SECTION II: BASIC DATA ON THE PROJECT

- **Title of the project:**

Interdisciplinary Engineering Education Establishment

- **Acronym of the project:**

I.E.E.E.

- **Specific Objectives of the project:**

The labour market in the modern economy requires graduates who are both highly competent across a range of technical disciplines and who are also trained in the relevant aspects of business management, economics and law.

The overal aim of the project is to establish the required infrastructure to support interdisciplinary education on a sustainable basis. This will consist of the following

o Curriculum development that will put emphasis on interdisciplinary education and training. This will be aimed at breaking down the traditional barriers between technical disciplines including Mechanical Engineering, Electrical and Information and Communication Technologies (ICT), while at the same time providing a solid foundation in areas of Business Management and Economics for all technical specialists.

o Development of courses that will adopt modern teaching methods and tools.

o Provision of exemplary laboratory facilities designed to support both undergraduate and postgraduate education, which will aim to address the excessive traditional bias towards purely theoretical form of teaching at Universities in Serbia. Such facilities will also be available to support relevant research activities in relation to PhD study programmes.

o Development of educational material based on modern e-learning methods and tools. These will be designed to complement and enhance the new laboratory facilities and, importantly, to provide an infrastructure that will support closer integration between various departments, faculties and institutions. It is also envisaged that such tools will enable a significant amount of self-study and support continuing education courses (lifelong learning) at different academic and skill levels.

o Development of quality control methods and procedures based on best practices, which will be designed to maintain educational standards and ensure their further impovement on a sustainable basis.

The focus of the project will be Mechatronics education as an interdisciplinary subject with strong relevance to all branches of engineering and science. Within this framework, the aim is to provide good laboratory support for the core of the new technical curriculum, which will consist of interdisciplinary courses in ICT, mechanical and electrical engineering. The new facilities will be established in the Electrical Engineering Faculty at the Universitiy of Belgrade and in the Mechanical Engineering Faculty at the University of Kragujevac, and they will be made available to other departmets and institutions to support their educational activities. The modular study programmes will be created in accordance with Bologna Declaration including undergraduate and postgraduate study, in order to produce graduates who combine a sound knowledge of engineering with an understanding of the principles of management and economics. Faculties of Economics and Low in Belgrade and Kragujevac will be included in project realization, too. Also, the aims are introduction of new teaching methods and long-term inter-university collaboration based on student mobility and establishing beneficiary universities as an example of good practice.

- **Partner country/ies involved:** *(Please tick □ the relevant box/es)*

III.1 BACKGROUND OF THE PROJECT

A maximum of four pages A4

III.1a Partner country/ies problem and needs analysis:

Please focus on the needs and constraints (a) in the Partner Country(ies), (b) at the PC higher education institution(s) - if relevant please refer to respective legislation and/or regulations. Your information should be specific to the subject of the proposal.

Extended period of isolation and economic recession of Serbia (RS) has changed the labour market needs and it has caused significant lagging of the RS graduates behind their colleagues from the EU countries. Today, there is a very obvious lack of skilled professionals who are needed to perform some sophisticated technological tasks in the Serbian industries and who are, at the same time, equipped with the necessary knowledge of non-core disciplines such economics and business management. Infrastructure constraints have also meant that our graduate students posses mainly theoretical knowledge and little or no practical experience. There are continuing issues with the mainly theoretical, outdated and inflexible curricula with small number of elective subjects, poor and outdated laboratory equipment, insufficient implementation of modern teaching methods and limited quality control and monitoring mechanisms in the teaching process. There is also an absence of interdepartmental collaboration, low modularization of courses and low mobility of students. In addition, RS universities on the whole have not supported the lifelong learning concept and the transfer of new technologies, knowledge and skills is slow, so experienced engineers have low level of information about new technologies and modern industry perspectives. This problem is even more aparent when one considers the new requirements for the local labour market, i.e. the needs of small and medium size firms, who require well prepared multiskilled professionals in production, trade and management, with knowledge of ICT and new technologies, foreign languages, communication and practical skills. In the future equal attention must be placed on multi- and inter-disciplinary education of engineering students at graduate and postgraduate level, as well as on adult continuing education and training.

