



Tempus

TEMPUS CD_JEP-25047-2004
Curricular Reform of MSc&PhD
Metallurgy Programmes
“Internet”

Current project attainments and further tasks overview

Prof. V. Shatokha

Coordination Meeting and Workshop,
Dnipropetrovsk
14-15 May, 2007

JEPs for curriculum development

- to create new or update existing courses and enhance the skills of teaching staff
- to develop updated modern teaching and learning materials
- to provide material aid in purchasing computers and other teaching material

Our Project - in a brief

- **Objective** - Reform of Metallurgy engineering education in Ukraine in the scope of Bologna process and the Sustainable Development Strategy

Main milestones

(specific objectives)

1. Long term **strategy** for modern metallurgy education developed by **September 2006**
2. **Human resources** able to transfer the EU experience in metallurgy education to UA teaching practice by **September 2007**
3. **Master and PhD Metallurgy programmes** updated in line with EU experience by **September 2008**
4. Updated **English teaching for engineering students** based on modern communicative techniques launched by **September 2006**

Outputs and Outcomes

1. Updated engineering English training methodology, programmes and techniques
2. UA Metallurgy students and academics acquainted to EU training practice
3. Updated Master and PhD Metallurgy study programmes
4. Dissemination
5. Sustainability
6. Quality Control and Monitoring
7. Management of the Project

Activities

- 1.1. Intensive retraining courses of 8 UA English teaching staff at UK
- 1.2. Development of new English courses for engineering students and academics
- 1.3. Creation of Language Centres

Methodology, Teaching aids and techniques, Mobility

**1st Output - Updated English training
September 2006**

1st Output – Fulfillment In Details

- 1.1. Intensive retraining courses of 8 UA English teachers at UK** - 11 Ukrainian teachers of English were retrained at Eastbourne School of English during the Project (2 weeks intensive course)
- 1.2 Development of new English courses for engineering students and academics** – by June 2006
- 1.3 Creation of two Language Centres in Ukraine** - by August 2006

1st Output – Extra Activity

Investigation of experience at computer-based language-learning centres in the UK

- ***Attended institutions***

1. University of Sussex (Sussex Language Institute, Language Learning Centre)
2. University of Brighton (The School of Languages, Language Teacher Development Programme)
3. Sussex Downs College (Computer Assisted Language Learning Centre)
4. Brighton Language Centre

- ***Collected data on software, web-resources***

- ***Exchange with experience***



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1st Output – Extra Activity

Questionnaire to investigate the approach for learning of foreign languages at the Universities all over the world was prepared and distributed through the mailing list of the EAIE (European Association of International Education)

- 45 responses
- 21 country
- Article is published at the *Forum* (EAIE journal): <http://www.eaie.nl/pdf/F83art10.pdf>

Why can foreign engineers speak English?

A view from Ukraine

by Volodymyr Shatokha

Challenges related to globalisation, although quite recent for Ukraine, are emerging here extensively and introducing new requirements not only for industrial production but also for human resources on the labour market. Skills in foreign languages are already among the most important requirements.

As Vice Rector for International Relations at the National Metallurgical Academy of Ukraine for the last five years, I have put a lot of effort into improving the level of English among our academics and students (through English courses for teachers, a special programme 'Metallurgy International' partly taught in English, retraining of English teachers in the UK – eight of them just in the last three years, introduction of new syllabi and software ...) to facilitate participation in international collaboration. However, the selection of good candidates for international mobility is still a problem. When we are looking for engineering students with good academic backgrounds and advanced English skills, the list is usually too short to require any competition between them.

In the last 15 years, the English learning boom has transformed into a constant trend in Ukraine, and language centres of different types have been flourishing for many years. So one could wonder where those learners are. I don't know the answer; I just know that they are not studying engineering. Such a situation looks strange if you also take into account that students learn foreign languages in school from at least the age of 10 to 17, and then at university level all engineering students have a compulsory two years (nine credits ECTS) study of a foreign language.

