THE PROJECT PROPOSAL

EUROPEAN COMMISSION
Directorate-General for Education and Culture

Education

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DEPARTMENT OF COMPUTER SYSTEMS AND TECHNOLOGIES
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BG-7017 ROUSSE

Brussels,
0 3 AOUT 2004

Action Name: ERASMUS – Thematic Network Projects
Application Reference: 114046-CP-1-2004-1-BG-ERASMUS-TN

Dear Sir/Madam,

You submitted a proposal in the framework of the *Socrates General Call for Proposals 2004* for the Action mentioned above.

I am pleased to inform you that your above-mentioned proposal has been selected.

The Financial Agreement and other information will be sent to you shortly. They will contain an approved budget and grant allocation that might differ from those contained in your application. You should therefore study carefully the approved budget contained in the Financial Agreement, when it is sent to you.

Please note that the present letter does not represent a financial or legal commitment by the Commission. The Commission will be legally committed only when its authorised representative has signed the Financial Agreement referred to above.

All proposals were assessed with the assistance of independent experts. Enclosed you will find for your information a summary of the experts' assessments of your proposal. Please take account of the fact that most of the assessments were written by non-native speakers and that neither the Commission nor the Technical Assistance Office can comment on these independent assessments.

Should you require any further information, please contact:

Education & Training department
Socrates, Leonardo & Youth Technical Assistance Office
59-61 rue de Trèves/Trierstraat
B-1040 Brussels
E-Mail: info@socleoyouth.be

Yours faithfully,

Maite Ferreira

David Coyne PO'
Director

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BACKGROUND

The Bologna Meeting marked the beginning of substantial changes in the field of higher education. The Bologna Declaration identified six action lines: adoption of a system of easily readable and comparable degrees, adoption of a system essentially based on two cycles, establishment of a system of credits, promotion of mobility, promotion of European cooperation in quality assurance and promotion of the European dimension in higher education. Three more (lifelong learning, higher education institutions and students and promoting the attractiveness of the European Higher Education Area) were added in Prague in May 2001. In September 2003, in Berlin, the next consecutive meeting of the European Ministers took place. It analysed what had been achieved after the Prague meeting and marked the main activities for the future 20 months, in view of the next meeting which is to take place in Bergen, Norway in May, 2005. The main objective of the Bologna declaration and the resolutions of the above-mentioned meetings are that by the year 2010 the so-called European Higher Education Area (EHEA) be established and promoted all through Europe

A series of existing projects under the SOCRATES programme are linked to the accomplishment of the action lines addressed in the Bologna Declaration. One of the large scale projects in this aspect is the project titled "Tuning educational structures in Europe" (Phase I and Phase II). The Tuning Project aims to harmonize education structures in Europe, and more specifically the nature of the bachelor's and master's degrees. The focus is mainly on general and subject-specific competencies (or learning objectives) in a number of selected disciplines.

Another project, which places the fundamentals of the current proposal and also aims at the implementation of some of the action lines, identified in the Bologna Declaration is the Thematic Network "European Computing Education and Training". Over the last three years the consortium developed comparable professional standards, curricula and syllabi for Bachelors and Masters in the field of Computing, emphasizing on the main specialities: Computer Science, Computer Engineering, Software Engineering and Information Systems. It also developed a series of WEB based teaching materials and established a Virtual European Department of Computing. The results achieved under the project (http://ecet.ecs.ru.acad.bg/) are one of the main reasons for the consortium to submit a new proposal aimed at searching for other forms to expand further the activities of the Virtual European Department of Computing.

Another milestone, based on the proposal of the European Commission, was the decision to establish a European Research and Innovation Area (ERIA), the main objective of which is the creation of a better overall framework and conditions for research.

These two "Areas" (EHEA & ERIA) are firmly connected to each other and have to be addressed as one entity. The logic is that EHEA prepares the human resources, who are the main engine of ERIA. These specialists are taught by the universities in

the so-called "third" cycle of education - the doctoral degree which we hope is going to be on the agenda of the Bologna Process.

Bearing in mind both facts, the consortium decided to submit a proposal for a project entitled European Thematic Network for Doctoral Education in Computing (ETN DEC).

OBJECTIVES

The main goal of the Project is to help acknowledge doctoral studies as an important "third" cycle of education, to define a framework for increasing the quality of all doctoral studies and to develop tools and methods for assessment, validation and certification of the knowledge and skills of PhD students.

The overall objectives of the network are to establish the principles of effective, high quality, Europe-valid doctoral studies and to create the tools for doing this through analysing the existing systems, exchanging experiences and disseminating good practices among all partners.

The main project activities are:

1. Creating a European Thematic Network Doctoral Education in Computing (ETN DEC), preparatory phase:

- Project formal launch. Establishing a Management Group (MG), Evaluation Board (EB), Expert Groups (EGs), Work Groups (WGs). Developing the terms of reference and working practices.
- Analysing the existing systems and exchanging experiences in Doctoral education.
- Preparing questionnaires for the purpose of identifying both the generic and subject-specific competences which successful doctors in Computing must possess using the methodology of the Pilot Project "Tuning Educational Structures in Europe".
- Launch meeting.

2. Developing the "third" cycle of education - the doctoral degree in Computing

- Studying and analysing the results of the questionnaires about generic and subject-specific competencies.
- Developing comparable curricula and syllabi for the main Doctoral study programs in Computing.
- Developing comparable syllabi in Computing and Informatics for PhD students of other disciplines.
- Developing teaching materials and e-Learning courses for the main subjects of the comparable curricula.
- Organising and conducting 2 Workshops and 2 Summer schools for PhD students.
- Creating a WEB database of PhD offerings in the field of Computing.
- Creating a WEB database of PhD holders in the field of Computing.

3. Developing a Quality Assurance System in Doctoral Education

- Developing a conceptual model of the quality assurance system in the PhD studies, in accordance with the requirements of EN ISO 9001 2000. Conducting a virtual seminar.
- Implementing the system model at the universities and institutions of the European Thematic Network considering the specifics at each one of them.
- Developing tools and methods for assessment, validation and certification of the knowledge and skills of PhD students. Conducting a virtual round table.

4. Evaluating and disseminating project results. Planning the future activities of ETN DEC.

- Periodical evaluation - by the Evaluation Board.
- Interim results evaluation at the end of each project year - by the Evaluation Board and an external evaluator.
- Evaluation, analysis and dissemination of end results of the project - by an external evaluator at a European level.
- Organizing virtual round table discussions, seminars on Doctoral Education.
- Organizing and conducting annual international conferences on Education in Computing.
- Dissemination of project results to institutions who teach doctoral students of other disciplines to help them in the organization of their PhD studies and curricula.
- Periodically publishing the achieved results in newspapers, magazines and brochures.
- Planning the future functioning of the ETN DEC. Devising the project Business plan.

PARTNERS

1. Austria
Technical University of Vienna

2. Belgium
BIKIT
University of Ghent
Vartec nv

3. Bulgaria
ACMBUL Bulgarian Chapter of the Association for Computing Machinery
ASL in CST
Bulgarian Academy of Sciences:
- Institute of Computer and Communication Systems
- Institute of Information Technologies
- Institute of Mathematics and Informatics
- Institute for Parallel Processing

Bulgarian Association of Information Technology (BAIT)
Bulgarian Branch Association of Electronic Industry and Informatics (BBAEII)
Higher Attestation Commission
IEEE Bulgaria Section
Sofia University
Technical University of Gabrovo
Technical University of Sofia
Technical University of Varna
University of Rousse
University of Veliko Turnovo

4. Cyprus
University of Cyprus

5. Denmark
University of Aarhus

6. Estonia
Tallinn University of Technology
University of Tartu

7. Finland
Lappeenranta Technology University
University of Turku

8. France
UVSQ

9. Germany
Artur Speer Akademie

Comhard Gesellschaft für Computer Kommunikation Bildung mbH
Ilmenau Technical University
University of Applied Sciences Berlin (FHTW)

10. Greece
University of Ioannina

11. Hungary
University of Szeged

12. Iceland
Reykjavik University

13. Ireland
Dublin City University

14. Italy
Centre on Communication Studies Anghelos
Palermo University
Pavia University
University of Calabria

15. Latvia
Riga Technical University

16. Lithuania
Kaunas University of Technology
Vilnius Gediminas Technical University
Vytautas Magnus University

17. Malta
University of Malta

18. Norway
Norwegian University of Science and Technology

19. Poland
Warsaw University

20. Portugal
Coimbra University

21. Romania
Academy of Economics Studies Bucharest
University of Pitesti

22. Slovenia
Nova Gorica Polytechnic

23. Spain
Polytechnic of Madrid
University of La Laguna
University of Malaga

24. Sweden
University of Gävle
Växiö University

25. The Czech Republic
Czech Technical University in Prague
University of Ostrava

26. The Netherlands
Technical University Delft
Hogeschool Rotterdam

27. The Slovak Republic
Slovak University of Technology
University of Constantine the Philosopher, Nitra
Comenius University, Bratislava

28. Turkey
Bahcesehir University
Bilkent University
Middle East Technical University
Selcuk University

29. UK
Liverpool John Moores University

MAIN RESULTS

1. A detailed Work plan for the period 01.10.2004 – 30.09.2007 has been worked out.
2. The management infrastructure of THE THEMATIC NETWORK has been developed.
3. The Management group, Experts groups and Evaluation board have been established.
4. A regular contact with the network partners and the SOCRATES Head Offices in Brussels has been established and maintained – the Manager and the network members have exchanged up to 50 e-mail messages daily at critical moments.
5. A strategy for a successful implementation of the project activities has been established.
6. A WEB site of TN has been developed (http://ecet.ecs.ru.acad.bg/etndec/).
7. A questionnaire for the purpose of analyzing the existing systems of teaching PhD students has been prepared.
8. A WEB database of existing systems of teaching PhD students has been developed.
9. A WEB database of PhD offerings in the field of Computing has been created.
10. A WEB database of PhD holders in the field of Computing has been created.
11. A questionnaire for the purpose of identifying both the generic and subject-specific PhD student competences has been prepared. The results have been processed and analyzed with the help of the TUNING project colleagues.
12. Comparable curricula for Doctoral Study in Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS) have been developed.
13. Comparable syllabi for Doctoral Study in CS, CE, SE, IS has been developed.
14. Comparable syllabi in Computing and Informatics for PhD students in other disciplines have been developed.
15. A book with professional standards, curricula and syllabi for PhD degree in CS, CE, SE, IS has been published.
16. Teaching materials and e-Learning courses for PhD students in Computing has been developed. A virtual library for PhD students in Computing has been created (http://ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=vlib&ltype=2).
17. A Virtual Info Centre for PhD students in Bulgaria was established and it was recommended to the other partners as a good practice. (http://ecet.ecs.ru.acad.bg/phd-center/index.php?lng=eng)
18. A Computer Lab for PhD students has been equipped at University of Rousse.
19. Six meeting of the ETN DEC partners has been convened:
    - at the University of Varna, Bulgaria - 65 representatives of 25 European countries took part;
    - at the University of Applied Sciences of Berlin, Germany - 81 representatives of 22 European countries took part;
    - at the University of Veliko Tarnovo, Bulgaria - 87 representatives of 22 European countries took part;
    - at the University of Coimbra, Portugal - 79 representatives of 20 European countries took part;

- at the University of Rousse, Bulgaria - 111 representatives of 23 European countries took part;
- at the Bahcesehir University of Istanbul, Turkey - 121 representatives of 25 European countries took part.

20. Two meetings of representatives of EG has been convened:
    - at the Academy of Economic Studies, Bucharest, Romania.
    - at the University of Ostrava, CZ.
21. Three schools for PhD students in Computing has been conducted:
    - winter school in Palmse, Estonia;
    - summer school in Nicosia, Cyprus;
    - summer school in Lappeenranta, Finland.
22. Three international conferences
    - CompSysTech'05 in Varna;
    - CompSysTech'06 in Veliko Tarnovo;
    - CompSysTech'07 in Ruse

    have been conducted with the wide participation of members of the TN consortium. There was a special section for PhD students. During the conferences a Workshop for PhD students took place. CompSysTech conferences proceedings have been published in a paper version, a CD and on the conferences WEB site:
    - http://ecet.ecs.ru.acad.bg/cst05/;
    - http://ecet.ecs.ru.acad.bg/cst06/;
    - http://ecet.ecs.ru.acad.bg/cst07/.
23. Three international conferences
    - e-Learning'05 in Berlin;
    - e-Learning'06 in Coimbra;
    - e-Learning'07 in Istanbul

    have been conducted with the wide participation of members of the TN consortium. There was a special section for PhD students. e-Learning conferences proceedings have been published in a paper version, a CD and on the conferences WEB site:
    - http://www.lotuswebtec.com/e-conf/;
    - http://elconf06.dei.uc.pt/;
    - http://akademik.bahcesehir.edu.tr/elearn07/.
24. An Academic Society for Computing has been established.
25. A conceptual model of the quality assurance system has been developed.
26. The government and the public in Bulgaria and in other European countries are regularly informed about the objectives, activities and results of the TN DEC by means of regional and national mass media. The Project Coordinator presented a paper for the ETN DEC at the conference, organised by the Bulgarian Socrates Agency, which took place on 15 November, 2005 in Sofia, Bulgaria.
27. The evaluation procedures and performance indicators have been developed.
28. The project was periodically evaluated by the Evaluation board.
29. A Progress report and a Final report have been elaborated.
30. An idea for a new THEMATIC NETWORK has been offered, discussed and adopted by the consortium.

WORK PLAN

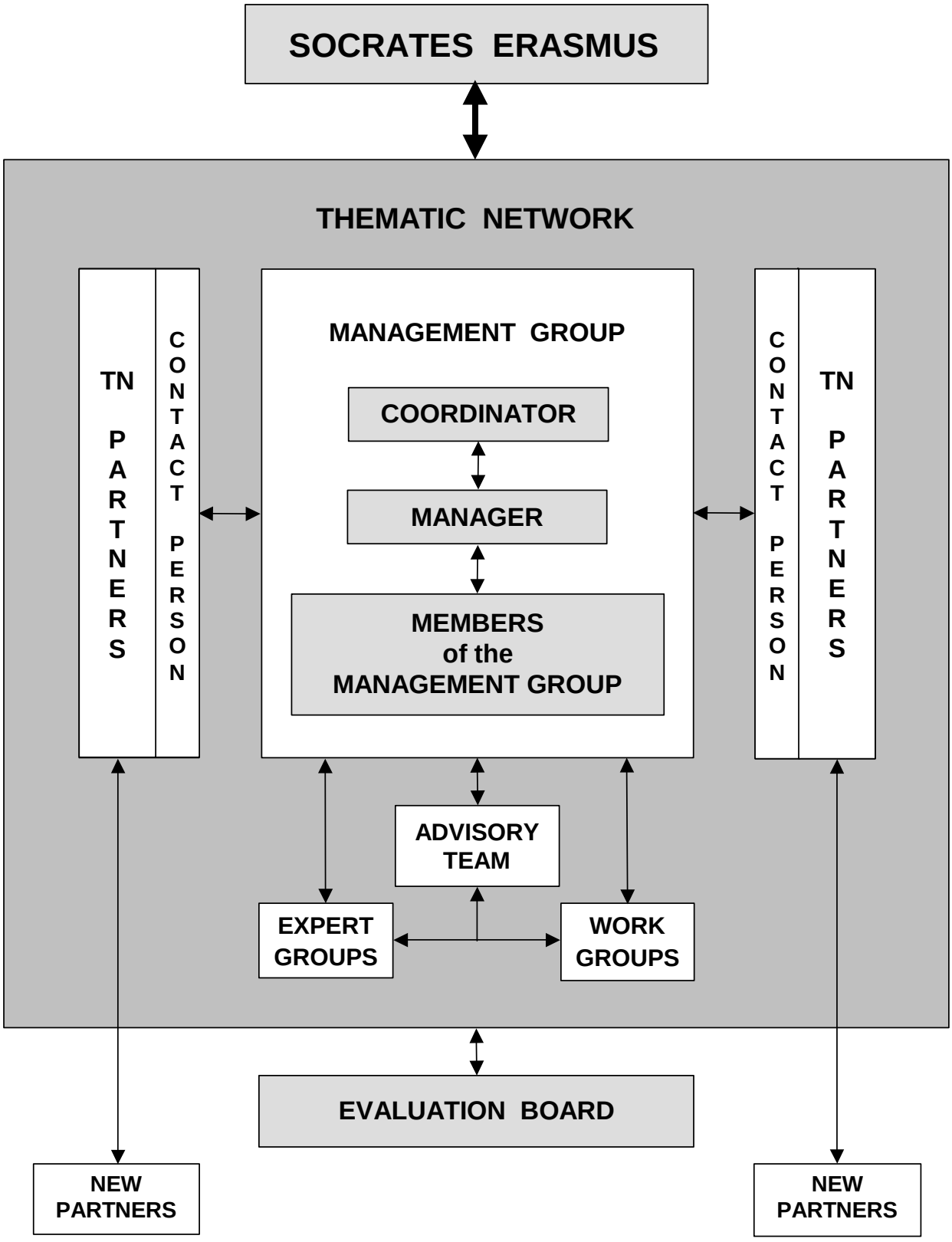
No	Activity	Responsible	Date
1.	1. Elaborating the TN Workplan	Rousse University	10.01.2005
2.	2.1. Establishing and developing the infrastructure of the network. 2.2. Establishing communication channels between all partners. 2.3. Establishing the MG, EB, EGs. 2.4. Creating a WEB site of the TN.	Rousse University (BG) Contact Persons All partners	20.02.2005
3.	3.1. Preparing questionnaires for the purpose of analysing the existing systems of teaching PhD students. 3.2. Developing a database of existing systems of teaching PhD students.	Rousse University (BG) All partners	30.04.2005
4.	4. Developing the evaluation procedures and performance indicators	EB Higher Attestation Commission (BG)	15.03.2005
5.	5.1. Preparing questionnaires for the purpose of identifying both the generic and subject-specific PhD student competences. 5.2. Doing a survey and collecting the forms. 5.3. Processing and analysing the results with the help of the Tuning project colleagues.	MG All partners Institute of Information Technologies (BG) Institute of Mathematics and Informatics (BG) Tuning experts	30.09.2005
6.	6.1. Launch meeting 6.2. Collecting Information about existing systems for Doctoral Education 6.3. Establishing a strategy for a successful implementation of the project activities. 6.4. Setting up ECEA as a legal entity or joining the European University Association (EUA)	Rousse University (BG) Ostrava University (CZ) Institute of Mathematics and Informatics (BG) All partners	30.06.2005
7.	7. Organising and conducting an international conference on	Rousse University (BG)	30.06.2005

	Computing - CompSysTech'05. One of the sections - Doctoral education	Technical University of Varna (BG)	
8.	8.1. Evaluation by the EB at the end of the first year. 8.2. Final Meeting of the Project for the first year. Workshop for PhD students	MG, EB FHTW-Berlin (DE)	30.09.2005
9.	9.1. Creating a WEB database of PhD offerings in the field of Computing. 9.2. Providing access to the database for all partners.	All partners Vilnius Gediminas Technical University (LT) Higher Attestation Commission (BG)	01.03.2006
10.	10.1. Developing comparable curricula for Doctoral Study in CS, CE, SE, IS. 10.2. Virtual working meetings of the members of the separate EGs.	All partners CS – Technical University Sofia (BG) CE - Tallinn University of Technology (EE) SE – Institute of Mathematics and Informatics (BG) IS – Ostrava University (CZ)	30.03.2006
11.	11 Organising and conducting an international conference on Computing - CompSysTech' 06. One of the sections - Doctoral education Workshop for PhD students	Rousse University (BG) Veliko Turnovo University (BG)	30.06.2006
12.	12.1. Developing comparable syllabi for Doctoral Study in CS, CE, SE, IS. 12.2. Developing comparable syllabi in Computing and Informatics for PhD students in other disciplines (OD). 12.3. Virtual working meetings of the members of the separate EGs.	All partners CS – Technical University Sofia (BG) CE - Tallinn University of Technology (EE) SE – Institute of Mathematics and Informatics (BG) IS – Ostrava University (CZ) OD - Academy of Economic Studies (RO)	30.09.2006

13.	13. Organising and conducting a Winter school for PhD students	University of Tartu (EE)	30.09.2006
14.	14.1. Creating a WEB database of PhD holders in the field of Computing. 14.2. Providing access to the database for all partners.	All partners University of Coimbra (PT) Higher Attestation Commission (BG)	30.09.2006
15.	15.1. Evaluation by the EB at the end of the second year. 15.2. Final Meeting of the Project for the second year.	All partners University of Coimbra (PT)	30.09.2006
16.	16.1. Developing a conceptual model of the quality assurance system. 16.2. Conducting a virtual seminar. 16.3. Implementing the model of the quality assurance system.	Slovak University of Technology (SK)	01.03.2007
17.	17.1. Developing tools and methods for assessment, validation and certification. 17.2. Conducting a virtual round table.	Liverpool John Moores University (UK)	01.06.2007
18.	18. Organising and conducting an international conference on Computing - CompSysTech' 07. One of the sections - Doctoral education Workshop for PhD students	Rousse University (BG)	20.06.2007
19.	19.1. Developing teaching materials and e-Learning courses. 19.2. Providing access to the newly-developed teaching materials for all partners.	EGs, WGs All partners	01.08.2007
20.	20.1. Organising and conducting a Workshop for PhD students 20.2. Organising and conducting a Summer school for PhD students.	University of Cyprus (CY) University of Lappeenranta (FI)	30.09.2007
21.	21.1. Periodical evaluation by the EB 21.2. Evaluation by internal and external evaluators.	EB, MG	Continuous

22.	22.1. Periodical publications in professional journals, newspapers. 22.2. Creating a WEB-based discussion room.	MG, EGs, WGs All partners	Continuous
23.	23.1. Evaluation reports by the EB and an external evaluator about the third project year, as well as the three year project period as a whole. 23.2. Organising and conducting a Final Project Meeting	MG, EB All partners University of Bachesehir (TY)	30.09.2007

MANAGEMENT INFRASTRUCTURE



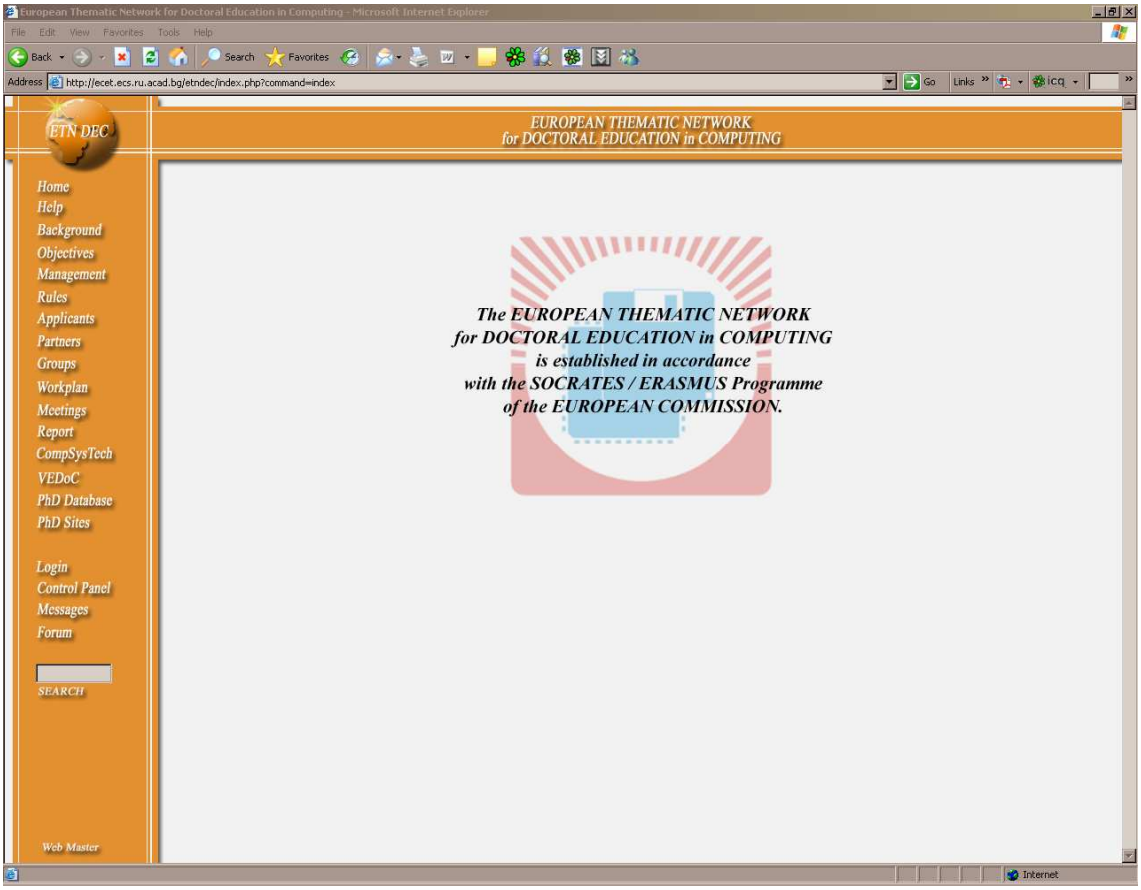
GROUPS

Group Name	Group Email
Management Group	DEC-MG@ecs.ru.acad.bg
Evaluation Board	DEC-EB@ecs.ru.acad.bg
Expert Groups	
EG for Devising the QUESTIONNAIRES	DEC-EGDQ@ecs.ru.acad.bg
Computer Science	DEC-CS@ecs.ru.acad.bg
Computer Engineering	DEC-CE@ecs.ru.acad.bg
Software Engineering	DEC-SE@ecs.ru.acad.bg
Information Systems	DEC-IS@ecs.ru.acad.bg
EG Quality Assurance System	DEC-EGQAS@ecs.ru.acad.bg

Working practices of the groups

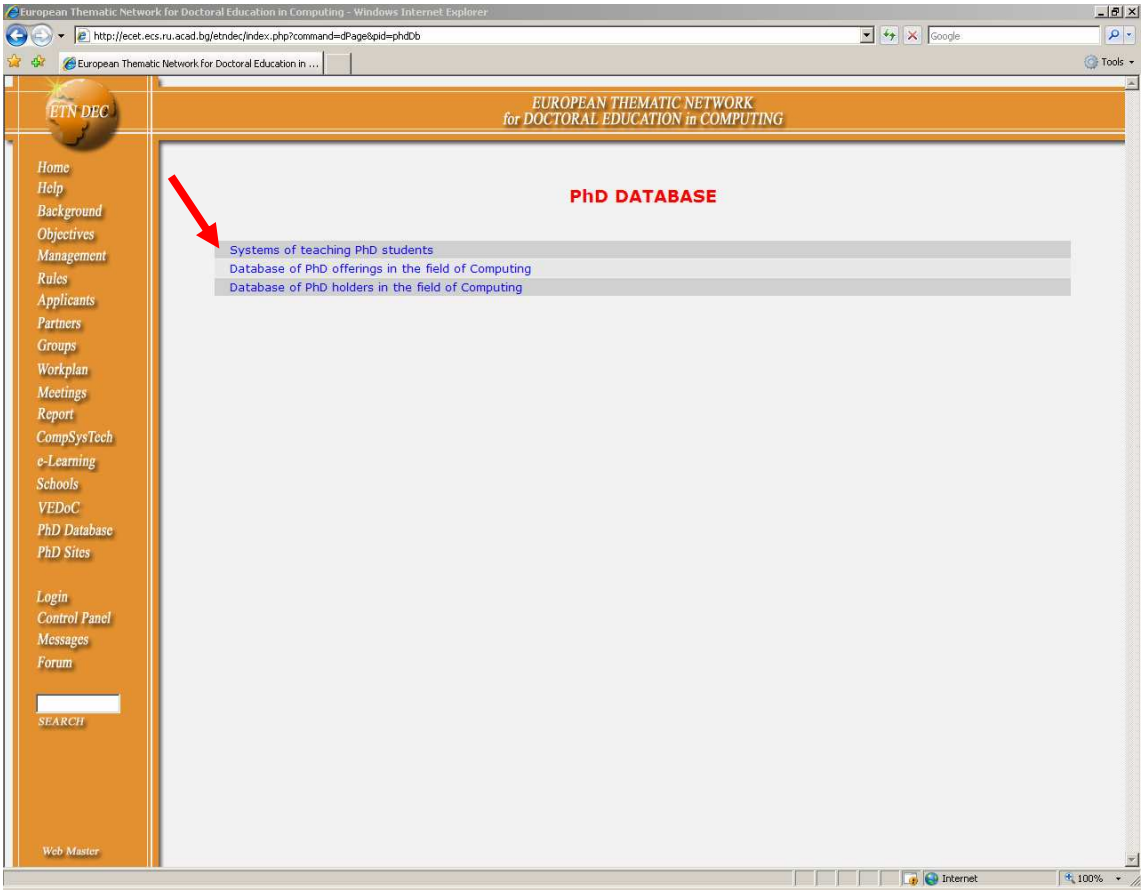
1. The project manager sends via E-mail to the leaders of each group the tasks which have to be completed.
2. The Group leader distributes these tasks to all group members.
3. The Group leader devises a work plan and sends it to the Manager and to all group members. The group work plan has to be synchronised with the project work plan.
4. The Group leader with the help of the kernel of the group works out a draft version of the documents the group has to produce according to the work plan, and sends them to all other group members.
5. The group members send via E-mail to the Group leader their suggestions for revisions and amendments.
6. The Group leader makes the necessary modifications and sends the new version to the group and to the Project Manager.
7. The Manager publishes the received developed documents in the Forum of the project web site and sends them to all network members in this way opening a virtual meeting to discuss the materials.
8. Suggestions and comments of the network members are considered.
9. The final versions are discussed and adopted at the next work meeting of the Management Group and published on the project web site and in the Project Annual report.

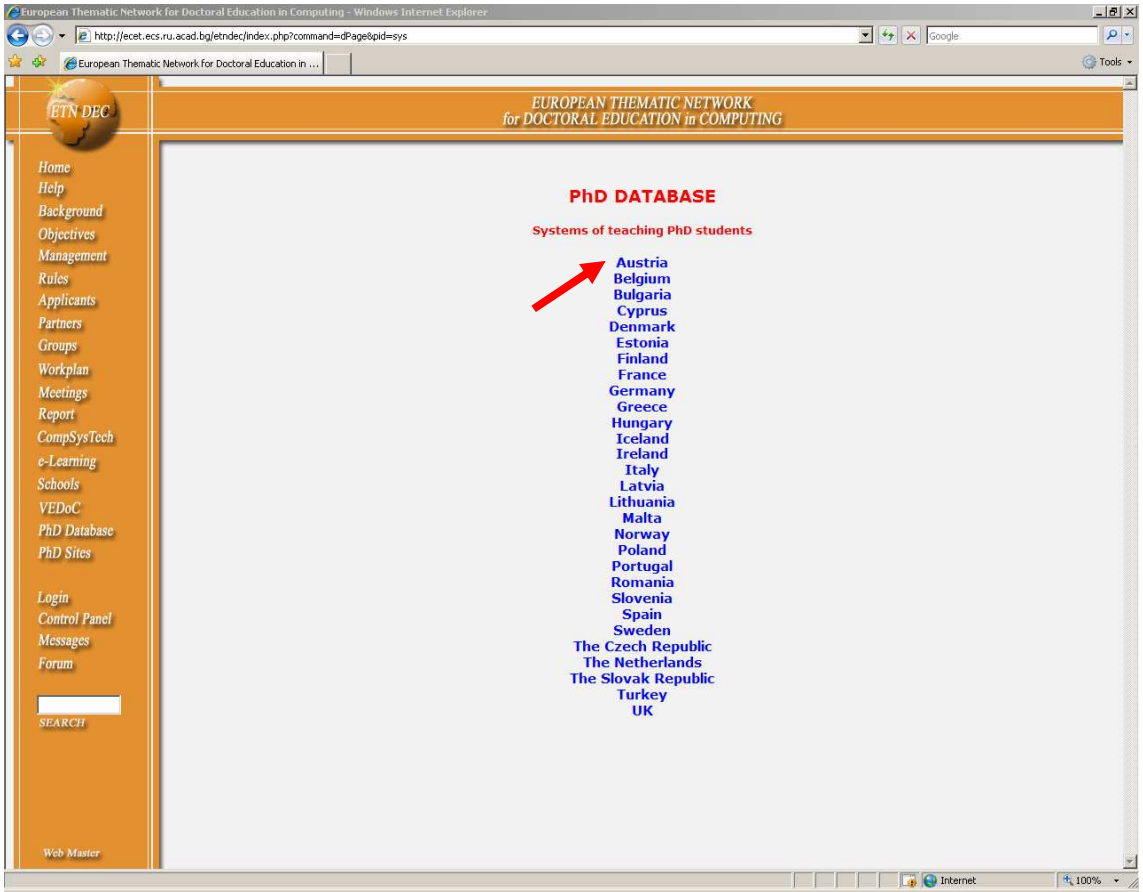
WEB site of the THEMATIC NETWORK
URL: http://ecet.ecs.ru.acad.bg/etndec



Database of existing systems of teaching PhD students

ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=phdDb





System of Teaching PhD Students in Austria

EDUCATIONAL DEGREES:

According to the Bologna Declaration, higher education in Austria is three-tier, with the respective educational degrees being "Bachelor", "Master" and "Doctor". The doctoral degree (PhD) is both educational and scientific.

SCIENTIFIC SPECIALITIES:

The Austrian Federal Ministry for Education, Science and Culture has delegated the PhD bureaucracy and control to the individual universities. Considering that each University establishes its own doctoral program there is not a specific classification of scientific specialities in computing.

ADMISSION OF DOCTORAL STUDENTS:

For admission to the Doctoral Programme students among others must have completed a diploma programme in one of the following branches of the Engineering Sciences: Architecture, Civil Engineering, Electrical Engineering, Electrical Engineering - Sound Engineer, Industrial Design, Computer Science, Mechanical Engineering, Mechatronics, Regional Planning, Technical Chemistry, Technical Mathematics, Technical Physics, Telematics, Process Engineering, Actuarial Mathematics, Surveying and Geoinformation, Economics - Mechanical Engineering, Economics - Civil Engineering, Economics - Technical Chemistry; a study programme at a recognized Austrian or foreign post-secondary education facility the specific terms and conditions of which are equivalent to the diploma programmes indicated as requirements for admission; a course of technical studies at a Technical College ("Fach-hochschule") according to s. 5 ss. 3 of the Technical Colleges Act ("Fachhochschulgesetz"). Holders of a foreign University degree are, in compliance with s. 60 and s. 64 of the University Act ("Universitätsgesetz 2002"), additionally required to meet the following conditions:

a) Diploma of a foreign post-secondary education institution;
b) Transcript;
c) Short description of the thesis in English or German language;
d) Proof of direct admission to the respective doctoral programme in the country of origin;
e) Acceptance of supervision by a professor of the university.
f) Application for admission to the Doctoral Programme by 1st September or 1st February, respectively (exception: citizens of EEA countries).

Every scientific organization - University or Academy, through its branches, faculties or institutes - has the right to accept doctoral students for training in specific scientific specialities. This right is granted by the National Agency for Assessment and Accreditation. One of the main requirements is that the scientific branch has at least 3 professors and/or associate professors, certified in the respective scientific speciality.

Additional requirements for students who have completed technical programmes of Technical Colleges ("Fachhochschule"): In the framework of a doctoral programme extended by two additional semesters, students who have

completed technical programmes of Technical Colleges ("Fachhochschule") are required to take additional courses:

- a total of 24 credit hours of basic courses,
- a total of 10 credit hours of subject-specific supplementary courses,
- a total of 10 credit hours of specialization courses.

The courses will be selected by the student in consultation with the thesis supervisor. The selection of courses must be documented, i.e. a complete list containing all selected courses must be prepared and signed by the student, the thesis supervisor and the Dean of Studies.

TRAINING:

In addition to writing a doctoral thesis, students are also required to take a total of 12 credit hours (for Architecture und Regional Planning 24 credits) of research-related or interdisciplinary courses. These courses will be selected by the student in consultation with the thesis supervisor. When applying for admission to the doctoral examination, candidates will be required to submit a confirmation of the supervisor as well as the corresponding course certificates to prove successful completion of the selected courses.

The eligible courses comprise, in particular, specialized lectures, seminars and “privatissimum” courses. Examinations taken in t he course of a diploma programme will not be recognized as the doctoral programme is an advanced course of studies based on the diploma programme and does not represent a different branch of studies as defined by s. 59 of the University Studies Act.

Scientific work successfully completed at a recognized Austrian or foreign postsecondary education facility will, upon submission of a corresponding application, be recognized by the Chairman of the Studies Commission if it meets the criteria defined for doctoral theses.

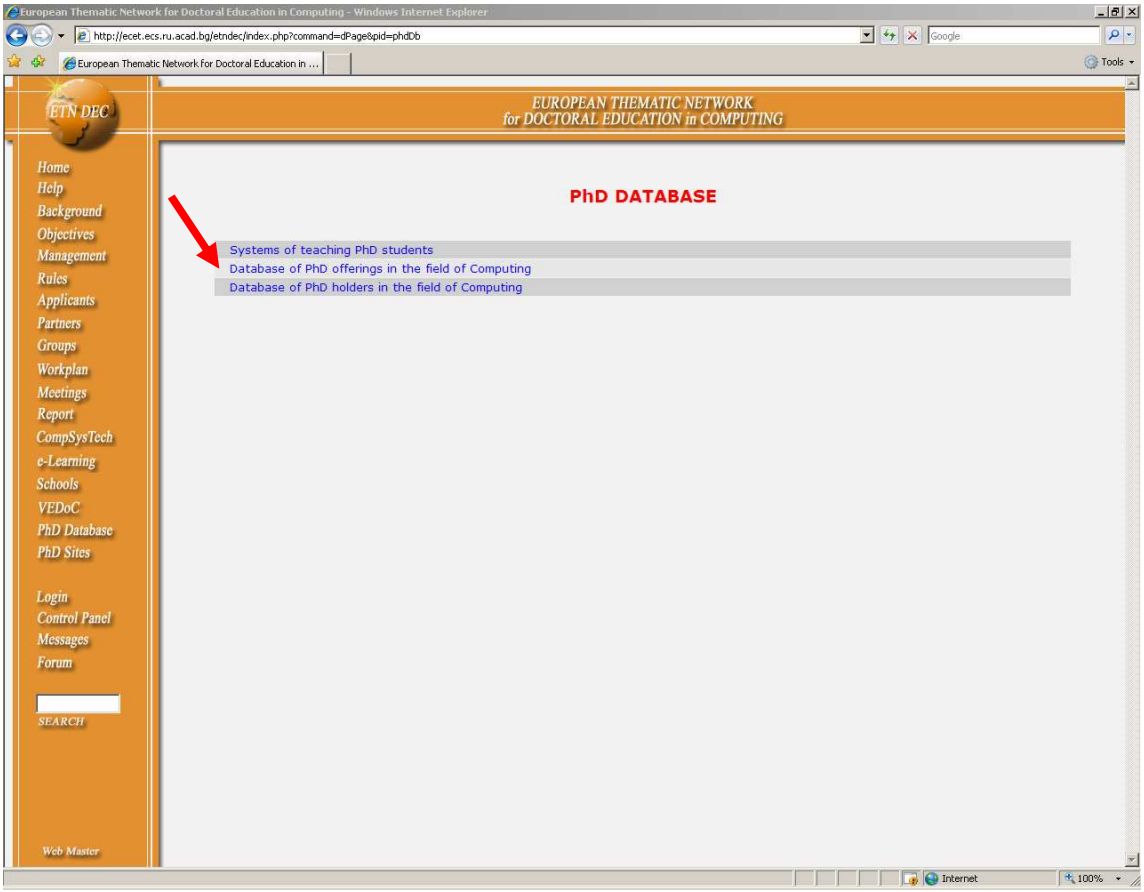
The theme of the doctoral thesis must be chosen from one of the examination subjects stipulated for the branch of studies completed by the student or reasonably connected with one of the examination subjects. Additionally, the subject from which the theme for the doctoral thesis is chosen must be represented at the university by a teacher. Regular students are entitled, according to the relevant provisions of the law, to prepare scientific papers in a foreign language where this is approved by the supervisor.

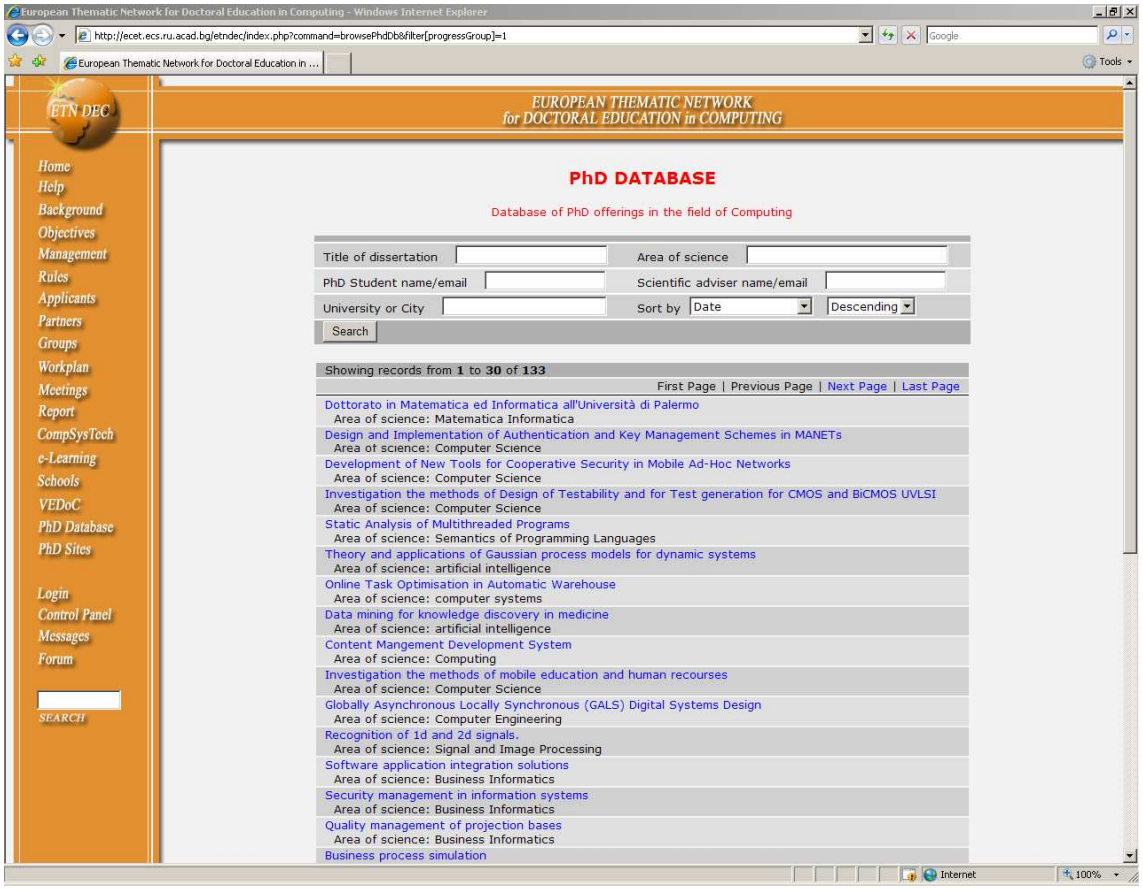
DEFENCE:

Candidates who have successfully completed their respective courses as well as their doctoral thesis will be admitted to the doctoral examination. The doctoral examination is held as a final examination before an examination board comprising at least the supervisor and the evaluator of the thesis. The doctoral examination comprises examinations in: the subdivision of the subject field from which the theme of the doctoral thesis was chosen a subdivision of a subject field to be determined by the competent Dean, taking into account the theme of the doctoral thesis, after hearing the candidate, the thesis supervisor and the evaluators of the thesis. The candidate is entitled to submit a proposal.

Database of PhD offerings in the field of Computing

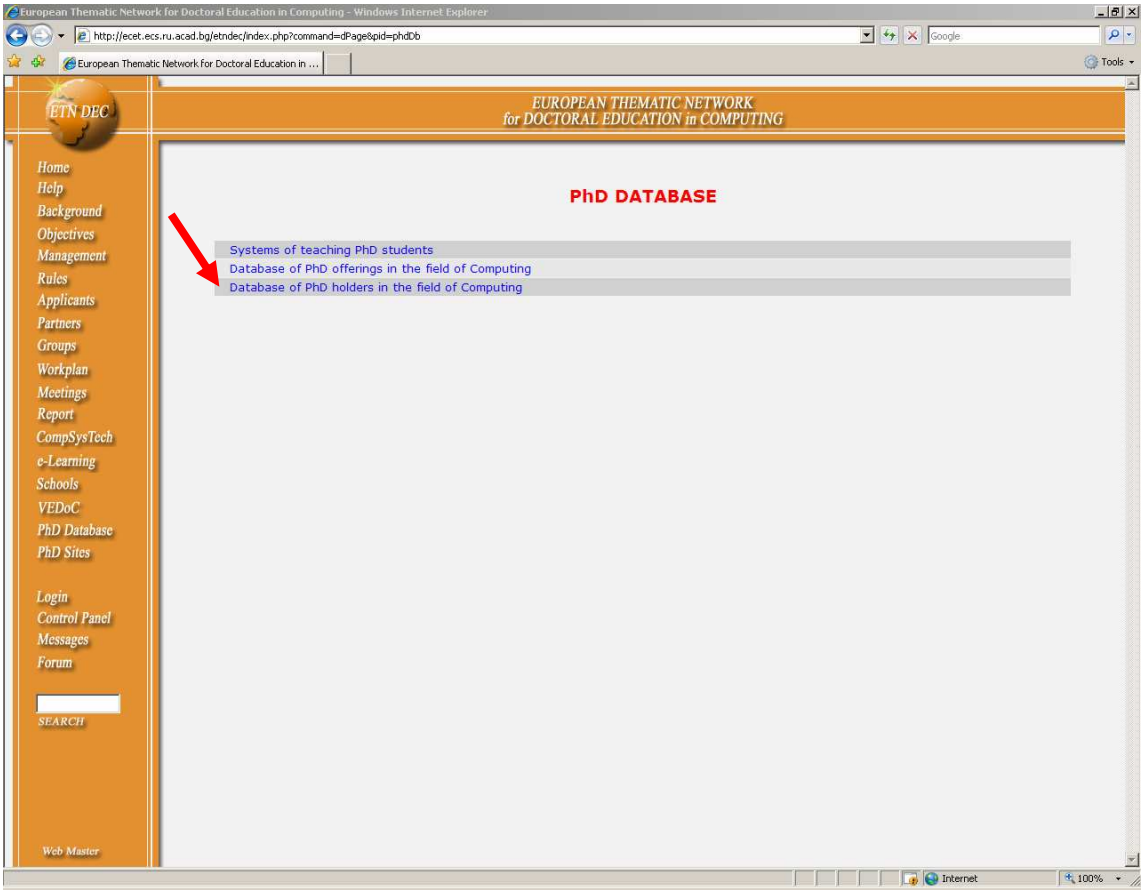
ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=phdDb

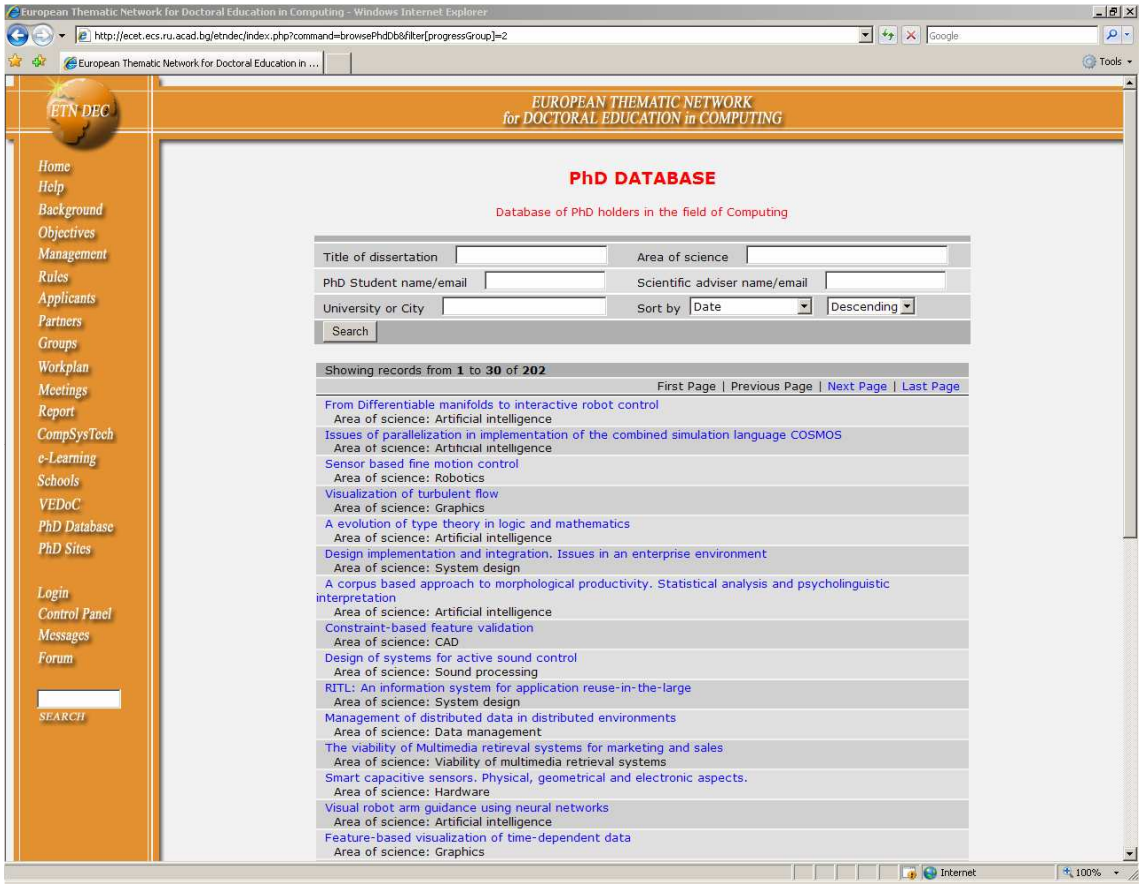




Database of PhD holders in the field of Computing

ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=phdDb





Comparable curricula for doctoral study in Computing

CURRICULUM Computer Science

One generic common course

1. Academic Writing
2. Methodology of the Scientific Research
3. Legal Grounds and Structure of Doctoral Thesis
4. Intellectual Property Protection
5. "Post-doctoral" Seminar

Two main courses

1. Advanced Algorithms
2. Advanced Computer Architecture
3. Theory of Programming Languages
4. Software Design Methodologies
5. Information Management Theory
6. Advanced AI Concepts

Tree courses specific and connected with the topic of the dissertation

Area 1: Algorithms and Complexity
1. Complexity Theory
2. Scientific Computing (Numerical Methods)
3. Modelling and Simulation of Natural Systems
4. Parallel Algorithms and Parallel Programming
5. Concepts and Paradigms of Distributed Computing
6. Metaheuristics

Area 2: Computer Systems and Networks
1. Software Measurement and Testing
2. Network Theory
3. Network Performance Analysis
4. Network Security

Area 3: Programming Languages
1. Semantics of Programming Languages
2. Type Systems for Programming Languages
3. Implementation of Programming Languages

Area 4: Software Systems and Methodologies
1. Advanced Operating Systems
2. Advanced Software Engineering
3. Concurrent Systems
4. Advanced Distributed Systems
5. Security Issues and Principles
6. Graphics and Visualization
7. Multimedia Technologies
8. Computer Games Technologies

Area 5: Information Management
1. Data Mining
2. Database Management Systems
3. Search Techniques
4. Text Processing
5. Speech Technology
6. Natural Language Processing

Area 6: Computational Intelligence (Artificial Intelligence)
1. Autonomous Agent Technology
2. Machine Learning
3. Intelligent Web
4. Neural Networks
5. Theorem Proving
6. Expert Systems
7. Biocomputing
8. Genetic Algorithms
9. Evolutionary Programming
10. Fuzzy Logic and Fuzzy Control

CURRICULUM Computer Engineering

One generic common course

1. Academic Writing
2. Methodology of the Scientific Research
3. Legal Grounds and Structure of Doctoral Thesis
4. Intellectual Property Protection
5. "Post-doctoral" Seminar

Two main courses

1. Digital VLSI Integrated Circuits
2. Digital Systems Design and Implementation
3. Computer Architecture and Organization
4. Embedded Systems Design and Implementation
5. Computer Networks

Tree courses specific and connected with the topic of the dissertation

Area 1 Circuits, Devices, and Electronics
1. Advanced Digital Integrated Circuits
2. Analog, Digital, Mixed-mode Circuits
3. Fiber Optics and Optical Methods
4. Load Management, Power Quality and Reliability
5. Low-energy Circuits and Implementation Architectures

Area 2 Digital System Design
1. IP-based and Systems-on-chip Design
2. Digital Systems Testing
3. Formal Methods of Digital Design and Test
4. Asynchronous Design
5. Reconfigurable System Design
6. Design Supporting Automation Environments

Area 3 Computer Systems Engineering and Controls
1. Advanced Computer Architectures
2. Dependability and Fault Tolerance
3. High Performance Systems and Parallel Processors
4. Fuzzy Logic and Control
5. Remote Control Systems
6. Real-time Systems Design

Area 4 Embedded Computer Systems and Signal Processing
1. Hardware/software Co-design
2. Modeling and Synthesis of Embedded Systems
3. Evolutionary Computation
4. Image Processing and Recognition
5. Speech Processing

Area 5 Networking and Communications
1. Interconnects and Networks-on-chip
2. Network Configuration and Management
3. Communications and Network Processors
4. Pervasive Computing
5. Broadband and Mobile Networks

CURRICULUM Software Engineering

One generic common course

1. Academic Writing
2. Methodology of the Scientific Research
3. Legal Grounds and Structure of Doctoral Thesis
4. Intellectual Property Protection
5. "Post-doctoral" Seminar

Two main courses

1. Software Modeling and Design
2. Software Process and Evolution
3. Software Validation and Quality Issues
4. Software Business

Tree courses specific and connected with the topic of the dissertation

Area 1: Software Modelling and Design
1. Software Modelling and Analysis
2. Software Design
3. Software Process and Evolution
4. Requirements Specification & Documentation
5. Agile Methodologies (XP)

Area 2: Software Management
1. Project Management
2. Risk Management
3. Analysis of Business Requirements
4. Software Configuration Management
5. Communication Skills and Professionalism

Area 3: Net-based Software Systems
1. e-Content Principles, Web Technologies
2. Network Programming
3. Information Security Principles and Policies
4. Human-computer Interaction
5. Multimedia Technologies

Area 4: Software Verification & Validation and Quality
1. Verification & Validation Essence and Organization
2. Testing
3. Software Quality Evaluation
4. Software Quality Assurance
5. Software Quality Standards

CURRICULUM Information Systems

One generic common course

1. Academic Writing
2. Methodology of the Scientific Research
3. Legal Grounds and Structure of Doctoral Thesis
4. Intellectual Property Protection
5. "Post-doctoral" Seminar

Two main courses

1. Information Systems Development and Management
2. System Theory
3. Modelling and Simulation of Information Systems
4. Information and Knowledge Management
5. Theoretical and Technical Foundations of Information Systems Research

Tree courses specific and connected with the topic of the dissertation

Area 1 Qualifying in Information Systems
1. Information Systems Modeling and Design
2. Distributed Information System
3. Programming Environments in Information Systems
4. Algorithms in Networking
5. Multimedia and INTERNET Information Systems

Area 2 Qualifying in Databases
1. Data Mining
2. Relational Databases
3. Deductive Databases
4. Postrelational Databases
5. Algorithms and Data Structures

Area 3 Qualifying in Artificial Intelligence
1. Intelligent Systems for Decision Support (Making)
2. Application of Artificial Intelligence in Information and Knowledge Based Systems
3. Cognitive Science and Artificial Intelligence
4. Intelligence Systems Design and Implementation
5. Fuzzy Sets and Soft Computing

Area 4 Qualifying in Data Security
1. Special Topics in Data Security
2. Information Systems Security Principles and Policies
3. Information Systems Security
4. Advanced Topics in Cryptography
5. Principles of Software Validation

Area 5 Qualifying in Variety Application of Information Systems
1. Application of Information Systems in Biology and Medicine
2. Healthcare and Medical Informatics
3. Information Systems Architecture
4. Business Process Modeling
5. Geographic Information Systems

Book with professional standards, curricula and syllabi for PhD degree in CS, CE, SE, IS

EUROPEAN COMMISSION
DIRECTORATE-GENERAL EDUCATION AND CULTURE
Education
Higher Education, SOCRATES-ERASMUS

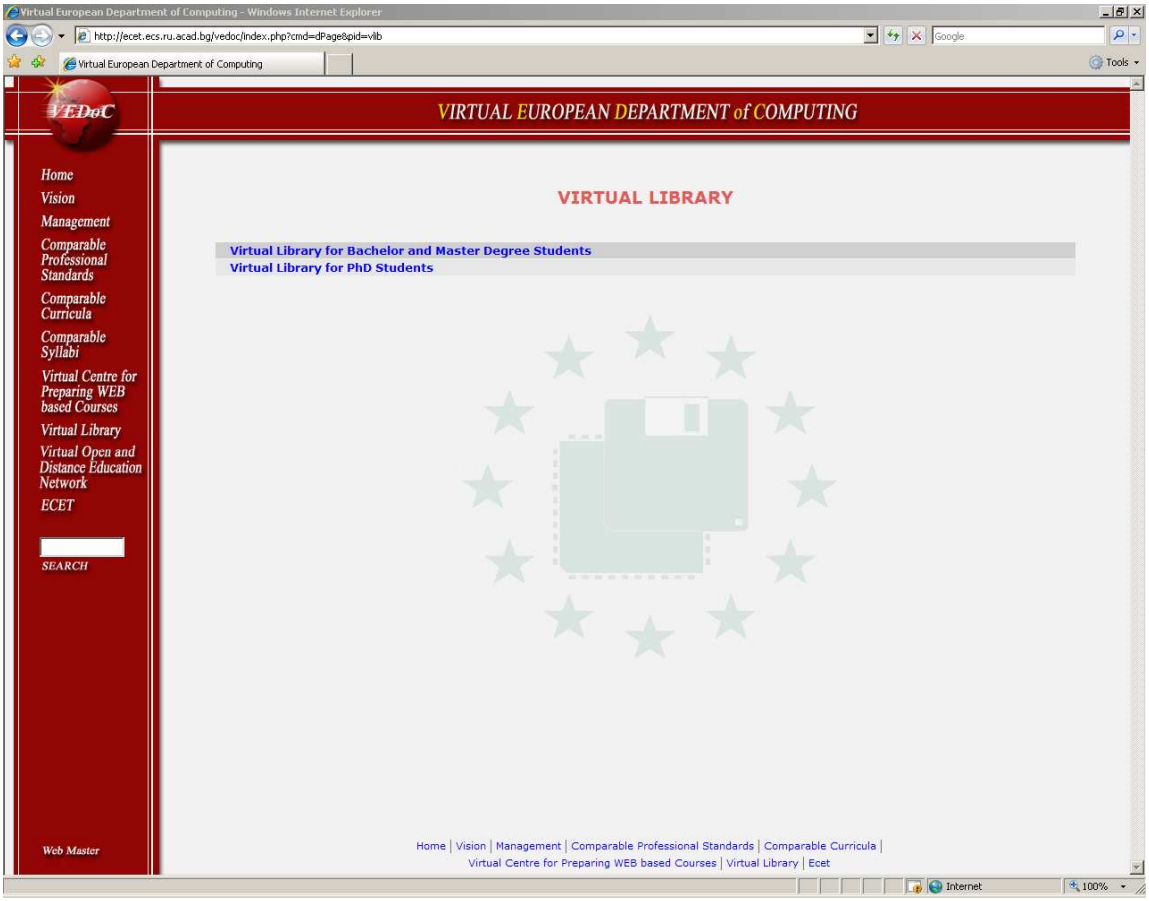
PhD

Professional Standards, Curricula, Syllabi

EUROPEAN THEMATIC NETWORK
114046-CP-1-2004-1-BG-ERASMUS-TN
DOCTORAL EDUCATION IN COMPUTING
(ETN DEC)

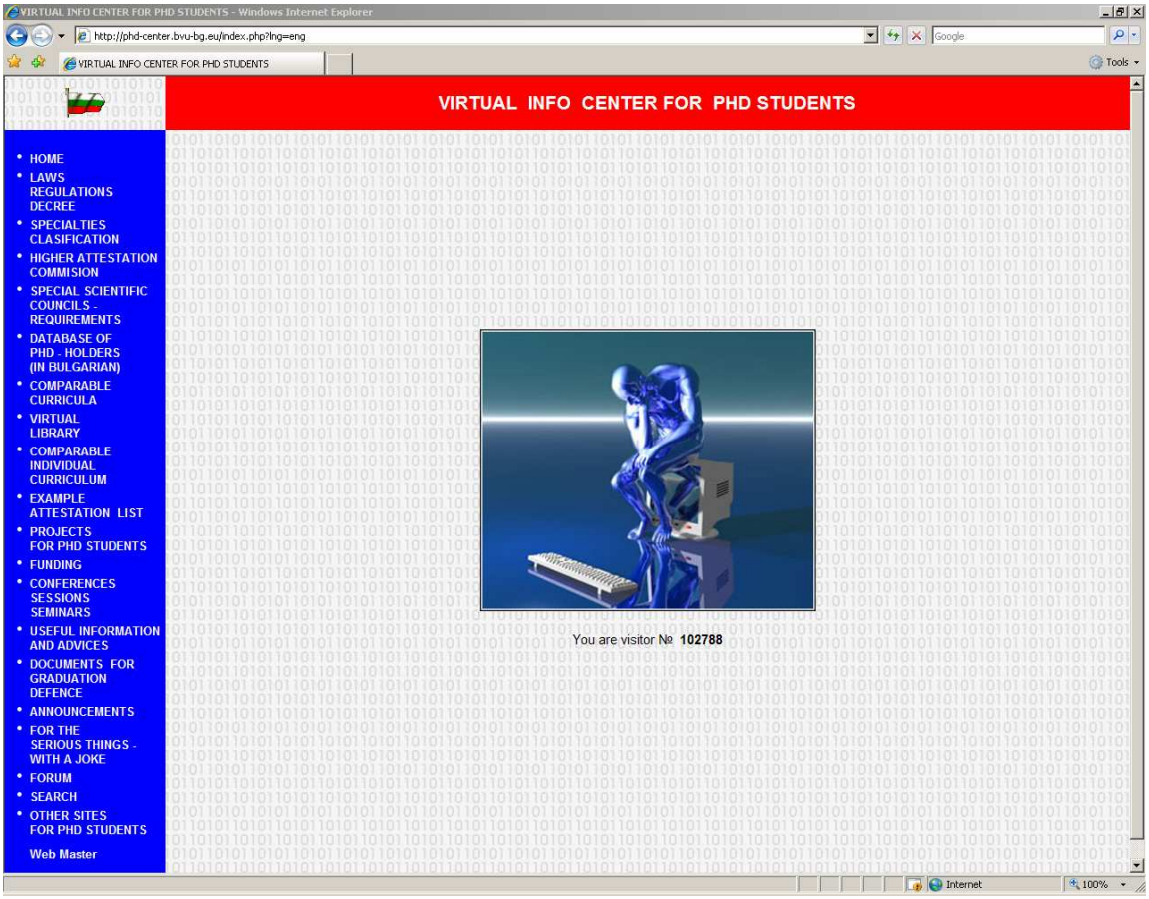
Virtual library for PhD students in Computing

http://ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=dPage&pid=vlib



Virtual Info Centre for PhD students

http://ecet.ecs.ru.acad.bg/phd-center/index.php?lng=eng



Computer Lab for PhD students

MEETINGS of the ETN DEC PARTNERS

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 16 to 17 June 2005 in Varna

In this First Meeting **65 representatives of 25 European countries** took part, including Belgium, Germany, Greece, Spain, Ireland, Italy, The Nederland, Austria, Portugal, Finland, Sweden, UK, Island, Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Malta, Poland, Romania, Slovenia, Slovak Republic, Turkey.

The project meeting was conducted with the following agenda:

- Welcome Address of the Head of Department of Computing at the Technical University of Varna to the Meeting Participants.
- Introduction of the meeting participants.
- Report about completed work. Discussion.
- Specifying future activities. Discussion.
- Information about tasks of MG, EGs, WGs, EB.
- Discussing and adopting members of each group.

- Electing a head for each group.
- Discussing project budget and the scheme for distribution and accounting of funds.
- Clarifying some of the financial rules for project work.
- Planning the next meeting.
- Information about the TechnoTN forum, 20-21.05.05 in Brussels.
- Any other business.

The meeting was opened by the Head of Department of Computing at the Technical University of Varna Assoc. Prof. Dr. Petar Antonov. The Coordinator of the Thematic Network Assoc. Prof. Dr. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

During the break the meeting participants continued their discussion in an informal environment.

The project manager Ms. Stoyanka Smrikarova presented the tasks of MG, EGs, WGs and EB and suggested their members and leaders. She also gave some detailed explanations about important financial issues.

It was decided that the next project meeting would take place in Berlin from 5th to 7th of September and after the meeting an e-Learning conference would take place with a workshop for PhD students.

Assoc. Prof. Dr. Tzvetomir Vassilev presented detailed information about the TechnoTN forum, held on 20-21.05.05 in Brussels.

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 5 to 7 September 2005 in Berlin

In this Second Meeting **81 representatives of 22 European countries** took part, including Belgium, Germany, Greece, Spain, Ireland, Italy, The Nederland, Austria, Portugal, Finland, Sweden, Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovak Republic, Turkey.

The project meeting was conducted with the following agenda:

- Welcome Address by the Vice-president Hans-Herwig Atzorn of the University of Applied Sciences Berlin.
- Introduction of the meeting participants.
- Report about completed work. Discussion.
- Report about questionnaires for the purpose of identifying both the generic and subject-specific PhD student competences. Discussion.
- Clarifying some of the financial rules for project work.
- Specifying future activities. Discussion.
- Planning the next meeting.

The meeting was opened by Prof. Dr. Wladimir Bodrow. The Coordinator of the Thematic Network Assoc. Prof. Dr. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

Assoc. Prof. Dr. Dimo Dimov presented a report about questionnaires for the purpose of identifying both the generic and subject-specific PhD student competences.

The project manager Ms. Stoyanka Smrikarova gave some detailed explanations about important financial issues.

The project coordinator specified the future activities.

Prof. Dr. Valeriy Naumov from Lappeenranta Technology University and senior researcher Varmo Vene from University of Tartu reported about Summer Schools for PhD students in Computing, being prepared by their universities.

It was decided that the next project meeting would take place in Coimbra, Portugal in September 2006 and after the meeting an e-Learning conference would take place with a workshop for PhD students. Assoc. Prof. Dr. Antonio Jose Mendes from the University of Coimbra exposed his ideas about the meeting and the conference.

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 14 to 17 June 2006 in Veliko Tarnovo

In this Meeting **87 representatives of 22 European countries** took part, including Germany, Spain, France, Ireland, The Nederland, Austria, Portugal, Finland, Sweden, UK, Island, Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Turkey.

The project meeting was conducted with the following agenda:

- Welcome Address of the Vice Rector of the University of Veliko Turnovo to the Meeting participants.
- Introduction of the Meeting participants.
- Report about completed work – Assoc. Prof. Angel Smrikarov. Discussion.
- Report about completed work from the EG for Devising the Questionnaires – Assoc. Prof. Dimo Dimov. Discussion.
- Report about completed work from the EGs:
  - Computer Science – Assoc. Prof. Plamenka Borovska. Discussion.
  - Computer Engineering – Assoc. Prof. Alexander Sudnitson. Discussion.
  - Software Engineering – Assoc. Prof. Milko Marinov. Discussion.
  - Information Systems – Assoc. Prof. Frantisek Hunka. Discussion.

- Discussing and adopting a sample structure of a curriculum for PhD students.
- Report about completed work from the EG for Quality Assurance system – Assoc. Prof. Karl O. Jones. Discussion.
- Specifying future activities. Discussion.
- Planning the next meeting.
- Discussing project budget and the scheme for distribution and accounting of funds.
- Clarifying some of the financial rules for project work.
- Any other business.

The meeting was opened by the Head of Department of Computing at the University of Veliko Turnovo Assoc. Prof. Dr. Margarita Todorova. The Vice Rector of the University of Veliko Turnovo Assoc. Prof. Dr. Hristo Glushkov welcomed participants in the Meeting. The Coordinator of the Thematic Network Assoc. Prof. Dr. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

During the break the meeting participants continued their discussion in an informal environment.

Assoc. Prof. Dr. Dimo Dimov reported about completed work by the EG for Devising the Questionnaires.

Assoc. Prof. Dr. Plamenka Borovska reported about completed work by the EG Computer Science.

Assoc. Prof. Dr. Alexander Sudnitson reported about completed work by the EG Computer Engineering.

Assoc. Prof. Dr. Milko Marinov reported about completed work by the EG Software Engineering.

Assoc. Prof. Dr. Frantisek Hunka reported about completed work by the EG Information Systems.

The project Manager Mrs. Stoyanka Smrikarova presented a sample structure of a curriculum for PhD students.

Assoc. Prof. Dr. Karl O. Jones reported about completed work by the EG for Quality Assurance system.

Mrs. Smrikarova gave some detailed explanations about important financial issues.

It was decided that the next project meeting would take place in Coimbra from 6th to 10th of September 2006 and after the meeting an international e-Learning conference would take place with a workshop for PhD students.

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 06 to 09 September 2006 in Coimbra

In this Meeting **79 representatives of 20 European countries** took part, including Belgium, Germany, Ireland, Italy, The Nederland, Portugal, Finland, Sweden, UK, Island, Norway, Bulgaria, Czech Republic, Estonia, Latvia, Hungary, Poland, Romania, Slovak Republic, Turkey.

The project meeting was conducted with the following agenda:

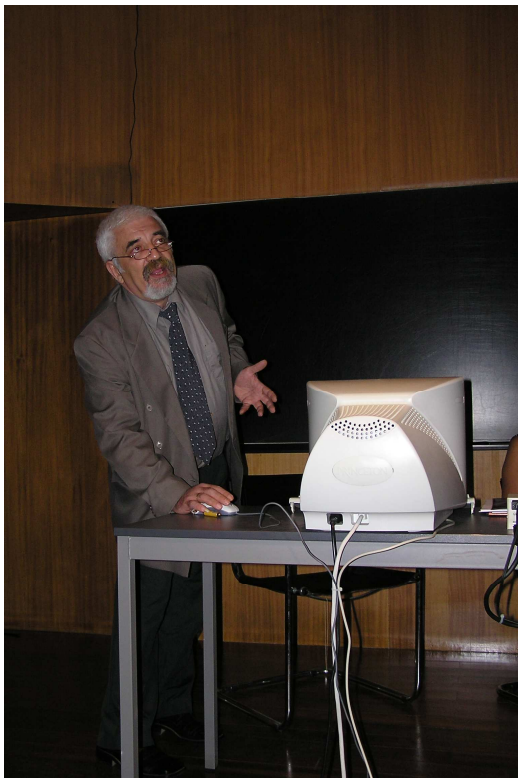
- Welcome Address.
- Introduction of the Meeting participants.
- Report about completed work – Assoc. Prof. Angel Smrikarov. Discussion.
- Presentation of the final versions of the generic and subject specific competences, which the PhD students in CS, CE, SE, IS should possess– Assoc. Prof. Dimo Dimov.
- Evaluation of the survey for the generic and subject specific competences and achieved results – Prof. Alan Hegarty, representatives of the Tuning Project.
- Discussing and adopting the final versions of the comparable curricula in:
  - Computer Science – Assoc. Prof. Plamenka Borovska.
  - Computer Engineering – Assoc. Prof. Alexander Sudnitson.
  - Software Engineering – Assoc. Prof. Avram Eskenazi.

  - Information Systems – Assoc. Prof. Ivan Krivy.
- Discussing and adopting a sample structure of a syllabus.
- Presenting and discussing the comparable syllabi of the curricula:
  - Computer Science – Assoc. Prof. Plamenka Borovska.
  - Computer Engineering – Assoc. Prof. Alexander Sudnitson.
  - Software Engineering – Assoc. Prof. Avram Eskenazi.
  - Information Systems – Assoc. Prof. Ivan Krivy.
- Presenting the comparable syllabi in Computing and Informatics for PhD students in other disciplines – Prof. Rodica Mihalca.
- Specifying future activities. Discussion.
- Planning the next meeting and summer schools.
- Clarifying some of the financial rules for project work.
- Any other business.

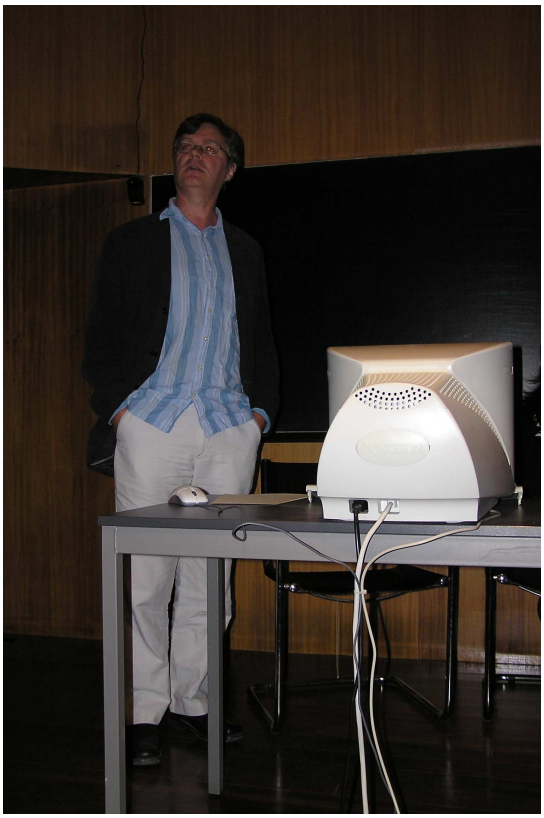
The meeting was opened by Assoc. Prof. Dr. Antonio Jose Mendes – contact person in the project for Coimbra University. The Head of the Informatics Engineering Department Prof. Dr. Henrique Madeira welcomed participants in the Meeting.

The Coordinator of the Thematic Network Assoc. Prof. Dr. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

Assoc. Prof. Dr. Dimo Dimov reported the final versions of the generic and subject specific competences, which the PhD students in CS, CE, SE, IS should possess.

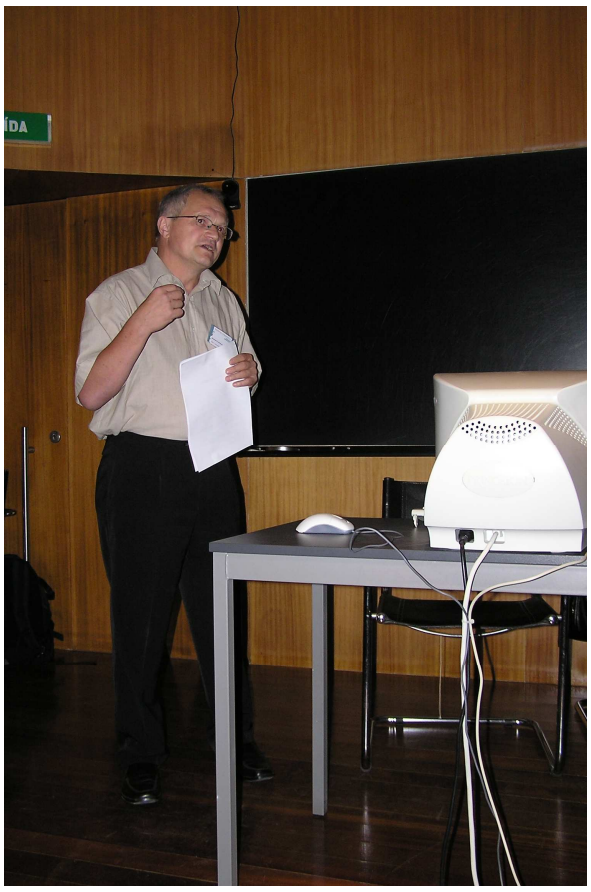


An evaluation of the survey for the generic and subject specific competences and achieved results was done Prof. Alan Hegarty, representative of the Tuning Project.



Assoc. Prof. Dr. Plamenka Borovska reported the final version of the comparable curriculum in Computer Science.

Assoc. Prof. Dr. Alexander Sudnitson reported the final version of the comparable curriculum in Computer Engineering.



Assoc. Prof. Dr. Avram Eskenazi reported the final version of the comparable curriculum in Software Engineering.

Assoc. Prof. Dr. Ivan Krivy reported the final version of the comparable curriculum in Information Systems.

The project Manager Mrs. Stoyanka Smrikarova presented a sample structure of a syllabus, which should be used, when formatting the final versions of the syllabi of the curricula in CE, CS, SE, IS for PhD students.

Dan Mihalca, Vice-president of Romanian Association for Information Technology and Communication reported the final version of comparable syllabi in Computing and Informatics for PhD students in other disciplines.

After that the final versions of the curricula in CE, CS, SE, IS were consecutively discussed.

Mrs. Smrikarova gave some detailed explanations about important financial issues.

It was decided that the next project meeting would take place in Rouse from 12th to 16th of June 2007 and after the meeting an international CompSysTech'07 conference would take place with a workshop for PhD students.

The final project meeting would take place in Istanbul from 26th to 31st August and after the meeting an international 4th e-Learning conference would take place.

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 14 to 16 June 2007 in Ruse

In this Meeting **98 representatives of 54 institutions from 20 European countries** took part, including Germany, Greece, France, Ireland, The Nederland, Austria, Portugal, Finland, Sweden, UK, Island, Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, Slovak Republic, Turkey.

The project meeting was conducted with the following agenda:

- Welcome Address of the Rector of the "Angel Kanchev" University of Ruse to the Meeting participants.
- Introduction of the Meeting participants.
- Report about developed teaching materials and e-Learning courses for PhD students in different specialities. Discussion.
  - Computer Science – Assoc. Prof. Plamenka Borovska.
  - Computer Engineering – Assoc. Prof. Alexander Sudnitson.
  - Software Engineering – Assoc. Prof. Milko Marinov.
  - Information Systems – Assoc. Prof. Ivan Krivy.
- Report about developed WEB database of PhD offerings and WEB database of PhD holders in the field of computing and filling them with data by all partners –

Prof. Olegas Vasilecas. Each partner will inform how many topics he/she inserted in the two databases! Discussion.

