The new Framework for the M. Sc. Thesis work

as one but resolute step for Ukraine towards integration into the European system of higher education

Tempus Compact Project UM_CP-20560

Introduction

Recently Ukrainian higher education system is standing in front of some promising future changes and related problems to be overcame as well as educational systems in other New Independent States. Now it is possible to see that Internationalisation is becoming one of the most important challenges in educational development.

Ukrainian students, staff, and researchers became successfully involved in EC programmes, such as TASIC, TASIC/TEMPUS, INTAS, INCO-COPERNICUS, etc. Information Society Program has been started in Ukraine. The urgent steps of this Program are to develop the base of standards and laws to be in concordance with international standards.

A new Framework for the M.Sc. Thesis work corresponding to the needs of modern information society is needed in Ukraine. The Framework should include new procedures in the University management. The development of such Framework was the aim of the Tempus Compact Project UM_CP-20560-1999. This project combines efforts of one Ukrainian university: Kharkov National University of Radioelectronics (KhNURE) and two EU universities: University of Jyväskylä, Finland, and the Athens University of Economics and Business, Greece. Also the cooperation with Vrije University of Amsterdam, the Netherlands, gives some valuable impact to the results of the project.

Genesis of the consortium

Long-term cooperation in research appeared to be a strong basis for cooperation in the field of education between related departments of the universities.

The Kharkov National University of Radioelectronics (KhNURE) presently is ranked by the fourth level of accreditation among the Ukrainian higher educational establishments. The University graduates receive the qualifications of a Bachelor, Specialist and Master in radio, electronics, computer and information sciences, control systems, telecommunications, biomedical systems, and others. KhNURE has strong research cooperation with the universities of Finland, Germany, France, and the Netherlands. The new curriculum for computer science specialities has been developed. Taking into account the needs of modern society KhNURE starts the reform of higher education within the new speciality “Intelligent Decision Support Systems” (IDSS).

University of Jyväskylä is one of the largest universities offering education in Information Technologies. The Faculty of Information Technology pursues an active research and teaching programme in telecommunications, mathematical information technologies, mobile computing, computer science and information systems. Several unique methods in students’ teamwork on practical training and while preparing the M.Sc. Thesis are implemented and can be shared.

Athens University of Economics and Business is one of the first universities in Greece offering education in Information Science. The Department of Informatics provides instruction in Computer Science and Information Systems, while placing emphasis on their managerial applications. Research, both theoretical and applied, has always been considered as one of the University's most important tasks. The University now offers 14 M.Sc. and MBA courses most of which have some topics or the entire curriculum related to Information Systems.

Analysis of frameworks for the M.Sc. Thesis work in University of Jyväskylä and Athens University of Economics and Business has showed both universities to be useful partners for the development of a new Framework in KhNURE.

The Department of Artificial Intelligence in ***Vrije University of Amsterdam*** offers the high-quality education in the fields of artificial intelligence and information systems, it has similar M.Sc. program. The research cooperation between related Departments of Artificial Intelligence in KhNURE and Vrije University of Amsterdam was useful in determining the contents of M.Sc. courses in artificial intelligence for the IDSS speciality in KhNURE – the pilot speciality for the approbation of the new Framework.

The new Framework for M.Sc. Thesis work

The overall objective of the two-year university management project was to strengthen the links between the participating universities and to enhance the co-operation with industry as a contribution to the higher education reform in Ukraine. The project is linked with several national higher education policy objectives in Ukraine.

One of the aims of Tempus project UM_CP-20560-1999 was to collect and generalize the positive experience of Ukrainian and foreign universities in the field of management of Thesis work. Strong and weak sides in the existing approaches were found, as well as the critical differences between existing EU schemes and the Ukrainian scheme. The restrictions for the new Framework were identified. All this was applied to the main ideas of a new Framework for M.Sc. Thesis work – guarantee of the academic independence, scheme and principals of teamwork, the credit-based accounting system.

The most important innovations in a new Framework for M.Sc. Thesis work are: (1) the new Framework guarantees the academic independence in selection the topic and the supervisor for the Master's Thesis work; (2) the new practice to combine the courses in blocks was established for Master programmes; (3) developed new scheme for Pro-Gradu seminars allows the teamwork and fundamentally improves the quality of education for the Master's students; (4) the credits accounting system for external studies from the partner universities is included to the new Framework; (5) writing a research proposal for the Thesis work is required now; (6)

the principals of approval the Practical Training and Special Assignments from partner universities were introduced; (7) so-called "multi-trial" Thesis defence was established; (8) new clear set of evaluation criteria for Master's Thesis was established for reviewers and supervisors; the different criteria are to be used for evaluation of theoretical Thesis and industry-oriented Thesis; (9) new grade system together with technique for referring to the old grade system was proposed.