To get an idea of the situation with regard to the study of foreign languages across the world, a small questionnaire was prepared and distributed through the EAIE mailing list. In total 30 responses were received, from universities with engineering programmes in 16 countries. Among

them, 11 European countries were represented with universities from Austria (2), Belgium (3), Faroe Islands (1), France (5), Germany (2), Italy (1), Poland (3), Slovenia (1), Sweden (2), Switzerland (1), and Yugoslavia (1). One university represented the Asian part of Turkey, and four answers came from the Americas (Argentina, Colombia, Mexico, USA). Of course, this cannot serve as the basis for an exhaustive analysis, but at least it makes it possible to examine some of the experiences of foreign colleagues involved in the education of engineers.

We have a "catastrophical" situation with foreign languages

Compulsory or elective

It appears that the study of foreign languages is not represented in the engineering curriculum in Argentina, Colombia, Faroe Islands and USA. In Belgium, Germany and Sweden it depends on the university or even on the programme whether or not it is compulsory (eg for IT in Sweden) or elective. It is compulsory in Austria, France, Italy, Mexico, Poland, Slovenia, Switzerland and Yugoslavia. Where the study of a foreign language is obligatory, it is presented mostly at Bachelor (or equivalent) level and varies from 4.5 ECTS (Sweden) to 27 ECTS and two languages (France). With its compulsory 9 ECTS for one language, Ukraine appears to be somewhere in the middle.

Language centres

Most universities have language centres with free access or a reduced fee. These are equipped with computer applications for self studies, TV channels, movies, etc, and sometimes such centres are affiliated to the library.

In Ukraine, those students who would like to spend more time studying languages or to study a second language can also do it at the Language Centre, paying a very small fee.

So even though language centres abroad are better equipped, the answers so far gave no understanding of why we have a "catastrophical" situation with foreign languages in Ukraine (as I was told by my colleague who selected candidates among our students for a Master's degree in Italy in the framework of our cooperation).

Incentives

When asked about how their students were encouraged to study foreign languages, there were many answers in the style of, "Owing to the globalisation of the job market in engineering, students are totally aware of the necessity of mastering several languages, and in particular English". Of course this is very important, but as foreign languages are taught in the first or second year in most cases, it is probably not the only answer.

Among other factors we noted:

- 'threshold' factors: a student must have at least 750 of TOEIC (Test of English for International Communication) to graduate (France); students must have 550 or higher of TOEFL to graduate (Mexico)
- 'circumstantial' factors: a lot of the study literature is in English (Sweden); students are encouraged (including financial support) to spend their practical training semester abroad (Germany); 30% of engineering courses are taught in English (Mexico); most students have to take some of their scientific classes in German or English (France); the presence of international students from partner universities encourages

students to use their language skills on a day to day basis (France)
One French colleague wrote, "I imagine it is important that your students realise that English is absolutely necessary when one decides to study sciences ...". Unfortunately it must be admitted that not only the students, but also some of the professors still do not realise that their lack of English skills not only hinders communication with foreign colleagues but also restricts their ability to be at the leading edge of scientific knowledge.

To improve the situation with foreign languages within the framework of the TEMPUS/TACIS Joint European Project 'Curricular reform of MSc and PhD metallurgy programmes', together with colleagues from France (Institut National des Sciences Appliquées – INSA, Lyon), Germany (Technische Universität Bergakademie Freiberg), Sweden (Kungl Tekniska Högskolan, Stockholm) and UK (Eastbourne School of English), we have planned 'Updated English teaching for engineering students based on modern communicative techniques' as one of its specific objectives.

Indeed, it is important to change our teaching methodology, which, in former times, was focused on reading and translation, rather than on communication (owing to the 'iron curtain'). However, this small survey convinces me that more systematic changes are required, and thresholds and circumstances must urge everybody to know (and not just learn) foreign languages. ■

PS Please don't think that we are the worst in language skills among Ukrainian universities – probably we are just overly concerned.

