First JEP Report: N. 41029

Section II: Reports on the action's implementation
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Comments on the start up activities

Project is in the starting phase of the implementation Preparation activities in the given period (signed by 1.1, 1.2, 1.3) were performed completely, except the part that requires financial support. Teaching quality control methods and procedures applied on the Imperial College were studied and in good part integrated in documents that define quality (quality procedures) which were independently adopted on the Electrical engineering faculty in Belgrade and Mechanical engineering faculty in Kragujevac. Project implementation is planned on the Electrical engineering faculty in Belgrade and on Mechanical engineering faculty in Kragujevac (faculties in Serbia are financially independent, while the university is union of faculties) so that on the local level management and project implementation is supported by the deans of the member faculties in addition to project management by the project coordinators. As one of the spin-off effects, although the project is in the starting phase, in the secondary school for Mechanical engineering and Traffic procedure for introduction of the new educational profile named Technician for robotics was started relying significantly on the successful implementation of the Tempus project Accommodation of the project to the external factors is not necessary for the time being.

Academic co-ordination and administrative management

Under the item III.5.3. QUALITY CONTROL AND MONITORING of the project proposal, the planned Project Management structure is explained. Upgrading of the Serbian *Project Management structures* is performed by making the rectors and deans of the consortium universities, the obligatory members of the Local Committees.

Comments on project methodology

Project is in the starting phase of the implementation Preparation activities in the given period (signed by 1.1, 1.2, 1.3) were performed completely in accordance to project proposal, except the part that requires financial support.

Development of training programme

Development of training programme isn’t foreseen within this time span of the project's implementation.

Staff retraining

Staff retraining isn’t foreseen within this time span of the project’s implementation. However, actions: 1.1. Review of current standards in interdisciplinary engineering education; 1.2. Promotion of necessity for interdisciplinary engineering education; and 1.3. Teaching quality control methods and procedures establishment; are formally

finished, but these actions are contained dissemination of new information (knowledge, practice, etc) for project staff and project stakeholders.

About hundred auditors have been on meetings in Belgrade and Kragujevac concerning with activity 1.2 “Promotion of necessity for interdisciplinary engineering education”. Both of the activities 1.1 “Review of current standards in interdisciplinary engineering education” and 1.2 “Promotion of necessity for interdisciplinary engineering education” have done by two teachers form Kragujevac and four teachers from Belgrade. About 45 persons of teaching staff have attended on meetings within activity 1.2. The activity 1.3 “Teaching quality control methods and procedures establishment” have done by project coordinators in Belgrade and Kragujevac. Both of them have included within Quality Assurance Committees at their faculties.

Staff mobility

Financial support for project activities is not transferred yet to the Partner country universities. Because of that, planned activities concerning with staff mobility within activities 1.1, 1.2, and 1.3 are not finished yet.

Student mobility

Student mobility isn’t foreseen within this time span of the project's implementation.

Equipment upgrade

Financial support for project activities is not transferred yet to the Partner country universities. Because of that, planned activities concerning with equipment upgrade within activities 1.1, 1.2, and 1.3 are not finished yet.

New / Restructured institutions

The project will have influence on study programs restructuring on Faculty of Electrical Engineering in Belgrade and Faculty of Mechanical Engineering in Kragujevac.

Dissemination

Dissemination activities aren’t specially planned within this time span of the project’s implementation. However, actions: 1.1. Review of current standards in interdisciplinary engineering education; 1.2. Promotion of necessity for interdisciplinary engineering education; and 1.3. Teaching quality control methods and procedures establishment; are formally finished, but these actions are contained dissemination of new information (knowledge, practice, etc) for project staff and project stakeholders.

Any other comment

I. Comments on the „JEP 41029 2006 – Recommendation Letter”

Reviewer's remark 1: *Please clarify the role to be played by the EU Universities and in particular the role of the University of Maribor, in the project as we have found little concrete information about this in the outcome and activity tables.*

Comment 1:
Transfer of the knowledge and experience (organization, quality control implementation, making up to date and internationally harmonized study programmes and contents of the study courses, education methods, upgrade of the laboratory support for subjects, teaching materials, selection of the reference literature for subjects, etc), control and advisory role in the planned activities, are the essence of EU part consortium role.
EU Universities included in the project have long established experience regarding the curricula and individual courses that we plan to establish in Belgrade and Kragujevac. Additionally, University of Maribor has developed web laboratory for interdisciplinary engineering education, accredited mechatronics study programs and has developed web support for students:

http://robin2.r.uni-mb.si/mehatronika/Welcome.html, http://robin2.r.uni-mb.si/Welcome.html,
http://robin2.r.uni-mb.si/mehatronika/mehatronika.html,
http://www.uni-mb.si/povezava.aspx?pid=4320).

