ILAN COURSE – A WAY TO DIVERSITY AND UNITY IN ENGINEERING EDUCATION

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Abstract: Development of European Higher Education Area touches every sphere, engineering education including. In the Bologna process we can distinguish two vectors of development - towards unity and towards diversity. Each national system of engineering education brings in its specific valuable features in European Higher Education Area that should be taken into consideration. On the other hand, introduction of European dimension leads to unity. A way to merge diversity and unity requires international cooperation and teamwork of engineering educators. It is possible only through successful communication. The paper proves the necessity of the development of a special series of foreign language teaching materials for three target groups in engineering education (students, teachers of technical disciplines, administrators) for the promotion of academic mobility. The innovative English course has been worked out as a result of the implementation of Tempus project «Innovative Language Curricula in Technical Universities (ILAN)” (2007-2009) which involved universities of Austria, Sweden and Russia. The aim of the course “English for Students, Lecturers and Administrators of Technical Universities” is further development of communicative competence of the three groups of learners and is intended for organization of additional (extended) courses in the Centers of Engineering Pedagogy or other existing university departments. The materials train learners to use English as a means of international communication in academic environment. The paper describes innovative approaches to foreign language training realized in the concept, content, and structure of the course. The course consists of three Foreign Language Curricula, Coursebook, Learner's Guide, Role Play “International Conference”, Teacher's Guide, and Multimedia Toolkit. The Coursebook contains common modules for the three target groups. The Learner's Guide has three parts, which demonstrate specific modules for each of the target groups. Role Play gives the opportunity to evaluate the training results of the whole group of learners or of an individual learner. Teacher's Guide gives recommendations on teaching technology for teachers of English. Multimedia Toolkit provides necessary autonomy for each learner. Certain modules can be integrates in compulsory courses of English in Russian technical universities. The set of materials can be used not only in Russia but also in other countries interested in promotion of academic mobility of students, teachers, and researchers.

Keywords: Tempus-project, English course for academic mobility
1. Introduction
Development of European Higher Education Area touches every sphere, engineering education including. In the Bologna process we can distinguish two vectors of development - towards unity and towards diversity. No doubt, introduction of easily readable and comparable degrees, adoption of the three-cycle system, ECTS system, as well as promotion of necessary European dimensions in engineering education lead to unity. At the same time, it is of utmost importance to respect and take into account the diversity of cultures and national engineering education systems. A way to merge diversity and unity requires international cooperation and teamwork of engineering educators. It is possible only through successful communication. Therefore, we need a language to express and explain our unique character, to work out common approaches. We need a language, which will enable us to properly understand our colleagues. For the majority of us, this language may be foreign and our insufficient level of communicative competence in it could present a serious obstacle to the process of modernization of engineering education.

One of the objectives of the Bologna process is the promotion of academic mobility. Participation in European exchange programs, international conferences, and joint research requires the ability to speak a foreign language. Russian technical universities have traditionally hosted students from all over the world and have extensive experience in teaching them Russian. However, now more and more Russian students, teachers, and researchers go to European technical universities and they have to master a foreign language, mostly English. To achieve that, it is necessary to organize special language training at technical universities.

2. Tempus-project “Innovative Language Curricula in Technical Universities”

2.1 General information
Fluency in a foreign language, first of all English, is becoming necessary for Russian technical universities teaching staff who now take part in international projects promoting European dimension in the national systems of higher education. This is also necessary for Russian students, graduate students, and postgraduates who go to study at European universities. The necessity to have an ability to speak fluent English became quite evident during the implementation of the three international projects MADI coordinated in the period from 2000 to 2006.

Therefore, in 2006 MADI initiated a joint European project aiming at the development of foreign language teaching materials for a range of participants of the educational process. The project involved two European and four Russian Universities: University of Klagenfurt (Austria), Linkoping University (Sweden), MADI, Moscow State Agro-Engineering University named after V.P. Goryachkin (Russia), Tambov State Technical University (Russia), Moscow State Institute of Steel and Alloys (Technological University) (Russia). University of Klagenfurt was the grant holder, and MADI was the coordinator of the project.

Besides training various groups of teachers, the goal of the project was to develop Innovative Foreign Language Course (ILAN) for three target groups of learners:
- graduates and postgraduates
- teachers of technical disciplines
- administrative staff
ILAN course was designed for teaching English as a means of international communication to promote academic mobility.

2.2 Stages of the project
At the first stage of the implementation of the project according to the criteria worked out by that time the Russian universities formed two groups of specialists: a group of developers and a group of multimedia designers. The group of developers consisted of experienced foreign language teachers of partner-universities. Some of them were authors of English textbooks and manuals for Russian engineering universities. The multimedia design group was selected from technical teachers of these universities with a high level of computer skills. Beginning with this stage of the project a number of special trainings and workshops for the developers and designers were carried out at Russian and European Universities for the improvement of their qualification and experience interchange.

At the same time the group of developers took up the SWOT analysis. For that purpose a special questionnaire was prepared to reveal the current situation with foreign language training at the Russian partner-universities, to find out strong and weak features of it, the experience of the departments of foreign languages, to foresee the main advantages of the project. The results of the analysis showed that after a compulsory course of a foreign language the students of Russian technical universities usually demonstrate a sufficient level of reading skills and knowledge of special terminology. At the lessons much time is spent on translation of written texts connected with the main problems of students’ future speciality. It became evident that in ILAN course the priority should be given to oral speech and it is important to provide the development of speaking and listening skills including listening to a monologue and a dialogue. The time ratio devoted to the improvement of each language skill should differ from that accepted for teaching in technical universities. The conclusions of the SWOT analysis were necessary for the next stages of the project implementation.

The developers also studied and analysed the experience of European universities in foreign language training, innovations in language course design and methods and
techniques of foreign language training. The teachers of foreign languages were trained by professors of European universities specialising in foreign language teaching.

During these training the specialists in foreign language teaching had the opportunity to discuss the systems of foreign language teaching in Austria and Sweden, the principles of life-long learning, the aims of foreign language teaching at technical universities of the three countries, the structure of compulsory and optional courses. Taking into consideration the objectives of the project special attention was paid to the English courses to promote academic mobility of the local university students and to the language courses for international students (the language of instruction, the required level of foreign language competence, measures for academic mobility promotion of international students and teachers of technical disciplines). The workshops helped to discuss theoretical basis for foreign language teaching at technical universities, especially communicative and learner-centered approaches, innovative methods and modern techniques in foreign language teaching, modular syllabus and multimedia in foreign language training. The exchange of opinions revealed common approaches to foreign language teaching and diversity of experiences.

At the second stage the developers group conducted a survey and performed the needs’ analysis of the three target groups of the project. Three questionnaires were prepared and were distributed among graduate students, teachers of technical disciplines and administrators, who use foreign languages in the sphere of engineering education. In order to receive reliable information several interviews with experts were also taken. The results of needs’ and SWOT analysis, the transfer of the best results of the European experience and the achievements of Russian universities gave the opportunity to work out the concept of ILAN course and at a later stage to design foreign language curricula.

At the next stage the group of developers collected authentic materials for the course. At the same time the structure of the course, of its components and modules was worked out. When the pilot version of the Coursebook was ready the pilot teaching of lecturers, graduate students and postgraduates was organized at the Center of Engineering Pedagogy at MADI. The results of pilot teaching allowed to introduce the necessary changes into the text of the Coursebook and to start editing. The course had been published by January 2010. The copies of ILAN course are distributed in technical universities of Russia.

3. ILAN Course Concept
The main aim of the course is to train learners to use English in educational activity to promote academic mobility. Consequently, it is the educational activity that cements the ILAN course and determines its integrity. On the other hand, the functionality of the teaching process participants causes the diversity of their foreign language needs in the educational activity:

- The learners need the language for studying at the university
• The teachers need it for exchange of experience and subsequently, for professional teaching activity
• The administrative staff needs it for organizing academic mobility process.

As such, the language course will become an element of life-long foreign language training in engineering education of Russia.

4. ILAN Course structure
ILAN course “English for Students, Lecturers and Administrators of Technical Universities” consists of three language curricula for the above mentioned three target groups, Coursebook [1], Learner’s Guide [2], Role Play “International Conference” [3], Teacher’s Guide [4], and Multimedia Toolkit. The Coursebook is a core component of the course containing common modules for all the learners. The Learner’s Guide comprises three main parts. Each of them contains specific modules for one target group. Role Play is an integral part of the course that simulating the situations of international conference gives the opportunity to assess the level of communicative competence of the whole group and individual learners. Teacher’s Guide is aimed at English teachers and provides them with all the necessary recommendations. Multimedia Toolkit, designed by the specialists of Tambov State Technical University D. Dvoretskiy and M. Krasnyanskiy, may be used as a support tool for self-study work of learners and provides audio and video material for class work.

4.1 Language curricula
The curricula are intended for organizing additional courses of foreign languages at the Centers of Engineering Pedagogy. They include:

• Foreign language curriculum for graduate students and postgraduates
• Foreign language curriculum for teachers of technical disciplines
• Foreign language curriculum for administrative staff

The curricula are based on the needs’ analysis undertaken at the previous stage of the project. They take into account the curricula for compulsory language training. Each curriculum determines the aims, the content of teaching (the spheres and situations of intercultural communication, the description of communicative skills in reading, writing, listening and speaking, extralinguistic skills, intercultural knowledge and skills, topics of communication), technical tools of teaching, organization of assessment, types of class work.

The aim of the curricula is further development of communicative competence that includes linguistic, sociolinguistic, discourse, strategic, sociocultural, and social subcompetences.

For the first group, the main objective of training is to develop foreign language communicative competence in order to sustain short-term or long-term professional training at European universities and to create the foundation for studying in a foreign language environment.
For the second group, the main objective of training is to develop foreign language communicative competence to be able to exchange experience during international conferences and/or participation in international projects and to create the foundation for teaching technical disciplines to foreign students in their home university or abroad.

For the third group, the main objective of training is to develop foreign language communicative competence in order to organize learner and teacher exchanges with European technical universities.

The curricula have been officially approved of by the Board of the Russian Association of Educators in the Sphere of Linguistics and recommended for their wide implementation at technical universities of Russia.

4.2 Coursbook
The Coursebook is the core textbook of the set of teaching materials. It is aimed at the three groups of learners and contains common modules. In spite of the diversity of the learners’ language needs, it was possible to design these modules using educational activity as a common denominator. The development of the communicative competence includes improvement of reading, speaking, listening and writing skills, and the priority is given to oral speech and writing.

The Coursebook consists of Contents Map, six Units, Vocabulary, Appendices, and References. All six units have identical structure. Each unit starts with a topic, a quotation connected with it, and the description of the skills that can be acquired by learners after it. The topics are related to the issues of engineering education in European countries and imply the comparison with the Russian system of higher technical education. The Units embrace the following topics: the Bologna Process as a Stimulator of Academic Mobility, English in the Global Context, Engineering Education in Europe, Student Exchange Programs, International Cooperation in Engineering Education, Understanding University Structure. The discussion of the above mentioned topics should show unity and diversity in engineering education and allow teachers and students to be aware of them.

Each unit contains six sections that are thematically linked:

- Reading
- Glossary
- Listening
  - Listening to a Mini Lecture
  - Listening to a Conversation
- Speaking
- Writing
- Bridging the Cultural Gap

Each unit requires approximately 10 contact hours.
Reading
The main text provides the learners with valuable information on the main topic of the Unit, as well as introduces necessary terminology. The section is intended for further development of different reading strategies, while the content of the texts may be used for various discussions. The Multimedia Toolkit contains the audio version of the texts. The audio versions demonstrate peculiarities of British and American English pronunciation.

Glossary
The Coursebook introduces higher technical education terminology. Here learners will find the terms of European academic culture, their English definitions and Russian equivalents. They can use audio version of the vocabulary in Multimedia Toolkit (British English) that facilitates learning new words and expressions. Very often using one and the same word representatives of various countries imply different meaning. E.g. “dean” has different functions in Russian and European universities. Sometimes we cannot find analogies of some phenomena in Russian academia. E.g. GPA – Grade Point Average – a number which is the average mark received for all the courses a student takes and shows academic performance of the student – средний балл (в школе, в университете)

Listening
This section contains monologues (Listening to a Mini Lecture) and dialogues/polylogues (Listening to a Conversation) to develop learners’ listening skills. The audio version of the texts on the DVD of Multimedia Toolkit displays a variety of spoken international English. Audio texts were recorded by teachers and students from USA, Austria, Great Britain, Russia, and Germany. The duration of audio texts is from 1min. to 5 min. Total time of audio materials is about 2 hours. The texts are intended not only for the development of listening skills but they also introduce valuable information for people studying or working in European universities. This information has a great potential for organizing classroom discussions training learners for their participation in seminars, conferences or negotiations. The topics cover the problems of multiligualism, IELTS examinations, blended learning, European systems of education, international PhD programmes, International engineering education organizations, the structure of European universities, academic career opportunities, etc.

Speaking
This section covers relevant communication issues that may arise at a European university while studying, communicating with colleagues, or arranging exchange programmes. Doing a lot of communicative tasks learners will acquire skills necessary to get what they want, to interrupt people in order to put a question or express a request, to express their own opinion, to describe properly graphs, tables, diagrams, to convert a written text into an oral one.

Writing
In Writing learners will find out how to fill in various forms, write e-mails and business letters typical for academic correspondence. Many models of varying types are
included. E.g. special attention is paid to writing a motivation letter which is new for Russian universities. Learners will find instructions concerning not only the form of the letter, but its content as well, and receive advice how to present themselves in the best way. The Coursebook and Multimedia Toolkit provide a lot of exercises for the development of the habits and skills required.

Bridging the Cultural Gap

This section provides learners with cross-cultural information crucial for their “survival” at the university campus in a European country. The topics concern the issues of cultural diversity and culture shock, national stereotypes, the relations between European professors and students, the status of engineers in Europe, the attitude of Europeans towards time and punctuality, academic dress code and others. At the first stage learners find some information, then they do a number of tasks to analyze the received data, to compare it with their personal experience, to make some conclusions concerning their own behavior in a multicultural environment. At the third stage learners have the opportunity to see a lot video interviews with teachers and students sharing their own impressions of working or studying abroad. The speakers represent different countries: USA, Germany, Malaysia, Lithuania, Austria, Great Britain, China, Indonesia, Spain, Poland, Japan, Slovakia, Singapore, France. Total time of the duration of video clips is over 1 hours.

Vocabulary

Vocabulary contains the terms from the Glossary, as well as new words of the other sections of the Coursebook. The words in the Vocabulary are marked with unit indices and have transcription.

4.3 Learner's Guide

The Learner's Guide is a component of the set of teaching materials. It consists of three main parts: English for Students, English for Lecturers, and English for Administrators. It also comprises Vocabulary, Appendices, and References. Each main part contains modules specific only for one target group. Thus, the Guide reflects the diversity of the learners' language needs and supplements common modules of the Coursebook.

English for Students

This part is intended for graduates and postgraduates and trains them to use English as a means of learning. It contains two units. They are thematically linked with the corresponding units of the Coursebook and have three sections:

- Academic Writing
- Speaking
- Taking Lecture Notes

Each unit requires approximately 5 contact hours.

Academic Writing

The section comprises instructions to write essays on the main topic of the Unit. The tasks provide the learners with necessary practice in writing.

Speaking

The communicative tasks of this section for further development of speaking skills are connected with the material introduced in the previous section.
Taking Lecture Notes
The instructions demonstrate various methods of note taking while listening to academic lectures. The tasks develop separate skills step by step. At the final stage the teacher of English imitating real situations of university studies delivers the lectures for students to listen to and take notes. The scripts of the lectures can be found in the Teacher's Guide.

English for Lecturers
This part is intended for teachers of technical disciplines and trains them to use English for experience exchange with their international colleagues during conferences or implementation of joint projects. Two units of this part have identical structure and contain the following sections:

- Focus on the Topic
- Project Work

Focus on the Topic
In this section learners will find information for writing different types of academic abstracts and their evaluation criteria. A series of tasks is aimed at the development of necessary writing skills.

Project Work
In this section learners will find one project connected with the topic of the Unit. The project has three stages: planning, carrying out and reviewing the project. The project work simulates real situations of international cooperation of teachers and develops skills necessary for their work in a team. Each unit requires approximately 5 contact hours.