RS is now in transition and a restructuring of studies is taking place at all Serbian universities, in line with the Bologna Declaration and ECTS, the needs of ongoing social and economic reform and the current European trends. The process of reforms at Serbian universities is not finished. It is facing significant problems related to financial support for modernization and upgrading of existing courses and introducing new ones. Modernization of the infrastucture has been identified as a particular issue, including laboratories for teaching and research support, the ICT infrastructure and teaching material to support modular studies across multiple faculties.

There have been several JEPs aimed at addressing some of these issues, which are complementary to the proposed project. JEP 18114 – 2003 “Restructuring Of Mechanical Engineering Studies” focuses on the overall reorganisation of Mechanical Engineering according to the Bologna Declaration, modularization of the course and introduction of a subject credits. However it does not focus in depth on a particular subject area (such as Mechatronics) and there is a limited scope for improvement of the laboratory infrastructure or support for PhD studies. JEP-40104-2005 “Engineering Business Management and Services Science Master Module” focuses on the curriculum development for the new Engineering Business Management Masters course, rather than on interdepartmental and interdisciplinary enhancement of the existing courses that would also benefit from this input. Also there is little scope for improving practical skills and laboratory infrastructure. C013A05 – SCG Restrukturierung und Einführung der Mechatronik an den Universitäten in Serbien (REMUS) involves setting up of an MSc course in Mechatronics, but the focus is on course structure and there is a limited scope for improving the necessary laboratory infrastructure other than use of PC based simulation exercises. The Universities of Belgrade and Kragujevac, i.e. only their ME Faculties, are involved in these JEPs which will provide a complementary set of activities to the work proposed here.

In addition, there are some exceptional examples of high quality contemporary university education in RS that are based on personal enthusiasm and talents of some teaching staff. For example, the student team of Prof. Vukosavic (our Grant co-ordinator), 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 JEP proposal is in line with this success – the EE Faculty, University of Belgrade, has made a decision to create a modern Mechatronics curriculum at all study levels, but this will require a significant investment in laboratory infrastructure. Collaboration between EE and ME Faculty is understood. Namely, Mechatronics is a truly interdisciplinary engineering field that means synergistic integration of electrical and mechanical engineering, and ICT. Therefore, development of modern Mechatronics curriculum means collaboration between different departments and faculties. Special interests for development integrated study programmes in Mechatronics have ME Faculties because of Mechatronics has been described as Mechanical Engineering for the 21st Century. Nevertheless, in line with labour market needs, it is our intention to integrate relevant economics, entrepreneurship and management themes in flexible Mechatronics study plan at all levels. Similar concept of integrated engineering, economics and management study is realized at Oxford University (http://www.eng.ox.ac.uk/World/Academic/Admissions/Ugraduate/eem.html).

III.1b Presentation of the consortium:

Please focus on the elements which are essential for the project (particular expertise, relevant previous experience and contacts beneficial to the project). In case of involvement of external experts, please make reference to their specific expertise and contribution to the project.

EU consortium members are the well-recognized European schools, and their role is to provide training and knowledge transfer to RS consortium members, to evaluate the progress of the project, and to help in realization of student's and teachings' mobility.
Imperial College London is a leading Higher Education institution in the UK and in a recent Times survey it was voted among the top 10 universities in the world. Imperial College specialises in technology and physical sciences, but the Management School has also been gaining prominence and it has been voted among the top 20 such schools in the world. The Mechanical Engineering Department has been consistently awarded the top 5* rating by the Higher Education Funding Council and it continues to be rated among the very top such Departments in the World. The undergraduate degree course in ME is accredited by the Institution of ME and as such it is recognised as part of the qualifications leading to the title of Chartered Engineer. Imperial College has a total of 11,500 students, of which 1,600 are taught postgraduate (MSc) and 1,900 are research postgraduate (PhD) students. The Mechanical Engineering Department numbers 40 staff and has a total of 700 students, of which 46 are MSc and 105 are PhD students. The experience of leadership, collaboration with industry, interdisciplinary and interdepartmental education will be useful for this project.
The Faculty of Electrical Engineering and Computer Science, as a part of the University of Maribor (Slovenia), together with ME Faculty, has organized Mechatronics study profile (http://www.ro.feri.uni-mb.si/izobrazevanje/Plakat_meha.jpg), and has experience in building of Internet mediated Mechatronics laboratory.
The RS consortium member institutions consists of University of Kragujevac and University of Belgrade (i.e. their appropriate faculties). University of Kragujevac (http://www.kg.ac.yu/) covers educational area of Central Serbia region (about 2.5 million citizens), and was founded in 1976 from University of Belgrade. University of Belgrade (http://www.bg.ac.yu/) is oldest and biggest RS University. Both RS universities have adequate teaching staff potential at their different departments and faculties (ME Faculty, EE Faculty, Economics Faculty, etc.), in order to provide the desired mixture of knowledge and skills for students.

III.2 THE PROJECT

A maximum of four pages A4

The project description should correspond to the needs identified and described under III.1a by focussing on the following points: How does your proposal solve/address these needs and constraints? Who is/are the target group/s of your project? Who are the direct/indirect beneficiaries?

The goal of this project is to establish contemporary and flexible interdisciplinary study programmes which combine a sound knowledge of engineering with an understanding of the principles of management, entrepreneurship and economics, in order to contribute to the reorganization of engineering education in Serbia in line with the needs of ongoing social-economic reform and the current European trends. The demands of modern technology and trade emphasize the importance of vocational training, exposing students to real working environments. Many technical processes and products in the area of electrical and mechanical engineering show an increasing integration of mechanics with electronics and information processing. Mechatronic systems represent a close integration between the physical components (mechanical, electrical and electronic hardware) and the information-driven functions (software), implying new demands on the engineers skilled in this interdisciplinary field. Economics and management make ideal additional partners in an interdisciplinary study programme, as it has been previously realized and demonstrated at Oxford University (http://www.eng.ox.ac.uk/World/Academic/Admissions/Ugraduate/eem.html).

Therefore, our goal is to establish contemporary interdisciplinary /interdepartmental engineering education programme in the area of Mechatronics, with integrated economics and management themes and courses, at the Universities of Belgrade (EE Faculty) and Kragujevac (ME Faculty) and to provide the required long-term experimental support. Different faculties and deparments from RS universities will be included in the realization of the project. The main part of the study programmes can be created by selection, modification and modernization of existing courses from different departments and faculties (EE Faculty, ME Faculty, Economics Faculty).Within this framework, the aims are: 1) creation of an exemplary supporting laboratory's network with Intenet access and shared e-learning resources, 2) development of modular and flexible study programmes in accordance with Bologna Declaration involving all study levels, 3) reformulation and updating of existing departmental courses 4) establishment of adult continuing education courses, 5) improvement of teaching methodology and materials (including multimedia materials, publishing new text books and laboratory manuals, creation of e-teaching materials and services) 6) establishment of long-term interuniversity collaboration based on student mobility, 7) establishment of quality control methods and procedures based on best practices, including mechanisms which will be designed to maintain educational standards (including a system of lecture evaluations by the students, and another common quality assurance procedure that will be developed).

In accordance with the objective of integrating RS universities into the European university system, this project will put emphasis on transferring the existing experience of the EU consortium members to the beneficiary partner universities. The EU consortium members will provide the necessary leadership and experience for this project. During the project, the following objectives will be achieved:

1. Modular flexible interdisciplinary and interdepartmental study programmes in integrated Mechatronics, Economics and Management (Bachelor degree with 3-4 years duration, Master degree with duration of 1-2 years, and PhD degree with 3 years duration) at the University of Belgrade (EE Faculty), and the University of Kragujevac (ME Faculty). Mechatronics curricula should provide students with an appropriate, level of well rounded knowledge in the following fields: (1) mechanical systems (mechanical elements, machines, precision mechanics); (2) electronic systems (microelectronics, power electronics, sensor and actuator technology); (3) information and communication technology (systems theory, control and automation, software engineering, artificial intelligence, signal processing, etc.); (4) Management topics including enterpreneurship, business

management and economics. Particular emphasis will be placed on students' ability to propose and develop specific design concepts. Such topics can make the new interdisciplinary engineering curriculum at Faculties of ME and EE more stimulating, meaningful and attractive and they can better prepare students to pursue careers characterized by a high degree of innovation and leadership.
2. Exemplary laboratory facilities will be enabled for web-based access to the developed physical experiments. This will provide a stronger interuniversity collaboration, more effective knowledge dissemination and an infrastructure for transfer of new technologies, while allowing significant financial savings compared with physically replicating such facilities across many faculties. –This infrastructure will be designed to support both undergraduate and postgraduate education, which will aim to address the excessive traditional bias towards purely theoretical form of teaching at Serbian Universities. The remote web-based laboratory environment will allow students to access the laboratory at convenient times and from anywhere via Internet. While one student conducts experiments on the physical control apparatus, others can observe and interact with this process over the Internet/Intranet. This method of teaching/training also offers an interesting potential in industrial applications, such as fault tele-diagnosis, tele-monitoring and tele-maintenance of equipment, tele-control of robots and other devices. Such facilities will also be available to support relevant research activities in relation to PhD study programmes. In direct interaction with the devices at the remote location, a large student community can access these experiments. High-cost instruments will be shared by many users, providing a more dynamic as well as cost-effective, educational environment.
3. New teaching methods will be implemented (problem based learning, team-based, self-based and concurrent teachnig, continuous assessment of students' work, etc). We plan that most of the teachers involved in the project will visit the universities in the EU, in order to get the desired level of knowledge and experience and to apply that in the redesign of existing and/or creation of new courses. Course redesign will include provision of feedback education mechanisms, new teaching materials (textbooks, laboratory manuals, and multimedial presentation for each lesson) and e- teaching services (such as http://www.mfkg.kg.ac.yu/ Predmeti/CAMAC/index.htm or better).
4. Establishment of adult continuing education courses (lifelong learning) at different academic and skill level. During this part of the project, at least three new courses (for different target groups) will be introduced at the regional universities.
5. Pilot student exchange between consortium members. Interuniversity collaboration based on student mobility will be established.
6. Regional libraries will be enriched with new books and journals
7. Creation of the national Internet portal and integrated e-education environment for mechatronics education. Agreements and contracts will be offered to Universities in the region in order to improve and extend web based laboratory's network and contribute to mutual development of integrated learning environment.
8. Introduction of the quality control system, in order to keep the results obtained during the project in the years to come.
9. Management of this complex project is planned as follows: 1) Consortium meetings are planned twice a year. 2) Technical team with members from all consortium institutions will be formed for realization of web based laboratory's network design, establishing and connecting. 3) Integrated progress reports will be made every year. 4) At the end of project final report will be made and published.
This project is in compliance with the priorities for Serbia curriculum development within TEMPUS program, which favors projects promoting interuniversity cooperation, interdisciplinary education, shortening the average duration of studies and introducing of credit transfer system (ECTS) and new teaching methodologies.

III.3 LOGICAL FRAMEWORK MATRIX – LFM

Wider Objective: *What is the overall broader objective, to which the project will contribute?* • 1. To provide educational model for all technical universities in the region. • 2. To help regional economies • 3. To form the basis of integration of the region's universities into the EU family of higher education institutions.	**Indicators of progress:** *What are the key indicators related to the wider objective?* • 1. Acceptance of our model by other departments/faculties • 2. Economic indicators in the related areas. Employment of graduates students. • 3. Flow of teachers and students from the region to EU in both directions.	**How indicators will be measured:** *What are the sources of information on these indicators?* • 1. Review of curricula changes at other departments/faculties • 2. Review of statistical reports. • 3. Review of university's and CEEPUS statistics, interuniversity contracts, shared programmes and learning resources.	
Specific Project Objective/s: *What are the specific objective/s, which the project shall achieve?* • 1. To establish contemporary interdisciplinary eng. education at all level. • 2. To provide exemplary laboratory facilities and to create web based laboratory's network. Improvement of teaching methodology, materials and quality control methods. Usage of modern e-learning methods and tools. • 3. To establish long-term interuniversity collaboration based on student mobility and development of e-shared facilities.	**Indicators of progress:** *What are the quantitative and qualitative indicators showing whether and to what extent the project's specific objective/s are achieved?* • 1. New modular under- and post-graduate study programmes (according to Bologna Declaration) and lifelong courses. New graduates match the demands of local labor. Increased number of students. • 2. Better efficiency and quality of studies. New lab, teaching and learning facilities. • 3. Implementation of ECTS. Increased migration of students. Shared e-learning resources and web laboratory facilities.	**How indicators will be measured:** *What are the sources of information that exist and can be collected? What are the methods required to get this information?* • 1. Official decisions and annual reports of partner universities and statistical reports. Review of courses' evaluation by students. Review of unemployment figures and major employers about their satisfaction with new graduates. • 2. Review of new lab facilities, courses organization, new e-learning environment, and relevant faculty decisions and reports. • 3.Review of relevant interuniversity agreements, statistics and web resources.	**Assumptions & risks:** *What are the factors and conditions not under the direct control of the project, which are necessary to achieve these objectives? What risks have to be considered?* • 1. Acceptance of proposed reform processes by university authorities. (But, Faculty of Electrical Engineering at University of Belgrade has already supported this reform direction) • 2. Necessary institutional support of • universities and Ministry of Education • and Sports • 3. Support from the regional faculties and universities involved
Outputs (tangible) and Outcomes (intangible): *Please provide the list of concrete outputs/outcomes leading to the specific objective/s, using bullet points, considering the following questions for their definition: What are the envisaged quantifiable and non-quantifiable effects and benefits of the project? What improvements and changes will be produced by the project?* • 1. Curriculums and courses development • 2. Web-based laboratory's network • 3. New learning and teaching environment • 4. Pilot student exchange • 5. Management of the project • 6. Quality control and monitoring • 7. Dissemination and sustainability	**Indicators of progress:** *What are the indicators to measure whether and to what extent the project achieves the envisaged results and effects?* • 1. New interdisciplinary engineering curriculums and courses introduced. Existing courses updated. • 2. New laboratory facilities installed • 3. Teachers (re)trained. New teaching methodologies and quality control methods adopted. New teaching materials. Shared e-learning resources. • 4. Realization of student exchange • 5. Consortium meetings held on schedule • 6. Student satisfaction with established learning environment.	**How indicators will be measured:** *What are the sources of information on these indicators?* • 1. Regional member universities prospects • 2. Lab inventory. Review of progress of Internet based lab facilities (by relevant web pages) • 3. Annual report by all consortium members Review of new teaching materials, relevant web pages and official decisions and annual reports of partner universities. • 4. Annual report by all consortium members • 5. Reports of consortium meetings	**Assumptions & risks:** *What external factors and conditions must be realised to obtain the expected outcomes and results on schedule?* • 1. Acceptance of proposed reform processes by university authorities. • 2. Availability of laboratory equipment • 3. Potential risk of the newly trained personnel leaving the RS universities • 4. – • 5. Political and economic stability in the region. • 6. Support from the regional partner universities involved. • 7. Willingness of non-involved regional universities to accept project results.

	• 7. Workshops. Web pages development.	• 6. Annual report by all consortium members • 7. Review of relevant web pages. Annual report by all consortium members.	Political and economic stability.
Activities: *What are the key activities to be carried out and in what sequence in order to produce the expected results?* • 1 1.1 Review of current standards in interdisciplinary eng. education; 1.2 Promotion of necessity for interdisciplinary engineering education; 1.3 Teaching quality control methods and procedures establishment; 1.4 Creation of new list of courses (of the core new curriculum structure); 1.5 Syllabuses creation for all courses at under and postgraduate level; 1.6 Updating of existing courses (on other departments, in correlation with new interdepartmental structure) and establishment of lifelong courses; 1.7 Acquisition, development and publishing of new teaching materials; • 2. 2.1 Training and education for the main persons in charge of laboratories; 2.2 Selection and procurement of laboratory equipment; 2.3 Lab equipment installation and integration with existing equipment; 2.4 Training of the laboratory technicians; 2.5 Installation of Internet laboratory services and Labs management; • 3. 3.1 Purchase library PCs, books, periodicals and multimedia materials; 3.2 (Re)training of professors, lectures and	**Inputs:** *What inputs are required to implement these activities, e.g. staff time, equipment, mobilities, publications etc.?* • 1. Academic staff costs (RS and EU), 5 short E-W visits, 2 W-E visits, 12 E-E travels, Equipment: 6 PCs, 2 notebook computers, 2 network printers, and 2 video projectors, Printing and publishing costs of textbooks, scripts, manuals, web-publishing, etc, Other costs.. • 2. Academic staff costs (RS and EU), 6 short one week visits E–W, Equipment: Laboratory equipment and setups, LAN equipment, software, and other support equipment for web based laboratory's networks. Web publishing costs, etc. • 3. Academic staff costs (RS and EU), 16 E-W travels, total duration: 20 weeks; Books, periodicals, multimedia materials, access to data bases, 16 PCs for teaching staff, 3 servers and 6 PC computers, 3 scanners, 3 PC printers, Web publishing costs, etc. • 4. 12 travels East – West in total duration of 36 weeks, Other costs (visa costs, bank charges, etc.) • 5. Academic staff costs (RS and EU), Administrative staff costs (RS and EU), 12 one week visits W–E, 12 E-E travels, 2 computers, 2 printers, 2 scanners and 2		**Assumptions, risks and pre-conditions:** *What pre-conditions are required before the project starts? What conditions outside the project's direct control have to be present for the implementation of the planned activities?* • 1. Acceptance of proposed reform processes by university authorities. • 2. Available funds for those purposes / Availability of laboratory equipment and setups; • 3. Interest of teachers in taking part; Potential risk of the newly trained personnel leaving the RS universities. Teachers are willing to accept new teaching methods. Teachers know how to use new equipment. • 4. Enough students speak foreign language. Enough students have interest to study • abroad. • 5. Project staff availability; The delay of official feedback from the EU institutions; Political and economic stability in the region. • 6. Support from the regional partner universities involved. • 7. Willingness of non-involved regional universities to accept project results; Political and economic stability of the region.

teach. assistants from RS; 3.3 Adoption of new teaching methodologies and development of e-teaching materials; 3.4 Development of new e-teaching services and shared e-learning resources • 4. 4.1 Students from RS spend some period at EU universiteties; • 5. 5.1. Consortium and TEMPUS meetings (future activities planned); 5.2. Project coordination and project reports generation; • 6. 6.1 Quality control and monitoring ensured; • 7. 7.1 Dissemination analyzing and actions planning 7.2 Sustainability analyzing and actions planning	photocopiers. Publishing costs, etc. • 6. Academic staff costs (RS and EU), Other Costs (National (RS) Tempus Office will follow project progress) • 7. Academic staff costs (RS and EU), 16 E-E travels, Printing and (web)publishing costs, Overhead costs.		

III.4 WORKPLAN

M1 = first month of the project year; 12 M = 1 year; 4 weeks = 1 M. Please use one symbol (= / X) to represent one week.

