



PROMENG

Training course

03 – 17 August 2012

Berlin

Institute of Technology Berlin
Building F, Room F 11
Marchstr. 12
10587 Berlin

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PROMENG - Programme Overview

Practice oriented Master Programmes in Engineering in Russia, Ukraine and Uzbekistan

PROMENG is a project within the framework of the TEMPUS programme¹. The acronym PROMENG stands for Practice Oriented Master Programmes in Engineering.

Budget size: €1.214.000

The main aim of the programme is to improve the Master programmes in Electrical Engineering according to the needs of modern society of target partner countries - Russia, Ukraine and Uzbekistan and to bring the universities closer to changing labour market and European education area.

The wider objectives are:

- To ensure that the targeted universities in Russia, Ukraine and Uzbekistan can offer new advanced Master programmes in Engineering in line with the new development in the area, the market demand and according to the Bologna Process, last recommendations in Leuven communiqué and best practice

The specific objectives are:

- To update the current curricula in Electrical Engineering Master Programmes according to the Bologna requirements and new developments in Engineering;
- To develop, implement and accredit new practice oriented curricula and modules for Engineering Master Programmes;
- To bring the Higher Education Institutions of partner countries closer to the labour market

According to the specific project objectives, the following tangible outputs and intangible outcomes in the frames of development are planned:

1. Review /analyse/ upgrade of the current curricula in Electrical Engineering Master programmes according to recent advances in the target field;
2. Develop four new generic curricula (applied informatics and data transmission systems):
 - CAD /CAM/CAE for Electrical Engineering;
 - Quality Engineering;
 - Environment Management and Engineering

¹ Tempus is the European Union's Programme which supports the modernisation of higher education in the Partner Countries of Eastern Europe, Central Asia, the Western Balkans and the Mediterranean region, mainly through university cooperation projects.

- Five modules
 - 1. Problem solving for Engineers;
 - 2. Modelling of production systems;
 - 3. Re-Engineering;
 - 4. Audit and Certification according ISO;
 - 5. Soft skills for Engineers with integrated supporting infrastructure (laboratories and PC pools);
- 3. Retrain academic staff in the new curricula methodologies/ train of the non academic teachers / mentors from partner enterprises;
- 4. Pilot teaching /operation;
- 5. Establish ELM Offices (Engineers in Labour Market) with stakeholders support.

Training Course Overview

Applied informatics and data transmission systems

The module deals with the basics of data transmission.

- Communication and signals
- Signal and system descriptions
- Introduction to statistical communication theory
- News channels
- Disorders and noise reduction
- Analog modulation
- Digital modulation
- Communication systems of the satellite
- Operation of satellite ground stations
- Network the ground station and its extension
- Telecommand and telemetry system

Control engineering

- Generalities and terminology
 - o What is control engineering
 - o Structure of a control loop
 - o The signals
 - o Process chain
 - o Block diagram
- Process
 - o Introduction
 - o First order
 - o Examples
 - o Responses
 - o Time constant
- Correcting element
 - o introduction
 - o Composition
 - o Valve positioner
- Controller
 - o Needs and demands
 - o Auto – Man
 - o Process characteristic
 - o Proportional functioning
 - Control characteristic.
 - Working point & proportionality range
 - Static error
 - o Exercises
 - o Proportional control of a first-order system
 - o The integral action
 - o The differential action
 - o Optimize

Modernisation and internationalisation of the higher education in the field of engineering

- The Bologna Process 2020 - the European higher education area in the new decade
- Internationalisation of the higher education: practices and priorities
- Practical aspects of the participating in European education and research programmes

Soft Skills

- Communication/ Platform skills
- Conversation techniques
- Presentation techniques
- Transformational versus Transactional Leadership Theory
- Emergence of conflicts
- Conflict management
- Types of conflicts
- Conflict progression
- Conflict resolution
- Etiquette (guide) and career
- Project Management
- Project Marketing
- Performance Management
- Scientific Work Methods
- Time Management
- Importance of Soft Skills at the Labour Market

Job application training for engineers in frame of ELM offices

- How to increase the chances of young engineers in the labour market

Modern TRIZ - Problem solving for engineers

- Theoretical foundations of modern TRIZ
 - o Contemporary needs of innovative design
 - o Methods for creating innovative solutions and ideas
 - o Challenges and opportunities of designing innovative teaching methods
 - o Modern TRIZ (Theory of Inventive Problem Solving and Innovation)

- Practice-oriented methods and models of modern TRIZ - for engineering and teaching.
- Practical training on key models of modern TRIZ
 - Entertaining the study and creation of effective ideas - a standardized universal model for the student, researcher, engineer, professor, manager
 - Individual training workshop

Training Course Program

02.08.2012

Arrival of the group I

03.08.2012

10:15 You will be picked up from the hotel. Meeting point – lobby of the hotel Ivbergs Messe.

10:30 – 12:00 Administration issues/Costs of stay payment (Group I)

04.08.2012

Arrival of the group II

05.08.2012

11:00 – 15:00 Guided tour through Berlin (in Russian)

Meeting point: Marchstr. 12, 10587 Berlin

Meeting time: 10:00

06.08.2012

10:00 – 11:00 Welcome and registration of the participants

Administration issues/Costs of stay payment (Group II)

11:00 – 13:00 Tour through TU Berlin Campus

13:00 – 14:00 Lunch

14:00 – 17:00 Applied informatics and data transmission systems. Visit to the satellite ground station. Dmitriy Bogdanov

07.08.2012

10:00 – 13:00 Applied informatics and data transmission systems. Dmitriy Bogdanov

13:00 – 14:00 Lunch

14:00 – 17:00 Job application training for engineers in the frame of the ELM offices. Olga Homakova

08.08.2012

09:30 – 11:00	Applied informatics and data transmission systems. Visit to the data transmission labs. Dmitriy Ostroverkhov
11:00 – 13:00	Coordination meeting. Dr. Arnold Sterenharz
13:00 – 14:00	Lunch
14:00 – 17:00	Modernisation and internationalisation of the higher education in the field of engineering regarding the Bologna Process, -The Bologna Process 2020 - the European higher education area in the new decade -Internationalisation of the higher education: practices and priorities -Practical aspects of the participating in European education and research programmes Dr.-Ing. Arnold Sterenharz
20:00 – 22:00	Guided tour through Reichstag building (in English)

09.08.2012

10:00 – 13:00	Problem solving for engineers, Prof. Dr.-Ing. Michael Orloff
13:00 – 14:00	Lunch
14:00 – 17:00	Problem solving for engineers, Prof. Dr.-Ing. Michael Orloff

10.08.2012

09:30 – 12:30	Problem solving for engineers, Prof. Dr.-Ing. Michael Orloff
12:30 – 13:30	Lunch
14:30	Study visit 1 - BMW factory Berlin Departure from the Department of Aeronautics and Astronautics for the guided tour through the BMW factory Meeting point: Marchstr. 12, 10587 Berlin Departure time: 13:45

12.08.2012

11:00 – 15:00 Bus guided tour through Potsdam (in Russian)

Meeting point: Marchstr. 12, 10587 Berlin

Meeting time: 10:30

13.08.2012

10:00 – 13:00 Control engineering, Jeff DeJonge

13:00 – 14:00 Lunch

14:00 – 17:00 Applied informatics and data transmission systems. Walter Frese

18:30 – 20:30 Guided tour through Reichstag building (in English)

14.08.2012

10:00 – 13:00 Control engineering, Jeff DeJonge

13:00 – 14:00 Lunch

14:00 – 17:00 Soft skills for engineers, Elena Eyngorn

15.08.2012

10:00 – 13:00 Control engineering, Jeff DeJonge

13:00 – 14:00 Lunch

14:00 – 17:00 Ground Station Network

16.08.2012

10:00 Study visit 2 - Technical Museum
Meeting point: Marchstr. 12, 10587 Berlin

18:00 Dinner
Location: Ivbergs Premium
Address: Kleiststr. 9-12, 10787 Berlin

PROMENG Consortium

- Technical University of Berlin, Germany
- Campus De Nayer, Lessius-Mechelen University, Belgium
- Vilnius Gediminas Technical University, Lithuania
- ECM Office, Germany
- Bauman Moscow State Technical University, Russia
- Kazan National Research Technical University, Russia
- Povolzhskiy State University of Telecommunications & Informatics, Russia
- Lutsk National Technical University, Ukraine
- Pryazovskyi State Technical University, Ukraine
- Zaporizhzhya National Technical University, Ukraine
- Fergana Polytechnic Institute, Uzbekistan
- Karshi Engineering-Economic Institute, Uzbekistan
- Tashkent State Technical University, Uzbekistan
- Technical Universities Association of CIS, Moscow
- Donetsk Chamber of Commerce and Industry, Ukraine
- Chamber of Commerce and Industry of Uzbekistan
- Chamber of Commerce and Industry of Kazan, Russia
- Ministry of Education and Science of Ukraine
- Centre of Development of Higher and Secondary Education of Uzbekistan

List of Participants

	FIRST NAME	NAME	ORGANIZATION	COUNTRY	POSITION
1.	Nikolay	Nikulnikov	Povolzhskiy State University of Telecommunication and Information	Russian Federation	Teaching Staff
2.	Elena	Nikulnikova	Povolzhskiy State University of Telecommunication and Information	Russian Federation	Teaching Staff
3.	Aleksey	Salmin	Povolzhskiy State University of Telecommunication and Information	Russian Federation	Teaching Staff
4.	Anna	Kharitonova	Povolzhskiy State University of Telecommunication and Information	Russian Federation	Teaching Staff
5.	Victor	Shishov	Bauman Moscow State Technical University	Russian Federation	Associate Professor
6.	Nikolay	Lavrov	Bauman Moscow State Technical University	Russian Federation	Associate Professor
7.	Mykhaylo	Vereskun	State Higher Educational Establishment «Priazovsky State Technical University»	Ukraine	Dean of the Faculty of Information Technology
8.	Ievgen	Chychkarov	State Higher Educational Establishment «Priazovsky State Technical University»	Ukraine	Head of the Department of Informatics
9.	Oleksiy	Koyfman	Pryazovskiy State Technical University	Ukraine	Senior Lecturer

10.	Eldor	Mamurov	Ferghana Polytechnic Institute	Uzbekistan	Head Of Department of Science and Preparation of Scientific and Pedagogical Staff
11.	Nurmamat	Umaraliyev	Ferghana Polytechnic Institute	Uzbekistan	Associate Professor of Electronics and Instrument Making Department
12.	Erkin	Abbasov	Ferghana Polytechnic Institute	Uzbekistan	Head of the Department Building and Installation of Engineering Communications
13.	Farmon	Mamatov	Karshi Engineering - Economic Institute	Uzbekistan	Director of the Training and Research Centre, Professor
14.	Zair	Uzakov	Karshi Engineering - Economic Institute	Uzbekistan	Head of the Department of Automation and Information Technologies
15.	Rustam	Omanov	Karshi Engineering - Economic Institute	Uzbekistan	Associate Professor of the Chair of Management
16.	Alexey	Korobkov	Kazan National Research Technical University named after A.N.Tupolev	Russian Federation	Associate Professor of the Department of Radio Electronics & Telecommunications Systems, Phd
17.	Artur	Gaysin	Kazan National Research Technical University named after A.N.Tupolev	Russian Federation	Assistant of Radio-Electronic & Telecommunications Systems Department
18.	Anton	Khomyakov	Kazan National Research Technical University named after A.N.Tupolev	Russian Federation	Assistant of Radio-Electronic & Telecommunications Systems Department
19.	Igor	Andrushchak	Lutsk National Technical University	Ukraine	Lecturer
20.	Nataliya	Oleksiv	Lutsk National Technical University	Ukraine	Lecturer
21.	Oleh	Herasymchuk	Lutsk National Technical University	Ukraine	Head of the Department of Computer Science

22.	Halyna	Herasymchuk	Lutsk National Technical University	Ukraine	Lecturer
23.	Zair	Shamsiev	Tashkent State Technical University	Uzbekistan	Head of the Aviation Department, Professor
24.	Yuriy	Pisetskiy	Tashkent State Technical University	Uzbekistan	Head of the Department Radio Technology
25.	Nikolay	Dunyashin	Tashkent State Technical University	Uzbekistan	Dean of Mechanical Faculty
26.	Anatolii	Prytula	Zaporizhzhya National Technical University	Ukraine	Head of the Department of Software Tools, Professor
27.	Ravil	Kudermetov	Zaporizhzhya National Technical University	Ukraine	Head of the Department of Computer Systems and Networks
28.	Ganna	Nelasa	Zaporizhzhya National Technical University	Ukraine	Associate Professor of the Department of Software Tools
29.	Nazir	Abidjanov	Centre of Expertise and Cleaner Production under the Commerce and Industry of the Republic of Uzbekistan	Uzbekistan	Director of Centre of Expertise and Cleaner Production
30.	Saidakhon	Abijanova	Centre of Expertise and Cleaner Production under the Commerce and Industry of the Republic of Uzbekistan	Uzbekistan	Consultant

TU Berlin campus map