The new Framework includes the scheme for management of students' practical training. The most important issues are: (1) all innovations and changes for accounting practical training from the partner university; (2) several forms of practical training; (3) new techniques of students' group work while taking practical training; (4) the new role of supervisor from the Home University.

A model for accounting the ECTS credits was developed for courses and projects, which exchange students (either Ukrainian or foreign) bring from EU universities to KhNURE and from KhNURE to EU universities.

The most important issues are: (1) the principally modified Curriculum structure; (2) the modified Diploma Supplement; (3) the new approach to studies similarity recognition based on a new course unit description; (4) the scheme for accounting ECTS credits for the courses and projects; this scheme takes into account the "impact" of each course on focus of speciality; (5) the scheme for transfer Ukrainian grades to ECTS grades. This scheme also takes into account the "impact" of each course on focus of speciality; (6) the framework of the Web-based consulting system for credit transfer and course recognition, realised on XML-technique.

It is assumed that many (technical) universities in Ukraine can take this accounting scheme and apply it for educational contacts with EU universities.

The developed new Framework is fully supplied by the developed teaching materials. Three sets of manuals were created as the outcomes of the project: the Set of Manuals for Management of Students' M.Sc. Thesis Work, the Set of Manuals for Accounting Credits for Courses and Projects and the Set of Manuals for Management of Students' Practical Placements.

Institutional development

The new procedures were established in Kharkov National University of Radioelectronics for the studies' management relatively to the last year of study and Master/Specialist Graduation. The most essential procedure includes the new Methodology of planning and budgeting the teaching duties (including the Supervision of the Training, Pro-Gradu seminars, Master Thesis work) according to new scheme of the Master Thesis work Management and ECTS requirements. The procedure for the credit transfer for the exchange students and ECTS Curriculum for the Intelligent Decision Support Systems speciality were established and examined relatively to the student exchange. The key persons for the international co-operation at the level of Departments were allocated and instructed. The prototype of the Information System and Database for the credit transfer at the level of faculty was specified. The new procedures involving the Departments, Dean's Office, Studies' Office and Department of Practical Training were approved on the international student exchange programmes.

The procedures were discussed and approved by the Rectorat of KhNURE at 4.12.2000 and after that implemented at 11.12.2000 in Order N. 89. Several Statements regarding the new Framework are under establishment in KhNURE now.

All new procedures were specified, planned and established in Kharkov National University of Radioelectronics with the highest degree of involvement and with the absolute support and commitment of the University's management and administration.

Recognition and impact

Clearly, just the development of a new model or a new framework is not enough. It should be implemented and give good results in practice. Only after that it makes a good contribution to the process of integration into European system of higher education.

The new Framework was officially approved by university administration in Kharkov National University of Radioelectronics, Ukraine, and it is in use now for

students of the IDSS speciality (Intelligent Decision Support Systems), more than 50 students are involved in it. The new international Exchange programmes for 25-30 students annually from KhNURE are based on the new Framework. They are:

- The Exchange programme with the University of Jyväskylä, Finland (current partner in Tempus project) financed by EU and Finnish industrial companies (http://www.cs.jyu.fi/ai/projects/master00/index.html);
- The Exchange programme with the Vrije University of Amsterdam, the Netherlands financed by Dutch industrial companies (http://www.cs.jyu.fi/ai/projects/vrije00/index.html).

These evident steps of integration of Ukrainian educational system to EU educational system were made due to the new Framework. The Kharkov National University of Radioelectronics makes the way, which welcomes other technical universities of Ukraine to follow.

Re-training in EU-universities for the staff of KhNURE were organized to provide deep knowledge in new techniques of Management of the Master's Thesis work and credit-based accounting of courses. The group of academic persons from KhNURE has got useful experience, which is spreading in the Home University and other Ukrainian universities during project results' dissemination. Such sharing of experience is also a step to integration of systems of higher education in Ukraine and in Europe.

Because of the UM_CP-20560-1999 project is linked with Ukrainian higher education policy objectives, it will have a strong national impact. The existing M.Sc. level of education in Ukraine will benefit greatly from a formulated and clear framework and quality control.

We should make an accent on the fact that not only Ukrainian education will benefit from the developed new Framework: new ideas and development at partner universities are on hand. We see the integration of Ukrainian and EU educational systems as a real partnership.

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Conclusions

The Tempus Project UM_CP-20560 has been successful by meeting the set of objectives. The key successes of the project are the KhNURE staff development trough the mobility; due to staff development - the KhNURE institutional development trough the establishment of the new procedures and new schemes for the planning, budgeting, management, supervising and evaluating of the Master Thesis work and pilot implementation of the European Credit Transfer System at KhNURE. In addition to the above mentioned, the new schemes of international exchange co-operation were created.