renowned for being at the forefront of engineering and technological knowledge and expertise, contributing to the technical and professional workforce of the nation since 1904. Having produced more than 200,000 technical graduates and qualified professionals over the years, UTM has earned its place as Malaysia's premier university in engineering and technology which inspires creative, innovative and entrepreneurial mindsets



POLYTECH

Peter the Great
St. Petersburg Polytechnic
University

Peter the Great St. Petersburg Polytechnic University (SPbPU) was founded in 1899. The University is carrying out education in the following areas: engineering, physics, economics, humanities and information technologies. SPbPU trains specialists in 44 different Bachelor's degree programs (including 9 double degree programs and programs in English), 170 Master's degree programs (including 20 programs in English), 90 PhD programs and 90 Doctorate programs. In addition, there are a number of non-degree and international educational programs on BA and MA level. At the present time there are 26673 students and postgraduates in SPbPU, 4540 of them are foreign citizens from 98 countries. In 2007 SPbPU won a contest "Innovation University" financed in the framework of the national project "Education". In 2010 SPbPU gained the status "National Research University". Nowadays SPbPU develops as a new type research university, which integrates multidisciplinary

R&D activities and advanced technologies for rising national economics competitiveness. SPbPU is one of 15 Russian leading universities who entered the Ministry of Education and Science Program “5-100-2020” in 2013. The aim of the program is to ensure at least 5 Russian universities in the TOP-100 of the world's leading universities according to the QS World University Rankings by 2020.

SPbPU key priorities are internationalization and increasing effectiveness of education and research at the university by means of advanced world experience implementation and taking into account national traditions of fundamental university education. The university is open for comprehensive cooperation with foreign partners and our experience of the international projects development in the field of research, education, innovation could be useful for our colleagues from the other countries. Only over the last years the university has participated in more than 60 international projects carried out within the frameworks of the following European and Regional programs: INTAS, INCO- COPERNICUS, NORDIC, ENPI, TEMPUS ERASMUS+ etc.

Institute of Computer Science and Technology

The Institute graduates developers of modern information technologies, computer equipment and cyber systems. The educational process is founded on the profound training in such areas as modern computing, programming, microelectronics, information security, automatic control systems, system analysis and control, distributed computing and computer networks, information and measuring equipment, environmental monitoring system, computer mathematics and modeling, electronic protection system. Characteristics of the education quality at ICST are as follows: fundamentality, knowledge of modern technology, open learning and access to global information resources, practical skills and secure job after graduation.

Distributed Computing and Networking Department

Distributed Computing and Networking Department is carrying out human resource development and scientific research in fields of big data, distributed automated system, verification, modeling and simulation.

(Bachelors)

- Training School 02.03.02 «Computer science and information technologies»
- curriculum « information science and technique »

(Magisters)

- Training School 02.04.02 « Computer science and information technologies »

- curriculum «Designing of complex information systems »

InMotion Project



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein