

**13-14 April 2016**

**KNRTU-KAI, Kazan, Russia**

**Consortium Meeting**

# **TEMPUS MMATENG**

**“Modernization of two cycles (MA, BA) of competence-based curricula in material engineering according to the best experience of Bologna Process”**

## Meeting Agenda

### **Tuesday, 12.04.2016**

- Arrival of training participants to Kazan and transfer to the accommodation.

Accommodation: HotelIbisKazanCenter (Address: 43/1, Pravo-Bulachnaya Str., web: <http://ibishotel.ibis.com/gb/hotel-6278-ibis-kazan-centre/index.shtml> or <http://ibis-kazan-centre.hotels-kazan.ru/en/>).

Note (!): Each participant makes reservation of hotel by himself/herself.

### **Wednesday, 13.04.2016**

Address of the venue: 1<sup>st</sup> Building of KNRTU-KAI (Address: 10, K.Marx Str.), Dept. of Material Science

09.00– 09.30 Registration of the consortium meeting participants

09.30 – 10.00 Welcome and opening of the consortium meeting by:

Dr. Alexey Lopatin, Director of Institute of Aviation, Land Vehicles and Energetics of KNRTU-KAI

Prof. Engel Galimov, Head of Dept. of Material Science of KNRTU-KAI

Dr ing Peter Arras, Project Coordinator

Dr. Alexander Snegurenko, Local Coordinator

10.00 – 11.30 Dr ing Peter Arras

#### **Consortium meeting:**

## Work plan overview and outcomes

An overview of the work plan and the different phases in the project was presented by the coordinator, as well as an overview of the outcomes:

### **Year 1: (developing phase)**

Work plan:

1. **Review, analyse, upgrade** current curricula in Material Engineering
2. **Develop teaching materials** for 12 new core curricula, 3 transferable modules and on this base a set of curricula and modules.  
Develop new practice oriented supporting infrastructure

3. **Begin to develop, publish and purchase** a manual, handbooks and syllabi. Joint web based platform
4. **Prepare a set of documentation** for MITL and MESO, purchase/install equipment.

Outcomes:

- Curricula:
  - Course materials are made and distributed during trainings and are available on the website
  - Are still updated with new version: courses 6-9, 2

### Overview of curricula:

#### 12 +1 core curricula/modules

- ✓ Materials Engineering Basics (BA)
- ✓ Material selection (BA/MA)
- ✓ Light weight materials for transportation (MA)
- ✓ CAD-CAM - CAE CREO (PTC) (BA/MA)
- ✓ Surfacing techniques (MA):
- ✓ Technologies and applications of Superconductive materials (MA)
- ✓ Microstructure investigation techniques (MA)
- ✓ Damage and reliability of materials (MA)
- ✓ Metallurgy and metallic alloys (MA)
- ✓ Materials from Renewable Sources (BA/MA)
- ✓ Nano materials Technologies (BA/MA)
- ✓ Strengthening technologies of materials treatment (MA)
- ✓ Thermodynamics for materials (MA)

#### 3 Transferable curricula/modules

- ✓ Project management (business planning, funding, marketing, performance) (BA/MA)
- ✓ Soft skills for engineers:
- ✓ Effective communication with groups, presentation techniques (BA/MA)
- ✓ Survival in Labor Market (carrier managing) (BA/MA)

- Teaching materials:
  - Books published: PSTU, MSTU
  - Conference proceedings from methodological conference in CUT
- MITL: (Materials Information Technology Labs )
  - Equipment delivery: overview by D. Bogdanov
- MESO: (Material Engineering Service Office)
  - Equipment delivery: overview by D. Bogdanov
  - Establishing of the MESO-offices is going on
- Media covering: flyers, news covering (on the website)

## Year 2 (Work out Phase)

Work plan:

1. **Training courses in EU:** Retrain academic teachers in new curricula, methodology. Tentatively: 3 retraining courses in new curricula/modules (duration each two or three weeks)
2. **Retrain courses** in partner countries for non academic mentors, who will be able to supervise student's practice in their enterprises
3. **Staff training** for MESO offices will take place in TUB, prepared and carried out by ECM Office
4. **Master Classes:** Minimum 14 Master Classes on operation of new labs will be prepared and delivered in target universities.  
Complete establishing MESO with stakeholders support

