

**KU LEUVEN**



Joint Project Curricula Reform TEMPUS IV-6 (2013)

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

Project overview

## **Project presentation**

**TUB, Berlin**

**2-5 December 2015**

**Dr ing Peter Arras (peter.arras@kuleuven.be)**

**Dr. Arnold Sterenharz (arnold.sterenharz@ecm-office.de)**



**Tempus**

*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*

## MMATENG facts

### Theme for cooperation / Action

**Curricular Reform** - *Modernization of curricula in academic disciplines identified as priorities by the Partner Countries, using the European Credit Transfer System (ECTS), the three cycle system and the recognition of degrees.*

**Project duration: 3 years**

**Budget size (Tempus Grant)**  
€ 1 Mio 216,7 thousand

### Selection results of the sixth call for proposals:

- 937 applications received,
- 171 (18,2%) proposals recommended for funding

### Target countries / National priorities

This application addresses national priorities in curricula reform: Israel, Russia, Ukraine - engineering/engineering trades & material science

**Project type:**  
**Multi-country projects**

**Consortium size: 19 organisations**

## TEMPUS & Bologna Process

Tempus is designed to support the modernization of higher education systems in Partner Countries with regard to the Bologna process and European modernisation agenda for higher education





## Main goals

### 3 Transferable curricula/modules

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

### 12 core curricula/modules

- ✓ Basics of material science incl. fatigue behaviour (BA)
- ✓ Computational thermodynamics in materials design (MA)
- ✓ Surfacing techniques (MA):
- ✓ CAD-CAM - CAE CREO (PTC) (BA/MA)
- ✓ Technologies and applications of Superconductive materials (MA)
- ✓ Microstructure investigation techniques (MA)
- ✓ Damage and reliability of materials (MA)
- ✓ Metallurgy, corrosion and surface treatment
- ✓ Materials from Renewable Sources (BA/MA)
- ✓ Nano materials Technologies (BA/MA)
- ✓ Strengthening technologies of materials treatment (MA)
- ✓ Material selection methodology (BA/MA)

### updated current curricula in the target field

#### New supporting learning environment

- ✓ Joint web based platform
- ✓ Materials Information Technology Labs (MITL)

#### Linking to the labor market

- ✓ Establishing Material Engineering Service Office (MESO) with stakeholders support