EU partners experience includes the selection and coordination of obligatory and elective courses, as well as the disposition and amount of laboratory exercises required to support the theoretical part and written exercises. Their activity will include passing such experiences to non EU Universities and checking the key features and parameters of the courses being developed. Consultancy support in establishing of the laboratory part of the courses, both technically and didactically is of a particular importance.
Their activity will take part during the periodical meetings already planned in the project application. After each meeting, a written document will briefly summarize the achievements. Such documents will make part of the project reports following those meetings.
We also hope for the long term cooperation through the mobility programmes of students and teachers even after the Tempus project is over.
Reviewer's remark 2: *specify the content and number of e learning courses to be developed as well as the target groups to participate in the e learning education. Please provide this information in your first progress report.*

The application specifies 12 courses to be developed during the project time span. The content of curricula will be developed and published as planned, by the September 2008. E-learning courses are not planned nor specified in the project application. We do plan to introduce web-support for our laboratory exercises, but not the e-learning concept within this projects time span and finance constraints. Web-support will be focused on bringing the students the possibility to visualize experimental results remotely, sharing and discussing the obtained results and other outcomes at distance.

Project has its financial capacity, and it was planned to focus on 12 essential courses, with possibility to support more courses through the financing of the publishing

activities, laboratory support, promotion of the organization and contents that also exist at the EU partners. Internet pages would be temporary integrated into all developed courses. In practice this means that students can get for specific courses from the Web the following:

- All general information needed (e-mail address, telephone numbers, office numbers, consultation hours of the professor and the assistant, time schedule of laboratory exercises, etc.)
- weekly course outline with links to details on lecture notes
- literature, detailed lecture notes (linearly written text), home works, laboratory assignments
- Links to several external sites useful to course topics, etc.

As the problem with laboratory support of the teaching process is emphasized on the Serbian universities, there is a question how to solve that problem with available means in the best way?
Is it better to buy 8 or 20 of the same experimental setups for lab in order for students to have means and work places in the lab for laboratory exercises, or is it better to make the same number of different exercises with web access. We think that it is better to plan various accesses to laboratories with web access as one of them.

Reviewer's remark 3: *It did not become clear from your application when the new undergraduate and postgraduate courses are going to be implemented. In this respect we would like to remind the consortium that the implementation of new or updated courses should take place as early as possible so as to allow their evaluation during the project lifetime.*

According to our plan outlined in the project application, the list of courses will be conceived in May 2008, and by September 2008, the course description and program will be written for all the 12 courses planned. At this time, we do not envisage problems that may delay these milestones.

Reviewer's remark 4: *Although during the project lifetime establishment of interdisciplinary faculties have been envisaged we have found little information on their planned organisation in terms of human resources and institutional settings. Please clarify this issue in your first progress report.*

The establishment of interdisciplinary faculties has not been envisaged in the project application. Though, we do consider this as a viable extension of the activity planned, following the planned time span of 2 years and provided an adequate funding from others.

One should bear in mind that Serbian universities are not essentially integrated. The faculty is financially independent unit, and the university is union of faculties. Each faculty is responsible for creation of study programmes and it can engage 30% of the competent staff from the outside of faculty, and even from outside of the university.
For carrying out of the project activities there is competent staff within the different departments of the faculties in the project consortium.

Reviewer's remark 5: *We have noted that the purchase and installation of equipment and the development of teaching materials are foreseen to be conducted on a continuous basis almost throughout the entire project duration. We strongly suggest that the activity be consolidated and that the consortium ensures that the equipment is installed and available to partner country staffs and students as early as possible in order to allow use of new facilities for training purposes and that developed teaching materials are available during the implementation of the courses.*

We can modify our plan accordingly, and include this modification within our first progress report. We can alter the plan in the sense that all the equipment will be purchased within the first three months (January, February and March 2008). We do not envisage problems in purchasing said equipment, as the initial allowance of 60% provides us with the possibility to purchase all of the equipment and make it available to our students at the very beginning of the project.
But, it should be noted that the equipment purchase was planned as part of the knowledge transfer from the EU partners in order to make appropriate selection of the equipment that will be used in future courses and laboratory exercises. Also, it was planned to manually develop some specific laboratory setups, hardware components and develop software for web access, and that will take some time to develop and integrate.

Reviewer's remark 6: *The application contained little information on the content of training to be provided to Partner country professors, lectures and teaching assistants. Please provide further information on this issue specifying also the number of the partner country staff to participate in trainings by category. Please include this information in your first progress report.*

In the description of each activity context of the visits to EU universities and / or training on Serbian universities is given. Section IV Summary of the project – gives some of the planned outcomes. Essence is in the transfer of knowledge and practice from the EU part of the consortium and financing of the educational materials systematization and organization of training within Serbian universities. Contemporary and internationally harmonized contents of courses is important as well as educational methodology (ways of connecting theoretical contents and practical exercises, methodology of the exam practice, giving the project tasks and similar). Special training goals might be mastering of various software tools (for implementation of simulations, experiments, or setting the corresponding educational materials on the web). Structure of the staff responsible for education on Serbian universities is 80% of teachers (*professors, lectures*) and 20% of assistants.

Reviewer's remark 7: *The content and timing of student mobilities should be further elaborated.*

Student mobility is planned according to available funds and with respect to Tempus financing rules. It is foreseen that the best students can do the part of their diploma work on some EU university where they can introduce themselves with new work methodology, new laboratories and other advantages, conduct experiment of interest or attend some seminars or parts of the course they need. They should be integrated in the new environment on individual bases and within the context of their studies. Their stay is also part of the preparations that after their return to be engaged as assistants on the new

study program. The first phase is selection of the interested students and then make an agreement with the EU partner for contents and timing of the students mobilities and determine their EU academic advisors and / or mentors during their stay in the EU.
Reviewer's remark 8: *We have noted that in some sections the application reference has been made to the organisation of activities in the third project year (organisation of round tables in the framework of dissemination). We remind the consortium that the current project should be realised within a two-year period. The consortium should therefore pay attention to a careful planning of envisaged activities and ensure the implementation of project's objectives in the framework of two years.*

That mistake accidentally happened in the part III.5.1 Dissemination, and instead of the „third project year" should be „second project year" or the last project year.

Reviewer's remark 9: *The consortium should pay more attention to possible language barriers. In relation to this the provision of language courses for partner country staff and students taking an active part in project activities could be further taken into account.*

Although not planned by the project (pages 49, 66), we agree that such activity would be very useful and that it should be taken into consideration. It is necessary to slightly change the financial plan in order to enable language courses financing.

Reviewer's remark 10: *In relation to foreseen dissemination tools we ask you to further specify the number and target groups addressed by the planned round tables and meetings and specify in particular which further Partner Country Universities should be targeted. The efficiency of this approach should be carefully examined. Instead of holding presentations in all regional Universities, their representatives could be invited to the PC consortium partners for cost-efficiency reasons.*

One of the possibilities for efficient knowledge dissemination is taking part and organization of the round tables on conferences devoted to education and implementation of the Bologna process. One of the conferences is national conference with great number of participants and representatives of all universities and Ministries is TREND http://www.trend.ns.ac.yu/ with the Serbian Ministry of Education and IEEE Education Society, Belgrade department. We accept the recommendation of the referees as rational and wise suggestion that we will certainly apply.

Reviewer's remark 11: *The number of seminars addressing students and regional stakeholders, their duration and timing should be further clarified.*

Activity 7.1 foresees one day seminars that would be on schedule at the time just before the enrolment of the first year students on faculties. It is for the benefit of the faculty to promote its study programmes.

Reviewer's remark 12: *The consortium should strengthen activities supporting the sustainability of project results. Particular attention should be paid to the process of validation and accreditation of the new curriculum and to financial sustainability, in order to support the maintenance of the new courses after project completion.*

Project proposal material does not include the accreditation itself, but the preparation for it. By accrediting of the study program, the project sustainability becomes certain. In the mean time, Serbian universities entered for the first time the process of accreditation governed by the well defined national criteria. Important criterions are up to date and internationally harmonized courses and curricula. This project will significantly contribute to that process. We hope that all courses planed by this project, will pass the accreditation process.

Reviewer's remark 13: *The consortium should also explore how student mobility can be organized and maintained after the end of the project.*

That is already under consideration. One of the models is bilateral contracts of cooperation.

Reviewer's remark 14: *We also ask you to further elaborate the commercial use of the e-learning education, specifying concrete target groups and labor market demands as well as exploring potential financial support from the private sector.*

Attitude towards the e learning is already mentioned and explained in the previous text.

Reviewer's remark 15: *In order to enhance project quality control mechanisms related activities should be further elaborated. We ask the consortium to clearly define the indicators of progress related to individual outcomes and complement them with quantitative dimensions and deadlines for the achievement of results. - As the proposed quality control appears to heavily rely on the consortium members, we strongly recommend the consortium to consider external evaluation. The involvement of the partner country' National Tempus Office should be further clarified. In relation to the latter we would like to clarify that members of the National Tempus Office are not consortium members, therefore the participation of these persons cannot be funded from the Tempus grant. The overall amount of the grant has been adjusted accordingly.*

As the external reviewers can not be financed from the project funds we will accept eventual external reviewer from the Tempus side. Also if we can not find adequate external reviewer and funds for financing, we will inform Tempus.

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Reviewer's remark 16: *While the role of the main project management responsible has been outlined, the division of tasks among the other consortium members in terms of management responsibilities should be further detailed. We also ask you to further specify the organization and composition of the envisaged Project Management structures.*

Under the item III.5.3. QUALITY CONTROL AND MONITORING of the project proposal, the planned Project Management structure is explained. Upgrading of the Serbian *Project Management structures* is performed by making the rectors and deans of the consortium universities, the obligatory members of the Local Committees.

Reviewer's remark 17: *During the starting phase of the project the consortium should agree on a clear decision making and conflict-resolution mechanism. The feasibility and cost-efficiency of*

the planned short visits to Serbian Universities in order to train partner country staff in proper reporting should be carefully examined.

The reviewer's observation is connected with observation #19. With great appreciation we will pay attention to the optimal usage of the project resources in order to achieve project goals with great efficiency.

Reviewer's remark 18: *The information on the number of envisaged mobilities differs in individual sections of your application. We therefore ask you to further clarify this issue in your progress reports.*

In the description of the each of activities context of the visits to the EU universities is given together with visits of the EU universities representatives to the partner countries universities. Number of envisaged mobilities differs for various activities. According to the reviewer's observation # 19, we will try to optimize the number of trips to achieve maximal project achievements.

Reviewer's remark 19: *As already mentioned above the consortium should carefully consider the cost / efficiency of mobilities and to consider that frequently costs may be reduced through a combination of activities and/or an increased use of information and communication technology for coordination purposes.*

We appreciate the reviewer's recommendation, and according to the real needs and possibilities of finance plans changes, we will try to make optimal combination of the usage of information and communication technology with mobility of the project staff and students, as planned in the project proposal.

Reviewer's remark 20: *Please provide further information on the planned inter-project coaching as we have little information on this project element in your application.*

Inter-project coaching should include training and exchange of the gained experiences with the project Laboratory training and education needs, lifelong courses preparation.

Reviewer's remark 21: *We also would like to inform the consortium that overheads/indirect costs indicated as a contribution to co-financing are not eligible. The consortium should consider that in order to obtain a Tempus grant of 284.520 €, eligible co-financing amounting to 14980 € will have to be provided.*

The observed irregularity will be corrected by changes of the finance plan.

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Section II: Statistics and Indicators
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Staff training

Number of teaching staff trained or retrained	**45**
Number of trainers trained	**3**
Number of trainees trained	**100**
Number of administrative staff trained or retrained	**0**

Mobility *(Staff/Student)

Number of partner country - EU/ Acceding/Candidate mobility flows	**0/0**
Number of EU/ Acceding/Candidate - partner country mobility flows	**1/0**
Number of partner country internal mobility flows	**4/0**
Number of EU internal mobility flows	**0/0**
Number of administrative mobility flows	**0/0**

Other

Number of publications	**0**
Number of developed curricula	**0**
Number of new institutions	**0**
Number of restructured institutions	**0**

Management of the project

Difficulties in financial management

Financial support for project activities is not transferred yet to the Partner country universities because of formal reasons. From there, planned activities are no completely performed.

Bologna Process

Bologna process' principles are implemented in the project proposal.

Adoption of a system of easily readable and comparable degrees

Degrees in Mechatronics are well recognizable in EU and the world. Also, new national accreditation criterions in Serbia propose possibility of new interdisciplinary degrees in engineering education as well as Mechatronics. This project will contribute to development of new concepts of engineering education at University of Belgrade and University of Kragujevac.

Diploma supplement

In accordance with EU practice this document will be prepared within project realization at beneficiary institutions.

Adoption of a system based on two main cycles, undergraduate (Bachelor) and postgraduate (Master)

Adoption of a system based on two main cycles, undergraduate (Bachelor) and postgraduate (Master) is already performed at beneficiary universities.

Establishment of a system of ECTS to promote student mobility

Establishment of a system of ECTS to promote student mobility is already performed at beneficiary universities.

Promotion of European cooperation in quality assurance

The activity 1.3 “Teaching quality control methods and procedures establishment” have done by project coordinators in Belgrade and Kragujevac in accordance with EU practice. Both of them have included within Quality Assurance Committees at their faculties.

Promotion of the European dimensions in higher education

Both of the activities 1.1 “Review of current standards in interdisciplinary engineering education” and 1.2 “Promotion of necessity for interdisciplinary engineering education” have done at beneficiary universities.

Lifelong learning as an essential element of the European Higher Education Area

Establishment of adult continuing education courses (lifelong learning) at different academic and skill level is planned within project realization. During this part of the project, at least three new courses (for different target groups) will be introduced at the regional universities (1.6. Activity).

Promoting the attractiveness of the European Higher Education Area

By finished activities: 1.1. Review of current standards in interdisciplinary engineering education; 1.2. Promotion of necessity for interdisciplinary engineering education; and 1.3. Teaching quality control methods and procedures establishment; the attractiveness of the European Higher Education Area is promoted.

Other credit systems

N/A

Modular structure of curriculum

Modular structure of interdisciplinary engineering curriculum is desirable and expected. We can specify modules for applied mechanics, automatic control, informatics, etc. within Mechatronics curricula

New teaching and learning methods

Introducing of new teaching and learning methods is one of the project aims. These project activities are not realized yet.

Quality assurance

Quality assurance is encompassed throughout the activity 1.3. Teaching quality control methods and procedures establishment

e-Learning

E-learning courses are not planned nor specified in the project application. We do plan to introduce web-support for our laboratory exercises, but not the e-learning concept within this projects time span and finance constraints. Web-support will be focused on bringing the students the possibility to visualize experimental results remotely, sharing and discussing the obtained results and other outcomes at distance.

University/Entreprise cooperation

Today, there is very obvious lack of skilled professionals to perform some sophisticated technological tasks in the Serbian industries. It is almost impossible to find engineers with good knowledge in control theory, instrumentation, software development and, at the same time, some knowledge about the process dynamic to be controlled. This

problem is even bigger when you have in mind extremely large gap of some 10 to 15 years of isolation and economy recession which caused significant lagging of complete Serbian engineers potential, behind colleagues from rest of European countries, mainly in area of new technology and materials, automatization, computerization and robotization, modern production techniques, etc. Local labour market needs good prepared multiskilled professionals in engineering, with interdisciplinary knowledge of ICT, new production technologies, economics, etc.
This project foresees modern interdisciplinary engineering education establishment at beneficiary institutions. University/Enterprise cooperation should be useful for student practice work, and it is foreseen by this project.

Links to the labour market in degree programmes

Local labour market needs good prepared multiskilled professionals with interdisciplinary engineering education - a mixture of electrical, mechanical and IT knowledge called Mechatronics as a recognizable EU engineering BSc and MSc degree. Because of specifically organization Serbian universities and faculties, Mechatronics rather will be special an orientation within electrical or mechanical engineering curriculum in formal sense.

Links with other EU education programmes

There are a lot of Mechatronics education programmes:

- **University of Maribor**
  - http://robin2.r.uni-mb.si/mehatronika/mehatronika.html
  - http://robin2.r.uni-mb.si/Welcome.html
  - http://www.uni-mb.si/povezava.aspx?pid=4320
- **Vienna**
  - http://www.technikum-wien.at/study_program/bachelor/mechatronics___robotics/
  - http://www.technikum-wien.at/study_programs/master/mechatronics___robotics/
- **University of Southern Denmark**
  - http://www1.sdu.dk/Nat/ingsdb/ingwww/STUDIEORDNINGER/S006ENG/MC2006.html
  - http://www1.sdu.dk/Nat/ingsdb/ingwww/STUDIEORDNINGER/S006ENG/CIVIL_2_2006.html
- **TU Ilmenau**
  - http://tu-ilmenau.de/uni/index.php
  - http://www4.tu-ilmenau.de/studienplan/studienplan.php?stg=BA_Mechatronik
- **Warsaw University of Technology**
  - http://www.mchtr.pw.edu.pl/eng/index.html
- **Johannes Kepler University of Linz, Austria**
  - http://www.mechatronik.uni-linz.ac.at/mechatronik/linz_e.html
  - http://www.mechatronik.uni-linz.ac.at/studinfo/studienplan.html
  - http://www.mechatronik.uni-linz.ac.at/links/worldwide.html
- **TU Braunschweig**
  - http://www.zmb.tu-bs.de/zmb_html/Mechatronik/MinBS.html
  - http://www.tu-braunschweig.de/zsb/studienangebot/studiengaenge-einzeln/mechatronik

Set up of project website

www.jep41029.etf.bg.ac.yu

Qualification frameworks

Modern technology and increased industry demands emphasize importance of vocational training to expose students to real working environments and to support the training of multi-skilled technicians. This development led to a new type of job profile - a mixture of electrical, mechanical and IT knowledge called Mechatronics. It is a truly **interdisciplinary** approach to engineering, that means synergistic integration of mechanical engineering, electrical engineering, electronic/mechanical control and computer systems in the design and realisation of intelligent products, processes and systems. Mechatronics has been described as Mechanical Engineering for the 21st Century.

Teacher training in

Language – Until now, it is not performed.

*** Reviewer's remark 9: *The consortium should pay more attention to possible language barriers. In relation to this the provision of language courses for partner country staff and students taking an active part in project activities could be further taken into account.*

Although not planned by the project (pages 49, 66), we agree that such activity would be very useful and that it should be taken into consideration. It is necessary to slightly change the financial plan in order to enable language courses financing.

Numeracy - Until now, it is not performed.
Literacy - Until now, it is not performed.
IT skills - Until now, it is not performed.
Social and inter-cultural skills - Until now, it is not performed.

Links with VET in

Adult training- Until now, it is not performed.
Non-formal and informal education

About hundred auditors have been on meetings in Belgrade and Kragujevac concerning with activity 1.2 "Promotion of necessity for interdisciplinary engineering education". Both of the activities 1.1 "Review of current standards in interdisciplinary engineering education" and 1.2 "Promotion of necessity for interdisciplinary engineering education" have done by two teachers form Kragujevac and four teachers from Belgrade. About 45 persons of teaching staff have attended on meetings within activity 1.2. The activity 1.3 "Teaching quality control methods and procedures establishment" have done by project coordinators in Belgrade and Kragujevac. Both of them have included within Quality Assurance Committees at their faculties.

Active citizenship – It is not foreseen by project application/
Occupational guidance and counselling – It is not foreseen by project application/

Section III: Outcomes
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OUTCOME

Reference number of the outcome	**1**
Title of the outcome table	**CURRICULUMS AND COURSES DEVELOPMENT**
Indicators of achievement and/or performance as indicated in the project proposal	New interdisciplinary engineering curriculums and courses introduced. Existing courses updated.
Proposed changes	No changes

OUTCOME

Reference number of the outcome	**2**
Title of the outcome table	**WEB-BASED LABORATORY'S NETWORK**
Indicators of achievement and/or performance as indicated in the project proposal	New laboratory facilities installed.
Proposed changes	No changes

OUTCOME

Reference number of the outcome	**3**
Title of the outcome table	**NEW LEARNING AND TEACHING ENVIRONMENT**
Indicators of achievement and/or performance as indicated in the project proposal	Teachers (re)trained. New teaching methodologies and quality control methods adopted. New teaching materials. Shared e-learning resources.
Proposed changes	No changes

OUTCOME

Reference number of the outcome	**4**
Title of the outcome table	**PILOT STUDENT EXCHANGE**
Indicators of achievement and/or performance as indicated in the project proposal	Realization of student exchange
Proposed changes	No changes

OUTCOME

Reference number of the outcome	**5**
Title of the outcome table	**DISSEMINATION (AND SUSTAINABILITY)**
Indicators of achievement and/or performance as indicated in the project proposal	Workshops. Web pages development.
Proposed changes	In accordance with the reviewer's remarks we can adopt some changes. Review's remark 1): *In relation to foreseen dissemination tools we ask you to further specify the number and target groups addressed by the planned round tables and meetings and specify in particular which further Partner Country Universities should be targeted. The efficiency of this approach should be carefully examined. Instead of holding presentations in all regional Universities, their representatives could be invited to the PC consortium partners for cost-efficiency reasons.* One of the possibilities for efficient knowledge dissemination is taking part and organization of the round tables on conferences devoted to education and implementation of the Bologna process. One of the conferences is national conference with great number of participants and representatives of all universities and Ministries is TREND http://www.trend.ns.ac.yu/ with the Serbian Ministry of Education and IEEE Education Society, Belgrade department. We accept the recommendation of the referees as rational and wise suggestion that we will certainly apply. Reviewer's remark 2): *The number of seminars addressing students and regional stakeholders, their duration and timing should be further clarified.* Activity 7.1 foresees one day seminars that would be on schedule at the time just before the enrolment of the first year students on faculties. It is for the

	benefit of the faculty to promote its study programmes.

OUTCOME

Reference number of the outcome	**6**
Title of the outcome table	**(DISSEMINATION AND) SUSTAINABILITY**
Indicators of achievement and/or performance as indicated in the project proposal	Adoption of proposed reform process.
Proposed changes	Project proposal material does not include the accreditation itself, but the preparation for it. By accrediting of the study program, the project sustainability becomes certain. In the mean time, Serbian universities entered for the first time the process of accreditation governed by the well defined national criteria. Important criterions are up to date and internationally harmonized courses and curricula. This project will significantly contribute to that process. We hope that all courses planed by this project, will pass the accreditation process

OUTCOME

Reference number of the outcome	**7**
Title of the outcome table	**QUALITY CONTROL AND MONITORING**
Indicators of achievement and/or performance as indicated in the project proposal	• New (reformulated and updated) content of existing department courses • Teaching quality control methods and procedures established • New interdisciplinary engineering study programmes are introduced. New course syllabuses at under and postgraduate level adopted at University of Belgrade and University of Kragujevac • New PhD. study programme introduced • Laboratory facilities installed • New teaching materials (books, lab practicums, web presentations, …) published • Adult continuing education courses established • Teachers (re)trained • New teaching methodology (PBL, etc) and laboratory facilities intensively used in all courses • Project data available on WEB site and in printed form (text books, booklets) • New e-teaching services and e-shared resources developed • Laboratory technicians (re)trained • Web-based laboratory's network established • Consortium meetings held on schedule • Students' work at EU Universities recognised • Students involvement in decision making and teaching processes. Students satisfaction with revised courses and student exchange program.
Proposed changes	No changes.

OUTCOME

Reference number of the outcome	**8**
Title of the outcome table	**MANAGEMENT OF THE PROJECT**
Indicators of achievement and/or performance as indicated in the project proposal	Consortium meetings held on schedule
Proposed changes	No changes.

Section IV: Summary Report for Publication
CD_JEP-41029-2006 (RS)

Activities

Until now, following activities are performed:
1.1. Review of current standards in interdisciplinary engineering education;
1.2. Promotion of necessity for interdisciplinary engineering education; and
1.3. Teaching quality control methods and procedures establishment

Problems in project implementation

Financial support for project activities is not transferred yet to the Partner country universities. Because of that, planned activities concerning with equipment upgrade within activities 1.1, 1.2, and 1.3 are not finished yet.

Progress to date

Until now, following activities are performed:
1.1. Review of current standards in interdisciplinary engineering education;
1.2. Promotion of necessity for interdisciplinary engineering education; and
1.3. Teaching quality control methods and procedures establishment

Other remarks

II. Comments on standard checklist for projects („JEP/SCM Monitoring Visits – Guiding questions“)

Relevance

- *has it been necessary to adapt the original rationale for the project to meet changing needs of the partner country institution;*
- *how is the project addressing these external changes and is this reflected in the project design (objectives, assumptions and risks);*

- *to what extend are the expected results and acitivities, assumprions and overall objectives still valid.*

