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EU/US COOPERATION PROGRAMME IN HIGHER EDUCATION AND TRAINING

TRANSATLANTIC DEGREE CONSORTIUM PROJECT

Application Form 2006

CLOSING DATE FOR SUBMISSION: 7 July 2006

Applications sent by post bearing a postmark after this date will not be considered.

Application and selection procedure

- Before completing the form, please read the *Guidelines for Call for Proposal 2006* which contains information on specific priorities for this year. This information can also be found on the EU-US websites:
http://europa.eu.int/comm/education/programmes/eu-usa/call_en.html
http://europa.eu.int/comm/education/programmes/calls/callg_en.html
- The form must be completed in one of the 20 official languages of the European Union. However, bear in mind that all partners have to be able to endorse the common proposal.
- The application must be typewritten or word-processed using a computer.
- The original of the application must bear the original signature of the person legally authorised to sign on behalf of the coordinating institution and the original stamp of this institution.
- The signed original and 3 copies thereof must be sent in the same envelope.
- All applications will be acknowledged.

In accordance with standard Commission practice, the information provided in your application may be used for the purposes of evaluating the EU/US programme. The relevant data protection regulations will be respected. Applications will be judged against the eligibility and quality criteria set out in the *Guidelines for Call for Proposal 2006*

1. TITLE PAGE

Project title

Please use a maximum of 12 words; start with an acronym or abbreviation, if applicable.

Atlantis STARS - Sensing Technology And Robotic Systems

Project abstract (maximum 5 lines)

Describe activities and outcomes and including the number of mobile students in the project

A US and two EU universities have developed an open international consortium (OIC) for undergraduate students to obtain transatlantic degrees in engineering with specialization in the field of remote sensing technology and robotics. The degree program includes student exchanges (15 months – 3 semesters) for study abroad. Accredited degrees are selected at the partner institutions such that credit recognition is mutually possible using the existing international admissions procedures currently being used at the University's admission offices. Use of the existing admissions process and credit transfer process insures equal opportunities for all students who apply. Such a process will help yield an "open international consortium" with equal opportunity to all students applying to the Atlantis STARS program.

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3. ONE PAGE SUMMARY

This summary should outline the key features of the project including the total number of students from each institution being exchanged over the duration of the project. Please identify clearly the following aspects of the project:

- Title of project
- Duration of the project (start and end date)
- Field(s) level(s) and objectives of the study/training, duration, language(s) of instruction
- Summary of study programme and project activities
- List of EU and US consortium institutions or organisations
- Number of EU and US students/length of study abroad
- Number of faculty exchanges for programme teaching and length of stay
- Precise degree(s) awarded by which institutions

If your application is successful, this summary may be used in information purposes. You are therefore kindly requested to formulate it very carefully.

Title: STARS – Sensing Technologies and Robotic Systems

Duration: 01/10/2006 – 30/09/2010

Consortium institutions: Florida Institute of Technology (FIT, USA, US lead), Royal Military Academy (RMA, Belgium, EU), Budapest University of Technology and Economics (BME, Hungary, EU lead)

Fields and objectives: exchange students are enrolled in undergraduate engineering programs related to sensor technologies and robotic systems, the objective is to give the possibility to the exchange students to earn a US and an EU degree upon successful completion of the program. Faculty exchange promotes professional educational cooperation and gives insight into the educational practices of the partner institutions and allows to gain transatlantic educational experience.

Study program: undergraduate engineering programs at the sending and the hosting institutions with mutually recognizable credits which are validated using existing academic procedures. Successful students receive a US and an EU BSc. degree

Languages of instruction: English, French (Dutch, Hungarian, and German are optional for a selected number of courses, sufficient language preparedness is required).

Total number of students to study abroad: 18 US students and 18 EU students with a length of exchange up to 15 months (three semesters) which includes exchanges in the framework of the EU's Erasmus program. US students would spend 66% of the exchange period at the BME and 34% at the RMA. The exchange period of the EU students includes a semester in the respective EU partner institution financed by the Erasmus program.

Total number of exchange faculty staff members: approx. 16 US and EU during the total four year duration of the project excluding the participation on the annual Atlantis programme conference for running projects.

Degrees awarded to the students upon successful studies:

US students: BSc. degree of the FIT, BSc. degree of the BME

RMA students: RMA degree, BSc. degree of the FIT

BME students: BSc. degree of the BME, BSc. degree of the FIT

All students may receive one EU and one US degrees, hence our program is double degree program.

4. PROPOSAL NARRATIVE

The format of the following proposal narrative respects the requirements of the FIPSE guidelines (Times New Roman font, 12pt font size). The attachments referred to in the narrative follow directly the text.

NARRATIVE

Overview: Obtaining transatlantic double degrees is a unique and exciting opportunity, especially within the field of Engineering due to the high level of specialization students receive within engineering majors. It is hard to find an educational institution where almost all specializations are covered by accredited degree programs at a high professional level. Therefore the need exists for creating new, unique, powerful and synergistic cooperation programs between universities in a straightforward manner. We propose to develop an open international consortium of universities in the EU and in the USA, with specialization in sensing technology and robotic systems (**STARS**). The students graduating from this program will be prepared to be employed internationally in environmental monitoring and surveillance in order to help sustain safe international environments. Although both the EU and the US higher educational systems are quite different, there are similarities of the two systems in terms of the procedures and educational approaches for admissions to universities. These similarities are characterized by *open and equal opportunity* to all students who apply. The initiative of the **Atlantis STARS** program, namely to establish double or joint degrees, makes it possible to develop a new open international university consortium for student exchange and faculty exchange using the synergy of the different education programs and the synergy of different educational methodologies in a transatlantic context. The institutions submitting this proposal are all participating in a successfully running Complementary Activities Project, entitled [OIC³D²](#): Open International Curriculum: Remote Sensing Systems, Robotics and Risk Assessment for Humanitarian Demining and UXO Detection (<http://www.iit.bme.hu/oicr3d2>), which is also funded in the framework of the EU-US cooperation program in higher education. One of the objectives of the OIC-R³-D² project is to implement the developed curriculum (or parts of it) using a student exchange program. Acceptance of this proposal will help to realize (in part) this objective since the new EU-US Atlantis project allows stipend support for international undergraduate exchanges. **Narrative Sections addressing the key project points are given below:**

1. The *objective of the Atlantis STARS open international consortium (OIC) program for undergraduate transatlantic double degrees is to:*

- Provide for the implementation of an EU-US university consortium to enable students to obtain an accredited European degree and an accredited US degree within a time frame less than it normally would take a student to obtain the respective dual/double degrees.
- To develop *contributions to educational innovation* through directing the consortium's faculty and their expertise & motivation to mentor students through select degree curriculums and courses that will provide the students with a solid scientific and engineering education in *sensor technologies and robotic systems (STARS)*.
- To enhance *contributions to teaching excellence*. This objective will be tracked through implementing international educational project & student evaluation instruments (surveys and questionnaires in a manner which provides feedback to the universities and consortium faculty. The evaluation instruments will be also used to track the OIC's *performance, persistence and dual degree completions* or *indicators of success*. Specifically, Atlantis consortium faculty and administrators will utilize information from the indicators of success and student faculty program evaluation outcomes to take steps to maximize the dual degree program success. We anticipate utilizing the alumni association to help in tracking the successful students graduating within the *Atlantis STARS, OIC* program. Teaching excellence will be implemented through faculty mobility exchange, and is proposed as part of the project to allow the key faculty teaching remote sensing systems and robotic systems to interact with one another and with students through research and student senior design projects conducted with the key faculty. To meet this objective, the EU lead partner has an ongoing Fulbright program opportunity to achieve the faculty mobility for US participation in Hungary. In addition, in order to assist faculty in the undergraduate mentoring process, the lead US institution has Fulbright graduate student positions for EU students. These mobility exchanges, established by the consortium's administration in anticipation of this project, will add to the success of the Atlantis STAR Open International Consortium.

2. The proposed projects outcomes are based upon broad societal impacts as described below. The *first* outcome will involve improvement in teaching through faculty exchange experience and international collaboration. The *second* outcome is improving student achievement through international dual degrees leading to an exciting future for the selected students. The measure for both of these improvements will take place within the context of an advanced scientific and engineering international undergraduate education which will utilize the concept of dual international degrees. The theme of this education will be *sensor technologies and robotic systems* (STARS) and will be integrated within the engineering majors described below. What makes this outcome possible is the synergy created by the international consortium partners and lead faculty, who are world leads in STARS and undergraduate education. The broader and more important outcome will be the development of internationally experienced students, with language skills ó trained for working within the area of *environmental monitoring and surveillance in order to sustain safe international environments*. There is no undergraduate transatlantic educational program like this in the world today. Given the needs of our modern internationally based world - such a program is needed and desirable. Since the main objective of the consortium is to realize a transatlantic double degree program, students of all three participating institutions can be enrolled into the double degree program. Upon successful completion of studies, the students are guaranteed (since we are using the existing admissions and credit transfer processes at our institutions) to receive a US and EU degree as shown in the following table:

	US degree issued by	EU degree issued by
FIT student	FIT	BME
RMA student	FIT	RMA
BME student	FIT	BME

The secondary objectives are to realize educational exchanges which allow the deeper understanding of educational methodologies and the discovery of further transatlantic educational cooperation at a graduate level and in vocational training, which may also contribute to the medium and long term to the aims of the Atlantis program. The Atlantis STARS vision will thus be achieved through faculty exchange along with the student exchanges.

3. The program's added value to the participating institutions and student benefits.

The open international consortium offers the following possible benefits *for students*:

- to obtain two high quality and accredited degrees (one in the US and one in the EU) in similar specializations in the field of sensing technologies and robotic systems,
- to receive clear guidance and mentorship for success in their studies in order to obtain two high quality and accredited degrees instead of one with a minimal amount of supplemental efforts, and in a considerably less time than it normally would take to obtain the respective two degrees sequentially,
- to achieve professional capacity in a European language other than English (i.e. French) and to have basic notions in a second European language other than English (i.e. Hungarian),
- to be able to benefit from the synergism derived by studying at the participating institutions,
- to contribute to student open mindedness and entrepreneurial skills by immersing them into different cultural, social, linguistic, and educational environment ,
- to visit both a founding and a newly entered Member State of the European Union at a different level of economic development and hence to have an overall view of the diversity and cultural richness of the European Union (for US students),
- to prepare students to work as part of an international workforce facing the challenges of our modern globalizing economies and cultures.

The open international consortium offers added value to the participating institutions and faculty. For example, the **Atlantis STARS** consortium (1) will establish a practical means of educational cooperation between faculty with realizable operational objectives in the timeline of the proposal. (2) The **Atlantis program** as well as the institutions will benefit to a maximal extent by using existing institutional frameworks used for international student admissions and credit transfer evaluations, in order to avoid the establishment of new procedures and problems related to their introduction. The experience the EU-US lead institutions and the second EU institution have in the field of educational and research related exchanges, particularly, in the field of curriculum development in Sensing Technologies and Robotic Systems imply that the risk of failure is minimized. The successful student exchanges will make possible

the extension of the scope of existing degree programs and motivate collaboration between the STARS faculty in the consortium. It is quite important to note that that no transatlantic undergraduate program exists in the same field (**STARS**) at national and international levels. Thus there is no question of duplication of funding or comparisons to existing programs elsewhere. In summary, the *added value of the proposed discipline* and profession will be the achievement of not only an undergraduate degree in the US and a degree from the EU institutions, but the achievement of educating talented individuals with a career focus:

- in accredited engineering science field(s) selected by the student (dual degrees),
- with the use of robotics and mechatronics within their field of engineering and science,
- in remote sensing technologies and systems,
- with mentoring in the concepts and methods of *ösustaining safe international environmentsö*,
- that will begin at the undergraduate level with international experiences in academic education which will include foreign language and international cultural skills.

4. The joint study programs and integration within the participating institutions & background to

support transatlantic student exchanges. The Coordinating institutions - FIT and BME, have a high population of foreign students. For example FIT runs summer school programs which allow students to study to in Europe and in particular to Hungary. The FIT also receives students from Europe and has an exceptional international student office (<http://www.fit.edu/iss>). In fact, the President, Provost and Deans of the University believe that *öinternational education is a top priorityö* for Florida Tech's future. FIT is among the US universities with a large foreign student population and have experience in the management of visas and related administration needed to assist incoming foreign students. A natural further step for FIT is to extend the existing study abroad programs and to offer a structured transatlantic double degree *ó* Atlantis STARS. BME enrolls about 450 - 500 foreign students each semester (graduate and undergraduate, including Erasmus student exchanges) including 30-40 students from different institutions in the US. The BME has an International Education Center for the reception of foreign students assisting them to become university citizens and to cope with immigration requirements and

local housing needs. For more information about the International Education Center of the BME, please visit <http://www.tanok.bme.hu/> . Recall however, that no current transatlantic exchange exists at these institutions to enable a double degree at either of the coordinating institutions. Thus there is no question of the Atlantis STARS project being viewed as duplicating existing programs at other institutions. In addition, the *joint study program is integrated into the consortia* through selected courses being offered at each institution (e.g. Remote sensing systems & environmental monitoring, sustainability, robotics & mechatronics and basic engineering). The program of study will integrate, through faculty exchange, interaction with students to achieve senior student research and design with the **STARS** emphasis. Each university involved in the consortium has identified selected courses to be taught by the consortium faculty that will fulfill the **STARS** educational emphasis (see proposal attachments 7.2, 7.3). The courses are identified in the example curriculum which has been detailed. The STARS undergraduate curriculum is integrated into the admission process at the lead US and lead EU universities. This extremely important process is being accomplished by **(1)** using the standard equal opportunity review of international student applicants. To **not** use the university's normal international admission's process would in effect violate open and equal opportunity for all students which are required by US law. **(2)** The existing international student admissions process will be augmented by applicants (interested in the program) being referred by the admissions office to the lead **STARS** faculty in order to provide counseling and review of the applications of interested students, and recommendations made for acceptance to the program. Consortium faculty members will be offered opportunity to evaluate applicant information, and provide comments to the admissions offices at their respective US or EU lead university regarding potential applicants. Applicants may be interviewed upon being selected by the admissions as meeting university international requirements. We believe the process being proposed will yield *open and equal opportunity for any and all students interested*. **(3)** In addition, at the US lead institution, we will involve input from the [US Army ROTC program at Florida Tech](#), in order to seek applicants from uniquely talented group of students. We will also make specific arrangements to advertise the Atlantis STARS program within the [Florida US National Guard](#).

5. Institutional commitment and administrative arrangements. All institutions are committed to provide high quality education to students and to use the courseware material developed in the framework of the OIC-R³-D² project in the field of Sensing Technologies and Robotic Systems. The BME provides the necessary resources to enroll the visiting students into the English language education program. The language of education is French at the RMA. All institutions will provide competitive selection mechanisms to assign the Atlantis stipends and any additional scholarships to students together with evaluation of student's study program and continuous tutoring needs that may be needed during the exchange program. The institutions reserve the right to reject study program majors where the mutually recognizable courses (credits) are low, and hence the period of study would be a considerably longer time frame necessary to obtain a degree at the home institution (where the student is originally enrolled). All institutions encourage the faculty staff to participate in the STARS program and to benefit from the faculty mobility stipends incorporated in the budget. This includes faculty staff sent to the partner institutions to promote the exchange program itself among the potential student population. Bilateral agreements are in place between the participating institutions. The copy of the Memorandum of Understanding between the US and EU lead coordinator institutions (President and Rector) is enclosed as an attachment to this proposal package. The partners agree in the principle that all students pay tuition fee (if any) at their home institution (where they were originally enrolled) during the whole period of studies, including the period spent abroad. The enrollment of the FIT students (and respectively the EU students) at the BME (respectively at FIT) is managed by the corresponding organizational units at the BME (respectively at the FIT). The exchange of students is realized on a strict one-to-one basis that is the number of US students received in Europe equals to the number of EU students sent to the US. The repartition of the available exchange student positions between the two EU universities is such that the BME delegates 66.66% of the exchange students and the RMA may send 33.34% of the exchange students on the average. The partners agree to provide assistance to the continuous monitoring of the quality of the exchange program, to measure the satisfaction of the participating students and staff together with the impact of the program on the overall educational practices of the institutions according

to the evaluation plan to be defined as part of the project before it should start. As evidence of commitment and arrangements, we have included letters of endorsement in the proposal application package. Specifically, these include:

- A proposal letter of endorsement and support from the Dean, College of Engineering at Florida Institute of Technology.
- A memorandum is attached in the application package from the president of Florida Tech (the lead US consortium partner) and from the Rector of the Budapest University of Technology and Economics (BUTE/BME).
- Letter of agreement is enclosed between the Deans of the College of Engineering (FIT) and Dean of the College of Electrical Engineering and Informatics (BME)
- Letter of agreement between FIT and the Belgium Royal Military Academy for collaboration in the existing FIPSE project and which is being used to continue into this new project.
- Letter from the faculty member at the Royal Belgium Military Academy who is the lead consortium member of the existing FIPSE project with FIT and BME.

The Presidents of the lead EU and US institutions have clearly documented support for faculty exchange and student exchange and development of joint academic activities called for in the Atlantis project (see attachment) and will help to guarantee to students in the event of changes to administrative personnel.

6. Guarantee of awarded degrees will be recognized by accredited states and agencies. Guarantee exists automatically since the degrees being offered already exist with the US and EU accreditation organizations (e. g. ABET). Guarantee to students will be achieved through their acceptance to existing majors, and evaluation of credits using the existing international credit review process that is used to evaluate all foreign student applicants. Students applying to the Atlantis STARS program will also have their college and transfer applications reviewed by the Atlantis STARS faculty at each University. This will be accomplished by routing applications for review and comments to STARS faculty by the admissions office. What makes STARS unique is thus *mentoring* of the selected students by the STARS faculty and acceptance of the students to take selected courses in *remote sensing and robotics*

as part of their “elective courses” during their undergraduate studies in addition to their study abroad experience.

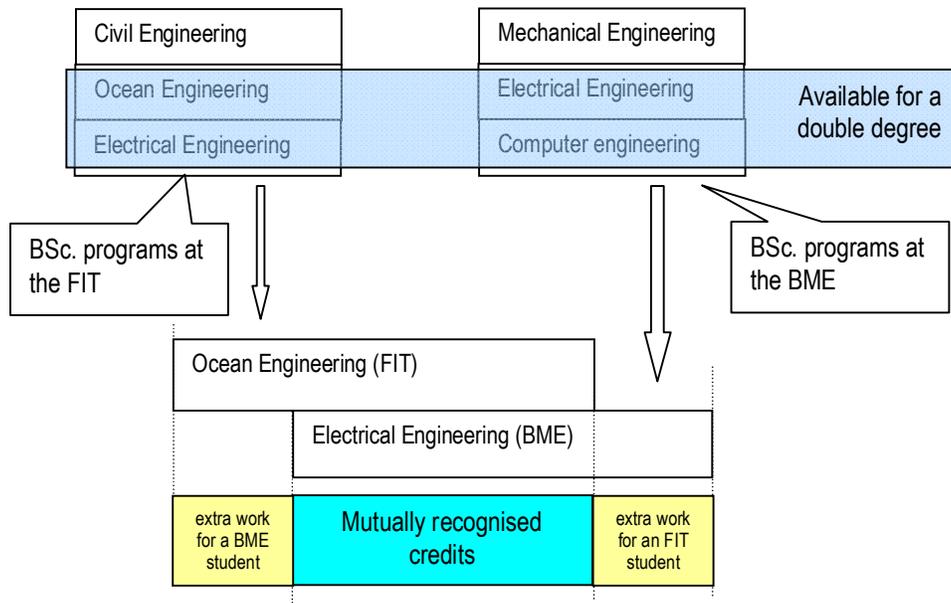
7. Arrangements for academic credits and the length and content of the double degree study program at the consortium institutions. The participating institutions have a variety of existing BSc. degree programs. No new degree program is established in the framework of this project, hence the consortium does not offer a new joint degree. The Atlantis STARS consortium offers the possibility for students enrolled in a selected number of degree programs at their home institutions to obtain a second degree. For EU students this is an ABET accredited BSc. degree program of the College of Engineering at FIT. For US students this is an accredited BSc. degree program of the Faculty of Electrical Engineering and Informatics at BME. This implies US student will select a BME BSc. degree program and EU student selects an FIT degree program from a restricted list agreed by the consortium members. The following degree programs are the proposed candidates for the double degree Atlantis STARS project:

Degree issuing institution	Degree program
FIT	Electrical Engineering
FIT	Computer Engineering
FIT	Software Engineering
FIT	System Engineering
FIT	Ocean Engineering
BME	Electrical Engineering
BME	Software Engineering
RMA	Polytechnical Engineering

For detailed description of the degree programs, one can see institutional websites and download bulletins and catalogues: http://www.fit.edu/catalog/documents/2006_2007catalog.pdf (FIT), <http://www.rma.ac.be/RMAdotNet/scsc/infos/default.aspx?Page=3&SubPage=8> (RMA), http://www.tanok.bme.hu/bulletin/bull0607/BME_2006_2007_Faculty%20of%20Electrical%20Engineering%20and%20Informatics.pdf (BME).

The content and the length of study depend on the pair of the two degree programs selected, since the amount of mutually recognizable credits depends on the pairing of the degree programs. Pairings such that the number of credits mutually recognizable is too low are excluded. The recognitions of credits will be managed using existing administrative procedures at all consortium members. Credits which cannot be

recognized based on the work carried out at the partner institution may require extra work for a student, and could result in an increase of the length of studies some cases. The above double degrees being proposed are illustrated below:



The participating institutions agree on the principle that the realization of the student exchange cannot compromise the professional quality of the degrees obtained, the normal duration of the double degree program may be longer by an average (expected) one semester than the curriculum without student exchange (one single degree obtained). However, the extra semester is not a requirement for students participating in the exchange program since brilliant students may well satisfy all requirements without extra time (e.g. by taking summer classes). The mutually recognized credits are evaluated based on standard procedures existing at all institutions. The following table gives the normal duration of the BSc. programs at the consortium member institutions and the proposed duration for the double degree programs.

	Normal length of the BSc. program (number of semesters, issuing institution)	Length of the BSc. double degree program (number of semesters, issuing institutions)
FIT	8, FIT	9, FIT, BME
RMA	6, RMA	7, RMA, FIT
BME	7, BME	8, BME, FIT

Since the partners are building this cooperation on a currently running Complementary Activity project (Open International Curriculum in Remote Sensing Systems, Robotics and Risk Assessment for

Humanitarian Demining and UXO Detection ó OIC-R²-D²) the courses which are free electives or represent specialization can be selected from the courses developed in the framework of this existing project ó all related to Sensing Technologies and Robotic Systems.

7.1 Example curricula: The following sections and attachments show curriculum pairing for a FIT and a BME BSc. degree program (in Electrical Engineering). The detailed description of courses can be found university catalogues. Courses where no credits are given for an institution represent the extra workload. Explanation of columns in the tables summarizing the example curricula is given bellow for use in examining tables 7.2 and 7.3 in the proposal attachments.

Column name	Explication
Course name	Name of the course taken by the student as in the respective course catalogue
Course host	The abbreviation of the university where the course is attended (FIT ó Florida Institue of Technology, BME ó Budapest University of technology and Economics, RMA ó Royal Military Academy). The course content is defined in the catalogue of this institution.
Equivalent BME	Equivalent course name at the BME. This field is empty if the course host is the BME or if there is no equivalent course.
Equivalent FIT	Equivalent course name at the FIT. This field is empty if the course host is the FIT or if there is no equivalent course.
Credit FIT	Number of credits at the FIT. This field is empty if the course has no equivalent at the FIT.
ECTS	Number of credits at the BME or at the RMA. This field is empty if the course has no equivalent at the BME.
USA/EU 1-9	Number of semesters. Indicates the institution and the semester where and when the course is taken by the student.

The equivalence between the amount of FIT credits and ECTS credits is made based on the course content and it is not based on a general computation. This is due to the linear nature of courses in all Engineering curricula where the order of subjects (pre-requisites) has to be respected. The equivalence has to be checked and acknowledged using existing administrative procedures and tutoring of the exchange students at the partner universities. Some courses may be equivalent to more than one course on the other side of the Atlantic. In these cases, blocks of courses are considered to be equivalent (typically those including subjects in fundamental sciences such as mathematics, physics, etc.). The curriculum is constructed such that the students need to take no special professional (engineering) course before the departure for mobility. This increases the potential student population and makes possible to exchange students as early as the second year of the program. See the example curriculum for a US student in

attachment 7.2 in the supplemental materials, and attachment 7.3 for an example curriculum for an EU student.

8. If and how the Diploma Supplement is used and the plan to improve international transparency in order to facilitate academic and professional recognition of qualifications and accreditation. At this time, no diploma supplement is being considered. The students participating in the program will receive two degrees (e.g. one from FIT and one from BME) upon successful completion of their studies.

9. Cooperative mechanisms and administrative structure for institutionalization, meetings, roles for partners, and communications. Regular meetings will be used to supervise the activities with agenda and documents summarizing the results. The dissemination of information will be ensured by creating a web page/site similar to that of the current Complementary Activities Project (<http://www.iit.bme.hu/oicr3d2>). The web page(s) will be created and maintained by the EU coordinator and mirrored at FIT. For fast exchange of information the coordinators and consortium use email and [skype](#) (or similar tools). The final list of students participating in the program will be openly discussed by the Atlantis STARS faculty. If we utilize any on-line teaching materials we will utilize [DOKEOS](#) since it is available to the EU partners as well as the US partners and we have used this software in the design and implementation of teaching modules among consortium faculty. All institutional coordinators will extensively utilize the assistance of existing administrative structures (Admissions, Registrar, International offices, etc. at the home institution. These offices have significant background, infrastructure and experience in the realization of student exchanges, credit transfer and program development for students at the undergraduate level. The commitment of these resources is guaranteed by the institutions (see letters of commitment and proposal endorsement letters). The consortium partners will participate in the annual meetings of the Atlantis program where they will discuss the current status of the project, student exchanges, and obtain valuable information from the US and EU agencies and other partners concerning student exchange programs as indicated and required in the call for proposals.

10. The shared arrangements and conditions for student selection and admission to the Transatlantic Degree. Practical arrangements related to the administration of the student selection will

be finalized during the first part of the first semester of the project. See the proposed *work plan* in the proposal package attachments *Open and equal opportunity will be ensured using existing admission procedures at the partner institutions and managed by the admissions, registrarø and international offices*. Guidelines for the application for students will be published on the web pages of the program, together with the selection criteria, and at each university. The prospective student population will receive first hand information about the participating institution, about the curriculum, and about the cultural and linguistic specificities of the participating countries from visiting faculty during their faculty exchange visits. These occasions will also allow potential students (and eventually their parents and/or relatives) to ask specific questions about the program. General applicant information will be forwarded by and among the faculty in order to provide feedback and recommendations to the above mentioned offices. The final selection will remain with the regular university offices to insure open and equal opportunity laws are followed. In essence, a first selection of students will be made at the institutional level, and the final list of selected student(s) will be a result of a common **STARS** faculty recommendation to the institutional offices for final decision and notice to the students. In many cases, we would anticipate interviewing the student applicants at the home institution with the institutional admissions office representatives and the STARS faculty.

11. The arrangements for tuition and fees. The partners agree on the principle that all students pay tuition fee (if any) at their home institution (where they were originally enrolled) during the whole period of studies, including the period spent abroad. The enrollment of the FIT students (resp. EU students) at the BME (resp. at the FIT) is managed by the corresponding organizational units at the BME (resp. at the FIT). The exchange of students will be realized on a strict one-to-one basis - that is the number of semesters the US students spend in Europe equal to the number of semesters the EU students spends in the US. Moreover, the repartition of the available exchange student positions between the two EU universities is such that the BME delegates 66.66% of the exchange students and the RMA sends 33.34% of the exchange students as indicated previously. Funds received from FIPSE will be used only for stipend and on occasion - language costs (if needed). The faculty, students and universities may

supplement the **Atlantis stipends** with other sources of funds for tuition costs using means at their disposal (private funds, scholarships and endowment related funds)

12. The consortium structure and mechanisms for student and faculty mobility between hosting institutions. Describe how many students you intend to send and receive and for how long the period of study will be. (see also item section 7, Table 4 and section 9 above). The mobility period for students is three semesters. For US students this includes two semesters at the BME and one semester at the RMA. For BME students, this includes two semesters at the FIT and one semester at the RMA. For RMA students, this includes two semesters at the FIT and one semester at the BME. The exchanges in the BME-RMA relation will utilize the Erasmus mobility program. Faculty mobility will be used to: (1) participate at consortium meeting and to meet prospective students at the partner institutions, and (2) give classroom lectures for some courses (all or in part) in the field of remote sensing technologies and robotic systems.

13. The language plan, particularly, the use of training facilities, mentors and tutors, and local language resources. All EU universities have language training facilities and teachers. The Language Institution at the BME gives courses in Hungarian and French languages to foreign students on a routine basis (see: <http://www.nyi.bme.hu/magyar/hucours.php>). Similar facilities are available at the RMA. US students will be required to take French and demonstrate proficiency as a foreign language before departure since this language is used at the EU institutions and by the EU STARS faculty as well. Hungarian students will be required to have sufficient English knowledge before departure. Knowledge of the required foreign languages (English and French) will be demonstrated through testing of the students by the language departments and faculty and will include testing student abilities to translate selected journal article(s) in their chosen fields of study, remote sensing, and robotics, etc. US students will be offered language education in two foreign languages: French and Hungarian. US students are required to gain professional proficiency in French. Since Belgium is traditionally a Multilanguage country, the RMA offers the Dutch as an optional language that students may choose to learn in addition. The BME offers selected courses in English, French, German, and Russian (and obviously all courses in Hungarian).

These options are available for students who already have the professional capacity in French. The language of education for the US students at BME will be English (this is standard). The language of education for the US students at the RMA is French. US students will have to take language and civilization courses in Hungarian while visiting the BME which is made available to all foreign students at the university. Cultural activities will be provided while at RMA, in Brussels which is the capital of the European Union, and students will have unique opportunities to understand and visit European Union activities during their stay in Brussels.

14. Local resources and assistance to the foreign students and faculty. The receiving institution will provide local assistance for students coming from abroad. Assistance related to the professional content of the programs will be provided by the institutional coordinators. Assistance in housing, cultural integration, enrollment, immigration administration, etc. will be provided by the dedicated services of the visited institution. In the case of the EU coordinator institution (BME) this is ensured by the International Education Center (<http://www.tanok.bme.hu>). Cultural and social activities not directly included in the exchange program itself are organized and promoted by a Group of Hungarian Mentor Students at the BME allowing cultural exchanges in a pleasant and more informal manner. All useful information for students will be published on a web page dedicated to the Stars Transatlantic Double Degree program. The international student offices at Florida Tech offer assistance to students and all incoming students are directed to the appropriate offices, and web links from the applications process, [admissions office before](#) and [after admission](#), for [transfer international students](#), and also by the [international offices](#). The university has developed new student (including transfer students) [campus residence offices](#) and assistance and provides assistance for residence halls and apartments to students. Additionally, the University Evans Library provides written language assistance and tutoring by the library as well as by the [English Language Center](#). English language will be provided to students before arrival to the US. US students will be provided opportunities to learn French and will also be able to receive credit and document language capability through [College Board AP Examinations](#). The same resources will be available to faculty. Additionally, student languages will be available to students for taking for credit or

auditing [at FIT](#) in order to help them become proficient. Additional assistance will be provided to faculty through the Fulbright scholar program. BME has a special program that will allow FIT faculty to fulfill faculty mobility as a part of the **Atlantis Stars** program. The EU lead faculty member is responsible for this Hungary-US opportunity and will assist in this opportunity for the US STARS faculty exchanges.

15. Evaluation Plan and assessments by independent entities. If the Atlantis STARS project receives positive review and consideration for funding, the EU and US lead partners will develop a detailed evaluation plan prior to the commencement of the project. Based upon the US FIPSE meeting held in Auburn, Alabama, USA in 2006, it became apparent that FIPSE, over the years, has developed considerable links to key academic international program evaluators that could be utilized in the proposed project. We have included funds available for such a project evaluation as required by the US FIPSE program office. We will develop an evaluation plan with input and suggestions by FIPSE in order to help select the best possible evaluation partners. We anticipate the use of mechanisms to track student success during the project and after the project. We will involve the use of the ALUMNI association in this process for comparative purposes in order to track career success of STARS students. We seek approval from the Provost's office for use of any instruments used (questionnaires) since faculty are not allowed to utilize such instruments without prior approval by the administration. We believe this is a good process, especially since the Assistant Provost was the Program Director of science and math education department at FIT is involved in academic program evaluation at FIT as well as at other universities. We anticipate the use of a "toolbox" of methods to help us evaluate the success, failures and improvements in the implementation of the Atlantis STARS project. We also will utilize, as much as considered appropriate, faculty from the science education department at FIT who evaluate academic programs at other universities and community colleges.

16. Dissemination. Dissemination information will include the web for providing general and practical information to students, and staff. The initiative of the Stars Transatlantic Double Degree program will be also promoted at workshops and conferences and online resources of the related professional organizations ([SPIE](#), [IEEE](#), [IFAC](#), [BSMEE](#), [ITEP](#), [AGU](#), [HUDEM](#), [CLAWAR](#), [E-MINE](#), [IARP](#), [DETEC](#),

[CRSS](#), [RSPSoc](#), [ASPRS](#)). All consortium partners are interested in the future implementation of a similar program at graduate level where the lessons learned from Atlantis undergraduate program experience are used. We plan on printing a brochure which will be circulated to community colleges, universities, industrial partners, ROTC programs, and government agencies in order to attract the best students to this open international consortium.

Certification: This statement certifies that the narrative statement is identical in the EU and US proposal. The EU proposal has original signatures submitted which state the narratives are the same.

This is to certify that this proposal narrative is identical to that submitted to FIPSE

Name, Function & Signature of the EU Project Leader	Date
Dr. Bálint Kiss, associate professor	June 8, 2006
Name, Function & Signature of the US Project Leader	Date
Dr. Charles Bostater, associate professor	June 8, 2006

5. ATTACHMENTS TO THE NARRATIVE

The next pages include documents which are attachments to the above proposal narrative. The attachments are

1. An example curriculum for a US student (2 pages)
2. An example curriculum for an EU (BME) student (2 pages)
3. Memorandum of Understanding between the FIT and the BME (signed by the President and the Rector – copy)
4. Memorandum of Understanding between the College of Engineering (FIT) and the Faculty of Electrical Engineering and Informatics (signed by the Deans – copy)

An example curriculum for a US student

Course name	Course host	Equivalent BME	Equivalent FIT	credit FIT	ECTS	USA					EU				
						1	2	3	4	5	6	7	8	9	
General chemistry 1	FIT	Free elective 1 & Free elective 3		4	6										
Composition and Rhetoric	FIT	Human elective 1		3	2										
Digital Logic	FIT	Digital design 1		4	7										
Calculus 1	FIT	Mathematics A1		4	6										
Writing about Literature	FIT	Human elective 2		2	2										
Computer design	FIT	Digital design 2		4	6										
Calculus 2	FIT	Mathematics A2		4	6										
Physics 1	FIT	Physics 1		4	5										
Physics Lab 1	FIT			1											
Circuit theory 1	FIT	Systems and signals 1		4	6										
Software/hardware design	FIT	Basics of programming 1		3	5										
Differential equations and linear algebra	FIT	Mathematics A3		4	4										
Physics 2	FIT	Physics 2		4	5										
Circuit Theory 2	FIT	Systems and signals 2		4	6										
Civilization 1	FIT	Human elective 3		3	2										
Calculus 3	FIT	Mathematics A4 & Foundation of Computer Sciences		4	10										
Probability and statistics	FIT			3											
Modern physics	FIT	Material science		3	4										
Scientific and Techn. Comm.	FIT	Human elective 4		3	2										
Electronics	FIT	Electrotechnics		4	6										
Signals and systems	FIT	Systems and signals 2		3	see above ¹										
Electron devices	FIT	Electronics 1		3	6										
Electromagnetic fields	FIT	Electromagnetic fields		3	5										
Junior design	BME	Project laboratory		1	see below ²										
Electromagnetic waves	FIT	Electronics 2		3	6										
Microcomputer systems 1	FIT	Digital design 2		4	see above ³										

¹ Systems and signals 2 is equivalent to Circuit theory & Signals and systems

² Project laboratory is equivalent to Junior design & System design 1

³ Digital design is equivalent to Computer design and Microcomputer systems 1

Communication systems 1	FIT	Infocommunications		3	5												
Civilization 2	FIT	Human elective 5		3	2												
Env. Optics and Remote Sensing	FIT	Free elective 2		3	4												
Control theory	BME		Control systems	3	5												
Project Laboratory	BME		System design 1	3	4												
Measurement techniques	BME		Restricted elective 1	3	5												
Hungarian language and culture	BME		Social sciences Elective	3	-												
Laboratory 1	BME		Technical Elective	3	5												
Software engineering 1	BME		-		5												
Electric power systems	BME		-		5												
Business law	BME		-		2												
Thesis	BME		System design 2	3	5												
Laboratory for specialization	BME		-		2												
Microelectronics	BME		Electrooptic devices and systems	3	5												
Micro- and macroeconomics	BME		Humanities/Social sciences electives	3	4												
Laboratory 2	BME		Technical elective	3	5												
Basics of programming 2	BME		-		4												
Software engineering 2	BME		-		5												
Remote sensing ⁴	RMA	Specialization theoretical subject 1	-	-	4												
French language	RMA		-	-													
Sustainable development	RMA	Management and business economics	Restricted elective (HUM)	3	4												
Principles of management	RMA																
Functional analysis	RMA	Specialization theoretical subject 2	Restricted elective 2	3	4												
Energetic and explosives materials	RMA	Obligatory spec. Elective	-	-	5												
Individual design in mobile robotics	RMA	Thesis	-	-	9												

⁴ Developed in the framework of the OIC-R³-D² Complementary Activity Project

An example curriculum for an EU student

Course name	Course host	Equivalent BME	Equivalent FIT	credit FIT	ECTS	BME				FIT		RMA	BME
						1	2	3	4	5	6	7	8
Human elective 1	BME		-		2								
Mathematics A1	BME		Calculus 1	4	7								
Foundation of computer sciences	BME		Calculus 2	4	6								
Material science	BME		Modern physics	3	4								
Basics of programming 1	BME		Software/hardware design	3	5								
Digital design 1	BME		Digital Logic	4	7								
Mathematics A2	BME		Calculus 3	4	6								
Micro and Macroeconomics	BME		Social science elective	3	4								
Physics 1	BME		Physics 1	4	5								
			Physics lab 1	1									
Basics of programming 2	BME		-		4								
Digital design 2	BME		Computer design	4	6								
			Microcomputer systems	4									
Systems and signals 1	BME		Circuit theory	4	6								
Mathematics A3	BME		Differential equations and linear algebra	4	4								
Mathematics A4	BME		Probability and statistics	3	4								
Physics 2	BME		Physics 2	4	5								
Software engineering 1	BME		-		5								
Systems and signals 2	BME		Circuit theory 2	4	6								
			Signals and systems	3									
Electrotechnics	BME		Electronics	4	6								
Management and business economics	BME		Restricted elective (HUM)	3	4								
Software engineering 2	BME		-		5								
Electromagnetic fields	BME		Electromagnetic fields	3	5								
Electronics 1	BME		Electron devices	3	6								
Measurement techniques	BME		Free elective	3	5								
Electric power systems	BME		-		5								
Composition and rhetoric	FIT	Human elective 2		3	2								
General chemistry	FIT	Free elective 1		4	4								
Control systems	FIT	Control theory		3	5								

Env. Optics and Remote Sensing	FIT	Specialization theoretical subject 1		3	4									
Technical elective (lab)	FIT	Laboratory 1		3	5									
System design 1	FIT	Project laboratory		3	4									
Writing about literature	FIT	Human elective 3		3	2									
Electromagnetic waves	FIT	Electronics 2		3	6									
Communication systems	FIT	Infocommunications		3	5									
Electrooptic devices and systems	FIT	Electronics technology		3	5									
Technical elective (lab)	FIT	Laboratory for specialization		3	2									
Humanities social sciences elective	FIT	Human elective 4		3	2									
		Human elective 5			2									
Civilisation 2	FIT	-		3										
Remote sensing	RMA	Specialization theoretical subject 2	-	-	4									
Functional analysis	RMA	Free elective 2		-	4									
Energetic and explosives materials	RMA	Obligatory spec. Elective	-	-										
Individual design in mobile robotics	RMA		System design & junior design	4	-									
Laboratory 2	BME		-		5									
Business law	BME		-		2									
Free elective 3	BME		-		2									
Microelectronics	BME		-		5									
Thesis	BME		-		15									

MUO VIK- FIT

6. PARTNER IDENTIFICATION FORMS

EU lead institution: (signatory of contract)

To fill in this part, please use the type of institution codes indicated in Annex 1.

5.1 Legal Representative

Full legal name of the institution in the national language	Budapesti Műszaki és Gazdaságtudományi Egyetem		
Acronym of the institution, if applicable	BME		
Full name of the Institution in English (formal or informal translation)	Budapest University of Technology and Economics		
Type of institution code	EDU.4	Erasmus ID code, for Higher Education Institutions only, If applicable	HU BUDAPEST 02
Homepage	http://www.bme.hu		
Legal representative of the institution, who is authorised to sign the agreement: Last name First name	Zrínyi Miklós	Title (optional) (e.g. Prof., Dr, etc.)	Prof.
Department/Unit	Rector's Office		
Official function within the institution	Vice rector for scientific and international affairs	Sex	<input type="checkbox"/> F (female) <input type="checkbox"/> M (Male)
Legal address of the institution Street & Street Number Post code & town Country	Műegyetem rkp. 3 H1111, Budapest Hungary		
Phone (including country and area code)	+361 4632277		
Fax (including country and area code)	+361 4632270		
E-mail	zrinyi@mail.bme.hu		

5.2 Coordinator (responsible for EU Institutions' co-ordination)

The address provided will be used for the acknowledgement of receipt and all further correspondence relating to the project / network.

Coordinator: Last name First name	Kiss Bálint	Title (optional) (e.g. Prof., Dr, etc.)	Dr.
Department/Unit	Faculty of Electrical Engineering and Informatics		
Official function within the institution	BSc. course director, Associate Professor	Sex	<input type="checkbox"/> F (female) <input type="checkbox"/> M (Male)
Complete Correspondence address Street Post code & town Country & region	Magyar tudósok krt. 2. H1117 Budapest Hungary		
Phone (including country and area codes)	+361 4634026		
Fax (including country and area codes)	+361 4632204		
E-mail address	bkiss@iit.bme.hu		

5.3 Person in charge of finance

Last name First name	Vajta László	Title(optional) (e.g. Prof., Dr, etc.)	Dr.
Department/Unit	Faculty of Electrical Engineering and Informatics		
Official function within the institution	Vice-Dean for Financial Affairs	Sex	F (female) M (Male)
Correspondence address	Street Post code & town Country & region Egry József u. 18. fsz. 2. H1111 Budapest Hungary		
Phone (including country and area codes)	+361 4632861		
Fax (including country and area codes)	+361 4633580		
E-mail address	vajta@it.bme.hu		

5.4 Financial identification

Please complete the appropriate financial form as a function of the nationality of the lead institution and attach the duly signed original to your application. The form has to be signed and stamped by the bank representative. See a model of the form in Annex III. Specific forms by country can be found on the same web-address with the application forms.

EU partner institutions

For EU partners, please use the type of institution codes indicated in Annex 1.

Check the minimum number of partners required (see *Guidelines for Applicants*).

Add copies for additional partners if necessary.

- **Partner Nr 2**

Full legal name of the institution in the national language	Ecole Royale Militaire		
Acronym of the institution, if applicable	RMA		
Full name of the Institution	Royal Military Academy		
Department/Unit			
Type of institution	Higher Education Institution	Country code	BE
Contact person	Function: Prof. Male (M) <input type="checkbox"/> Female (F) <input type="checkbox"/>		
Last name	Baudoin		
First name	Yvan		
Legal address of the institution	30, avenue de la Renaissance		
Street & Street Number	1000 Brussels		
Post code & town	Belgium		
Country			
Phone (including country and area code)	+32 (0) 27376641		
Fax	+32 (0) 27376547		
E-mail	Yvan.baudoin@rma.ac.be		
Homepage	http://www.rma.ac.be		

US lead institution:

- **Authorising official**

Full legal name of the institution in the national language	Florida Institute of Technology
Acronym of the institution, if applicable	FIT
Type of institution	Higher education institution
Institutional homepage	http://www.fit.edu
Authorising official of the institution: Last name First name	Poltano John
Department/Office	Office of Sponsored Programs
Title	Director
Legal address of the institution Number & Street City/Province/ Zip code	150 West University Blvd. Melbourne / Florida / 32901
Phone (including area code)	321 6747239
Fax (including area code)	321 6748969
E-mail	jpolitan@fit.edu

- **Project coordinator**

The address provided will be used for the acknowledgement of receipt and all further correspondence relating to the project .

Project coordinator: Last name First name	Bostater Charles
Department/Office	Department of Marine and Environmental Engineering
Title (optional) (e.g. Prof., Dr, etc.)	Dr.
Correspondence address Number & Street City/Province/ Zip code	150 West University Blvd. Melbourne / Florida / 32901
Phone (including area code)	321 600 8096
Fax (including area code)	321 600 9412
E-mail address	bostater@probe.ocn.fit.edu

7. PERSONNEL INFORMATION

You should clearly outline the qualifications of all key personnel related to the project. You can include in an appendix brief bios (one page), highlighting relevant skills and experience of the personnel. If you include resumes instead of the bios, strictly limit each to two pages.

The brief bios of the key personnel (institutional coordinators) are given in the appendix together with the institutional information.

Information about the personnel working at the organizational units and services administering student exchange programs at the partner institutions is available on the institutional web pages (URL-s are given in the appendix).

8. BUDGET

Duration and languages

The contractual period is likely to start on 1st October 2006. The duration of the consortia project is 48 months.

Starting date/End date	
Starting date:	01/10/2006
End date:	30/09/2010
For EU partners only, language in which you would like the grant contract to be issued	
1st preference <input type="checkbox"/> DE <input checked="" type="checkbox"/> EN <input type="checkbox"/> FR	2nd preference (language in which you would like a translation of the contractual package) <input type="checkbox"/> DA <input type="checkbox"/> DE <input type="checkbox"/> EL <input type="checkbox"/> EN <input type="checkbox"/> ES <input type="checkbox"/> FI <input type="checkbox"/> FR <input type="checkbox"/> IT <input type="checkbox"/> NL <input type="checkbox"/> PO <input type="checkbox"/> SE <input type="checkbox"/> CY <input type="checkbox"/> CZ <input type="checkbox"/> EE <input checked="" type="checkbox"/> HU <input type="checkbox"/> LV <input type="checkbox"/> LT <input type="checkbox"/> MT <input type="checkbox"/> PO <input type="checkbox"/> SK <input type="checkbox"/> SL
For EU partners only, language in which you would like correspondence with the Commission to be conducted <i>(to facilitate cooperation with your partners, you are advised to enter the language most commonly used for communication within the partnership)</i>	
1st preference <input type="checkbox"/> DE <input checked="" type="checkbox"/> EN <input type="checkbox"/> FR	2nd preference <input type="checkbox"/> DA <input type="checkbox"/> DE <input type="checkbox"/> EL <input type="checkbox"/> EN <input type="checkbox"/> ES <input type="checkbox"/> FI <input type="checkbox"/> FR <input type="checkbox"/> IT <input type="checkbox"/> NL <input type="checkbox"/> PO <input type="checkbox"/> SE <input type="checkbox"/> CY <input type="checkbox"/> CZ <input type="checkbox"/> EE <input type="checkbox"/> HU <input type="checkbox"/> LV <input type="checkbox"/> LT <input type="checkbox"/> MT <input type="checkbox"/> PO <input type="checkbox"/> SK <input type="checkbox"/> SL

Financial support from USA/European Community

Has the proposal, or any aspect thereof or any larger project / network to which it may belong, already been supported in the past by the US or the European Community?

No

Yes. Please specify the programme, date, type of activity (e.g. preparatory visit) and, if possible, contract number(s):

Is this proposal, or any aspect thereof or any larger project/network to which it may belong, currently being supported under any other American or European Community programme?

No

Yes. Please specify the programme, date, type of activity (e.g. preparatory visit) and, if possible, contract numbers:

Is this proposal, or any aspect thereof or any larger project/network to which it may belong, currently the subject of any other application for support from the US or the European Community?

No

Yes. Please specify the programme(s) and provide details under section 2 Table 2.

General instructions

- Before completing this section, please read carefully the “Explanatory note on Budget” in Annex 2.
- The budget should cover the entire period of the grant.
- The budget should be coherent with the work plan.
- All amounts should be provided in Euros.
- Please adhere strictly to the format provided in the tables, and check carefully the figures provided (applications containing calculation errors will be penalised in the selection process).

Table 1 : Total grant requested

Categories of funding	Amounts in EUR
1. Flat-rate sum for administrative costs	60,000
2 Transatlantic student mobility grants	234,000
3. Transatlantic faculty mobility grants	60,000
TOTAL (identical to the total in Table 2)	354,000

Please attach copy of the financial request made to FIPSE by the US lead partner.

Table 3 a – Distribution of funding requested amongst participating EU institutions

The reference numbers (Nr 1, 2, 3, etc.) of the participating institutions must correspond to those used in section 4.

All amounts in Euros	Total (equals amount in table 1)	Coordinating institution (=Participating institution Nr 1)	Participating institution Nr 2	Participating institution Nr 3
Funding requested by the participating EU institution	354,000	221,000	133,000	

Table 3 b – Explanation for allocation of EU grant per participating institution

On what basis do you intend to distribute the EU grant among the participating institutions?

Both EU institutions receive the 7,500Eur annual flat rate for all four years of the project. This sum is partly used to contribute to the budget of the international offices of the EU institutions who manage the administration of the visiting US students as described in the narrative.

Student mobility grants allow two semesters of transatlantic mobility for 4 BME and 2 RMA students during the second, third and fourth year of the project.

Faculty mobility grants are used to give lectures (as part of regular courses and in form of seminars) in selected topics in remote sensing and robotics at the FIT and to meet prospective students in the US. Remote sensing courses and seminars are given by visiting faculty from the RMA, robotics courses and seminars are given by faculty from the BME and RMA.

Faculty mobility is used in a limited extent to finance faculty staff travel and subsistence to participate at the Atlantis annual program meetings. Regular consortium meetings will be scheduled such that the meeting can be coupled with educational activity if possible.

Tables 4: Details of transatlantic student mobility grants

Sending EU Institution	Number of students in transatlantic mobility (a)	Average length of stay	Average grant per student including travel and relocation costs (") (b)	Total cost (axb)
1. BME	12	11 months	13,000	156,000
2. RMA	6	11 months	13,000	78,000
3.				
4.				
5.				
Total identical to line 2.1 in Table 1				" 234,000

Table 5 Details of transatlantic faculty mobility grants

Sending EU Institution	Number of faculty in transatlantic mobility (a)	Average length of stay	Average faculty grant including travel costs (") (b)	Total cost (a x b)
1. BME	7	4 weeks	5000	35,000
2. RMA	5	4 weeks	5000	25,000
3.				
4.				
5.				
				" 60,000

Copy of the US budget

9. WORK PLAN

Follow the work plan table below, where appropriate.

Project: transatlantic degree consortium				
Component of project	Outputs to be achieved/produced by the end of the implementation of this component	Activities leading to this output	Activity to be started by this date and completed by this date	Partners
1. Development and dissemination of innovative transatlantic I curricula	Final list of degree programs at the partner institutions such that the double degree is available (see the narrative for examples). Integration of courses developed in the framework of the OIC-R ³ -D ² project into the curricula. Publication of the curricula on the project website in a comprehensive form.	Study of the course catalogues, identification of the similarities and differences together with the extra work a US (resp. EU) student has to complete to obtain the double degree. Synchronization of the timeline of studies and programming of the exchange periods.	Start: 01/10/2006 End: 31/01/2007 Outcome is subject to annual review according to item 10 (evaluation)	All
2. Arrangements for academic credits	Integration of the credit recognition procedures related to this particular student exchange program into normal credit recognition procedures. (Remark: ECTS is used between the EU partners.)	Cooperation with the corresponding administrative units and course responsables at all partner institutions.	Start: 01/10/2006 End: 31/01/2007 The mutual recognitions are subject to review if the course content is modified.	All
3. Development of organizational frameworks for student mobility.	Integration of this particular student exchange program into existing schemes of the corresponding organizational units at the coordinator partner institutions (See IEC ⁵ at BME and IAP ⁶ at FIT).	The organizational framework exists at the institutions and they have to be informed and prepared to the additional student influx and outflow, dates, number of students, length of stay have to be communicated using the normal institutional procedures.	Start: 01/10/2006 End: 31/01/2007 Subject to annual review according to item 10 (evaluation).	All
4. Guideline and professional requirements for students participating in the exchange to obtain the double degree	<ol style="list-style-type: none"> 1. List of requirements to be fulfilled prior to the departure at the home institution (number of credit obtained at the home institutions, language and cultural preparedness, etc.) 2. List of requirements to be fulfilled during the exchange period (number of credits to obtain, extra workload if any, participation in cultural and language courses). 3. Definition of the joint selection criteria of the students participating in the transatlantic double degree program. 	The requirements are partially established based on the outcomes of items 1 and 2. Publication of the guidelines on the website of the project.	Start: 01/11/2006 End: 28/04/2007 Outcome is subject to annual review according to item 10 (evaluation).	All
5. Development of language and cultural preparation and assessment	Language and cultural preparation plan. The cultural preparation plan includes sample courses and information sessions presented by visiting faculty at the partner institution allowing direct contact with the potential student population.	Identification of faculty to visit partner institutions and to provide preparatory information for the local student population. Definition of the language requirements (in French).	Start: 01/10/2006 End: 28/02/2007	All

⁵ International Education Center, <http://www.tanok.bme.hu>

⁶ International Academic Programs, <http://www.fit.edu/iap/>

6. Student selection	<ol style="list-style-type: none"> 1. Advertisement of the opportunity of the transatlantic double degree on the project website, publication of the deadlines and items the student has to present to participate. 2. Student proposals collected. 3. Individual evaluation, personal interviews (if applicable) 4. List of selected students. 	Students are selected on a competitive basis. Students present proposals for the mobility according to the guidelines provided (see item 4). The viability of the proposal is checked such that the successful completion of courses included in the mobility period makes possible to award both degrees. Probability of success for the students are evaluated and ordered. Selection of students are made locally, the mobility scholarship is awarded jointly by the partner institutions.	Start: 31/03/2006 End: 30/05/2009 This activity is periodic.	All
7. Joint development of a strong project evaluation plan	<ol style="list-style-type: none"> 5. The use of existing means of evaluation for exchange students at the partner institution. 6. Evaluation plan specific to the transatlantic double degree program. 7. List of evaluation criteria. 	Evaluation is based on the study of transcripts of students and on evaluation forms used at the partner institution. Feedback for student selection, curricula content, cultural and language preparation are provided based on this study such that the regular update of the outcomes of the corresponding items are updated.	Start: 01/10/2006 End: 30/04/2007	All
8. If applicable, structured exchanges and teaching assignments for teachers, trainers, administrators and other relevant specialists	Exchange assignments to give courses at the visited institution in relation of remote sensing and robotics. Exchange assignments to meet potential students at the partner institutions.	Identification of the content and time frame for the exchange based on the available local student population and exchange student population.	Start: 01/10/2006 End: 31/09/2010	All
9. If applicable, joint development and dissemination of web-based and computer-based technologies	Further course publication and use of the existing e-learning website installed in the framework of the OIC-R ³ -D ² project (http://oicr3d2.iit.bme.hu)	Curricula development for parts of the curriculum. Dissemination of the setup of the transatlantic double degree at various professional conferences and meeting of professional organizations (e.g. IFAC, SPIE, ITEP, etc.)	Start: 01/10/2008 End: 31/09/2010	All
10. Evaluation	An annual evaluation of activities by professionals based on criteria established in component 5	Selected professional (including the corresponding organizational units at the partners)	Start: 01/10/2006 End: 31/09/2010 (periodically)	All

10. STUDENT MOBILITY

Academic Year 1 : from 01/10/2006 to 31/07/2007

EU sending/USA hosting table: indicate the name of the institutions as well as the number of students from EU institutions planned to be sent to American institutions in the corresponding box.

Students exchanged with Transatlantic mobility grants			Students exchanged without Transatlantic mobility grants			Total no. of students exchanged		
	Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	0	0	Hosting lead USA Institution :	0	0	Hosting lead USA Institution :	0	0
Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0

USA sending/EU hosting table: indicate the name of the institutions as well as the number of students from American institutions planned to be sent to EU institutions in the corresponding box.

Students exchanged with Transatlantic mobility grants			Students exchanged without Transatlantic mobility grants			Total no. of students exchanged		
	Sending lead US Institution :	Sending US partner institution 2:		Sending lead US Institution :	Sending US partner institution 2:		Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	0	0	Hosting lead EU Institution :	0	0	Hosting lead EU Institution :	0	0
Hosting EU partner institution 2 :	0	0	Hosting EU partner institution 2 :	0	0	Hosting EU partner institution 2 :	0	0

Academic Year 2 : from 01/10/2007 to 31/07/2008

EU sending/USA hosting table: indicate the name of the institutions as well as the number of students from EU institutions planned to be sent to American institutions in the corresponding box.

Students exchanged with Transatlantic mobility grants			Students exchanged without Transatlantic mobility grants			Total no. of students exchanged		
	Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	4	2	Hosting lead USA Institution :	0	0	Hosting lead USA Institution :	4	2
Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0

USA sending/EU hosting table: indicate the name of the institutions as well as the number of students from American institutions planned to be sent to EU institutions in the corresponding box.

**Students exchanged with
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	0	0

**Students exchanged without
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	0	0
Hosting EU partner institution 2 :	0	0

Total no. of students exchanged

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	0	0

Academic Year 3 : from 01/10/2008 to 31/07/2009

EU sending/USA hosting table: indicate the name of the institutions as well as the number of students from EU institutions planned to be sent to American institutions in the corresponding box.

**Students exchanged with
Transatlantic mobility grants**

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	4	2
Hosting USA partner institution 2 :	0	0

**Students exchanged without
Transatlantic mobility grants**

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	0	0
Hosting USA partner institution 2 :	0	0

Total no. of students exchanged

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	4	2
Hosting USA partner institution 2 :	0	0

USA sending/EU hosting table: indicate the name of the institutions as well as the number of students from American institutions planned to be sent to EU institutions in the corresponding box.

**Students exchanged with
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	12	0

**Students exchanged without
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	0	0
Hosting EU partner institution 2 :	0	0

Total no. of students exchanged

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	12	0

Academic Year 4 : from 01/10/2009 to 31/07/2010

EU sending/USA hosting table: indicate the name of the institutions as well as the number of students from EU institutions planned to be sent to American institutions in the corresponding box.

**Students exchanged with
Transatlantic mobility grants**

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	4	2
Hosting USA partner institution 2 :	0	0

**Students exchanged without
Transatlantic mobility grants**

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	0	0
Hosting USA partner institution 2 :	0	0

Total no. of students exchanged

	Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	4	2
Hosting USA partner institution 2 :	0	0

USA sending/EU hosting table: indicate the name of the institutions as well as the number of students from American institutions planned to be sent to EU institutions in the corresponding box.

**Students exchanged with
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	6	0

**Students exchanged without
Transatlantic mobility grants**

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	0	0
Hosting EU partner institution 2 :	0	0

Total no. of students exchanged

	Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	6	0
Hosting EU partner institution 2 :	6	0

Total for all Academic Years : from 01/10/2006 to 31/07/2010

Explanatory note: the length of stay of the EU students in the US is 15 months (3 semesters) and similarly, the average stay of US students in the EU is also 15 months (3 semesters), hence the student numbers in these tables are not the sums of the corresponding numbers in the previous tables.

EU sending/USA hosting table: indicate the name of the institutions as well as the number of students from EU institutions planned to be sent to American institutions in the corresponding box.