WORKPLAN for FIRST project year

Outcomes/Outputs and Activities		**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**
Ref. N° /Sub Ref. N°	Title												
1.	*Curriculums and courses development*	**O**											
1.1	Review of current standards in interdisciplinary eng. education	**xx=**	**xxxx**	**xx**									
1.2	Promotion of necessity for interdisciplinary engineering education		**xxx**	**xxx**									
1.3	Teaching quality control methods and procedures establishment		**xxxx**	**xxxx**	**xx**	**x**	**x**	**x**	**x**			**xx**	**x**
1.4	Creation of new list of courses (of the core new curriculum structure)				**xxxx**	**xxxx**							
1.5	Syllabuses creation for all courses at under and postgraduate level					**xxx**	**xxx**	**xxx**	**xxx**			**=xx**	**xx**
1.6	Updating of existing courses (on other departments, in correlation with new interdepartmental structure) and establishment of lifelong courses					**xxxx**	**x**	**x**	**xxxx**			**xx**	**xx**
1.7	Acquisition, development and publishing of new teaching materials			**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
2.	*Web-based laboratory's network*						**O**						
2.1	Training and education for the main persons in charge of laboratories						==						
2.2	Selection and procurement of laboratory equipment						**xx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
2.3	Lab equipment installation and integration with existing equipment											**xxxx**	**xx**
2.4	Training of the laboratory technicians								**xxxx**				
2.5	Installation of Internet laboratory services and Labs management												
3.	*New learning and teaching environment*			**O**									
3.1	Purchase library PCs, books, periodicals and multimedia materials			**xxxx**	**xxxx**	**xxxx**						**xx**	**xx**
3.2	(Re)training of professors, lectures and teach. assistants from RS						==		====	====			
3.3	Adoption of new teaching methodologies and development of e-teaching materials				**xx**	**xx**	**xx**	**xx**	**xxxx**	**xx**		**xx**	**xx**
3.4	Development of new e-teach. services and shared e-learning resources												
4.	*Pilot student exchange*												
4.1	Students from RS spend some period at EU universiteties												
5.	*Management of the project*	**O**											
5.1	Consortium and TEMPUS meetings (future activities planned)	**x=x**					**xx**	**x**					
5.2.	Project coordination and project reports generation	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
6.	*Quality control and monitoring*	**O**											
6.1	Quality control and monitoring ensured	**xx**			**x**	**x**	**x x**			**x**			**xx**
7.	*Dissemination and sustainability*	**O**											
7.1	Dissemination analyzing and actions planning	**x**		**x**	**x**		**xx**	**xx**		**x**		**x**	**x**
7.2	Sustainability analyzing and actions planning	**x**		**x**	**x**		**xx**	**xx**		**x**		**x**	**x**

Starting and end date of Outcome:**O** Activity carried out in the EU/Candidate Country: = Activity carried out in the Partner Country (ies): **X**

M1 = first month of the project year; 12 M = 1 year; 4 weeks = 1 M. Please use one symbol (= / X) to represent one week.