Volodymyr Shatokha is a Professor and Vice Rector for International Relations at the National Metallurgical Academy of Ukraine

Activities

- 2.1. Academic retraining at EU universities
- 2.2. Intensive English courses at home Universities for selected teams
- 2.3. Intensive Metallurgy Master courses delivered in UA by EU professors
- 2.4. Workshop at PSACEA

Methodology, Teaching aids, Mobility

2nd Output - Ukrainian Metallurgy students and academics acquainted to EU training practice
September 2007

2nd Output – Fulfillment In Details

2.1 Academic retraining at EU universities (4 Ukrainian academics for 1 month to each EU University)

- *INSA – done in June 2006*
- *KTH – done in February 2007*
- TUBAF - 30/09/2007 – 27/10/2007

2.2 Intensive English courses at home Universities for selected teams

- *First courses term 06 Mar 06 – 18 Jun 06 (15 weeks) - done*
- *Second courses term 04 Sep 06 – 29 Dec 06 (17 weeks) - done*
- Third courses term 12 Feb 07 – 17 Jun 07 (18 weeks)
- Fourth courses term 03 Sep 07 – 28 Dec 07 (17 weeks)

2.3 Intensive Metallurgy Master courses delivered in Ukraine by EU professors (Prof. from each EU University to Ukraine to participate in coordination meeting and to deliver lectures)

- *I course: 19 May 2006 – 02 June 2006 - done by Prof J.COURBON*
- *II course: 14 May 2007 – 15 May 2007 - done by Prof Du Sichen and Prof. B.Bergman [Photo](#)*
- III course: 18 May 2008 – 24 May 2008 (TU BAF)
- **2.4 Workshop at PSACEA** - “Modern European Methods and Techniques in Education: personality and learning environment ” - 15 May, 2007



Code
Dnipropetrovsk

Activities

- 3.1. Comprehensive testing of students' skills and knowledge
- 3.2. Comparative assessment of existing EU and UA Metallurgy curricula
- 3.3. Developing of new curricula units
- 3.4. Integration of curricula
- 3.5. Development of teaching aids
- 3.6 PhD training cycle UA-EU-UA
- 3.7. Master training cycle UA-EU-UA
- 3.8. Comprehensive testing of pilot groups
- 3.9. Finalization and accreditation of renovated curricula

Methodology,
Teaching aids, Materials for accreditation, Research,
Mobility

3rd Output - Updated Master and PhD Metallurgy study programmes

3rd Output – In Details

3.1. Comprehensive testing of students' skills and knowledge

(September 2005)- done

3.2. Comparative assessment of existing EU and UA Metallurgy curricula

- Assessment results discussed on the Meeting held in May 2006 in Dnipropetrovsk
- Approach to update curricula will be discussed on the meeting at INSA (Lyon) 24 Apr 2006 – 30 Apr 2006
- May 06 - Strategy to update curricula developed

3.3. Development of new curricula units

- Jun – Oct 06 NMAU and PSACEA academics develop new units for updated Master and PhD Metallurgy Programmes
- Oct 06 examination of the developed units by KTH, INSA and TUBAF academics, development of recommendations
- Nov 06 modification of newly developed units by NMAU and PSACEA academics according to recommendations of the EU academics

3.4. Integration of curricula

3.5. Development of teaching aids



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3rd Output – In Details

3.6 PhD training cycle UA-EU-UA (2 Ukr PhD students to each EU University)

- study term at EU: Feb 2007 –Jul 2007

3.7. Master training cycle UA-EU-UA (2 Ukr Master students to each EU University)

- Idea to allocate mobility to Master theses period (Feb-Jun 08)

3.8. Comprehensive testing of pilot groups (after each study term)

3.9. Finalization and accreditation of renovated curricula

- Mar 08 updating curricula
- May 08 approval of curriculum

Dissemination

I. Web-conferences on European training experience

1. June 2006

- Done with INSA (academics)

2. Feb 2007

- Done with KTH (academics and PhD students) [Photo](#)

3. Feb 2007

- Target groups: UA metallurgy Master students - To be done with TU BAF

II. Conference at the NMAU

“Curricular reform of Metallurgy education in Ukraine” 04 - 07
May 2008



Entrepreneur 11-16 May, 2007