Outcomes:

- Master classes conducted:
  - In Russia: FEFU, KNRTU-KAI
  - In UA: planned in Kiev during the meeting 25-26 April
  - In KU Leuven during the training
  - In CUT during the training
  - In IL: TAU during the consortium meeting
  - MESO-training at TUB
- Presentations can be found on the website

*REMARK: The coordinator reminds the partners to keep track of the number of people attending trainings, the number of people trained via train-the-trainer trainings, the number of master classes attended, the number of people attending the masterclasses etc. Formal numbers are needed for the project reporting.*

## Year 3 (Implementation Phase)

Work plan:

1. **Pilot teaching /operation:** Teaching students in new curricula/modules. Approximately 20 students from each target university will be involved in the courses offering new curricula/modules
2. **Accredit** a set of curricula and modules on national level
3. **Pilot operation** of MESO involving universities and stakeholders outside the project. This activity targets to ensure the sustainable operation.

## Disseminations & Sustainable Activities

From the first till the last day of project life are planned activities on dissemination of information and ensuring of sustainability of project outcomes. Each target university will work out timetables for publications, information and sustainability ensuring events based on project activities especially by MESO.

It is planned to invite representatives from stakeholders and universities outside the consortium to promote and disseminate the project outcomes.

To involve new participants into the project activities there will be developed the "MMATENG Plus" agreement.

- Conferences & workshops
- Project web portal
- Involving stakeholders
- Finding and attracting sponsors
- Commercialization of results

*REMARK: Dissemination is a continuous task of all partners and they should provide information on this as well as proofs*

## Consortium meeting notes:

- Prolongation of the project:  
Because of delays at the start of the project (late signing of the contract with EU) and delays because of equipment, the project has been delayed.  
To reach the outcomes we will ask for a prolongation till after the end of the academic year. This will involve no extra funding, only more time to reach the outcomes:  
It will allow for the pilot teaching to be finished and will provide more time for organizing the masterclasses in Lviv, Magnitogorsk, Rostov. The final conference will then also shift a little in time to the spring.

All partners were contacted and agree on filing a request for prolongation

- Problem with co-financing:  
Co-financing should reach 10% of the total budget or Europe will claim some money back from the partners. Co-financing can be done on:
  - Equipment
  - Printing-publishing:
  - Travel
  - Staff cost: *REMARK: Staff costs (and travel) are the only possibility for the western partners. The limit for co-financing on staff cost is reached.*

*Still some partners have not done any co-financing. It should be done soon. If it is not clear how to do this, it should be discussed with Arnold or Elena.*

- Late registrations for meetings make organization difficult. All participating members in meetings should respect the deadlines for registration.
- Two issues were raised by S. Mansurov of FEFU:
  - Issue with payment of staff costs in federal universities in Russia:  
Due to the special financial system and the different types of institutes in Russia, no payments can be made on personal accounts because the university needs to pay the social security contributions etc., so payments for staff costs should be made to university

accounts, but these accounts are limited by the arrest 1, which means the money does not get to the staff. This will be investigated further to find a solution.

All other Russian partners already have staff paid to their accounts according to the system put forward by the KUL accountancy services.

○ Issue concerning communication in the project

Some partners missed invitations for certain activities. It seems that this is mainly due to local coordinators who do not always adequately spread the mailings and invitations received from the coordinator.

The coordinator stresses that all communication should be in English, as was agreed upon at the signing of the contracts.

- CES 2016 version is distributed
- A USB-stick with all presentations of the master classes and other info is distributed.

11.30 – 12.30	Masterclass: “Anisotropy in metals and plate forming”, Prof Jan Ivens (KU Leuven)
13.30 – 15.00	Masterclass: “Next-generation Strengthening technologies of materials treatment” , Prof OleksandrCheyliakh (PSTU)
15.15 – 16.15	Masterclass: “The basic of knowledge about biocompositesand biodegradable materials” , Stanisław Kuciel (CUT)
16.15 – 17.30	Campus tour

### **Thursday, 14.04.2016**

09.00 – 10.30	Masterclass: “Introduction to Business Plan - useful tools for support market analysis, scheduling and estimation” , Kinga Korniejenko& Prof Janusz Mikuła (CUT)
10:45 – 12.15	Masterclass: Thin Films for solar cells , Dr Ruslan Muydinov, (TUB)
13:00 – 14:00	Masterclass: „Surfacing techniques” , Prof Tatiana Ilinkova, (KNRTU-KAI)
14.00 – 15.00	Masterclass: „The influence of reinforcement architecture on the static and dynamic behaviour of composites”, Assoc Prof Katleen Vallons (KU Leuven)
15.15 – 16.30	Consortium meeting

Free evening or departure.