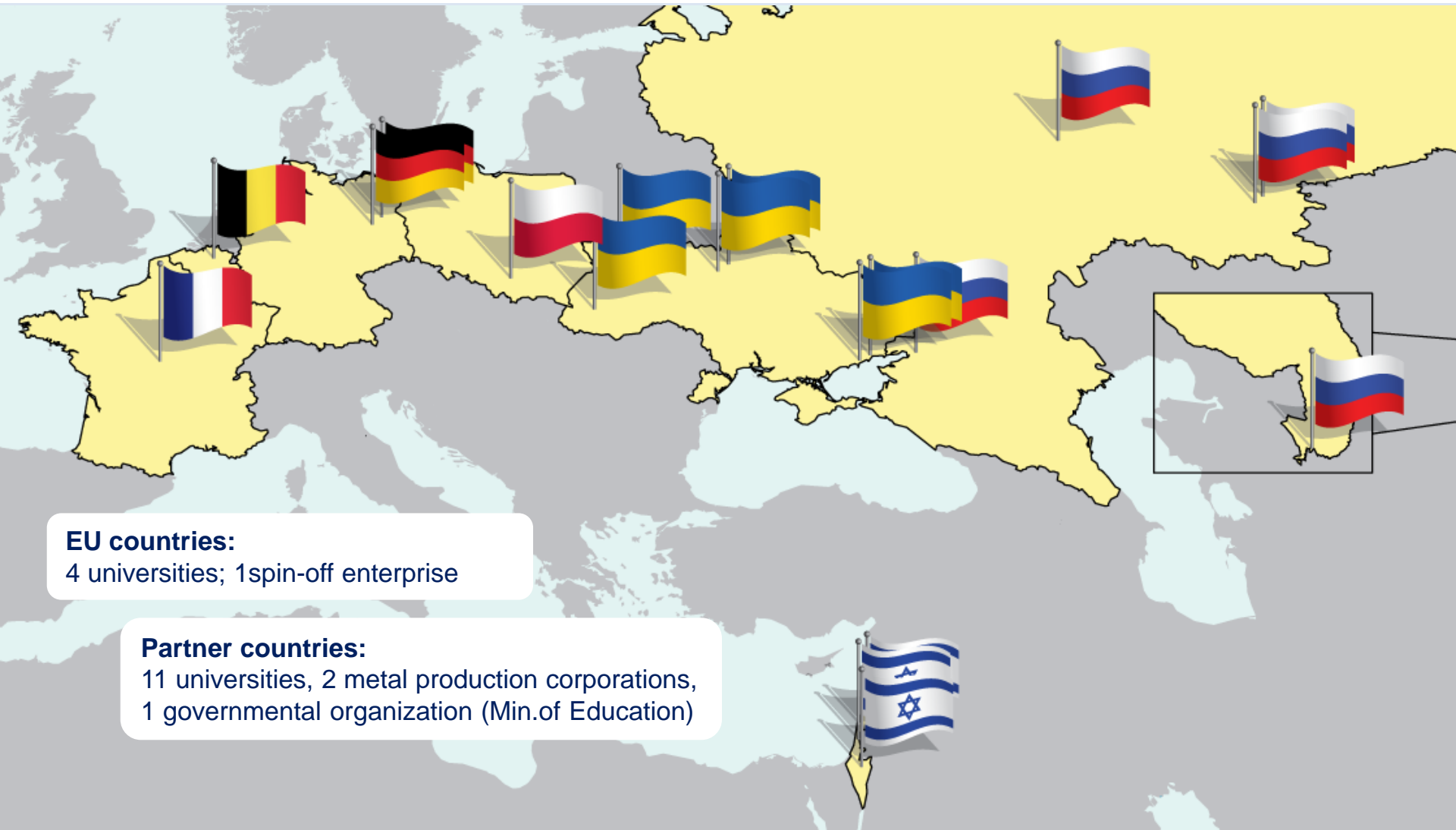
Tempus



MMATENG

KU LEUVEN

## Consortium as a whole



**EU countries:**

4 universities; 1 spin-off enterprise

**Partner countries:**

11 universities, 2 metal production corporations,  
1 governmental organization (Min.of Education)



Tempus



**MMATENG**

**KU LEUVEN**

## EU Organisations

- **KU Leuven (BE) - Grant Holder**
- **Technische Universität Berlin (DE)**
- **École Nationale Supérieure de Chimie de Lille (FR)**
- **Cracow University of Technology (PL)**
- **Engineering, Consulting and Management Office (DE)**

## Partner Countries Organisations

- **Jerusalem College of Engineering (IL)**
- **Tel Aviv University (IL)**
- **Sami Shamoon College of Engineering (IL)**
- **Don State Technical University (RU)**



Tempus



**MMATENG**

**KU LEUVEN**

## Partner Countries Organisations

- Far Eastern Federal University (RU)
- Kazan National Research Technical University n.a. Tupolev (RU)
- Magnitogorsk State Technical University named after G.I. Nosov (RU)
- Lviv Polytechnic National University (UA)
- Lutsk National Technical University (UA)
- National Technical University of Ukraine (UA)
- Pryazovskyi State Technical University (UA)
- BelMag Joint Stock Company (RU)
- Azovstal Iron & Steel Works (UA)
- Ministry of Education and Science of Ukraine (UA)



Tempus



MMATENG

KU LEUVEN

## Work plan overview

### Project Year 1 (Developing Phase)

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.



Tempus



MMATENG

KU LEUVEN

## Work plan overview

### Project Year 2 (Work out Phase)

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



Tempus



MMATENG

KU LEUVEN

## Work plan overview

### Project Year 3 (Implementation Phase)

- 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. Accredited** 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.



Tempus



KU LEUVEN

## Work plan overview

### Disseminations & Sustainable Activities

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



Tempus



MMATENG

KU LEUVEN

## Work plan overview

### Project Quality control

Project Quality control will be implemented on the basis of the target university's quality assurance systems.

**Internal /external evaluation:** In order to set up effective quality control mechanism, the Internal Evaluation Board (IEB) will be appointed. The list of activities will include: comparison with timetable of the project activities in Work plan; Evaluation of outcomes and their quality in form of Questionnaire / Interview reports received from target students /academics/ stakeholders, and graduates groups; external evaluation will be carried out by DAAD, NTO of partners countries and individual project's expert.



Tempus



MMATENG

KU LEUVEN

## Work plan overview

### Project Management

A **Project Management Team** (PMT) – Project Council - will be formed as a strategic decision-making body inclusive one representative from each consortium member who at the same time will operate as coordinators in their institutions. The local coordinator will lead the special formed Local Project Team (LPT) of his institution.

**Coordination meetings:** International, regional and local/hosting coordination meetings.

**Daily project administration and coordination:** daily project management, administration and coordination will be carried out by the coordinator (KU Leuven), TUB and the project manager (ECM Office) with LPT's from target universities.



Tempus



MMATENG

KU LEUVEN

THANK YOU FOR YOUR ATTENTION!

Coordinator, KU Leuven:  
International Relations Officer,  
Dr. Ing. Peter Arras  
peter.arras@kuleuven.be

Project Manager, ECM Office:  
Dr. Arnold Sterenharz  
arnold.sterenharz@ecm-office.de