- Report about the developed and implemented conceptual model of the quality assurance system – Assoc. Prof. Daniela Chudá. Discussion.
- Report about developed tools and methods for assessment, validation and certification – Assoc. Prof. Karl O. Jones. Discussion.
- Report about organized Winter school in Estonia – Assoc. Prof. Varmo Vene. Discussion.
- Review of the developed booklet with curricula and syllabi for PhD students - Academician Peter Kenderov.
- Summary report about completed work and specifying future activities – Assoc. Prof. Angel Smrikarov. Discussion.
- Planning the next meeting.
- Clarifying some of the financial rules for project work.
- Any other business.

The meeting was opened by the Head of Department of Computing at University of Ruse Assoc. Prof. Angel Smrikarov. The Vice Rector of the University of Ruse Assoc. Prof. Borislav Angelov welcomed the participants in the Meeting. The Coordinator of the Thematic Network Assoc. Prof. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

Assoc. Prof. Dr. Plamenka Borovska presented the developed teaching materials and e-Learning courses for PhD students in Computer Science.
Assoc. Prof. Dr. Alexander Sudnitson addressed the developed teaching materials and e-Learning courses for PhD students in Computer Engineering, and made analysis of the involvement of the separate partners when completing this activity.

Assoc. Prof. Dr. Milko Marinov reported the developed teaching materials and e-Learning courses for PhD students in Software Engineering.
Assoc. Prof. Dr. Ivan Krivy reported the developed teaching materials and e-Learning courses for PhD students in Information Systems.

Prof. Olegas Vasilecas reported the developed WEB database of PhD offerings and WEB database of PhD holders in the field of computing. It was noted that the databases are still not filled by all partners and this activity should be accomplished as soon as possible by all TN members.

Assoc. Prof. Daniela Chudá presented the version of the conceptual model of the quality assurance system.
Assoc. Prof. Karl O. Jones presented the version of the tools and methods for assessment, validation and certification.

Assoc. Prof. Varmo Vene reported about the organized Winter school in Estonia. Academician Peter Kenderov presented an evaluation of the developed booklet with curricula and syllabi for PhD students.

Mrs. Smrikarova gave some detailed explanations about important financial issues.

It was decided that the final project meeting would take place in Istanbul from 26th to 30th of September 2007 and after the meeting an international e-Learning'07 conference would take place.

MINUTES
and
MAIN RESULTS
of the
MEETING
held on 27 to 29 August 2006 in Istanbul

In this Meeting **120 representatives from 60 partners institutions of 24 European countries** took part, including Belgium, Germany, Spain, Italy, The Nederland, Austria, Portugal, Finland, Sweden, UK, Norway, Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Cyprus, Malta, Poland, Romania, Slovak Republic, Slovenia, Turkey.

The project meeting was conducted with the following agenda:

- Welcome Address of the Vice Rector of the Bahceşehir University Prof. Senay Yalcin to the Meeting participants.
- Introduction of the Meeting participants.
- Summary report about completed work and specifying final activities – Assoc. Prof. Angel Smrikarov. Discussion.
- Report about developed teaching materials and e-Learning courses for PhD students in CS, CE, SE, IS. – Assoc. Prof. Plamenka Borovska, Assoc. Prof. Alexander Sudnitson, Assoc. Prof. Avram Eskenazi, Assoc. Prof. Rostislav Fojtik. Discussion.
- Report about developed WEB database of PhD offerings and WEB database of PhD holders in the field of computing – Prof. Olegas Vasilecas. Discussion.
- Discussion and adopting the final version of the conceptual model of the quality assurance system – Prof. Pavol Navrat.
- Discussion and adopting the final version of the tools and methods for assessment, validation and certification – Assoc. Prof. Karl O. Jones.

- Report about organized Summer school in Cyprus – Dr. Andreas Panagidis. Discussion.
- Evaluation of the project work - Academician Peter Kenderov. Discussion.
- Clarifying some of the financial rules for project work.
- Any other business.

The meeting was opened by Prof. Dr. Ali GUNGOR, Assoc. Dean and Head of Computer Engineering Dept. – contact person in the project for Bahcesehir University. The Vice Rector of the Bahceşehir University Prof. Senay Yalcin welcomed participants in the Meeting.

The Coordinator of the Thematic Network Assoc. Prof. Dr. Angel Smrikarov presented a detailed report about the completed work and marked the forthcoming activities.

Assoc. Prof. Dr. Plamenka Borovska presented a very detailed and complete report about the work of the expert group in CS, full analysis was done of the developed syllabi for PhD students in this area. She also presented the developed teaching materials and e-Learning courses for PhD students in Computer Science.
Assoc. Prof. Dr. Alexander Sudnitson addressed the developed teaching materials and e-Learning courses for PhD students in Computer Engineering, and made analysis of the involvement of the separate partners when completing this activity.

Assoc. Prof. Dr. Avram Eskenazi reported the developed teaching materials and e-Learning courses for PhD students in Software Engineering.
Assoc. Prof. Dr. Rostislav Fojtik reported the developed teaching materials and e-Learning courses for PhD students in Information Systems.


Prof. Olegas Vasilecas reported the developed WEB database of PhD offerings and WEB database of PhD holders in the field of computing. It was noted that the databases are still not filled by all partners and this activity should be accomplished as soon as possible by all members.

Prof. Pavol Navrat presented the final version of the conceptual model of the quality assurance system, which was discussed and adopted by everyone.

Assoc. Prof. Karl O. Jones presented the final version of the tools and methods for assessment, validation and certification.


It was decided that these two materials will be united in a common one, which will be sent to the TN members to be printed and enclosed to the project documentation.

Mr. Andreas Panagidis reported about the organized Summer school in Cyprus.

Assoc. Prof. Jouni Ikonen reported about the organized Summer school in Lappeenranta, Finland. He emphasized that there was a programming competition and the first place was taken by a team with PhD students from our TN.

Academician Peter Kenderov presented an evaluation of the project work.

Mrs. Smrikarova gave some detailed explanations about important financial issues.

During the first dinner the vice-rector of the university handed to the project manager a plate with a gratitude address for the active work on creation and support of the network.

MEETINGS OF EXPERTS GROUPS

MINUTES and MAIN RESULTS of the MEETING OF EXPERT GROUP held on 24 to 25 November 2005 in Bucharest

In this Meeting **20 representatives of 7 European countries** took part, including Spain, Bulgaria, Czech Republic, Estonia, France, Luxembourg and Romania.

The meeting of the expert group was conducted with the following agenda:

- Welcome Address by the Vice-rector Prof. Viorel Lefter of the Academy of Economic Studies, Bucharest, Romania.
- Introduction of the meeting participants.
- Presentation of the doctoral activity in the Academy of Economic Studies, Bucharest.
- Discussions comparable syllabi in Computing and Informatics for PhD students in other disciplines.
- Discussions common courses in the curricula of the basic specialities - CS, CE, SE and IS.
- Clarifying some of the financial rules for project work.
- Specifying future activities. Discussion.

The meeting was opened by Prof. Rodica Mihalca – Coordinator for the Academy of Economic Studies

A Welcome address to the participants in the work meeting was delivered by Prof. Viorel Lefter, Vice-rector of the Academy of Economic Studies.

The participants in the meeting were familiarized with the doctoral education in the Academy of Economic Studies.

As a result of the active work a list with comparable computing courses was produced, which will be offered as possibilities to be included in the curricula of doctoral students in other non-computing specialities.

Proposed computing modules for non-Computing Ph.D.
(user oriented and customized…)

1. Multimedia technologies
2. Internet and data access technologies
3. Databases and information systems
4. Multidimensional data analysis
5. Information systems management
6. Information security
7. Operational systems (practical)
8. Computer based modelling and simulation
9. Intelligent systems for decision support
10. Requirements engineering
11. e-Content (e-Commerce, e-Government, e-Economy, e-Medicine, e-Learning, e-Management, …)

The expert group also produced a list with basic courses, which will be proposed to be included in the comparable curricula for the education of doctoral students in the specialities - CS, CE, SE and IS.

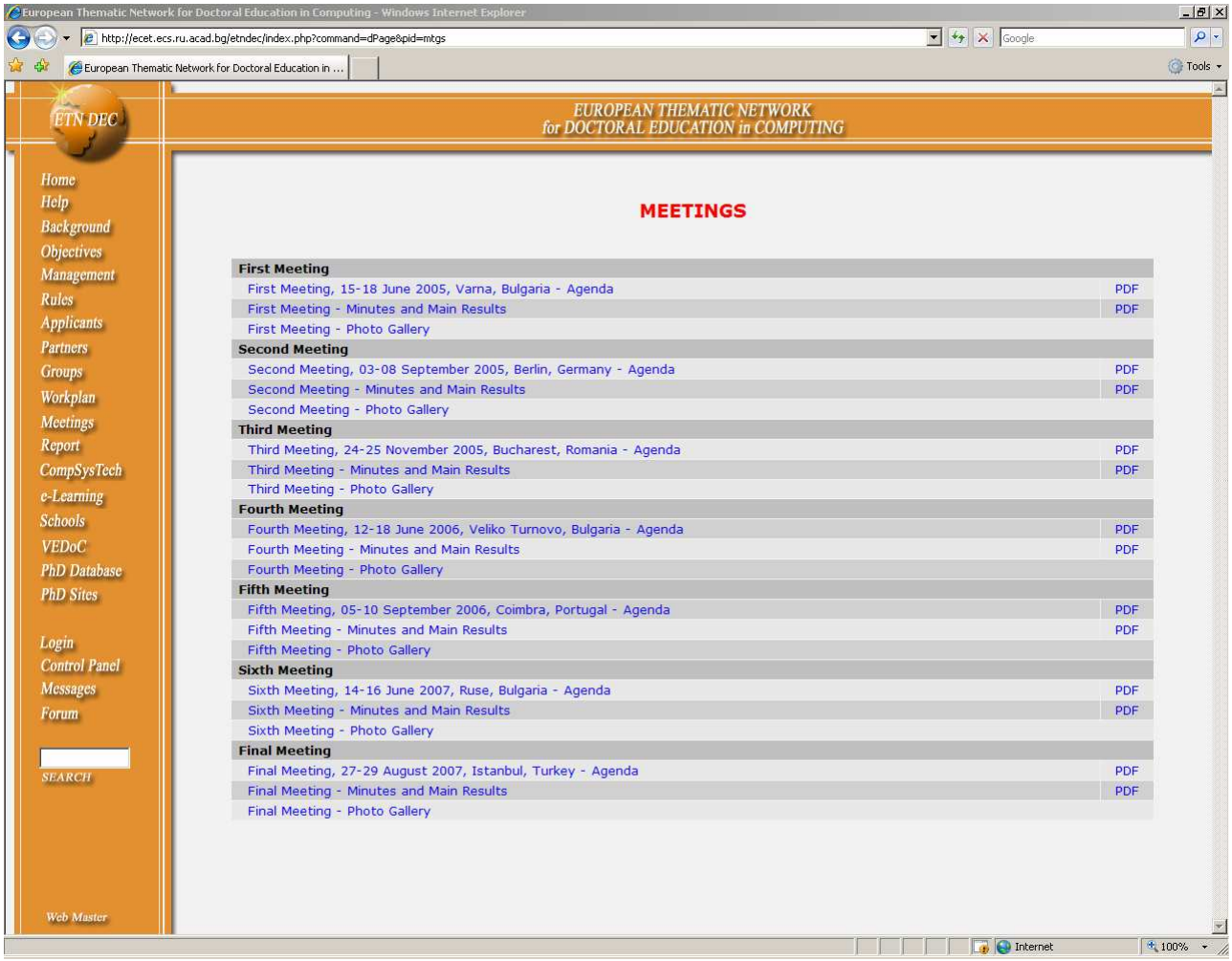
Proposed computing modules
(CS, CE, SE, IS)

1. **Scientific research methodology and practical guidance for PhD students**
   - Introductory doctoral seminar
   - Preparation of scientific papers and presentation skills
   - Methods of scientific research
   - Elaboration of doctoral thesis
   - Library information systems
   - Time management skills

2. **Complementary aspects of scientific research**
   - Research project management
   - Intellectual property protection, research ethics
   - Economical aspects of scientific research
   - Philosophy of science
3. **Advanced scientific research methods**
   - Quantitative and qualitative research methods
   - Systems for automation of scientific research
   - Optimization methods
   - Computer modeling of continua and structures
   - Mathematical statistics and planning of experiments
4. **English for academic purposes**
5. **“Post-doctoral” seminar (what to do after PhD, CVs, entrepreneurship)**

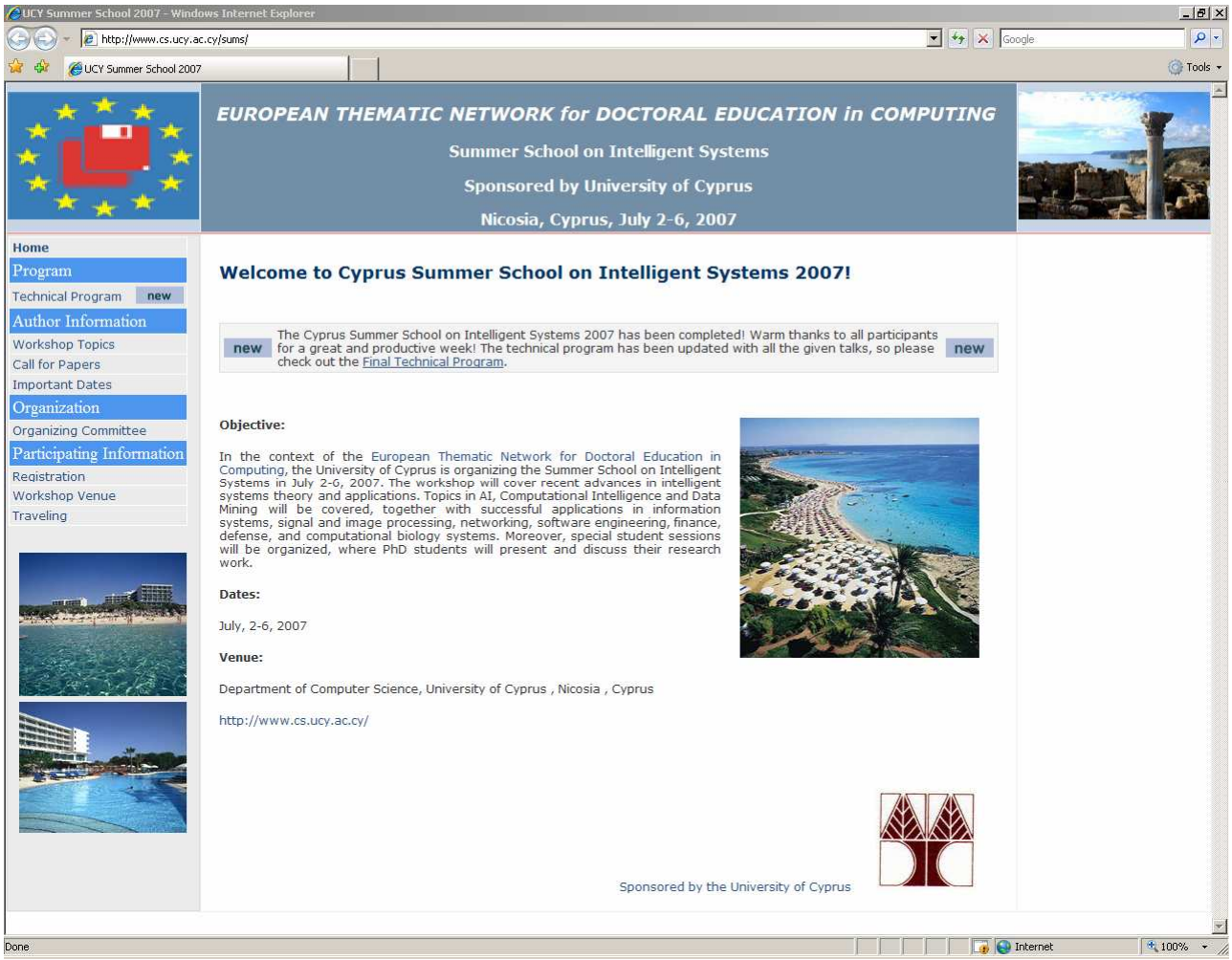
During the launch and in the evening the meeting participants continued their discussion in an informal environment.

For more Information see ETN DEC WEB site:
http://ecet.ecs.ru.acad.bg/etndec/

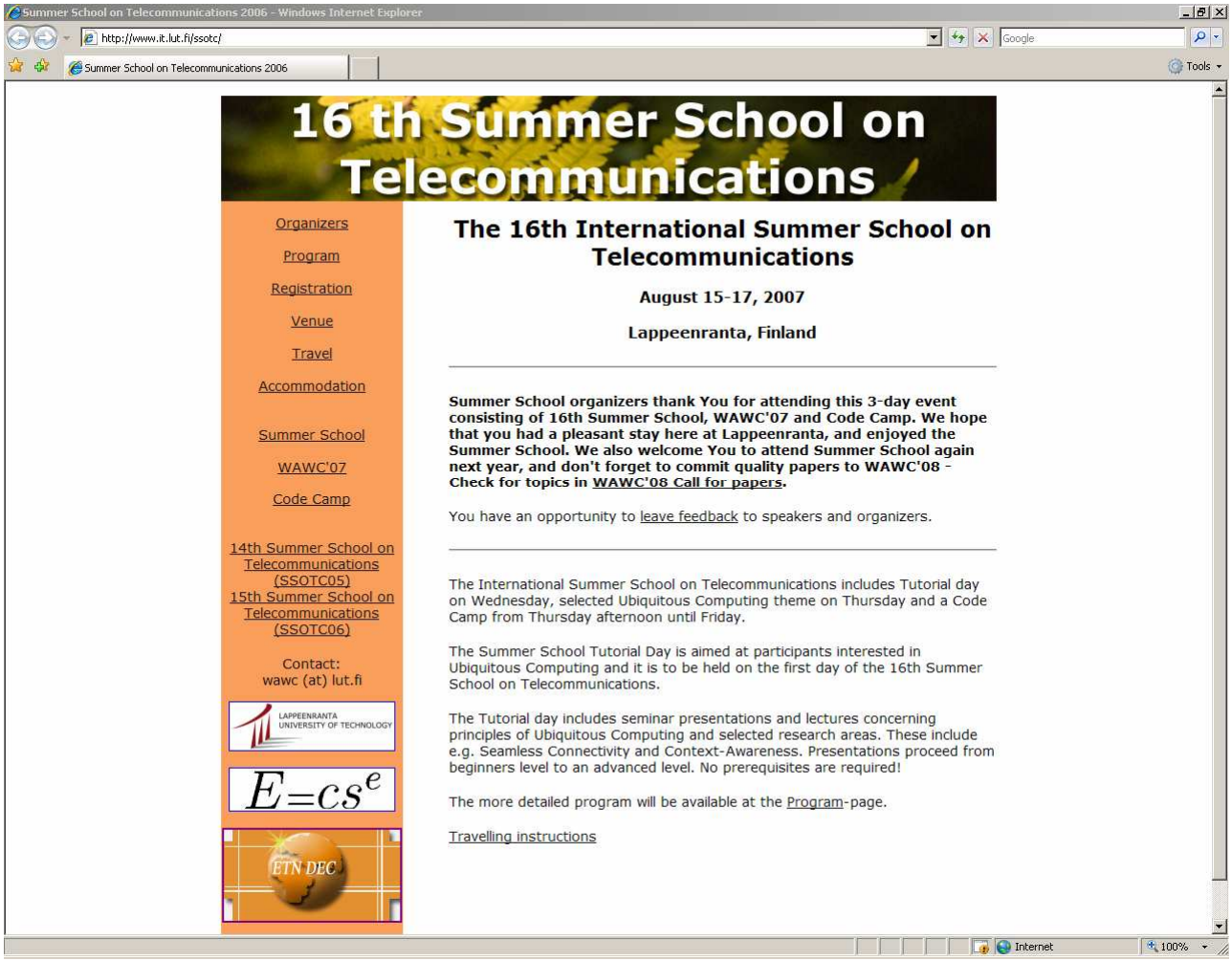


SCHOOLS for PhD STUDENTS in COMPUTING

Summer School on Intelligent Systems
Nicosia, Cyprus
July 2-6, 2007
URL: http://www.cs.ucy.ac.cy/sums/



Summer School on Telecommunications
Lappeenranta, Finland
August 15-17, 2007
URL: http://www.it.lut.fi/ssotc/



Estonian Winter School in Computer Science held on 04 to 09 March 2007 in Palmse, Estonia

EWSCS is a series of regional-scope international winter schools held annually in Estonia. The main objective of EWSCS is to expose Estonian, Baltic, and Nordic graduate students in computer science (but also interested students from elsewhere) to frontline research topics usually not covered within the regular curricula. The subject of the schools is general computer science, with a bias towards theory, this comprising algorithms, complexity and models of computation, and semantics, logic and programming theory. The working language of the schools is English.

The schools' scientific programme consists of short courses by renowned specialists and a student session. The course list for EWSCS'07 was the following:

- Arvind (MIT, Cambridge, MA, USA):
  Synthesis of Parallel Programs
- Ingemar Cox (University College London, UK):
  Principles of Digital Watermarking

- Anna Ingólfsdóttir (Reykjavík University, Iceland):
  Reactive Systems: Modelling, Specification and Verification
- Gheorghe Paun (Institute of Mathematics, Romanian Academy, Bucharest, Romania):
  Membrane Computing: Power, Efficiency, Applications
- Moti Yung (Columbia Univ., New York, NY / RSA Labs, Bedford, MA, USA):
  Self-Protecting Cryptosystems

In total there were 55 participants of which 5 were lecturers. The total number of PhD students was 23 (others were mainly MSc students and postdocs, but also some undergraduate students). From ETN-DEC project, there were 10 PhD students:

Bulgaria (2)

Galina Ivanova, University of Rousse, Dept. of Computing
Donika Valcheva, University of Veliko Turnovo, Dept. of Comp. Syst. and Tech.

Latvia (1)

Jurij Chizhov, Riga Technical University, Faculty of CS and IT

Lithuania (2)

Diana Bugaite, Vilnius Gediminas Technical University, Dept. of Inf. Syst.
Audrius Varoneckas, Vytautas Magnus University, Kaunas, Faculty of Informatics

Estonia (5)

Sergei Devadze, Tallinn University of Technology, Dept. of Computer Engineering
Maksim Jenihhin, Tallinn University of Technology, Dept. of Computer Engineering
Uljana Reinsalu, Tallinn University of Technology, Dept. of Computer Engineering
Meelis Kull, University of Tartu, Inst. of Computer Science
Vesal Vojdani, University of Tartu, Inst. of Computer Science

Seven students' papers were presented during the Winter School:

- Vesal Vojdani - Completely Generic As-Path-Sensitive-As-Necessary Multithreaded API Analysis
- Antti Hyvärinen - Efficient Parallel SAT Solving in Grids
- Oleg Medvedev - Optimal Basic Block Reordering via Hammock Decomposition
- Ando Saabas - Type Systems for Optimizing Stack-Based Code
- Reina Käärik - Generalised Edit Distance
- Dan Bogdanov - Framework for Fast Prototyping of Secure Computations
- Silvio Capobianco - On Basic Process Algebra with Interrupt



The best student talk prize was shared between Dan Bogdanov (University of Tartu) and Ando Saabas (IoC, Tallinn).

Students' Posters


Students' Conference in the Hotel


Social Events

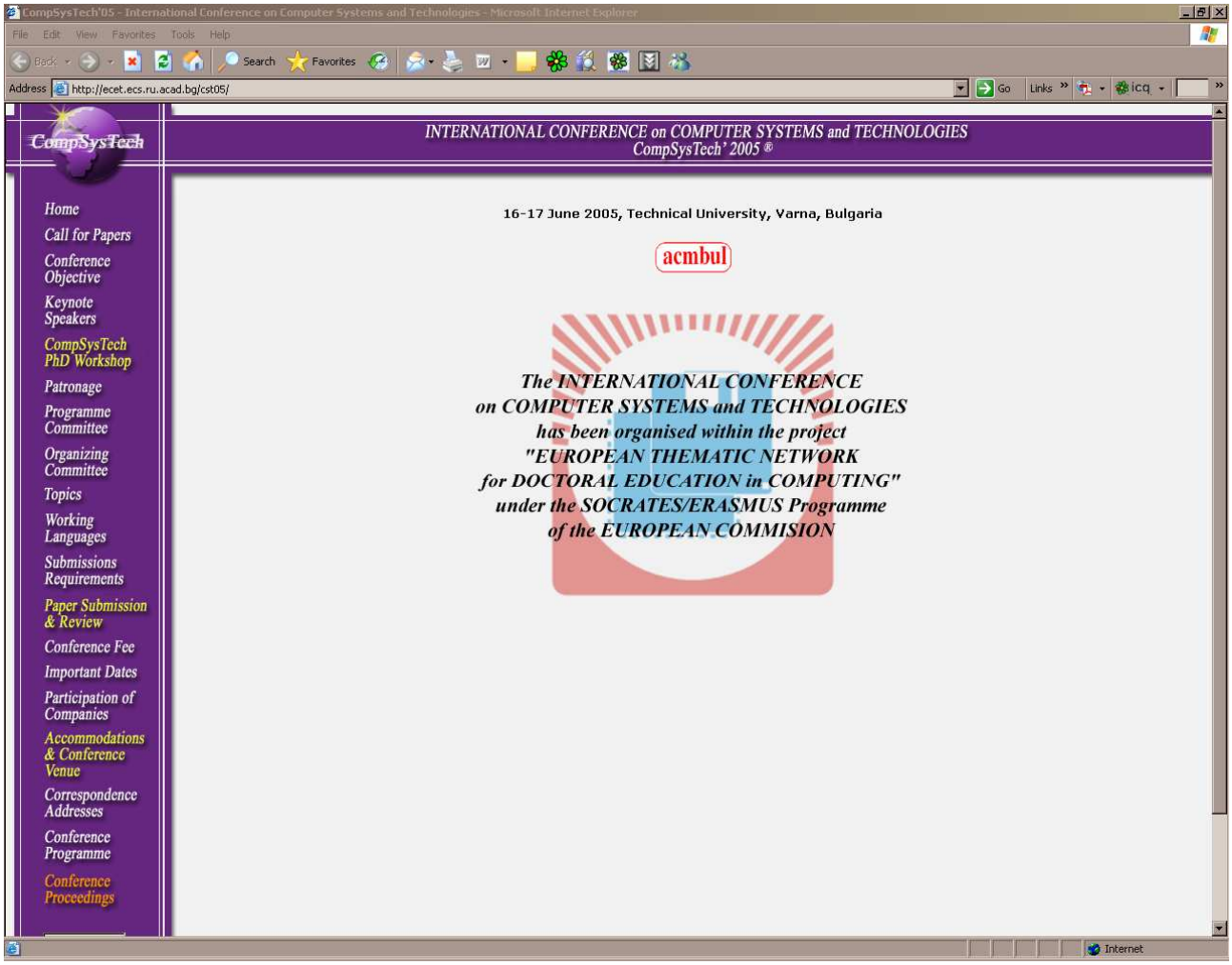





INTERNATIONAL CONFERENCES CompSysTech

CompSysTech'05
held on 16 to 17 June 2005 in Varna, Bulgaria

WEB site of the CompSysTech'05
URL: http://ecet.ecs.ru.acad.bg/cst05/



In the CompSysTech'05 conference 218 Bulgarian and 51 foreign scientists took part.

The conference was opened with an address of the Minister of Education and Science (MES). Here is the complete text of the address:

Dear Participants,

First I would like to thank the Programme and Organizing Committees of the International conference on Computer Systems and Technology **CompSysTech'2005** for inviting me to be present at its opening.
The Ministry of Education and Science considers that convening such a conference at the beginning of the 21st century, which is announced as a Century of the Information Technologies, is more than necessary. That is why for six years in a

row the Ministry supports the idea of the Academic Society of Lecturers in Computer Systems and Technologies and agreed to be a patron of the conference.

Today, when the Computer Systems and Technologies penetrate deeper and deeper in all spheres of the human activities, it is of great importance to strengthen and deepen the links between scientists and specialists working in this area, to accelerate the exchange of information about research and development results. This exactly is the objective of **CompSysTech'2005**.

This is the sixth edition of the conference, but it has already received international publicity and recognition. An evidence for this is the fact that the conference was included in the events calendar of one of the biggest and most influential scientific organisations in the computer field, namely the Association for Computing Machinery, as well as the participation of many scientists from European countries and the USA.

During these six years Your Society has strengthen its positions as a working Academic Society and initiated projects with a national importance like the establishment of **the Virtual Department of Computing "John Atanasoff", the Virtual Faculty of Information and Communication Technologies and the Bulgarian Virtual University**, which are developing very successfully thanks to the close cooperation with the Information and Communication Technologies Development Agency.

As a conclusion I wish all the participants in the conference a good health and a creative work!

Igor Damyanov
Minister of the Ministry of Education and Science

Greeting speeches to the conference participants were also delivered by Prof. Vasil Smarkov - Vice Rector of the Technical University of Varna, by Academician Kiril Boyanov and by Academician Peter Kenderov.

Three papers were presented during the plenary session:

- Visual Information Retrieval: The Next Frontier in Search, by Ramesh Jain
- Main Points of the European Research Policy in the Information and Communication Technologies, by Kiril Boyanov, Dimitar Todorov
- Presentation of the FP6 Kaleidoscope NoE Project, by Roumen Nikolov

The conference continued its work on the next day in sections. The number of the papers totaled 119, which were distributed in 5 sections as follows:

1. Computer Systems (Hardware) – 5 papers.
2. Computer Systems (Software) – 23 papers.
3. Application aspects of computer systems and technologies

3A. Application aspects of computer systems and technologies – 26 papers.
3B. Application aspects of computer systems and technologies – 26 papers.
4. Educational aspects of computer systems and technologies – 24 papers.

During the conference a **Work Shop for PhD students** took place. Its main lecturers were

- Prof. Dr. Ramesh Jain – Georgia Institute of Technology, Chairman of ACM Special Interest Group on Multimedia (ACM SIGMM) 2003.
- Prof. Candelaria Hernandez-Goya – University of La Laguna, Spain

15 papers were presented by doctoral students too. A total of **25 PhD students** presented papers at the conference**.**

In the end, in each of the five sections, the authors of the most interesting and well presented papers as well as the best young scientists and PhD students were given awards form the BUAI. Names of awarded in Sections as follows:

Section 1 „Computer Systems (Hardware)":

- FPGA Based Micro Controller for Voice Message Synthesis
  Ivan Kanev
- A Method for Decreasing the Multi-path Interference in Digital Data Transmission Over Wireless Radio Channels and its Implementation on Single Chip Microcontroller as a Wireless Data Encoder
  Boris Ribov

Section 2 „Computer Systems (Software)":

- An Algorithm for Fast Software Encryption
  Zhaneta Tasheva
- Modelling a Cognitive and Emotional Analysis and Behaviour
  Dilyana Budakova

Section 3A „Application Aspects of Computer Systems and Technologies":

- Experimental Specifics of Using Hmm in Isolated Word Speech Recognition
  Dimo Dimov
- Automatic Slope Evaluation of Handwritten Text
  Georgi Gluhchev

Section 3B „ Application Aspects of Computer Systems and Technologies":

- Bulgarian Language Speech and Lip-Sync Animation
  Vesselin Gueorguiev
- Distortion Measures for Sparse Signals
  German Gomez-Herrero

Section 4 „Educational Aspects of Computer Systems and Technologies":

- A Web-Based System to Support Java Programming Learning
  Antonio Mendes
- Distance Education in Computer Science
  Asrun Matthiasdottir

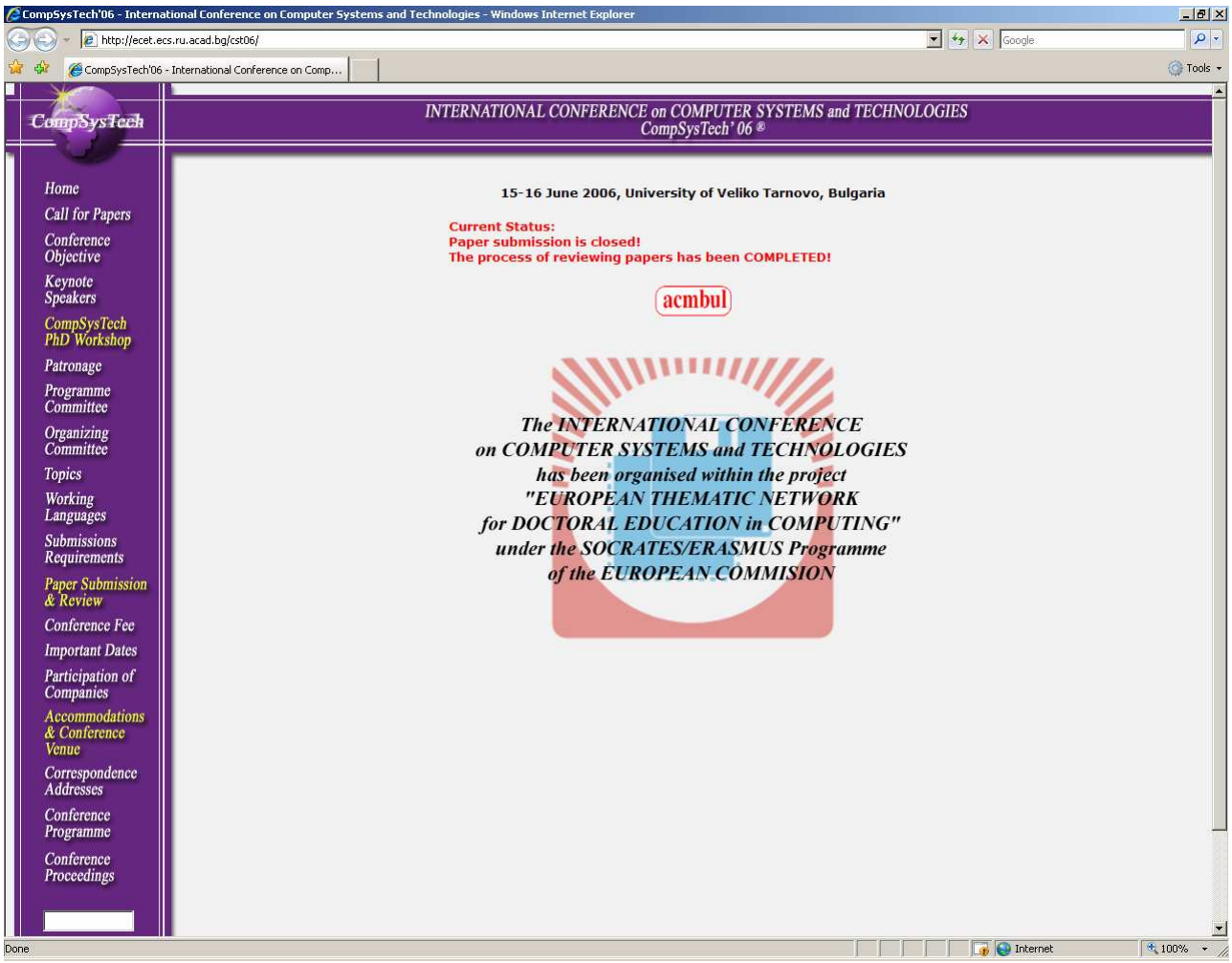
Section 5 - PhD students:

- Investigation of a Parallel Resistorless ADC
  Maria Stanoeva
- A Training Software Model of von Neumann Register Machine
  Orlin Tomov

The conference continued in the restaurant of the Technical University.

CompSysTech'06
held on 15 to 16 June 2006 in Veliko Tarnovo, Bulgaria

WEB site of the CompSysTech'06
URL: http://ecet.ecs.ru.acad.bg/cst06/



In the CompSysTech'06 conference 89 Bulgarian and 46 foreign scientists took part.

The conference was opened with an address of the Ministry of Education and Science. Here is the complete text of the address:

Dear Colleges,

First we would like to thank the Programme and Organizing Committees of the International conference on Computer Systems and Technology ***CompSysTech'2006*** for inviting us to be present at its opening.

The Ministry of Education and Science considers that convening such a conference in the first decade of the 21st century, which is announced as a **Century of the Information Technologies**, is more than necessary. That is why for 7 years in a

row the Ministry has supported the idea of the Academic Society of Lecturers in Computer Systems and Technologies and agreed to be a patron of the conference.

Today, when the Computer Systems and Technologies penetrate deeper and deeper in all spheres of the human activities, it is of great importance to strengthen and deepen the links between scientists and specialists working in this area, to accelerate the exchange of information about research and development results. This exactly is the objective of ***CompSysTech'2006***.

This is the 7-th edition of the conference, but it has already received international publicity and recognition. An evidence for this is the fact that the conference was included in the events calendar of one of the biggest and most influential scientific organisations in the computer field, namely the Association for Computing Machinery, as well as the participation of many scientists from European countries and the USA.

During these 7 years Your Society has strengthen its positions as a working Academic Society and initiated projects with a national importance like the establishment of the Virtual Department of Computing "John Atanasoff", the Virtual Faculty of Information and Communication Technologies and the Bulgarian Virtual University**, which are developing very successfully thanks to the close cooperation with the** Ministry of Education and Science **and** State Agency for Information Technology and Communications.

.

As a conclusion we wish all the participants in the conference a good health and a creative work!

From the Ministry of Education and Science

Three papers were presented during the plenary session:

- VISP: a software platform for process automation in a digital cluster SMEs acting as a Virtual ISP
  Eric Mannie-Corbisier, Henri-Jean Pollet
- Collaborative knowledge, data and control generation for real time information and control system
  Evtim Peytchev
- Benchmarking e-Bulgaria: From measuring to policy-making
  Todor Yalamov

The conference continued its work on the next day in sections. The number of the papers totaled 109, which were distributed in 5 sections as follows:

1. Computer Systems (Hardware) – 4 papers.
2. Computer Systems (Software) – 18 papers.
3. Application aspects of computer systems and technologies – 53 papers.
4. Educational aspects of computer systems and technologies – 19 papers.
5. Section for PhD students – 15 papers.

In the end, in each of the five sections, the authors of the most interesting and well presented papers as well as the best young scientists and PhD students were given awards form the STATE AGENCY FOR INFORMATION TECHNOLOGY AND COMMUNICATIONS. Names of awarded in Sections as follows:

Section 1 „Computer Systems (Hardware)":

- Packet Error Rate Recognition for a Noisy Communication Channel
  Georgi Naydenov, Petko Soyanov
- Introducing the newest Philips' microcontrollers into secured telemetry wireless applications.
  Boris Ribov

Section 2 „Computer Systems (Software)":

- Transferring online formatted HTML layouts into Flash and PDF
  Nikolaj Cholakov
- Generic modular framework for robotic arm applications
  Sergi Hernandez Juan, Josep M. Mirats Tur

Section 3A „Application Aspects of Computer Systems and Technologies":

- Tuning classification for prime implicants based learner
  Ludmil Dakovski, Zekie Shevked
- Controller Network Data Extracting Protocol - Design and Implementation
  Nikolay Kakanakov, Ivan Stankov, Mitko Shopov, Grisha Spasov

Section 3B „ Application Aspects of Computer Systems and Technologies":

- Signature verification via hand-pen motion investigation
  Mladen Savov, Georgi Gluhchev, Ognjan Bumbarov
- Harmonic methods for solid noise filtering from the image periphery
  Dimo Dimov, Nadezhda Zlateva

Section 4 „Educational Aspects of Computer Systems and Technologies":

- Two-Level Multiple-Output Combinational Networks Design Web-based Tutoring Tool
  Vladimir Mateev
- How to teach programming language to novice students? Lecturing or not?
  Asrun Matthiasdottir

Section 5 - PhD students:

- An algorithm for automatic assignment of reviewers to papers
  Yordan Kalmukov
- Constructing Knowledge for Automated Text-Based Emotion Expressions
  Siska Fitrianie, Leon J.M. Rothkrantz
- A Model of a New e-Learning Shell Authoring Tool
  Tsvetan Hristov
- Classification and Recognition of Neume Note Notation in Historical Documents
  Lasko Laskov
- Recursive Estimation of Dynamic Time Varying Demand Model
  Alexander Efremov
- Applicability of Use-Case Modeling for Virtual Learning Environments
  Galina Ivanova

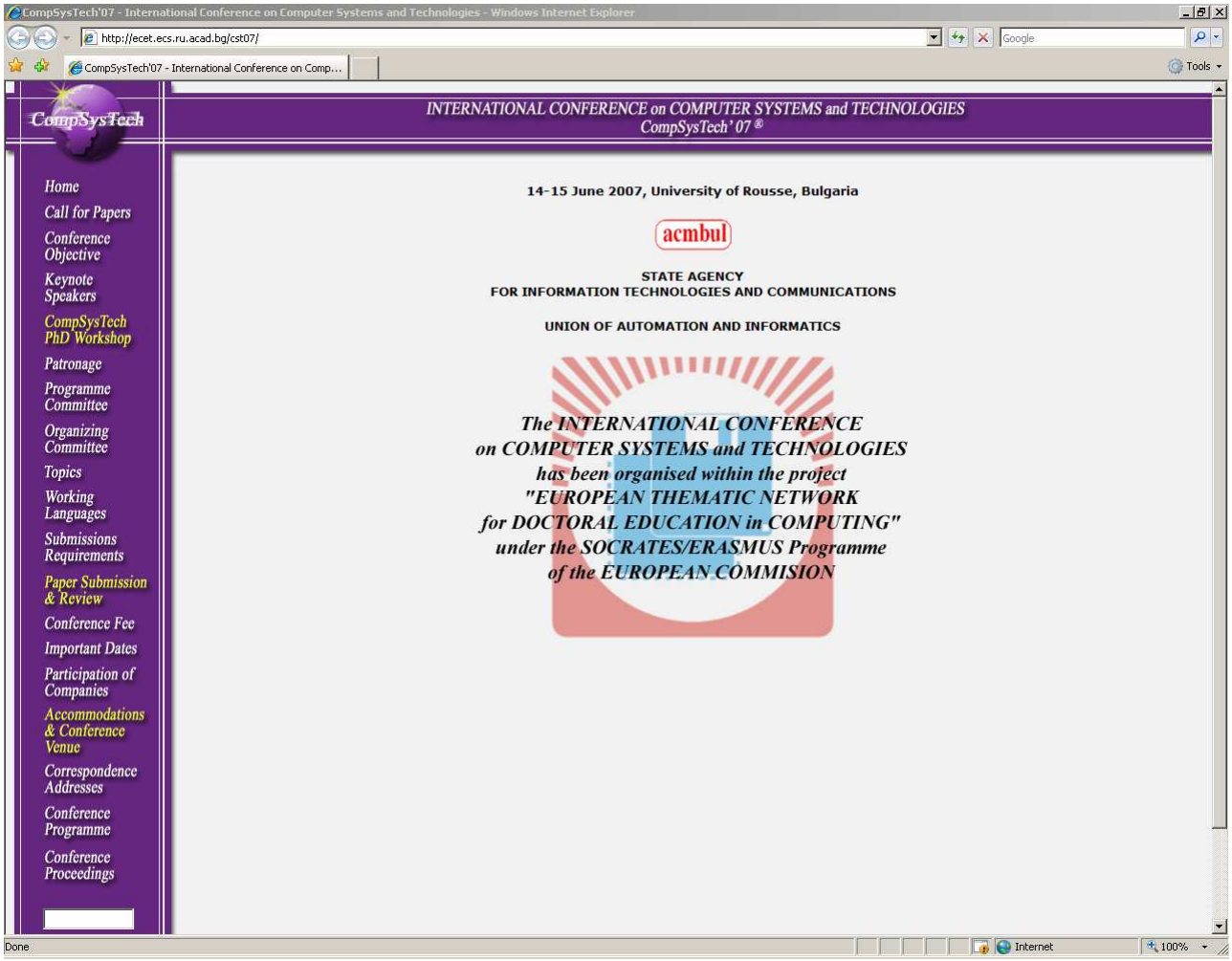
The awards were handed by the chair-person of the PhD section.



The conference continued in restaurant “Yantra” of Veliko Tarnovo.

CompSysTech'07
held on 14 to 15 June 2007 in Rousse, Bulgaria

WEB site of the CompSysTech'07
URL: http://ecet.ecs.ru.acad.bg/cst07/



In the CompSysTech'07 conference 98 Bulgarian and 52 foreign scientists took part.

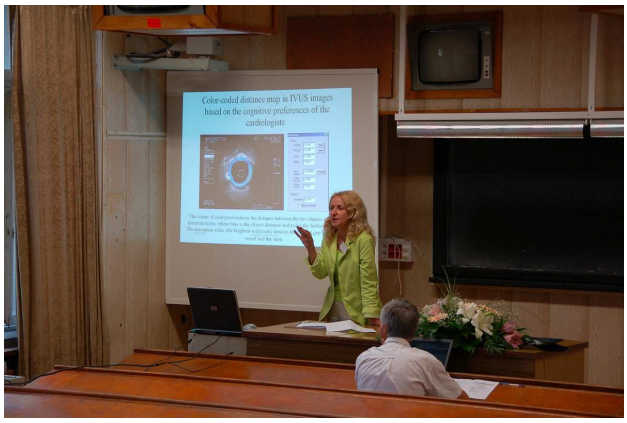
The plenary session was opened with an address on behalf of the State Agency for Information Technologies and Communications **Assoc. Prof. Plamen Vachkov.** The participants in the conference were welcomed on behalf of the Vice Minister **Ekaterina Vitkova**.

Three papers were presented during the plenary session:

- National Program for Accelerated Development of Information Society in Bulgaria - **Plamen Vachkov, Roumen Trifonov**, State Agency for Information Technologies and Communications, Bulgaria;
- Active WEB Technologies – **Iliya Georgiev**, Metro State College of Denver, USA;

- Test for the VoIP telephone network security policy – **Vesselin Jossifov**, University of Applied Sciences of Berlin, Germany.

The conference continued its work on the next day in sections. The number of the papers totalled 128, which were distributed in 6 sections as follows:
1. Computer Systems and Technologies (Hardware) – 4 papers.
2. Computer Systems and Technologies (Software) – 15 papers.
3. Application aspects of Computer systems and technologies – 52 papers.
4. Educational aspects of Computer systems and technologies – 25 papers.
5. Biometrical – 7.
6. Section for PhD students – 25 papers.



In the end, the authors of the most interesting and well presented papers as well as the best young scientists and PhD students were given awards **Crystal prize "The Best paper" and certificates**. Names of awarded in Sections as follows:

Section 1 „Computer Systems and Technologies (Hardware)":
- MIMD implementation with PicoBlaze Microprocessor
  Pavel Zaykov

Section 2 „Computer Systems and Technologies (Software)":
- A Tale of Three LR(1) Syntax Analyzers
  Evtim Papushev, Stoyan Bonev
- Simulation of Dynamic Priority Calculation for Multilevel Priority Queue
  Ivaylo Atanassov

Section 3A „Application Aspects of Computer Systems and Technologies”:

- Reverse modeling of a diesel engine performance by FCM and ANFIS
  Kemal Tutuncu, Novruz Allahverdi
- Example of Communication between Distributed Network Systems Using Web Services
  Martin Tsenov

Section 3B „Application Aspects of Computer Systems and Technologies”:

- The Generalized Shrinking-Multiplexing Generator
  Todor Tashev, Borislav Bedzhev, Zhaneta Tasheva
- An Interface System Based on Multimodal Principle for Cardiological Diagnosis Assistance
  Maya Dimitrova, Chavdar Roumenin, Siya Lozanova, Lubomir Lahchev, David Rotger, Petia Radeva
- An Approach for MPLS Recovery
  Svetlin Petrov

Section 4 „Educational Aspects of Computer Systems and Technologies”:

- Measuring Student Attitudes to Computer Assisted Language Learning
  Anelly Kremenska
- Accumulative Question Types in e-Learning Environment
  Mariyana Sokolova, Georgi Totkov

Section 5 - Biometric:

- Combined Face Recognition Using Wavelet Packets and Radial Basis Function Neural Network
  Ognian Boumbarov, Strahil Sokolov, Georgy Gluhchev

Section 6 - PhD students:

- Analysis and Experimental Study of an Algorithm for Automatic Assignment of Reviewers to papers
  Yordan Kalmukov
- Protein Structure Similarity Detection Using Alignment of Secondary Structure Elements and Their Geometric properties
  Dobrinka Petrova, Stoicho Stoichev
- Applying of Pre-processing Techniques in Bruise Images
  Tatyana Dimitrova, Lidiya Georgieva
- Implementing and Improving a Method for Non-Invasive Elicitation of Probabilities for Bayesian Networks
  Martnus de Jongh, Marek Druzdzel, Leon Rothkrantz
- Real-Time Estimation of Multivariate Dynamic Time-Varying Market Representations
  Alexander Efremov

The awards were handed by the academician Peter Kenderov.

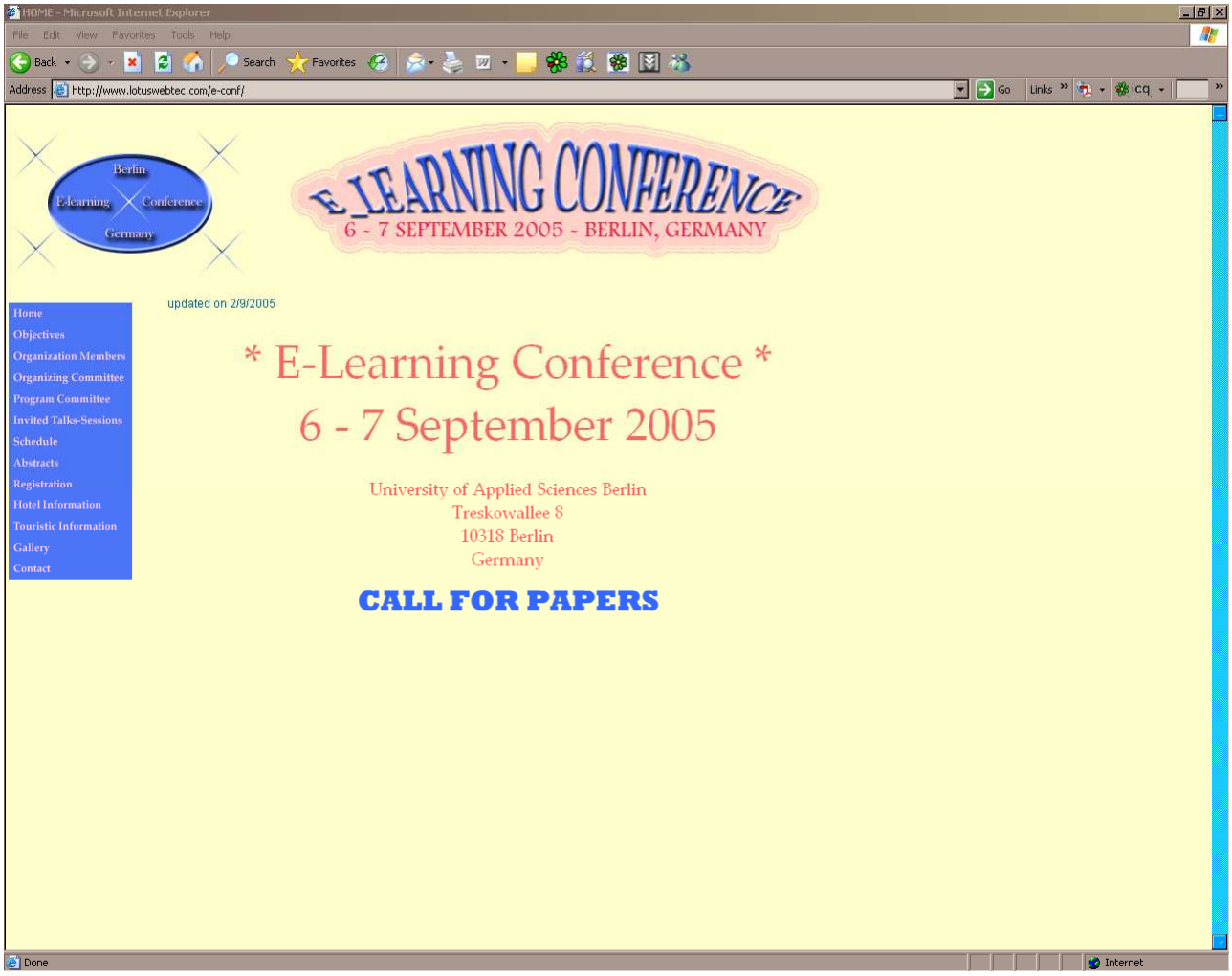


The conference continued in restaurant “Riga”.