English for Administrators
This part is intended for employees of the Centers of Academic Mobility and trains them to use English for organization of exchange programs and joint projects with European engineering universities for students, teachers and researchers. Two units of this part have identical structure and contain the following sections:

- Introducing International Format
- Telephoning
- Drawing up Documents

Introducing International Format
This section provides learners with the information necessary for promotion of international dimension in engineering education, for example, functions of Academic Mobility Centers. The tasks motivate discussions on the topics of the Unit.

Telephoning
In this section learners will find telephone conversations typical for academic communication with speech patterns and communicative tasks.

Drawing up Documents
The section presents a short description of documents, their samples and tasks providing necessary practice of writing.

Vocabulary
Vocabulary contains new words of European academic culture from all the sections of the six Units. The words are marked with unit indices, have transcription and translation into Russian.
4.4 Role Play
The Role Play is the integral part of the set of teaching materials and is used at the final stage of the training course. It is simulating an international conference. For the learners, participation in the play gives the opportunity to use the acquired skills in the situations very similar to real life. They make presentations, participate in discussions, conduct non-formal communication according to the given roles and assignments. For the language teachers, the play creates the circumstances to evaluate integrated skills acquired by the target groups and by each individual learner. The Play is aimed at the three groups of learners and can be used by learners and language teachers. It consists of Situation, Role Cards, Appendices, and References.

Situation
This section contains the materials introducing the learners into the international conference «Towards Global Education – Forward or Backward?» which they will act in. Here the readers will find the invitation to the conference, a preliminary program and a list of roles. The learners are allocated roles according to this list.

Role Cards
In this section 15 role cards are printed on separate pages and can be cut out or copied by the language teacher. Each learner receives a card according to the role given so that other learners cannot see it. The card has the person’s name, title, and other details and outlines this person’s behavior at the conference. The learners are asked to identify with fictitious characters and to speak and behave in the way they think these people would. Alternative male and female names have been supplied on the list of roles and role cards.

Appendices
They contain the material necessary for the play. There learners will find a registration form, a badge, guidelines and instructions for authors and speakers, speech patterns for oral presentation, the criteria for abstract review. At the preparatory stage of the play learners can use not only them but also the materials of ILAN Coursebook and Learner’s Guide. The language teachers can find the recommendations for organizing the play in one of the appendices.

The success of a role play depends upon the learners and the language teacher. It is very important for them to believe in role playing. In this case it will work and everybody will enjoy it gaining necessary self-confidence in communication.

4.5 Teacher’s Guide
Teacher’s Guide is intended for language teachers and should facilitate their work with the set of materials. The book contains the concept of the course, detailed recommendations for each component of the set of materials and each section of the Coursebook and Learner’s Guide, texts for listening, keys to the tasks of the Coursebook and Learner’s Guide, guidelines for Multimedia Toolkit users, and the glossary of the terms used in the project. This is the only book written in Russian.
5. Innovations of the Course
ILAN course has new aims of teaching, is designed for three target groups, teaching them English as a means of international communication in Europe. It is characterized by a new structure, describes engineering education in Europe in comparison with the Russian system, and introduces terminology of engineering education. Multimedia Toolkit comprises audio version of the glossary, mini lectures and dialogues, gives samples of academic written communication. Video clips illustrate the section of cross-cultural information.

6. In Conclusion
ILAN course is an example of realisation of the Simposium motto «Diversity unifies – diversity in engineering education». The concept of the course, designed for the three target groups of learners, combines unity and diversity. The unity of the course is determined by the sphere the engineering education, in which the learners have to use English. This unity reveals in common modules of the course and reflects common communicative needs of learners. The diversity of the course is determined by functionality of the teaching process participants and reveals in specific modules corresponding to learners’ specific language needs in the sphere of engineering education.

ILAN course trains students, lecturers and administrative staff in English for academic mobility in the European environment. It contributes to deeper integration and merging of engineering systems and provides an opportunity to preserve their individuality. Through a slight adaption to national peculiarities, it can be used at the Centers of Engineering Pedagogy of technical universities in various countries. It can serve as a model for the development of similar courses for teaching other languages.

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