Partner countries needs did not change in the mean time. Moreover, in line with labor market needs, the original project proposal purpose is confirmed. (Nevertheless, conditions for the project realization changed. National rules and standards for accreditation of Serbian faculties and their study programs are published for the first time.). In the time of making the project proposal, conditions for accreditation of the faculties and their study programmes were not known. In the mean time national standards for accreditation where published and all faculties are in the accreditation process that is being carried out for the first time in Serbia by the march 2009 as planned. New conditions brought some constraints that did not exist at the time of the project submission. Total number of hours on all study programmes that the teacher can spend teaching is limited, and also the competencies for teachers are defined for the each level of studies. Even with these additional constraints, we remain convinced that the expected project results and activities are still valid. Nevertheless, as stated in the project proposal, essential precondition for the implementation of the part of the project is that proposed reform processes should be approved by the university management structures and authorities.

Efficiency

- *are the project inputs on time, well managed on a day-to-day basis*
- *have the planned results (quantity) to date been delivered, are indicators verifiable*
- *project management and coordination arrangements: are timely and appropriate decisions being made to support effective implementation and problem resolution;*
- *is the project being flexible to changing needs (adaptations to external and internal factors, modifications to work plan and budget).*

Comment#2: Money for the Tempus project funding was not yet transferred towards partner country institutions. Planned activities that are not strictly dependent from the financial support are being implemented. Planned equipment purchase was not performed and visits to the EU consortium members were postponed. Coordination of the project activities is performed by the intensive email communication, project kick off meeting that was organized in Belgrade and by the direct contacts and communication between partner country institutions members.

Effectiveness

- *are inputs/activities contributing to the expected results;*
- *have the obtained results since the beginning of the project contributed to the project purpose / objectives;*
- *what is the level of stakeholder participation in the management / implementation of the project and of local ownership;*
- *are the benefits of the project being received by the planned beneficiaries;*

- *are spin-off effects or other secondary uses, planned or not, consistent with the project objectives;*
- *to what extent is the project adapting to external factors*.

Comment#3: Project is in the starting phase of the implementation Preparation activities in the given period (signed by 1.1, 1.2, 1.3) were performed completely, except the part that requires financial support. Teaching quality control methods and procedures applied on the Imperial College were studied and in good part integrated in documents that define quality (quality procedures) which were independently adopted on the Electrical engineering faculty in Belgrade and Mechanical engineering faculty in Kragujevac. Project implementation is planned on the Electrical engineering faculty in Belgrade and on Mechanical engineering faculty in Kragujevac (faculties in Serbia are financially independent, while the university is union of faculties) so that on the local level management and project implementation is supported by the deans of the member faculties in addition to project management by the project coordinators. As one of the spin-off effects, although the project is in the starting phase, in the secondary school for Mechanical engineering and Traffic procedure for introduction of the new educational profile named Technician for robotics was started relying significantly on the successful implementation of the Tempus project Accommodation of the project to the external factors is not necessary for the time being.

Potential for sustainability

- *what is the level of policy support provided to the project;*
- *how is the project contributing to institutional and capacity building;*
- *how is the project addressing socio-cultural issues and taking into account gender issues;*
- *to what extent are results economically, financially, socially affordable for the partner country institutions;*

Comment#4: Project implementation offers realistic and necessary development capacity to the universities implementing the project that is in line with labor market needs. Potential for the project sustainability was already explained in the project proposal.

Potential imapct

- *to what extent have modernisation processes taken place at faculty /university level, and what has been the Tempus project's influence on these processes? To what extent have teaching /learning processes and curricula been upgraded and have resulted in enhanced students' qualifications?*
- *is the project being identified by the institution as promoting the University as a „centre of excellence" in a given field, or as a result of which the University's national or international reputation has been enhanced?*
- *what has been the Tempus project's impect on higher education reforms and modernisation processes? Has there been any influence on the introduction of the Bologna principles in the country?*
- *what opportunities are being created for the project beyond the specifici objectives in particular in fields related to graduates' employability and enhanced univestity/enterprise cooperation?*

Comment#5: Project is in its starting phase, so that the comment for the „potential impact“ would refer to corresponding text in the project proposal. It is significant to say that the student team of Prof. Vukosavic (our Grant coordinator), from EE Faculty at University of Belgrade, won on the competition "IEEE Int. Future Energy Challenge 2005" held on 17/08/2005 at Illinois Institute of Technology, Chicago (http://www.energychallenge.org/). This project will help to continue with such successes.