INTERNATIONAL CONFERENCES e-LEARNING

e-Learning'05
held on 5 to 7 September 2005 in Berlin, Germany

WEB site of the e-Learning Conference
URL: http://www.lotuswebtec.com/e-conf/



In this conference 84 scientists took part.

The conference was opened by the Vice-president Hans-Herwig Atzorn of the University of Applied Sciences Berlin.

Prof. Dr. Fernand Vandamme presented during the plenary session the paper “E-Learning perspectives”. Mr. Mike Vandamme presented the software platform for e-learning “Orpheus”, developed by University of Ruse and University of Ghent and which will be used in teaching doctoral students.

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The conference continued its work on the next day in sections. The number of the papers totaled 44, which were distributed in 7 sections as follows:

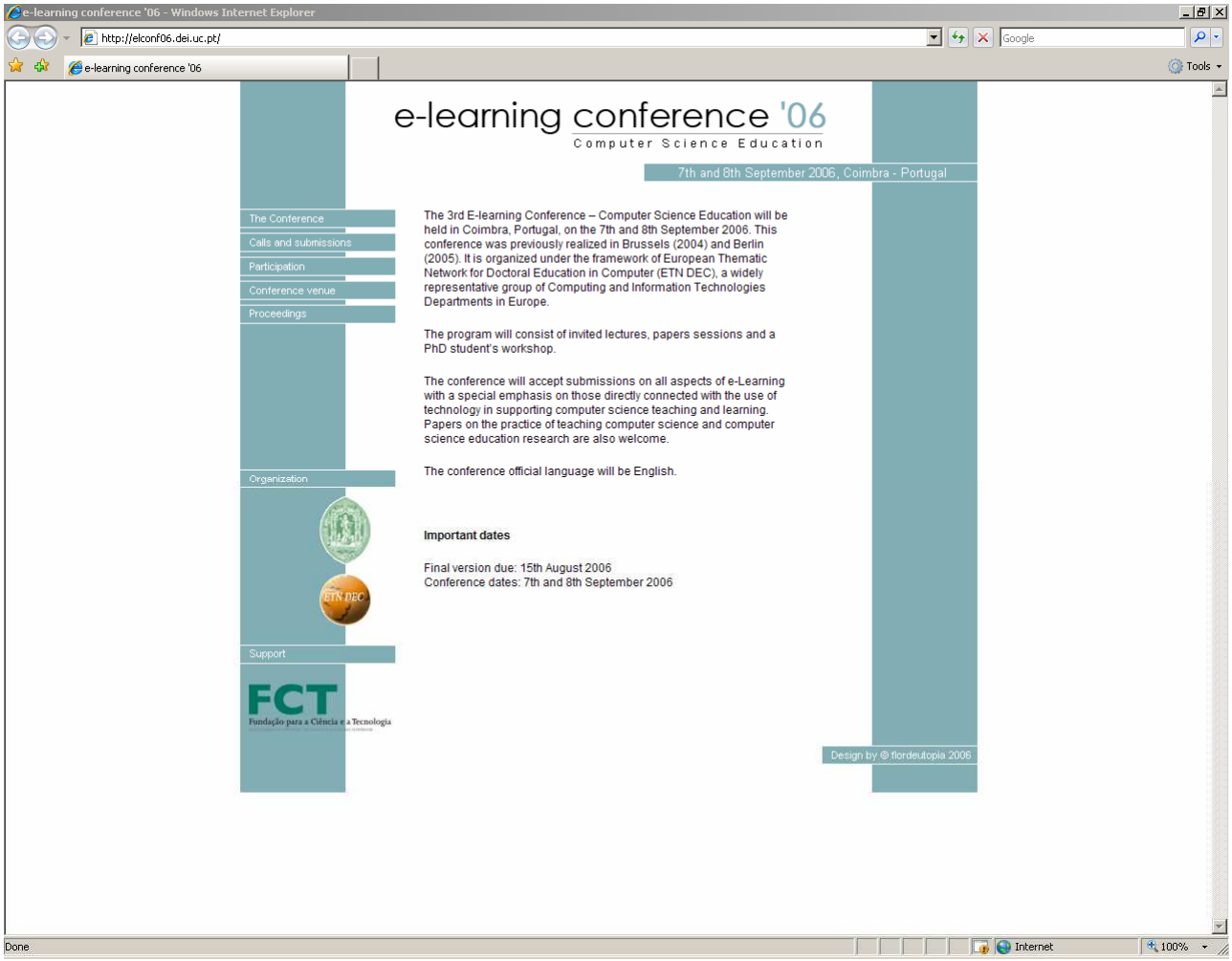
1. E-learning tools – 6 papers.
2. PhD students & e-Learning – 8 papers.
3. e-Learning case studies & experience – 5 papers.
4. e-Learning and assessment – 7 papers.
5. e-Learning content production – 7 papers.
6. e-Learning & transport – 3 papers.
7. Poster session – 8 papers.

During the conference a total of **16 PhD students** presented their papers**.**

The conference continued in the meeting place of the University of Applied Sciences Berlin.

e-Learning'06
held on 7 to 8 September 2006 in Coimbra, Portugal

WEB site of the e-Learning Conference
URL: http://elconf06.dei.uc.pt/



In this conference 74 scientists took part.

The conference was opened by **Prof. João Carlos Marques** - Vice Rector of Coimbra University, **Prof. João Gabriel Silva** - Science and Technology President and by **Mrs. Ekaterina Vitkova**, Deputy Minister of the Ministry of Education and Science, Bulgaria.

Two papers were presented during the plenary session:

- National Program for Establishment of Virtual Educational Space in Bulgaria – Main Results and Forthcoming Tasks
  Ekaterina Vitkova, Deputy Minister of Education of Bulgaria
- From Content to Context in Technology Supported Computer Science Teaching and Learning
  António Dias de Figueiredo, University of Coimbra, Portugal

The conference continued its work on the next day in sections. The number of the papers totaled 37, which were distributed in 4 sections.

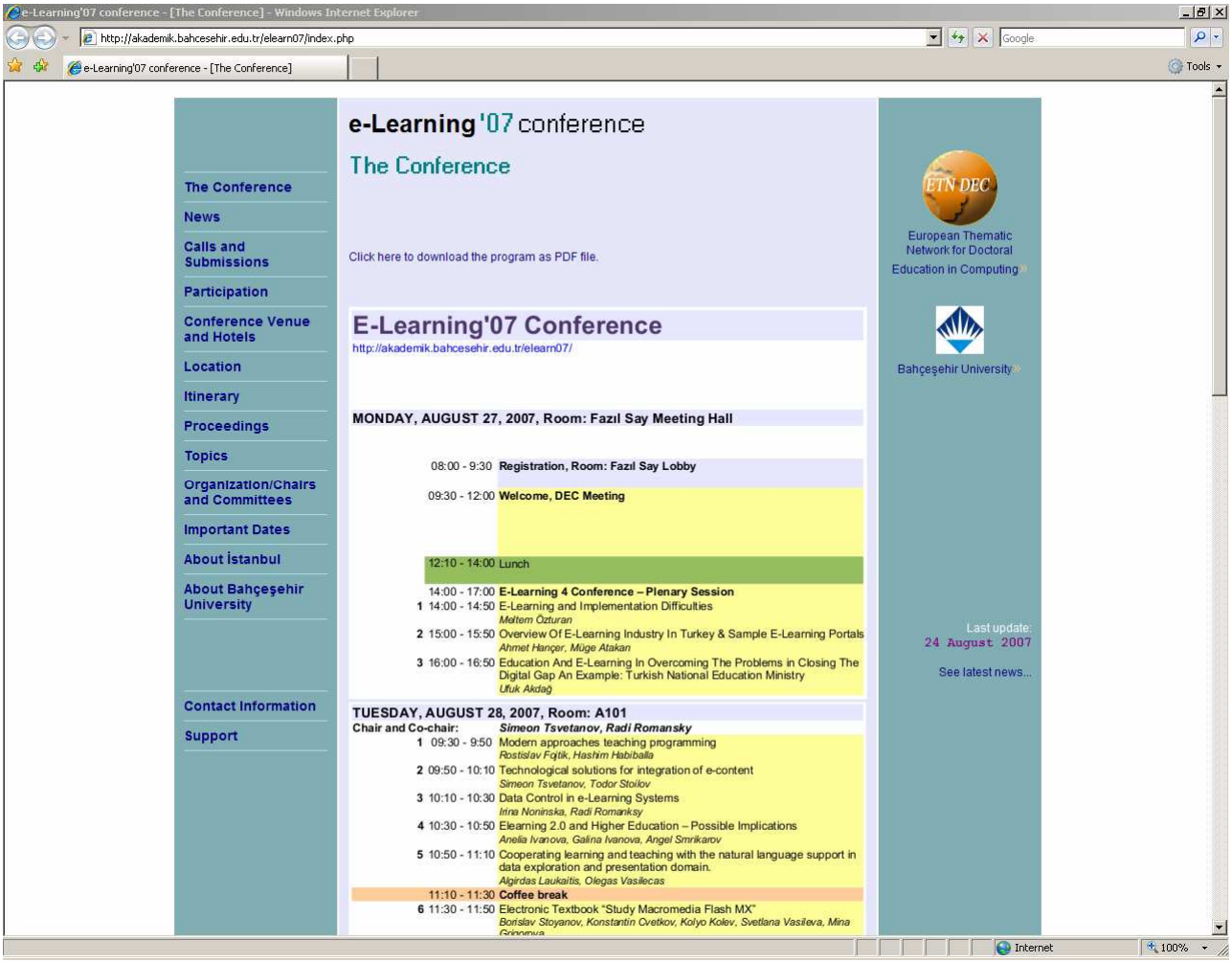
During the conference a total of **15 PhD students** presented their papers**.**




The conference continued in Taberna restaurant in Coimbra.

e-Learning'07
held on 27 to 28 August 2007 in Istanbul

WEB site of the e-Learning Conference
URL: http://akademik.bahcesehir.edu.tr/elearn07



In this conference 89 scientists took part.

The conference was opened by Prof. Dr. Ali Gungor.

Three papers were presented during the plenary session:

- E-Learning and Implementation Difficulties – Meltem Özturan
- Overview of E-Learning Industry in Turkey & Sample E-Learning Portals – Ahmet Hançer, Müge Atakan
- Education and E-Learning in Overcoming the Problems in closing the digital gap an example – Ufuk Akdağ

The conference continued its work on the next day in sections. The number of the papers totaled 37, which were distributed in 2 sections.

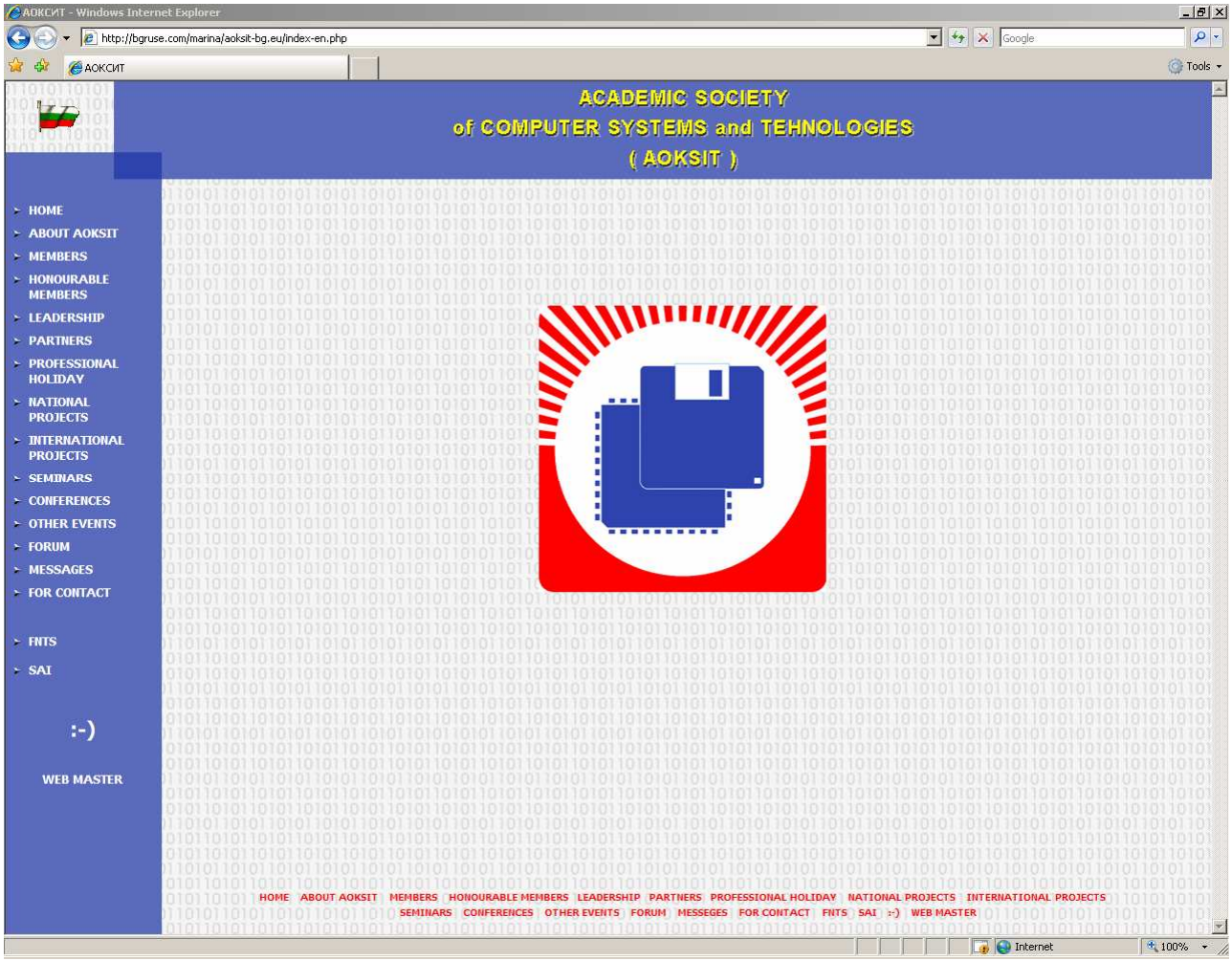
During the conference a total of **16 PhD students** presented their papers**.**

The hosts from the Bahceşehir University surprised the participants in the conference with a very rich social programme.

During the dinner, which took place on a boat after the conference, the best papers were rewarded.

Academic Society for Computing in Bulgaria

URL: http://aoksit-bg.eu



Publications in journals, newspapers and information sites

Below are listed publications concerning only the meetings in Coimbra and Istanbul.

ID: 14815391 | Diário As Beiras | Tiragem: 6500 | País: Portugal | Âmbito: Regional | Perid.: Diária | Página: 8 | Cores: Preto e Branco | Área: 5.36X10.14 cm2 | Corte: 1 de 1
Data: 07-09-2006

FCTUC

Investigadores europeus discutem Bolonha

DOCENTES e investigadores de universidades dos 25 países da União Europeia reúnem-se hoje e amanhã, na Faculdade de Ciências e Tecnologia da Universidade de Coimbra (FCTUC), com o objectivo de delinear um programa comum, válido em toda a Europa, para os cursos de 3.º ciclo de Bolonha (o 3.º ciclo confere o doutoramento) na área da Informática e Computadores. Trata-se da 3rd E-Learning Conference – Computer Science Education, organizada no âmbito da Rede Temática Europeia sobre o doutoramento na área da Informática e Computadores (ETN-DEC), um grupo representativo de Departamentos das Tecnologias da Informação de toda a Europa, e cujo único participante português é o Departamento de Engenharia Informática da FCTUC. A sessão de abertura decorre hoje, pelas 15H00, no Departamento de Engenharia Informática da FCTUC e conta com a presença da vice-ministra da Educação da Bulgária.

ID: 14815197 | Diário de Coimbra | Tiragem: 12000 | País: Portugal | Âmbito: Regional | Perid.: Diária | Página: 3 | Cores: Preto e Branco | Área: 9.52X12.07 cm2 | Corte: 1 de 1
Data: 07-09-2006

3rd E-Learning Conference começa hoje em Coimbra

Docentes europeus discutem Bolonha

Na Faculdade de Ciências e Tecnologia da Universidade de Coimbra (FCTUC) decorre hoje e amanhã uma reunião de docentes e investigadores de universidades dos 25 países da União Europeia, com o objectivo de delinear um programa comum para os cursos de 3º ciclo de Bolonha na área da Informática e Computadores.

A 3rd E-Learning Conference – Computer Science Education é organizada no âmbito da Rede Temática Europeia sobre o Doutoramento na área da Informática e Computadores (ETN-DEC), um grupo que representa os departamentos das Tecnologias da Informação de toda a Europa, de que o único participante português é o Departamento de Engenharia Informática da FCTUC.

«Este espaço de debate sobre as diferentes realidades europeias é muito valioso. Desta conferência sairá um conjunto de recomendações para os programas curriculares dos cursos de doutoramento em Informática», explica o Prof. António José Mendes, coordenador dos trabalhos, sublinhando que este encontro «promove a troca de experiências e saberes científico e tecnológico, permitindo definir novos instrumentos para o ensino da Informática».

Na sessão de abertura, às 15h00, no Departamento de Engenharia Informática da FCTUC, estará presente vice-ministra da Educação da Bulgária.●

ID: 14824883 | Diário As Beiras | Tiragem: 6500 | País: Portugal | Âmbito: Regional | Perid.: Diária | Página: 6 | Cores: Preto e Branco | Área: 14.73X8.48 cm2 | Corte: 1 de 1
Data: 08-09-2006

INFORMÁTICA/BOLONHA

Procurar "consenso" em torno do 3.º ciclo

JOÃO GABRIEL SILVA quer acautelar os riscos da concorrência de universidades internacionais

A uniformização dos 3.º ciclos, à luz de Bolonha, em universidades de diferentes países é um dos objectivos da "E-Learning Conference", que termina hoje na FCTUC.

Ana Luísa Barroso

Elaborar um documento onde constem sugestões que facilitem a uniformização dos programas de doutoramentos na área da Informática e Computadores, que correspondem, com a adopção da declaração de Bolonha, a um 3.º ciclo de estudos, é o objectivo dos especialistas que estão reunidos, desde ontem, no Departamento de Engenharia Informática (DEI) da Faculdade de Ciências e Tecnologia da Universidade de Coimbra (FCTUC), onde decorre, até hoje, a "E-Learning Conference – Computer Science Education".

"Pomos as pessoas a funcionar umas com as outras, cada uma dá o seu 'bitezinho' e espera-se que, no fim, consigam produzir sugestões" para os programas curriculares dos cursos de doutoramento, explicou, ontem, o presidente dos conselhos científico e directivo da FCTUC, João Gabriel Silva. Falando aos jornalistas à margem da sessão de abertura dos trabalhos, que decorreu ontem e que contou com a presença da vice-ministra búlgara da Educação, Ekaterina Vitkova, o responsável alertou, contudo, que o documento resultante não será uma "declaração de Coimbra", mas antes um documento de "três páginas mágicas" que funcionará como recomendação.

"Não queremos que nos aconteça o que aconteceu ao têxtil ou ao calçado. A concorrência está aí", salientou João Gabriel Silva, explicando que as sugestões servirão, justamente, para "construir consenso" e fazer face à concorrência das outras universidades, sobretudo internacionais. "A quantidade de candidatos estrangeiros [a frequentar o doutoramento no DEI] é elevado", congratulou-se. E acrescentou que a uniformização dos planos curriculares será uma mais-valia na atracção de novos estudantes.

"É importante estarmos minimamente alinhados para que o curso não seja um 'OVNI', para que o [conhecimento] que os estudantes levam tenha uma compatibilidade razoável" com a realidade do país de origem dos alunos, disse João Gabriel Silva.

Recorde-se que a FCTUC, a única faculdade portuguesa pertencente à Rede Temática Europeia sobre o Doutoramento na área da Informática e Computadores – que reúne cerca de 30 países e no âmbito da qual decorre a conferência – foi a primeira, da Universidade de Coimbra, a adoptar a declaração de Bolonha, justamente no DEI e que entra em vigor este ano lectivo.

ID: 14823172 | Notícias da Manhã | Tiragem: 17000 | País: Portugal | Âmbito: Informação Geral | Perid.: Diária | Página: 2 | Cores: Preto e Branco | Área: 5.44X14.17 cm2 | Corte: 1 de 1
Data: 08-09-2006

Universidades europeias discutem doutoramentos

Docentes e investigadores de mais de 25 países iniciaram ontem, em Coimbra, uma reunião que visa uma convergência das universidades europeias ao nível dos doutoramentos em cursos de informática e computadores. Os participantes da reuniram-se na Faculdade de Ciências e Tecnologia da Universidade de Coimbra (FCTUC) para elaborar "um programa comum, válido em toda a Europa", para os conteúdos dos cursos do chamado 3. ciclo de Bolonha, que confere o grau académico de doutor. "O objectivo desta reunião é convergir para um modelo que seja mais ou menos comparável, entre os países da União Europeia", declarou o professor João Gabriel Silva, presidente dos conselhos directivo e científico da FCTUC.

БРОЙ 356

СТУДЕНТСКА ИСКРА

Русе
18 септември 2007
година XLIX
Цена 0.25 лева

ВЕСТНИК НА РУСЕНСКИЯ УНИВЕРСИТЕТ „АНГЕЛ КЪНЧЕВ“

ПО СОКРАТЕС ПРОЕКТ НА РУ

Среща в Истанбул

В истанбулския университет „Бахчешехир“ се проведе заключителната среща на членовете на европейската тематична мрежа за подготовка на докторанти в областта на компютинга. Инициатор и координатор на този мащабен проект, в който участват 69 университети и фирми от 29 европейски страни, е катедрата по компютърни системи и технологии към Русенския университет. От българска страна участваха ръководителите и директорите на всички компютърни катедри и институти, както и техни сътрудници. На срещата се отчете извършената от международния консорциум работа. Оценителят на проекта акад. Петър Кендеров, председател на Президиума на ВАК, подчерта най-съществените резултати: съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми за подготовка на докторанти, създаването на виртуална библиотека, ежегодното провеждане на школи за докторанти в различни вузове. Той изтъкна и значението на проведените по линия на проекта международни научни конференции по компютинг и по електронно обучение със секции за докторанти.

В срещата участва и заместник-министърът на образованието и науката г-жа Екатерина Виткова, която също даде положителна оценка на основните резултати и препоръча да се кандидатства с проект за нова тематична мрежа.

Заместник-ректорът на университета-домакин връчи на мениджъра на проекта г-жа Стоянка Смрикарова плакет с благодарствен адрес за активната ѝ работа по създаването и поддържането на мрежата.

След срещата започна поредната конференция по електронно обучение, по време на която бяха изнесени близо 30 доклади за използването на иновационни технологии в образователната сфера. С особен интерес бяха изслушани българските участници, които оповестиха резултатите от изпълнението на Националната програма за създаване на виртуално образователно пространство в България.

Авторите на най-добрите доклади получиха грамоти и предметни награди от програмния комитет на конференцията.

Домакините от университета изненадаха участниците в срещата с много богата културна програма. Групата посети султански дворци, крепости, джамии и други исторически забележителности. Не беше пропусната и българската църква „Св. Стефан“ – единствената желязна църква в източноправославния свят.

СИ

УТРО
10 септември 2007 г., понеделник, Русе Брой 214 (5095), година XVII Цена 0,40 лв. Градът

Проект на университета събра в Истанбул компютърни спецове

Истанбулският университет "Бахчешехир" стана домакин на заключителната среща на членовете на европейската мрежа за подготовка на докторанти в областта на компютинга. Инициатор и координатор на проекта, в който участват 69 университета и фирми от 29 европейски страни, е катедрата по компютърни системи и технологии към РУ. Най-съществените резултати са съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми, създаването на виртуална библиотека, провеждането на школи в различни страни.

В срещата участва и зам.-министърът на образованието и науката Екатерина Виткова. Мениджърът на проекта Стоянка Смрикарова получи плакет с благодарствен адрес за активната й работа.

ОБЛАСТЕН ВСЕКИДНЕВНИК РУСЕ
БРЯГ
ПОНЕДЕЛНИК, 10 СЕПТЕМВРИ 2007 г. Брой 210 (3400) година IX www.brjag.bg

Наградиха русенка в Истанбул по СОКРАТЕС проект на Русенския университет

Валентина НИКОЛАЕВА

Миналата седмица Стоянка Смрикарова, мениджър на проекта Сократес на Русенския университет "Ангел Кънчев", получи плакет и благодарствен адрес от зам.-ректора на турския университет "Бахчешехир". Отличието й беше връчено в Истанбул на среща на високопоставени учени заради отличните резултати на катедра "Компютърни технологии" за разработката и приложението на тематична мрежа за подготовка на докторанти. Инициатор и създател на мрежата е русенската катедра, а в мащабния проект участват 69 университета и фирми от 29 европейски страни. Както писа "Бряг" преди време, за реализацията на проекта беше създаден и международен консорциум. На срещата в Истанбул е бил направен и отчет на консорциума, а оценителят на проекта академик Петър Кендеров е подчертал най-важния резултат - съставянето на сборник с препоръчителни за цяла Европа квалификационни характеристики, планове и програми за подготовка на докторанти по всички дисциплини, свързани с компютрите и компютърните технологии. Всичко това е свързано със създаване на виртуални библиотеки, каквато в РУ "Ангел Кънчев" вече има от година. Българският зам.-министър на образованието Екатерина Виткова е подчертала, че трябва да се кандидатства по проекта за нова тематична мрежа. Участниците в срещата са подчертали, че са много доволни от научните конференции, които русенската катедра организира всяка година като част от проекта.

ВРЕМЕТО ДНЕС 15° / 28°

Борба

ВТОРНИК, 4 СЕПТЕМВРИ 2007 г. ОБЛАСТНИЯТ ВСЕКИДНЕВНИК С ТРАДИЦИИ

ВЕЛИКО ТЪРНОВО БРОЙ 171 (3758), ГОДИНА XVII ЦЕНА 0.40 ЛВ.