WORKPLAN for SECOND project year

Outcomes/Outputs and Activities		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Ref. N° /Sub Ref. N°	Title												
1.	*Curriculums and courses development*											**O**	
1.1	Review of current standards in interdisciplinary eng. education												
1.2	Promotion of necessity for interdisciplinary engineering education												
1.3	Teaching quality control methods and procedures establishment	**x**	**x**		**xxx**	**xx**							
1.4	Creation of new list of courses (of the core new curriculum structure)	**x**	**x**		**x**								
1.5	Syllabuses creation for all courses at under and postgraduate level	**xx**	**x**		**xx=**	**xx**							
1.6	Updating of existing courses (on other departments, in correlation with new interdepartmental structure) and establishment of lifelong courses		**xxxx**				**xxxx**					**xxxx**	
1.7	Acquisition, development and publishing of new teaching materials	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	
2.	*Web-based laboratory's network*												**O**
2.1	Training and education for the main persons in charge of laboratories				**=**								
2.2	Selection and procurement of laboratory equipment		**xx**	**x**									
2.3	Lab equipment installation and integration with existing equipment	**xxxx**	**x**	**xxxx**	**xxxx**	**xxxx**							
2.4	Training of the laboratory technicians		**xxxx**				**xxxx**					**xxxx**	
2.5	Installation of Internet laboratory services and Labs management				**xxxx**	**xxxx**		**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
3.	*New learning and teaching environment*												**O**
3.1	Purchase library PCs, books, periodicals and multimedia materials			**xx**					**xx**				
3.2	(Re)training of professors, lectures and teach. assistants from RS	**xx**	==			**====**	**xxxx**	**====**	**====**	**====**		**xxxx**	==
3.3	Adoption of new teaching methodologies and development of e-teaching materials	**xxx**	**xxx**	**xxxx**	**x**	**xx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
3.4	Development of new e-teach. services and shared e-learning resources				**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
4.	*Pilot student exchange*					**O**						**O**	
4.1	Students from RS spend some period at EU universiteties					**====**	**====**	**====**	**====**			**====**	
5.	*Management of the project*												**O**
5.1	Consortium and TEMPUS meetings (future activities planned)	**xx**								**xx**			**xx**
5.2.	Project coordination and project reports generation	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**	**xxxx**		**xxxx**	**xxxx**
6.	*Quality control and monitoring*												**O**
6.1	Quality control and monitoring ensured	**x**	**x**			**=**		**xx**		**x**		**xx=x**	**xxx**
7.	*Dissemination and sustainability*												**O**
7.1	Dissemination analyzing and actions planning	**xx**		**x**	**xx**		**xx**	**xx**		**x**		**xxxx**	**xxxx**
7.2	Sustainability analyzing and actions planning	**xx**		**x**	**xx**		**xx**	**xx**		**x**		**xxxx**	**xxxx**

Starting and end date of Outcome:**O** Activity carried out in the EU/Candidate Country: **=** Activity carried out in the Partner Country (ies): **X**

III.5.1 DISSEMINATION

A maximum of one page A4

Please describe the dissemination strategy the consortium will follow in order to ensure that positive results will be made available both within and outside the Partner Country institutions during the life of the project.

The dissemination will include information exchange (using web publishing, marketing presentations, etc.), information sessions and workshops where outputs of the project will be presented.

The first step for dissemination of the project is preparation of the web site, where the wider audience can be informed about all consortium meetings reports, the project activities and project results. Web site should contain all relevant data of the project and will be kept updated through the whole duration of the project with all important activities, results and current state of the project. The content of these web pages will be updated at least once each semester in both local and English languages. The main results of the project will be presented at regional universities, as well as conferences and symposia. Every year, after the project realization, all students results (seminars, BSc, MSc, and PhD thesis) and new relevant e-teaching materials will be published on CDs and Web site.

On the round table discussions we plan to involve the Government representatives, University authorities, professors and students. At the workshop that will be held in the second half of the third project year representatives from both Serbian Ministries for Education and Science will be invited. The goal of such activities will be to inform the Ministry authorities, university authorities, professors and students about the benefits of established interdisciplinary engineering education and integrated learning environment.

After the completion of the project, the expected tangible results will comprise: curriculum, lifelong courses, syllabuses, textbooks, lab manuals, e-teaching materials and services, shared e-learning resources, web-based laboratory's network, etc. Most of the tangible results will be available to all regional and other universities and colleges in the region (Serbia, Montenegro, Kosovo, BIH, Croatia, and Macedonia). Internet laboratory resources and shared e-learning resources (in English) will be useful for EU consortium universities, too. Web based laboratory's network will be made stronger interuniversity collaboration and more effective knowledge dissemination and new technology transfers. Also, ECTS compatible curriculums guarantee academic recognition in the EU and beyond.

Very important aspect of the project is the distribution of project results towards various beneficiaries like students, primary and secondary schools, wider community. New marketing presentations will be organized for promoting new study programmes in the regions that they cover. Important project results will be published and distributed in the printed form and announced by the mass media and by popular lectures for the wider audience.