Students exchanged <u>with</u> Transatlantic mobility grants			Students exchanged <u>without</u> Transatlantic mobility grants			Total no. of students exchanged		
	Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:		Sending lead EU Institution :	Sending EU partner institution 2:
Hosting lead USA Institution :	12	6	Hosting lead USA Institution :	0	0	Hosting lead USA Institution :	12	6
Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0	Hosting USA partner institution 2 :	0	0

USA sending/EU hosting table: indicate the name of the institutions as well as the number of students from American institutions planned to be sent to EU institutions in the corresponding box.

Students exchanged <u>with</u> Transatlantic mobility grants			Students exchanged <u>without</u> Transatlantic mobility grants			Total no. of students exchanged		
	Sending lead US Institution :	Sending US partner institution 2:		Sending lead US Institution :	Sending US partner institution 2:		Sending lead US Institution :	Sending US partner institution 2:
Hosting lead EU Institution :	18	0	Hosting lead EU Institution :	0	0	Hosting lead EU Institution :	18	0
Hosting EU partner institution 2 :	18	0	Hosting EU partner institution 2 :	0	0	Hosting EU partner institution 2 :	18	0

11. LETTERS OF ENDORSEMENT

Include letters of endorsement from the highest academic or executive officers (e.g., rector, vice-chancellor, provost, dean, director, or president) of each of the European and American institutions. These letters should indicate how the project fits within the international strategy of the institution or organisation and how this project will complement that strategy. **The letters must indicate a commitment to implement the double/joint degree programme and conclude agreements on tuition and credit recognition or transfer by the end of first year of the project.** Other major parties involved in the consortium should also indicate in writing their commitment to this project.

The letters of endorsements are included in the following order:

1. Letter of endorsement of the Florida Institute of Technology (signed by the Dean of the College of Engineering)
2. Letter of endorsement of the Budapest University of Technology and Economics (signed by the Dean of the Faculty of Control Engineering and Informatics)
3. Letter of endorsement of the Royal Military Academy (signed by the Director Adj of the Academical Tuition)

Letter of endorsement BME





Letter of endorsement RMA



12. LEGAL STATUS DOCUMENTATION

All applicants must prove their legal status by completing the appropriate form (see annex) and submitting the necessary supporting documentation.

Legal status documentation of the EU institutions are provided in the following

1. Legal status form of the BME
2. Copy of the resolution establishing the BME (in Hungarian with English translation)
3. Legal status documentation of the RMA

Rendelet 4. old.

Rendelet 5. old.

Forditas 1. old.

Forditas 2. old.

Forditas 3. old.

Forditas 4. old.

Forditas 5. old.

DECLARATION

To be completed by the person legally authorised to sign on behalf of the coordinating institution.

I, the undersigned, certify that

- the information contained in this application, is correct to the best of my knowledge;
- the organisation I represent

is not bankrupt or being wound up, having its affairs administered by the courts, having entered into an arrangement with creditors, having suspended business activities, being the subject of proceedings concerning those matters, or being in any analogous situation arising from a similar procedure provided for in national legislation or regulations;

- has not been convicted of an offence concerning its professional conduct by a judgment which has the force of res judicata;

- has not been guilty of grave professional misconduct proven by any means which the contracting authority can justify;

- has fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which it is established or with those of the country of the contracting authority or those of the country where the contract is to be performed;

- has not been the subject of a judgment which has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity detrimental to the Communities' financial interests;

- has not, following another procurement procedure or grant award procedure financed by the Community budget, been declared to be in serious breach of contract for failure to comply with its contractual obligations.

The appropriate authorities of all the participating institutions have confirmed in writing their agreement with the application as submitted.

In case this project would be selected, I grant permission to the European Commission to publicise the following information: the names and addresses of the beneficiaries, the subject of the project, the amount of funding awarded and the rate of funding of the overall eligible project costs.

Place: Budapest

Date 04/07/2006 (day/month/year)

Signature

Stamp of the coordinating institution

Name and position in capitals

DR. MIKLÓS ZRÍNYI
VICE RECTOR FOR SCIENTIFIC
INTERNATIONAL AFFAIRS

MEGHATALMAZÁS



A. BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS

A.1. Institutional information

Website: <http://www.bme.hu> ⁷

The Budapest University of Technology and Economics (BME) is the largest technical university of Hungary and one of the oldest universities (est. in 1782) of Europe delivering engineering degrees. Several Nobel Prize laureates were students of the university and personalities such as John von Neumann, Edward Teller, and Ern Rubik were its graduates. The university has actually around 16000 full-time students. All its degree programs are accredited by the Hungarian National Accreditation Committee with excellent qualifications. According to the annual evaluation of research activities based on strict criteria elaborated by the Hungarian Ministry of Education, the university keeps steadily its first place for years, among all Hungarian higher education institutions delivering accredited degrees. In particular, departments and research groups participated in numerous EU FW 5 and FW 6 consortia. The university introduced the three level BSc-MSc-PhD higher education scheme in 2005.

The Central Library of the University (est. in 1848, <http://www.omikk.bme.hu>) integrates the Hungarian National Technical Information Center and may receive simultaneously 500 visitors in its lecture rooms.

The University has four official foreign languages of education: English, French, German, and Russian and offers degree programs in those languages. In particular, BME is the only Hungarian member of AUPELF-UREF, a global network of universities delivering degree programs in French.

The International Education Center (IEC) of the university (<http://www.tanok.bme.hu/>) coordinates all student exchanges including the European Erasmus program and the existing transatlantic exchanges. The university welcomes about 450-500 foreign students each semester. The IEC is responsible of the reception, enrollment, tuition fee, and transcript issuing activities for the foreign students, assist them in immigration (visa) procedures and housing. The IEC also organizes orientation weeks for freshmen and cooperates with the Group of Hungarian Mentor Students in organizing cultural and social events for the guest students during their stay.

The Faculty of Electrical Engineering and Informatics (<http://www.vik.bme.hu>) delivers BSc and MSc degrees in Electrical Engineering and Computer Science Engineering with a total of around 700 graduates each year. The faculty offers full English language BSc, MSc, and PhD programs and has strong ties with multinational industrial companies and its departments participate in numerous international research networks and programs. The faculty is strongly committed to offer to its students the possibility to gain international experiences during their students, hence it runs several bilateral exchanges programs (even at PhD level) with European, Japanese, and American universities.

A.2. Personnel information

Dr. Bálint Kiss

<http://www.iit.bme.hu/~bkiss>

Personal information

Hungarian, 32Y

Education

MSc, Electrical Engineering, Budapest University of Technology and Economics (1996)

PhD, Applied Mathematics, Control Engineering, Ecole des Mines de Paris and Budapest University of Technology and Economics (2001)

Present position

Associate professor at the Department of Control Engineering and Information Technology of the Budapest University of Technology and Economics

BSc course director, Faculty of Electrical Engineering and Informatics

⁷ If the language of the web page referred is not English by default, one may easily switch to english by clicking on the appropriate banner.

Teaching involvement

Undergraduate level: Control systems, Computer science (in French), Laboratory practices in control, visiting lecturer at Florida Institute of Technology (Control systems), visiting lecturer at Institut National des Sciences Appliquées de Lyon (Computer science)

Graduate level: Robot control, Control Theory, Autonomous systems laboratory, supervision of project laboratories and numerous master theses

Research activities and project involvement

Control theory related to mechanical systems, in particular nonholonomic and underactuated systems. Motion planning for nonlinear systems. Project involvements: Tempus Phare S-JEP 12555-97: Modernization of the Hungarian higher education systems in the field of intelligent control and measurement systems (INTCOM); European Commission's Training And Mobility Of Researchers Program, Research Network # ERB FMRXCT-970137 (Nonlinear Control Network): A Virtual Crane On Your Desk; OTKA T 029072: Research of modern robot control theory and increasing intelligence; IKTA4/042: Probability modelling of internal structures of large databases; KMF 20358971: Automated environment monitoring system for wild fire detection; Projects in industrial cooperation: fault mode control of electronic steering systems (Thyssen Krupp Nolthelfer), Position control (GE Medical Systems).

EU coordinator of a Complementary Activity Project (Agreement no. 2004-3212/001-001 CPT CPTUSA). Visit the project website for more details: <http://www.iit.bme.hu/oicr3d2/> or <http://oicr3d2.iit.bme.hu> (login: *guest* password: *guest123*)

Awards, scholarships

János Bolyai research scholarship of the Hungarian Academy of Sciences (excellence award received at the end of the scholarship period)

Publication activities

5 peer reviewed journal papers, 36 publications

Selected publications:

[1] Kiss, B., J. Lévine and Ph. Mullhaupt. Control of a reduced size model of US Navy crane using only motor position sensors. *Nonlinear Control in the Year 2000*, Editor: Isidori, A., F. Lamnabhi-Lagarrigue and W. Respondek. Springer, New York, 2000, Vol.2., pp. 1-12.

[2] Kiss, B., J. Lévine and B. Lantos. On Motion Planning for Robotic Manipulation with Permanent Rolling Contacts. *International Journal of Robotics Research* (UK), Vol. 21, No. 5-6, pp. 443-461. 2002.

[3] Kiss, B., J. Lévine and Ph. Mullhaupt. Modeling, flatness and simulation of a class of cranes. *Periodica Polytechnica, Ser. Electrical Engineering*, Budapest, 1999. Vol. 43, No. 3

[4] Kiss, B. *On Military Debris in the Lake Balaton, Detection and Identification Issues*. Yearbook of the Florida-Hungary Environmental Studies Partnership Program.

[5] Kiss, B., J. Lévine and Ph. Mullhaupt. Global Stability Without Motion Planing May Be Worse than Local Tracking. European Control Conference, Porto, Portugal, September 4-7, 2001. 5 p.

[6] Kiss, B., J. Lévine and B. Lantos. Object reconfiguration with rolling contacts using differentially flat robotic hand structures. In: *Proceedings of the 6th International Conference on Control, Automation, Robotics and Vision, ICARCV 2000*, Singapore, December 5-8, 2000. 6 p.

[7] Kiss, B., J. Lévine and B. Lantos. On motion planning for robotic manipulation with rolling contacts. In: *Proceedings of the 6th International IFAC Symposium on Robot Control - Syroco*. Vienna, Austria, September 21-23, 2000. pp. 639-644.