Ректорът на ВТУ участва в работна среща в Истанбул

РЕКТОРЪТ НА ВЕЛИКОТЪРНОВСКИЯ УНИВЕРСИТЕТ „СВ. СВ. КИРИЛ И МЕТОДИЙ“ ПРОФ. ПЛАМЕН ЛЕГКОСТУП УЧАСТВА в заключителната работна среща по проект "Тематична мрежа за обучение на докторанти в областта на компютърните науки". Проектът е финансиран от Европейската комисия, а негов координатор е доц. д-р Ангел Смрикаров от русенския университет. Срещата беше проведена в Истанбул и в нея участваха партньори от всички европейски държави, няколко български университети и институти на БАН.

В делегацията на ВТУ бяха включени още и зам.- деканът на Педагогическия факултет доц. д-р Георги Тодоров, доц. д-р Маргарита Кръстева, която е координатор на проекта за Великотърновския университет, и гл.ас. Марияна Николова.

ПРЕПОРЪЧИТЕЛЕН УЧЕБЕН ПЛАН ЗА ПОДГОТОВКАТА НА ДОКТОРАНТИ В ОБЛАСТИТЕ НА КОМПЮТЪРНИТЕ НАУКИ, компютърното инженерство, софтуерното инженерство и информационните системи са изработили участниците в проекта. Като резултат от тяхната работа е и изградената електронна платформа, както и възможността в интернет да бъдат качени учебни материали за докторанти, създаване на докторантски уебсайт, изграждане на информационна база за защитени, намиращи се в процес на разработване и предлагани теми за докторантура за всички страни от Европа.

В СРЕЩАТА В ИСТАНБУЛ СА УЧАСТВАЛИ И ЗАМ.-МИНИСТЪРЪТ на образованието и науката Екатерина Виткова, директорът на дирекция „Информационни и комуникационни технологии“ в МОН Орлин Кузов, директорът на Института по математика и информатика на БАН проф. Стефан Додунеков и председателят на Висшата атестационна комисия акад. Петър Кендеров, който е външен експерт по проекта.

Международна конференция, посветена на електронното обучение, е съпътствала провеждането на официалната среща. Великотърновският университет е участвал с два доклада.

Великотърновският университет участва в европроект за обучение на докторанти

В подготовката на препоръчителни учебни планове за докторанти в четири различни направления участва Великотърновският университет. По тях ще се извършва обучението в направленията „Компютърни науки“, „Компютърно инженерство“, „Софтуерно инженерство“ и „Информационни системи“. Учебните планове ще бъдат сред основните резултати по проекта „Тематична мрежа за обучение на докторанти по компютинг“, финансиран от Европейската комисия.

Преди броени дни ректорът проф. дпн Пламен Легкоступ се завърна от заключителна среща по проекта, която се е провела в Истанбул. С него са били зам.-деканът на Педагогическия факултет доц. д-р Георги Тодоров, ръководителят на катедра „Компютърни системи и технологии“ доц. д-р Маргарита Тодорова и гл.ас. докторант Марияна Николова, които движат дейностите във ВТУ. Срещата е била почетена от зам.-министъра на образованието и науката Екатерина Виткова.

В проекта участват партньори от всички европейски държави, няколко български университета и института на БАН. Координатор от българска страна е доц. д-р Ангел Смрикаров от Русенския университет.

В рамките на проекта ще бъде изградена електронна платформа и зареждане в интернет на учебни материали за докторанти. Работи се над създаването на докторантски уебсайт, както и над изграждането на информационна база за защитени, намиращи се в процес на разработване и предлагане теми за докторантура за всички страни от Европа. Председателят на Висшата атестационна комисия акад. П. Кендеров е оценител по проекта.

В рамките на срещата в Турция се е провело и четвъртото издание на Международната научна конференция по проблемите на електронното обучение.

З. ГЕОРГИЕВА

БРОЙ 34, 15.09.2007 г. • XVII год. Цена 0,90 лв.
www.computerworld.bg
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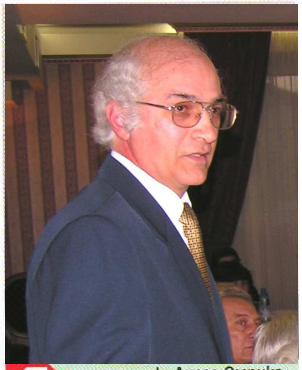
ВОДЕЩИЯТ НАЦИОНАЛЕН СЕДМИЧНИК ЗА ИНФОРМАЦИОННИ ТЕХНОЛОГИИ

Успешно е изградена мрежа от ВУЗ-ове в Европа за подготовка на докторанти по компютинг

В истанбулския университет „Бахчешехир" се проведе заключителната среща на членовете на европейската тематична мрежа за подготовка на докторанти в областта на компютинга. С това се отбеляза успешното приключване на тригодишния проект по европейската образователна програма "Сократ" – подпрограма "Еразъм", чиято цел беше да се създаде мрежа от европейски висши учебни заведения (ВУЗ-ове), които да подобрят условията за подготовка на докторанти в областта на компютинга. Сумата на финансирането, отпусната за периода 2004-2007 г., е около 1,5 млн. евро. Инициатор и координатор на този мащабен проект, в който участват 69 университета и фирми от 29 европейски страни (при общо 49 държави на картата на Стария континент, от които 27 са членките на ЕС), е катедрата по компютърни системи и технологии към факултет "Електротехника, електроника и автоматика" на Русенския университет, съобщи доц. д-р инж. Ангел Смрикаров, ръководител на катедрата. Сред партньорите са основно катедри по компютинг и компютърни компании. От българска страна участваха ръководителите и директорите на всички компютърни катедри и институти, както и техни сътрудници. На срещата е направен подробен отчет на извършената от международния консорциум работа.


доц. д-р инж. Ангел Смрикаров, Русенски университет

Оценителят на проекта акад. Петър Кендеров, председател на президиума на ВАК, подчерта най-съществените резултати – съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми за подготовка на докторанти, създаването на виртуална библиотека, ежегодното провеждане на школи за докторанти в различни страни. Той изтъкна и значението на проведените по линия на проекта международни научни конференции по компютинг и по електронно обучение със секции за докторанти. Виртуалната лаборатория включва пособия, изготвени основно на английски език, разработени от партньорите по проекта. Квалификационните характеристики пък включват указания какво трябва да знае и да може един докторант, след като защити доктората си. Тези материали са разработени от екипи от всички държави-партньори по проекта и са препоръчителни за Европа. Сборникът с квалификационни характеристики, учебни планове и програми за подготовка на докторанти е разпратен на почти всички университети, в които има компютърни катедри. "Всички тези документи са с препоръчителен характер. Ние не можем да задължим всички европейски университети да работят по тези насоки, но когато получат тези материали, те виждат колко много представители на бизнеса и академичните среди са се трудили над тях, оценяват ги и вероятно някои от тях ще ги приемат като насоки за работа", поясни доц. Смрикаров.

В срещата участва и зам.-министърът на образованието и науката Екатерина Виткова, която оцени постигнатото дотук и препоръча да се кандидатства с проект за нова тематична мрежа.

След срещата започна поредната конференция по е-обучение, по време на която бяха изнесени близо 30 доклада, касаещи използването на иновационни технологии в образователната сфера, от които на български представители. "С особен интерес бяха изслушани докладите на българските участници, отразяващи отделни резултати от изпълнението на Националната програма за създаване на виртуално образователно пространство в България", обясни Смрикаров. Наблегнато е на постиженията по изграждането на националната мрежа от виртуални университети. Според Смрикаров обаче, фирмите много по-бързо осъзнават ползите от е-обучение, защото имат и материален интерес. CW/E

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НАЦИОНАЛЕН СЕДМИЧНИК ЗА ОБРАЗОВАНИЕ И НАУКА

Среща в Истанбул по СОКРАТЕС проект на Русенския университет

В истанбулския университет „Бахчешехир" се проведе заключителната среща на членовете на европейската тематична мрежа за подготовка на докторанти в областта на компютинга. Инициатор и координатор на този мащабен проект, в който участват 69 университета и фирми от 29 европейски страни, е катедрата по компютърни системи и технологии към Русенския университет. От българска страна участваха ръководителите и директорите на всички компютърни катедри и институти, както и техни сътрудници. На срещата беше направен подробен отчет на извършената от международния консорциум работа. Оценителят на проекта акад. Петър Кендеров, председател на Президиума на ВАК, подчерта най-съществените резултати – съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми за подготовка на докторанти, създаването на виртуална библиотека, ежегодното провеждане на школи за докторанти в различни страни. Той изтъкна и значението на проведените по линия на проекта международни научни конференции по компютинг и по електронно обучение със секции за докторанти.

В срещата участва и заместник-министърът на образованието и науката Екатерина Виткова, която също даде положителна оценка на основните резултати и препоръча да се кандидатства с проект за нова тематична мрежа.

Заместник-ректорът на университета-домакин връчи на мениджъра на проекта Стоянка Смрикарова плакет с благодарствен адрес за активната й работа по създаването и поддържането на мрежата.

След срещата започна поредната конференция по електронно обучение, по време на която бяха изнесени близо 30 доклада, засягащи използването на иновационни технологии в образователната сфера. С особен интерес бяха изслушани докладите на българските участници, отразяващи отделни резултати от изпълнението на Националната програма за създаване на виртуално образователно пространство в България. Авторите на най-добрите доклади получиха грамоти и предметни награди от програмния комитет на конференцията.

Домакините от университета изненадаха участниците в срещата с много богата културна програма. Групата посети султански дворци, крепости, джамии и други исторически забележителности. Не беше пропусната и българската църква "Св. Стефан" - единствената желязна църква в източноправославния свят.

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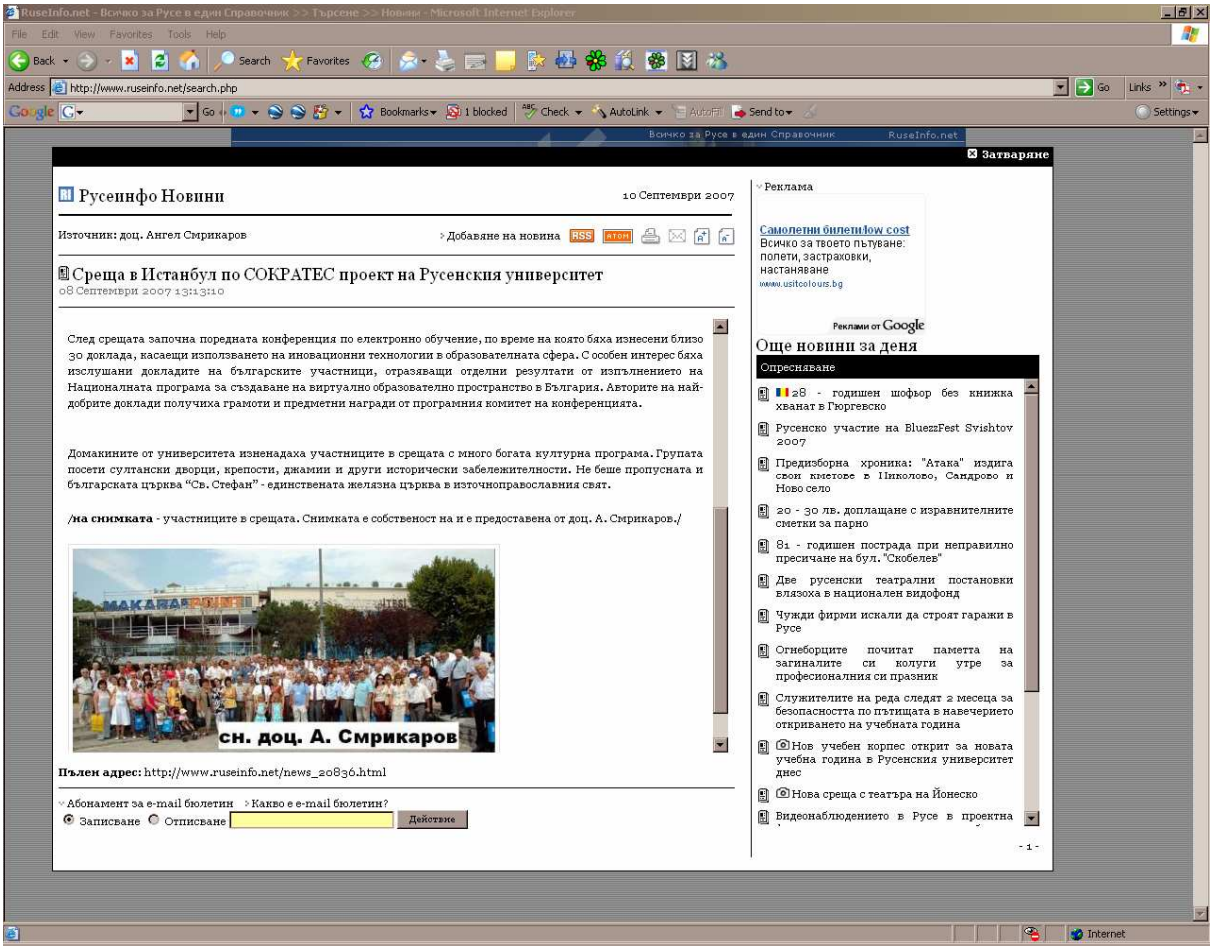
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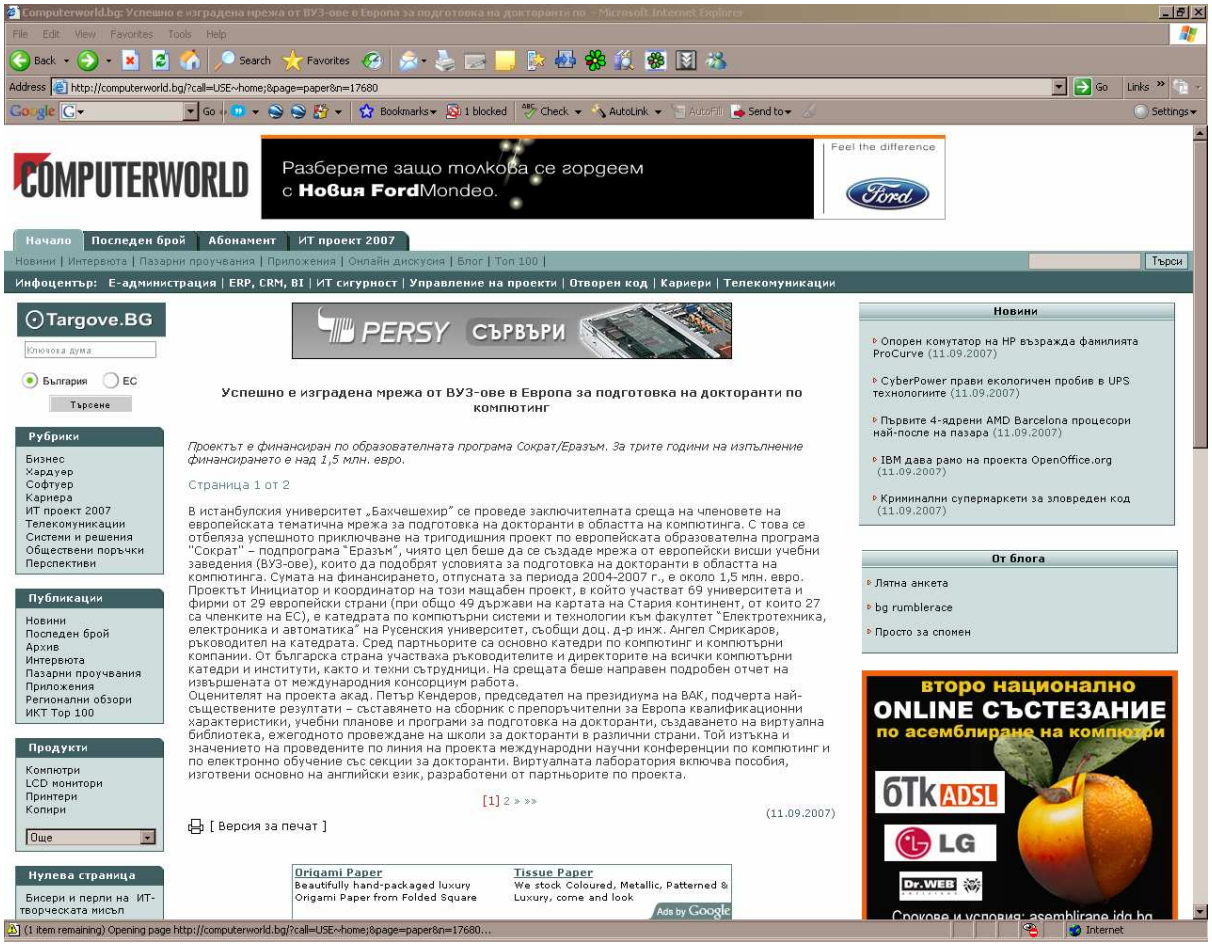
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Страница 1 от 2
В истанбулския университет „Бахчешехир" се проведе заключителната среща на членовете на европейската тематична мрежа за подготовка на докторанти в областта на компютинга. С това се отбеляза успешното приключване на тригодишния проект по европейската образователна програма "Сократ" – подпрограма "Еразъм", чиято цел беше да се създаде мрежа от европейски висши учебни заведения (ВУЗ-ове), които да подобрят условията за подготовка на докторанти в областта на компютинга. Сумата на финансирането, отпусната за периода 2004-2007 г., е около 1,5 млн. евро.
Проектът Инициатор и координатор на този мащабен проект, в който участват 69 университета и фирми от 29 европейски страни (при общо 49 държави на картата на Стария континент, от които 27 са членките на ЕС), е катедрата по компютърни системи и технологии към факултет "Електротехника, електроника и автоматика" на Русенския университет, съобщи доц. д-р инж. Ангел Смрикаров, ръководител на катедрата. Сред партньорите са основно катедри по компютинг и компютърни компании. От българска страна участваха ръководителите и директорите на всички компютърни катедри и институти, както и техни сътрудници. На срещата беше направен подробен отчет на извършената от международния консорциум работа.
Оценителят на проекта акад. Петър Кендеров, председател на президиума на ВАК, подчерта най-съществените резултати – съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми за подготовка на докторанти, създаването на виртуална библиотека, ежегодното провеждане на школи за докторанти в различни страни. Той изтъкна и значението на проведените по линия на проекта международни научни конференции по компютинг и по електронно обучение със секции за докторанти. Виртуалната лаборатория включва пособия, изготвени основно на английски език, разработени от партньорите по проекта.
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В истанбулския университет "Бахчешехир" се проведе заключителната среща на членовете на Европейската тематична мрежа за подготовка на докторанти в областта на компютинга. Инициатор и координатор на този мащабен проект, в който участват 69 университета и фирми от 29 европейски страни, е Академичната общност по компютинг в лицето на катедрата по компютърни системи и технологии към Русенския университет. От българска страна участваха ръководителите и директорите на всички компютърни катедри и институти, както и техни сътрудници. На срещата беше направен подробен отчет работата, извършената от международния консорциум. Оценителят на проекта – акад. Петър Кендеров, председател на Президиума на Висшата атестационна комисия, подчерта най-съществените резултати – съставянето на сборник с препоръчителни за Европа квалификационни характеристики, учебни планове и програми за подготовка на докторанти, създаването на виртуална библиотека, ежегодното провеждане на школи за докторанти в различни страни. Той изтъкна и значението на проведените по линия на проекта международни научни конференции по компютинг и по електронно обучение със секции за докторанти.
В срещата участва и заместник-министърът на образованието и науката Екатерина Виткова, която също даде положителна оценка на основните резултати и препоръча да се кандидатства с проект за нова тематична мрежа.
Заместник-ректорът на университета домакин връчи на менидъра на проекта Стоянка Смрикарова плакет с благодарствен адрес за активната й работа по създаването и поддържането на мрежата.
След срещата започна поредната конференция по електронно обучение, по време на която бяха изнесени близо 30 доклада за използването на иновационни технологии в образователната сфера. С особен интерес бяха изслушани българските участници, представили отделни резултати от изпълнението на Националната програма за създаване на виртуално образователно пространство в България. Авторите на най-добрите доклади получиха грамоти и предметни награди от програмния комитет на конференцията.
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PROGRESS REPORT

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PROGRESS REPORT

114046-CP-1-2004-1-BG-ERASMUS-TN
EUROPEAN THEMATIC NETWORK
for DOCTORAL EDUCATION in COMPUTING
(ETN DEC)

A N N E X 1

EVALUATION REPORT
by Academician Peter Kenderov - Head of the Evaluation Board

Project: European Thematic Network
114046-CP-1-2004-1-BG-ERASMUS-TN

DOCTORAL EDUCATION IN COMPUTING (DEC)

Period: October 1st, 2004 – September 30th, 2007

The Project was launched on October 1st, 2004. It joined the efforts of 73 partners (universities, research institutions, evaluation agencies, computer and software business organizations, etc.) from 30 countries. The major goal of the Project was to help acknowledge doctoral studies as an important "third" cycle of education, to define a framework for increasing the quality of all doctoral studies in Computing and to develop tools and methods for assessment, validation and certification of the knowledge and skills of PhD students. Among the objectives of the network were to establish the principles of effective, high quality, Europe-valid doctoral studies and to create the tools for doing this through analyzing the existing systems, exchanging experiences and disseminating good practices among all partners.

A sound base to make a Final Report for a Project is to go back to the origins of the Project and to compare the planned outcomes and products with what was achieved in reality. Here is what was planed when the project was contracted in 2004:

"Main project outcomes and products:

1. Creation of European Thematic Network for Doctoral Education in Computing.
1.1.Organisation structure set up with the participation of representatives of all partners.
1.2.Two Questionnaires and surveys about the generic and subject-specific competencies of doctors in Computing.

2.Development of the "third" cycle of education - the doctoral degree in Computing supported by newly-devised:
2.1.Comparable curricula and syllabi, teaching materials and e-Learning courses.
2.2. 2 Workshops and 2 Summer schools for PhD students.
2.3.Two WEB databases of PhD offerings and PhD holders in the field of Computing.

3.Quality Assurance System in Doctoral Education to include:
3.1.Conceptual model of the system.
3.2.Tools and methods for assessment, validation and certification.

4.Evaluation and dissemination of project results. Future activities of ETN DEC. Participation in conferences, seminars and round tables. Publications of the

achieved results in professional journals, newspapers, magazines and brochures. Dissemination through the mass media. Evaluation reports by internal and external evaluators."

The activities as planned in the Project Workplan (see http://ecet.ecs.ru.acad.bg/etndec/Docs/WorkPlan_2004_2007-2.doc) reflect all these goals and cover the outcomes and products with abundance. For the Evaluation Board the major ***Performance Indicator*** for the Project is the correspondence between the activities set up in the Workplan and the real work done in the framework of the Project. From this point of view the performance of the European Thematic Network "Doctoral Education in Computing" deserves admiration even though, in some cases, there was a delay in the completion of the tasks. A brief description of the work done follows:

The infrastructure of the Thematic Network was fully established by June 2005. It consists of

- a 70 person Management Group,
- six Expert Groups,
- Evaluation Board (22 persons).

The field specific Expert Groups were on:

- Computer Science (22 persons),
- Computer Engineering (18 persons),
- Software Engineering (13 persons),
- Information Systems (19 persons),
- Quality Assurance (14 persons),
- Devising the Questionnaires (16 persons).

Lists of members of these groups are given in http://ecet.ecs.ru.acad.bg/etndec/Docs/groups-ev-1.doc. The distribution of representatives from different partner institutions in these bodies is fair and close to uniform. It reflects also the personal experience of people involved in the respective field of science and/or education. The tasks of the groups as well as their leadership were determined during the meeting in Varna (June 15 – 18, 2005) which was the beginning of the essential work. The further development of the Project is reflected well in the Minutes of the Project Meetings:

- Berlin, September 2005,
  http://ecet.ecs.ru.acad.bg/etndec/Docs/SM/MinutesAndMainResults.pdf
- Bucharest, November 2005,
  http://ecet.ecs.ru.acad.bg/etndec/Docs/Tm/third_meeting_minutes.pdf
- Veliko Tarnovo, June 2006,
  http://ecet.ecs.ru.acad.bg/etndec/Docs/4M/MMR-1.pdf
- Coimbra, September 2006,
  http://ecet.ecs.ru.acad.bg/etndec/Docs/5M/MinutesAndMainResults.pdf
- Rousse, June 2007,
  http://ecet.ecs.ru.acad.bg/etndec/Docs/6M/MMR.pdf

Here is what was worked on and what was actually achieved after the Project was launched:

1. Creation and gradual development of a Project WEB site (http://ecet.ecs.ru.acad.bg/etndec).
2. Creation of a WEB database with existing systems of teaching PhD students in partner institutions and countries (ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=sys).
3. Creation of a WEB database of PhD offerings in the field of Computing (ecet.ecs.ru.acad.bg/etndec/index.php?command=browsePhdDb&filter[progressGroup]=1).
4. Creation of a WEB database of PhD holders in the field of Computing (ecet.ecs.ru.acad.bg/etndec/index.php?command=browsePhdDb&filter[progressGroup]=2).
5. Preparation of the necessary Questionnaires for the purpose of identifying both the generic and the subject-specific PhD student competences. Dissemination and collection of Questionnaires and analysis of the answers. On this base the book from point 9. (see below) was created.
6. Development of comparable curricula for Doctoral Study in Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS), (ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=dPage&pid=cc).
7. Development of comparable syllabi for Doctoral Study in CS, CE, SE, IS, (ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=dPage&pid=csyll).
8. Development of comparable syllabi in Computing and Informatics for PhD students in other disciplines.
9. A book was published containing the professional standards, curricula and syllabi for PhD degree in CS, CE, SE, IS, (ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=dPage&pid=cps). This book was analyzed in a separate Report of the Evaluation Board.
10. Development of teaching materials and e-Learning courses for PhD students in Computing (ecet.ecs.ru.acad.bg/vedoc/). Some of the submitted materials reveal remarkable creativity and effectiveness.
11. Development of a virtual library for PhD students in Computing, (ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=vlib&ltype=2).
12. Organizing and conducting a series of International Conferences CompSysTech' 05, CompSysTech' 06 and CompSysTech' 07 each including a section for PhD students in Computing. Very well structured and complete information about these events could be obtained from (ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=cst).
13. Organization and conduction of a series of International Conferences E-Learning'05, E-Learning'06 and E-Learning'07 each containing a section for PhD students in Computing, (ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=elearning).
14. Organization and conduction of workshops for PhD students. This is a very valuable initiative, highly appreciated by Ph D students.
15. Organization and conduction of Schools for PhD students (Palmse, Estonia; Lappeenranta, Finland and Nicosia, Cyprus, (ecet.ecs.ru.acad.bg/etndec/index.php?command=dPage&pid=schools)

16. Organization and conduction of a Final Meeting at the end of each Project year.
17. Development of a conceptual model of the Quality Assurance System. Very valuable work was presented by the partners responsible for this topic.
18. Developing tools and methods for assessment, validation and certification.
19. Establishment and implementation of a suitable strategy for a successful implementation of the Project Activities.
20. Periodical publications in professional journals and newspapers.
21. Development of evaluation procedures and performance indicators.
22. Periodical evaluation by the Evaluation Board.