### **Masterclasses:**

“The basics of knowledge about bio-composites and biodegradable materials”,  
Stanisław Kuciel (CUT)

The main objective of the course is to present new trends and knowledge in the field of environmentally-friendly engineering materials. It is primarily focused on biopolymers and their composites (natural and synthetic or modified) obtained from various kinds of biomass feedstock.

“Introduction to Business Plan - useful tools for support market analysis, scheduling and estimation”, Kinga Korniejenko & Prof Janusz Mikuła (CUT)

- Business planning
- Market analysis (Elements of market analysis, Methods of market research, SWOT analysis, Porter's 5 Forces, PEST analysis)
- Scheduling and estimation (Create budgets, Methods of time management, Schedules - Gantt chart)

“Surfacing techniques”, Prof Tatiana Ilinkova (KNRTU-KAI)

- Overview of classical surfacing technologies
- Overview of advanced surfacing technologies
- Materials for coatings

“Thin Films for solar cells”, Dr Ruslan Muydinov (TUB)

- Overview of thin films' preparation techniques
- Overview of classical thin film solar cell technologies
- Emerging solar cell technologies

“Next-generation Strengthening technologies of materials treatment”, Prof Oleksandr Cheyliakh (PSTU)

It integrates the variety of new strengthening technologies, based on application of different physical and chemical phenomena and processes, like thermal, chemical and thermal, mechanical, magnetic, creation of high and super-high impact actions and pressures, material's exposure to sources of highly concentrated energy (plasma, laser or electron beams) ionic flows and also their combinations. Mastering of this course is to help students to come to know very well the particulars of numerous existing technologies, make their right selection and efficiently apply them for strengthening and improving not only mechanical but also exploitation properties, judging by the specific exploitation conditions.

“Anisotropy in metals and plate forming”, Prof Jan Ivens (KU Leuven)

The forming limits of metal plates are determined by the anisotropy factor  $r$  and the strain hardening coefficient  $n$ . This lecture focuses on the definition of both parameters, the experimental determination and their link to the forming limit diagrams. The effect of the material history on the forming will also be defined.

„The influence of reinforcement architecture on the static and dynamic behaviour of composites”,  
 Assoc Prof Katleen Vallons (**KU Leuven**)

The seminar will give an overview of the different types of reinforcement architectures available for composites. The effect of the fabric geometry on the behaviour of a composite laminate under static and fatigue loading conditions will be discussed, as well as the differences in the development of damage that result from the reinforcement architecture.