An impressive amount of expertise and efforts stands behind these results. The Management Group, all the Working Groups and the Consortium as a whole produced a good tool for improvement and unification of the European Doctoral Education in Computing. Perhaps a part of this efficiency is due to the fact that significant number of partners in the present Consortium worked earlier on similar projects related to bachelor and master degrees. In any case, the networking effect of earlier joint work is clearly felt. The communication between partners have been running through several channels:

1. Personal contacts during Workshops, Meetings, Conferences and Schools proved to be very important for the networking, personal and institutional. For young PhD students the participation in such events is difficult to overestimate. The contact with famous and well established scientists, with PhD students from other countries, the specific atmosphere of a scientific event where the student reports on his work in the presence of specialists, have a long-lasting stimulating effect on the professional development. Perhaps the highest “value-added” effect from networking, with great potential for the future, is hidden here.
2. Intensive use of e-mail. This contributes significantly to the successful fulfilment of the tasks envisaged in the Project and represents the classical communication scheme “everyone connects everyone else”. Somewhat 20 years ago, when the e-mail was not so common, the coordination of a Project like this would hardly have any chances.
3. The WEB Site of this Project, already mentioned several times above, has an enormous communication potential. It is a reference point where everything that happened to the Project is presented. It contains a valuable amount of information concerning doctoral studies in partner countries, concerning PhD offerings and information about defended PhD degrees in recent years. The real value of the WEB-Site will become evident only after the Project is finished. The WEB-Site will contribute positively to the development of Doctoral Education in Computing even after the present Project is over.

GENERAL CONCLUSIONS

An important and valuable work has been completed by the European Thematic Network “Doctoral Education in Computing”. The book “Professional Standards, Curricula, Syllabi”, the WEB-site of the Project, the Quality Assurance System are among the major achievements deserving special mention for the collective

intellectual efforts of all the network. The positive impact of this work on the Doctoral Education in Computing is beyond doubts. Partner institutions already started to implement in their educational work the results obtained by the network. Project Conferences attracted increasingly “not-from-Project” participants. Collaboration on Project objectives generated research and educational collaboration between representatives of Partner Institutions. Joint Working Papers and joint Research Articles appeared at conference meetings and research journals. Very stimulating for the doctoral students involved in the Project was the idea to give awards to best papers presented in the Project Conferences. The “spin-off” effect of the Project cannot be overestimated. Groups of people from different institutions started preparation of new projects. All these “Performance indicators” show that the Project realization completely satisfied the expectations and should be given highest approval.

For the Evaluation Board,

Petar S. Kenderov

A N N E X 2

EVALUATION REPORT
by Mrs. Ekaterina Vitkova
Deputy Minister of Education and Science,
Council of Ministers, Republic of Bulgaria

15 September, 2006

This report evaluates the work accomplished by the ETN-DEC project consortium for the period from October 2005 to September 2006. It is based on the work plan for this period and assesses the activities and results in relation to that plan.

The management infrastructure of the Thematic Network was established in the first project year. Different project work groups (Management group, Experts groups and Evaluation board) have been created for the successful operation of the project. A WEB site of TN has been developed (http://ecet.ecs.ru.acad.bg/etndec/) and it is regularly updated.

According to the work plan for the second year the following **two web based databases** had to be developed:

- database of PhD offerings in the field of Computing;
- database of PhD holders in the field of Computing.

The two databases were developed on time and are linked on the project web site. Access was provided to all partners. Unfortunately, there are still not enough entries in them. I hope by the end of the project they will be filled in with the necessary information by all partners.

Among the project activities for the second year were to develop professional standards and comparable curricula and syllabi for PhD studies in the four major fields in computing: Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS). On the basis of the results of the study conducted with the help of the colleagues from Tuning project, which addressed the generic and subject-specific PhD student competences, the following was produced:

- **Comparable curricula** for Doctoral Study in Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS).
- **Comparable syllabi** for Doctoral Study in CS, CE, SE, IS.
- **Comparable syllabi** in Computing and Informatics for PhD students in other disciplines.
- A **book with professional standards, curricula and syllabi** for PhD degree in CS, CE, SE, IS has been published.

According to the work plan the TN had to develop **teaching materials** and e-Learning courses. The following was accomplished:

- A virtual library for PhD students in Computing has been created (http://ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=vlib&ltype=2).

- A Virtual Info Centre for PhD students in Bulgaria was established and it was recommended to the other partners as a good practice. (http://ecet.ecs.ru.acad.bg/phd-center/index.php?lng=eng)

Three meetings of the ETN DEC partners were convened in this period:

- at the Academy of Economic Studies, Bucharest, Romania, November, 2005.
- at the University of Veliko Tarnovo, Bulgaria, June, 2006 - 87 representatives of 22 European countries took part;
- at the University of Coimbra, Portugal, September, 2006 - 79 representatives of 20 European countries took part;

A **summer school** for PhD students in Computing should have been organized in Lappeenranta, Finland. Unfortunately, this did not happen, because very few partners showed interest. Hopefully similar schools will be organized in the next project year.

The following **conferences** were organised in the second project year:

- CompSysTech'06 in Veliko Tarnovo with a Workshop for PhD students. Conference proceedings were published in a paper version, CD and on the WEB site http://ecet.ecs.ru.acad.bg/cst06/.
- e-Learning'06 in Coimbra with a special section for PhD students. Conference proceedings were published in a paper version, CD and on the conference WEB site http://elconf06.dei.uc.pt/.

The government and the public in Bulgaria and in other European countries were regularly informed about the objectives, activities and results of the TN DEC by means of regional and national mass media. The Project Coordinator presented a paper about the ETN DEC at the conference, organised by the Bulgarian Socrates Agency, which took place on 15 November, 2005 in Sofia, Bulgaria.

Evaluation procedures and performance indicators have been developed by the Evaluation board. The partners were regularly asked to fill in evaluation forms for each meeting and for the main project results. The project work was periodically evaluated by the Evaluation board. A Progress report was elaborated.

Comparing the work plan for the second project year with the produced outcomes one can conclude that almost all tasks were completed in time and with a good quality. There are delays in some of them, which should be a signal to the consortium that more efforts are needed to organize these in the next project year.

Mrs. Ekaterina Vitkova
Deputy Minister of Education and Science
Council of Ministers, Republic of Bulgaria

A N N E X 3

EVALUATION REPORT

by Mr. Hristo Hristov
Head of Department of Infrastructure Projects
State Agency for Information Technology and Communications
Republic of Bulgaria

14 September, 2007

This report evaluates the work accomplished by the ETN-DEC project consortium for the period from October 2006 to September 2007. It is based on the work plan for this period and assesses the activities and results in relation to that plan.

The management infrastructure of the Thematic Network was established in the first project year. Different project work groups were created: Management group, Experts groups and Evaluation board. Six expert groups were formed: four for the major fields in computing (Computer Engineering, Computer Science, Software Engineering and Information Systems), a group for devising questionnaires and a group on Quality Assurance Issues. A WEB site of TN has been developed (http://ecet.ecs.ru.acad.bg/etndec/), which is regularly updated.

According to the work plan for the third year the consortium had to produce a conceptual model of the **quality assurance system** and **tools and methods for assessment, validation and certification.** Two documents were developed in time by the Slovak University of Technology and Liverpool John Moores University. At the final management group meeting in Istanbul the documents were presented and discussed, and the partners decided to publish them as one booklet.

As the second year evaluation report mentioned **two databases** were developed:

- database of PhD offerings in the field of Computing;
- database of PhD holders in the field of Computing.

Access was provided to all partners. However filling the databases with information was delayed. At the end of the third year the databases have about several hundred entries each containing with useful information for students interested in PhD degree in Computing.

According to the work plan the TN had to develop **teaching materials** and **e-Learning courses**. The following was accomplished:

- A virtual library for PhD students in Computing has been created (http://ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=vlib&ltype=2).
- A Virtual Info Centre for PhD students in Bulgaria was established and it was recommended to the other partners as a good practice. (http://ecet.ecs.ru.acad.bg/phd-center/index.php?lng=eng).

The virtual library is continually being updated and new e-Learning courses added. Now it contains 57 courses for PhD students.

Two meetings of the ETN DEC partners were convened in this period:

- at the University of Rousse, Bulgaria - 111 representatives of 23 European countries took part;
- at the Bahcesehir University of Istanbul, Turkey - 121 representatives of 25 European countries took part.

Three schools for PhD students in Computing have been conducted:

- winter school in Palmse, Estonia, 4-9 March, 2007;
- summer school in Nicosia, Cyprus, 2-6 July, 2007;
- summer school in Lappeenranta, Finland, 15-17 August, 2007.

The following **conferences** were organised in the third project year:

- CompSysTech'07 in Ruse, Bulgaria with a Workshop for PhD students. Conference proceedings were published in a paper version, CD and on the WEB sitehttp://ecet.ecs.ru.acad.bg/cst07/.
- e-Learning'07 in Istanbul, Turkey with a special section for PhD students. Conference proceedings were published in a paper version, CD and on the conference WEB site http://akademik.bahcesehir.edu.tr/elearn07/.

The government and the public in Bulgaria and in other European countries were regularly informed about the objectives, activities and results of the TN DEC by means of regional and national mass media.

Evaluation procedures and performance indicators have been developed by the Evaluation board. The partners were regularly asked to fill in evaluation forms for each meeting and for the main project outcomes. The project work was periodically evaluated by the Evaluation board.

As a conclusion all activities planned in the third project year were completed in time and at a good quality. The activities which were delayed in the second year were all accomplished in the third project year. I was present at the final project meeting and noticed the wonderful atmosphere and relationships between all partners. I strongly recommend that the consortium prepare a new TN project proposal to keep the partnership together.

Mr. Hristo Hristov

Head of Department of Infrastructure Projects

A N N E X 4

EVALUATION REPORT
by Rumen Trifonov, PhD - Secretary of the Coordination Council for Information Society, Council of Ministers, Republic of Bulgaria

21st September, 2007

Introduction
This report provides an evaluation of the work undertaken on the ETN-DEC project for the period from October 2004 to September 2007. It considers the work plan of activities for the whole period and assesses the activities undertaken and the outputs delivered in relation to that plan. It also considers the overall achievement during the three years over which the TN has been operating.

The overarching aim of the thematic network was to help acknowledge doctoral studies as an important "third" cycle of education, to define a framework for increasing the quality of all doctoral studies and to develop tools and methods for assessment, validation and certification of the knowledge and skills of PhD students.

Project Management
The management infrastructure of the Thematic Network was well-established during the first year. A Management group, Experts groups and Evaluation board have been created for the successful operation of the project. A regular contact with the network partners and the SOCRATES Head Offices in Brussels has been established and maintained – the Manager and the network members have exchanged up to 50 e-mail messages daily at crucial moments. A detailed Work plan for the period 01.10.2004 – 30.09.2007 with well defined dates and responsible partners was worked out in the first project month. A WEB site of TN has been developed (http://ecet.ecs.ru.acad.bg/etndec/). It contains the project aim, objectives and activities, management diagram, partners, forum and other information about the project. The Socrates Administrative and Financial Handbook and other useful reporting documents can also be found there.

Project Activities
WEB based databases
According to the work plan three web based databases had to be developed:
- database of existing systems of teaching PhD students in the different European countries.
- database of PhD holders in the field of Computing.
- database of PhD offerings in the field of Computing.

First a questionnaire for the purpose of analyzing the existing systems of teaching PhD students has been prepared and distributed to all partners. The results of the study were processed and published.
All the three databases were created and can be accessed from the project web site. The shell for the last two databases was developed on time according to the project schedule. However entering information in the databases was quite delayed

compared to the work plan. The main reason for this was that TN partners were supposed to provide and enter the information themselves. Despite the timely management and reminders by the project manager some partners replied in the last project year. Despite the delay the databases now contain several hundred entries each, which can be considered sufficient.

Co-operation with the TUNING project

An expert group was created which developed a questionnaire for the purpose of identifying both the generic and subject-specific PhD student competences in the field of computing. The questionnaire was discussed with the Tuning advisor for the project Mr. Alan Hegarty.

A study was conducted and about 10 to 20 people from each partner country representing different target groups (employers, professors, students) were questioned. The results were processed by the TN with the help of the TUNING project colleagues.

Professional standards and comparable curricula and syllabi

One of the project activities was to develop professional standards and comparable curricula and syllabi for PhD studies in the four major fields in computing, namely Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS). This was accomplished successfully and the following was produced:

- Comparable curricula for Doctoral Study in Computer science (CS), Computer engineering (CE), Software engineering (SE) and Information systems (IS).
- Comparable syllabi for Doctoral Study in CS, CE, SE, IS.
- Comparable syllabi in Computing and Informatics for PhD students in other disciplines.
- A book with professional standards, curricula and syllabi for PhD degree in CS, CE, SE, IS has been published.

Teaching materials

According to the work plan the TN had to develop teaching materials and e-Learning courses. The following was accomplished:

- A virtual library for PhD students in Computing has been created (http://ecet.ecs.ru.acad.bg/vedoc/index.php?cmd=vlib&ltype=2).
- A Virtual Info Centre for PhD students in Bulgaria was established and it was recommended to the other partners as a good practice. (http://ecet.ecs.ru.acad.bg/phd-center/index.php?lng=eng)
- A Computer Lab for PhD students has been equipped at University of Rousse.

Meetings

Six meeting of the ETN DEC partners have been convened:

- at the University of Varna, Bulgaria - 65 representatives of 25 European countries took part;

- at the University of Applied Sciences of Berlin, Germany - 81 representatives of 22 European countries took part;
- at the University of Veliko Tarnovo, Bulgaria - 87 representatives of 22 European countries took part;
- at the University of Coimbra, Portugal - 79 representatives of 20 European countries took part;
- at the University of Rousse, Bulgaria - 111 representatives of 23 European countries took part;
- at the Bahcesehir University of Istanbul, Turkey - 121 representatives of 25 European countries took part.

Two meetings of representatives of EG have been convened:
- at the Academy of Economic Studies, Bucharest, Romania.
- at the University of Ostrava, CZ.

Schools for PhD students

Three schools for PhD students in Computing have been conducted:
- winter school in Palmse, Estonia;
- summer school in Nicosia, Cyprus;
- summer school in Lappeenranta, Finland.

Conferences

The following conferences were organised within this project:
Three international conferences CompSysTech
- CompSysTech'05 in Varna;
- CompSysTech'06 in Veliko Tarnovo;
- CompSysTech'07 in Ruse

have been conducted with the wide participation of members of the TN consortium. There was a special section for PhD students. During the conferences a Workshop for PhD students took place. CompSysTech conferences proceedings have been published in a paper version, a CD and on the conferences WEB site:
- http://ecet.ecs.ru.acad.bg/cst05/;
- http://ecet.ecs.ru.acad.bg/cst06/;
- http://ecet.ecs.ru.acad.bg/cst07/.

Three international conferences e-Learning
- e-Learning'05 in Berlin;
- e-Learning'06 in Coimbra;
- e-Learning'07 in Istanbul

have been conducted with the wide participation of members of the TN consortium. There was a special section for PhD students. e-Learning conferences proceedings have been published in a paper version, a CD and on the conferences WEB site:
- http://www.lotuswebtec.com/e-conf/;
- http://elconf06.dei.uc.pt/;
- http://akademik.bahcesehir.edu.tr/elearn07/.

Quality assurance system
A conceptual model of the quality assurance system has been developed. Tools and methods for assessment, validation and certification have been developed. All documents concerning the quality assurance can be found on the project web site.

Project dissemination
The government and the public in Bulgaria and in other European countries are regularly informed about the objectives, activities and results of the TN DEC by means of regional and national mass media. The Project Coordinator presented a paper for the ETN DEC at the conference, organised by the Bulgarian Socrates Agency, which took place on 15 November, 2005 in Sofia, Bulgaria.

Evaluation
Evaluation procedures and performance indicators have been developed by the Evaluation board. The partners were regularly asked to fill in evaluation forms for each meeting and for the main project results. The project work was periodically evaluated by the Evaluation board. A Progress report and a Final report have been elaborated.

Others
An Academic Society for Computing has been established.
An idea for a new THEMATIC NETWORK has been offered, discussed and adopted by the consortium.

Conclusion
The work of the DEC Thematic Network over the past three years has made significant progress towards meeting its original objectives. All the major issues have been addressed and the published reports and other associated deliverables demonstrate how much has been achieved through the wide range of activities undertaken by TN members. Further work on the dissemination of the products and is required, which can be achieved in a follow up Thematic Network. I strongly recommend that the project partners submit a project proposal for a new TN and continue their activities.

Rumen Trifonov, PhD
Secretary of the Coordination Council for Information Society
Council of Ministers, Republic of Bulgaria

A N N E X 5

EVALUATION REPORT
on the results of the questionnaires concerning generic and subject-specific PhD student competences in Computing applying the TUNING project methodology

Alan Hegarty
University of Limerick
7th September 2006

The ETN-DEC thematic network carried out a survey concerning generic and subject specific competences for third cycle (doctoral) students in the area of Computing. The survey was conducted by email between January and April 2006, and there were 238 respondents, grouped into the categories: professors, PhDs, non-PhD specialists, employers/employees and PhD students (there is of course considerable overlap among categories). The latter category represents a departure from the original Tuning survey methodology[1], which did not include students; however, it should be noted that analogous surveys carried out by the Tuning America Latina project[2] have also involved current students. The Tuning management committee plan to repeat the 2001 survey as part of Tuning IV, and are considering the inclusion of students on this occasion.

This thematic network is concerned with Computing, specifically with 4 specialties: computer science, computer engineering, software engineering and information systems. Respondents were asked to assign weights 1-4 to 16 generic competences (not quite the same as those used in the Tuning survey) and 24 subject specific competences (where respondents were asked to assign weights for each of the 4 specialties). They were also given the option to assign weights to 33 competences divided into the categories of knowledge, skills, attitude and management (i.e., a mix of generic and subject specific competences) for their own specialty.

It should be noted that the Tuning project itself has thus far not conducted a general survey concerning generic competences for the doctoral cycle. Nor have any Tuning subject areas, to my knowledge, attempted a survey concerning subject specific competences for the doctoral cycle. Indeed, while some subject specific competences were included for each subject area in the original Tuning survey of employers and graduates, neither group ranked them very highly. The Tuning survey concerning subject specific competences was only in fact only conducted among academics.

Thus, the ETN DEC network is to be commended for managing to include employers, graduates and students, as well as academics, in this exercise. Whether this would work for all subject areas is questionable; for example, one can surmise that more computing graduates are working in jobs relevant to their qualification than is the case with other subjects.

The network has carried out some very interesting analyses of the responses, in particular those concerning subject specific competences. For each of the 24

[1] Tuning Educational Structures in Europe, Final Report, Pilot Project, Phase 1, 2003, see www.tuning.unideusto.org/tuningeu

[2] www.tuning.unideusto.org/tuningal

competences, the mean and standard deviation are calculated – for each of the 4 specialties – and these four 24-dimensional results are projected, by means of a Cavalier projection onto a 2-dimensional plane. This graph gives a very nice picture of the links and differences between the specialties: computer engineering is distinct from the other three, while computer science “overlaps” with both information systems and software engineering.

If ETN DEC were willing, the statisticians in the University of Deusto who carried out the analyses of the European and Latin American Tuning surveys would, I am sure, be happy to analyse further the survey results. This would allow an analysis which could take account of the, as in the original Tuning survey, somewhat unbalanced spread of responses. It would of course also be interesting to have the process repeated for the first and second cycles.

The crucial role of subject specific reference points

It is worth recalling the importance of subject specific reference points in the context of the continuing Bologna process and the emergence of European (and national) qualification frameworks. Qualification frameworks classify types of qualifications (on the basis of general descriptors). However, it is still necessary for academics to formulate the learning outcomes for any particular Higher Education qualification, e.g., first, second or third cycle degree.

Subject specific reference points:

- are central to qualification frameworks;
- identify the competences and level of qualifications in their international context;
- are a core element for quality enhancement, assurance, accreditation and recognition;
- make qualifications transparent and where possible comparable and compatible in their international context.

The European Qualification Frameworks for lifelong learning and for Higher Education (approved by the meeting of ministers in Bergen in 2005) - as well as national quality frameworks - are, like Tuning, based on the concept of learning outcomes, competences, levels, credits and quality:

Levels:	Dublin descriptors: general descriptors for the three Bologna cycles (BA, MA and PhD)
Credits:	ECTS for LLL (workload and learning outcomes based credits)
Quality:	European Standards and Guidelines

Learning outcomes	Output centred approach to learning, teaching and competences and assessment

Tuning involves the actual application of the underlying concept at study programme level. Competences are important because they make qualifications transparent at global level, because they are essential for the development of Qualification Frameworks and because they are (or at least should be) understandable across borders.

Tuning has the following aims:

- to promote the use of the concept of competences (including learning outcomes) in Europe and abroad;
- to make the concept work by distinguishing generic and subject specific competences;
- to develop sets of subject specific competences presented in a common template (summaries of outcomes);
- to raise awareness regarding the relevance of generic competences (general academic skills) for employment and citizenship;
- to develop a language which is universally understood;
- to promote the concept of workload based credits in relation to the concept of learning outcomes and competences.

Next phase of Tuning and role of ETN DEC.

Phase 4 of Tuning (2006-2008) will be concerned with wider validation and dissemination, implementation and further extension and development

Wider validation and dissemination.

The primary mechanism for dissemination (and, one hopes, some degree of validation) will be European wide conferences involving the medical sector, natural sciences, social sciences and humanities

The four international conferences will have as themes:

- Learner centred and competence based programmes;
- Learning, teaching and assessment methods in competence based programmes;
- Learning outcomes and competences in programme enhancement and quality assurance;
- Recognition of different types of learning (informal, non-formal and formal, work placement) on the basis of learning outcomes and competences (with ENIC-NARIC).

Further extension and development.

- Reference points for common curricula on the basis of agreed competences and learning outcomes, as well as cycle level descriptors, will be developed for a further 20 major subject areas (including, we hope, Computing);

- Five institutions in Turkey added to the existing nine groups;
- A model of intermediate level indicators for first and second cycle programmes will be developed;
- Best practice regarding assessment and assessment criteria, including grading, will be indicated;
- Examples of good practice in using learning outcomes and competences, in quality assurance and accreditation procedures at programme level, will be produced.

Role of ETN DEC

The ETN DEC network has the opportunity to summarise its outcomes for the three cycles, complete the Tuning template for the Computing subject area (which will then be added to the Tuning website) and, together with Tuning, publish a short booklet on the subject area. A summary of the Tuning template follows; the full specifications are available from the Tuning website.

Template for summary of Tuning subject area findings

Title of subject area

Introduction to the subject area
A general description of the subject area and its characteristics. Is it understood in the same way throughout Europe, or are there differences?

Degree profile(s)

Typical degrees offered in the subject area
- 1st cycle in (name subject area / specific parts)
- 2nd cycle in (name subject area / specific parts)
- 3rd cycle in (name subject area / specific parts)

Typical occupations of graduates
- 1st cycle
- 2nd cycle
- 3rd cycle

Role of subject area in other degree programmes

Learning outcomes & competences - level cycle descriptors
- First cycle – subject specific & generic
- Second cycle – subject specific & generic
- Third cycle – subject specific & generic

What are the main learning outcomes expressed in the relevant competences for the different cycles, taking into account the level of the competence that has to be achieved?

Consultation process with stakeholders

Workload and ECTS

Workload of the typical degree programmes expressed in ECTS credits

- First cycle (180-240?)
- Second cycle (60-90-120?)
- Third cycle (120-180-240?)

Trends and differences in European HEA in this subject area

Learning, teaching & assessment

Commentary

Three examples of best practice to achieve competences relevant to the subject area.

Quality enhancement

Observations on use of competences etc in programme design, delivery, monitoring and improvement.

Alan Hegarty
Department of Mathematics and Statistics
University of Limerick
Ireland

A N N E X 6

AWARD
"Partner in Europe"

GREETING ADDRESS
by Mr. IVAYLO KALFIN
DEPUTY PRIME MINISTER
and MINISTER OF FOREIGN AFFAIRS
of REPUBLIC OF BULGARIA

РЕПУБЛИКА БЪЛГАРИЯ

ЗАМЕСТНИК МИНИСТЪР–ПРЕДСЕДАТЕЛ И
МИНИСТЪР НА ВЪНШНИТЕ РАБОТИ

№: 21-00-17/10.04.06

ДО
ДОЦ. Д-Р А. СМРИКАРОВ
КООРДИНАТОР НА ПРОЕКТ
РУСЕНСКИ УНИВЕРСИТЕТ

УВАЖАЕМА ГОСПОЖО СМРИКАРОВА,

Позволете ми да поздравя Вас и Вашия екип с успешното приключване на първата година от проекта "European Thematic Network For Doctoral Education In Computing".

Като инициатор и координатор на тематичната мрежа от 162 участници от 30 европейски държави, Русенският университет е един сериозен "Партньор на Европа" – заслужен атестат за значимата му роля в академичния живот на европейските граждани, което е приос към утвърждаването на страната ни като достоен член на Европейския съюз.

Пожелавам Ви успех в бъдещата Ви работа!

София, 6 април 2006 г.

С УВАЖЕНИЕ,

ИВАЙЛО КАЛФИН

София 1113, ул. "Александър Жендов" 2, тел. 971 2844, факс 971 2816,
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A N N E X 7

PowerPoint Presentation from the Final Meeting in Istanbul

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