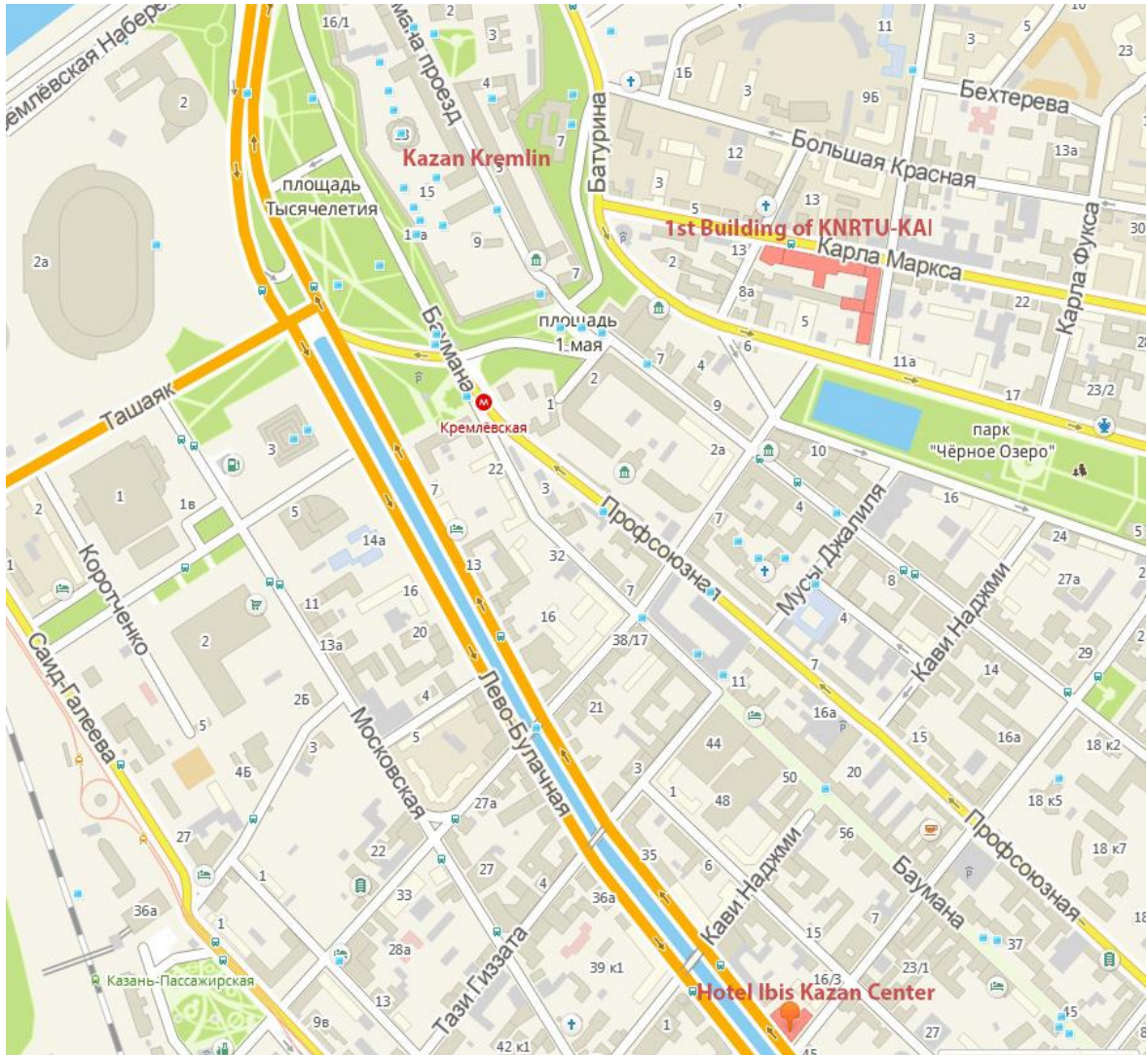
### Participants list

No.	Organization	Surname	First name	signature
1.	KU Leuven	Arras	Peter	
2.	KU Leuven	Ivens	Jan	
3.	KU Leuven	Vallons	Katleen	
4.	PSTU	Cheiliakh	Oleksandr	
5.	CUT	Korniejenko	Kinga	
6.	CUT	Mikula	Janusz	
7.	CUT	Kuciel	Stanislaw	
8.	TUB	Muydinov	Ruslan	
9.	TUB	Eyngorna	Elena	
10.	MSTU	Koptseva	Natalia	
11.	FEFU	Saidnumon	Mansurov	
12.	DSTU	Alena	Zheleva	
13.	KNRTU-KAI	Ilinkova	Tatiana	
14.	KNRTU-KAI	Snegurenko	Alexander	
15.	KNRTU-KAI	Galimov	Engel	
16.	KNRTU-KAI	Kurtaeva	Farida	
17.	KNRTU-KAI	Klabukov	Mikhail	
18.	MSTU	Koptseva	Natalia	
19.				
20.				



## Central Part of Kazan

**1<sup>st</sup> Building of KNRTU-KAI (Address: K.Marx Str., 10) and HotelIbisKazanCenter (Address: Pravo-Bulachnaya Str., 43/1)**



From Airport Kazan to HotelIbisKazanCenter

Distance is approx. 15 km.

1 trip costs approx. 1000-1200 Rubles (is equal approx. 18-20 Euro).

### Café “Kazanskoïye” and 1<sup>st</sup> Building of KNRTU-KAI