B. ROYAL MILITARY ACADEMY

B.1. Institutional information

Website: <http://www.rma.ac.be>

General:

The RMA, and its two faculties (Polytechnics and Social/Economical Sciences) is, in particular one of the Belgian academic institutions in charge of the education of civilian engineers, leads the scientific research activities for the Ministry of Defence and acquires competence and dedicated scientific research activities for other State Institutions (Justice, Cooperation with developing-countries, etc.) and in close cooperation with the other universities of the country. The RMA (about 600 students) employs about 80 researchers, assisted by PHD students and supervised by 59 associated professors and full professors. For this OIC-R³-D² project, three centers, part of the Electrical Engineering Department and the Mechanical Engineering Department, will combine their R&D activities and curricula: the Signal & Image Center (SIC), the UGV/UAV-Mechatronics Lab (UGV-UAVC). The centres consist of a twenty five researchers/PhDers. Existing Curricula focus on the Signal processing, the mechatronic, the Comdo information processes, the Measurements automation, etc

The Signal & Image Centre (SIC) is a research group part of the Electrical Engineering Department of the faculty of Applied Sciences of the Royal Military Academy - Brussels (RMA). The centre consists of about twenty researchers forming a stable core of specialists, assisted by PhD students. The research activities of the SIC cover a wide range of signals, going from one dimensional signals such as speech or radar signals, over two-dimensional signals (visible, infrared or SAR images) to multi-dimensional signals that are either multi-spectral images or image sequences. If the Centre has developed expertise in the field of *image compression* (ESA and EUMETSAT projects) and *restoration*, its largest experience is found in pattern recognition, remote sensing and data fusion.

In *pattern recognition*, the RMA/SIC is specialised in surveillance systems and has developed dedicated software for object, target and face recognition.

It is mainly using its know-how in feature extraction for developing new processing methods in *remote sensing*. The past activities of SIC in the field of remote sensing include the automatic geo-referencing of multi-spectral satellite images (EUCLID RTP9.4) and the development of a semi-automatic system for scene analysis from multi-spectral high-resolution images (Western European Union project: SAHARA). SIC has also participated in a project concerning SAR image geocoding and rectification and a short project on vegetation classification (CTIAC).

SIC has also experience in *data fusion*. Data fusion at different levels was applied in different projects. Projects in which data fusion was used include the aforementioned SAHARA and EUCLID RTP9.4, as well as M2VTS: A European (ACTS) project on Multimodal Identity Verification and a NATO project on the use of multi-sensor image fusion for the detection of vehicles (NATO/AC243/RSG9/project 6).

The SIC is also involved in important research activities on **humanitarian demining**. These activities are multi-disciplinary and are involving all the components of the SIC, robotics included. The SIC is leading the Belgian project on humanitarian demining (**HUDEM**) initiated by the Belgian Ministry of Defence and supported by the Belgian Ministry of Defence and the Belgian State Secretariat for Development Aid. It is carried out in collaboration with laboratories of the most important Belgian universities. This project aims at contributing in solving the acute human problem of mine pollution by funding research grants devoted to basic research on minefield detection, landmine detection and removal. The efforts is concentrated on increasing the knowledge on sensors and on sensor/ground characteristics, on designing new sensors or tuning old ones and on processing the data produced by sensors. Furthermore, it considers the detection as a global process wherein the outputs of the sensors, considered as skilled specialists, are integrated in a fusion operation.

Moreover, low cost robotic solutions are analysed in order to provide the demining community with safe remote and/or automated systems. In the latter context, the SIC is also involved in an important European project (**ESPRIT/HOPE**) aiming at building a hand held multi-sensor platform for demining operations for which the SIC is developing the processing and data fusion modules and a complex Man-Machine Interface.

Further, the SIC is also investigating methods for remote minefield detection (HUDEM, **EC/DGVIII Pilot** project on airborne minefield detection in Mozambique, TELSAT IV pilot project **PARADIS** on the rational planning of demining operations using satellite images and **EC / DG / INFISO SMART** project on mine-affected area reduction using multi-spectral images (from visible to infrared) and SAR images (full polarized P and L bands, and single polarized C and X bands).

The SIC, also involved in an **ESA / ESRIN** project, succeeds to recover the correct position of **ERS2** from the signals of the scatterometer, the gyros of the satellite being defective.

Finally, the SIC is also involved with the **JRC/ISPR** in the organisation of multisensor trials whose aim is to provide the scientific community with reliable data sets in order to develop efficient data fusion algorithms.

The UGVC focuses on the design of wheeled and legged robots and their control, and the development of navigation algorithms. National funding for Humanitarian Demining (HUDEM, BEMAT) and basic research on UGVs and AEVs (all electrical vehicles) are provided by the MoD. The UGVC owns 5 developed legged robots and 1 three-wheeled robot as well as three adapted commercial autonomous vehicles equipped with navigation/inspection sensors.

The UAVC focuses on research related to medium, mini and micro UAVs (unmanned aerial vehicles). The main current objectives are the understanding of low Reynolds number aerodynamics, the development of lightweight propulsion systems, autonomous navigation and micro-cameras for day and night vision. Birdlike and insect like flying techniques as well as crawling capabilities are also studied.

Specific information related to the current proposal:

SIC:

- Expertise: signal processing, data-fusion, classification, speech and image processing
- Projects : SAR image geocoding and rectification, vegetation classification (CTIAC), Development of a hand-held multisensor head for detection of buried objects (EU HOPE project), Development of suitable maps/mission management tools for Humanitarian Demining from aerial data (BE funded PARADISE and EU funded SMART projects)
- MoD Center of excellence in Signal Processing, Member of the EU funded Network EUDEM-2, Advisory Center for the International Ottawa convention on Humanitarian Demining, Awards for European Spatial Agency

UGVC:

- Expertise: Industrial Robotics, Hydraulical-pneumatical automation, Vibration Testing Engineering ,Mobile Robotics (a.o. multi-legged robots), Human-Machine-interface, multi-agent-system, Outdoor/Indoor Tracking/Positioning of mobile platforms
- Projects: Design and adaptation of mobile platforms for carrying detectors of buried objects (BE funded HUDEM and BEMAT projects), BE funded MB-07/UGV-AEV project on all-electrical vehicles and multi-agent-systems (multirobot cooperation)
- MoD Center of Excellence in Mobility, Member of the previous brite-Euram Network CLAWAR and actual GROWTH CLAWAR-2, Member of NAT/RTO/AVT (applied vehicle technologies), BE representative in IARP (International Advanced Robotics Programme ó Chairmanship of WG Hudem)
- FW6 View-Finder Project focusing on the multisensor management by Fire fighting missions.

UAVC

- expertise: Turbomachinery, Laser velocimetry, UAVs design, Microturbines
- performance acquisition systems, Laser Doppler velocimeter (LDV) and particle image velocimeter (PIV) for flow diagnostics, flow visualisation devices, 4 UAV-prototypes ó 6 researchers
- Projects: Design of mini/micro UAVs with as final aim the development of an autonomous system for identification of all kinds of hazards. (BE funded project MB-01/02-UAV, Ind contract RMA/ONERA France, BE Industrial Consortium under FLAG)

MoD Center of Excellence in Mobility (UGVC-UAVC belonging to the same Dpt), Member of EURO-UVS, Presidency of NATO/UAV R&D, Vice-Presidency of NAT/RTO/AVT, Secretary of Theoretical&applied Mechanical Engineering Interuniversity Institution, Lectures at VKI (Von Karman Institute).

B.2. Personnel information

Professor Yvan Baudoin

Personal information

Belgium, 58 Y

Education and academic/professional background

Full Professor Head of the Department of Mechanics (Division Polytechnics of the Royal Military Academy RMA) ; Director of the Laboratory Dynamics of Mechanical Structures & Mobile Robotics/Mechatronics/UGV

Research activities and projects involvement

Environmental engineering, vibration testing; Static robotics (kinematical simulations) and Mobile robotics (indoor/outdoor env); Project HUDEM (BE Funded Humanitarian demining/Robotics 1997/2002); Project BEMAT (BE funded Mine action technologies/sensors-Robots 2003/2005); Project MB07-UGV (BE funded project on Unmanned ground vehicles/all electrical vehicles 2001/2007), Brite-Euram Eur Thematic Network CLAWAR (EU funded Network 1999/2002); Growth Eur Network Clawar-2 (EU funded Network 2002/2005); Eur HOPE and SMART projects (EU funded project on Humanitarian Demining/Sensors 1999/2002 ó 2001/2004), Eur VIEW-FINDER project (EU FW6 on Advanced Robotics)

Professional activities

74-78 : Operational Research for Logistical applications of the Ministry of Defence (MDM)
 79-82 : Head of the Analysis and Programmation Division of the Center of Informatics (MDN)
 83-94 : Associate Professor at RMA
 91-93 : Belgian Delegate in NATO/Panel VIII/RSG 18 for study on Operator-Robot- Interactions
 94-95 : Belgian Delegate in NATO/Long Term Scientific Study on All Electrical Vehicles and Mobile Electrical Weapon Platforms (LTSS 43/AEV)
 97-98: Director of Mid Term Scientific Study NATO on AECV/ LCC
 99/05 : member of Nato/RTO/Applied Vehicle technologies (AVT)/Task groups on All electrical vehicles
 91-95 : Visiting Professor at Institut Commercial Supérieur Saint-Louis
 95 -2001: Chairman of The Belgian Society of Mechanical and Environmental Engineering (BSMEE)
 Member of IMEKO/ TC 17 on Robotics and BEMEKO, Belgium
 Member of European Thematic Network CLAWAR-2
 Chairman of the WG Humanitarian Demining of the International Advanced Robotics Programme (IARP) and official BE-delegate for IARP

Publications

15 journals, 81 conferences
 Selected publications

- Humanitarian Demining: sensors, mechanical assistance and robotics, Y.Baudoin, M.Acheroy, E.Colon Int Symp Clawar 2003, 17-19 Sep 2003, Catania, Italy
- Climbing and Walking Robots for industrial, semi-industrial and environmental applications, Y.Baudoin et al, KN 8th Int Symp Mechatronics 2002, 24-26 June, Twente, The Netherlands
- LCC, management tools: application to all electrical vehicles, Y.Baudoin, 1st IEME Conference, 17-18 June 2003, Pristina, Kosovo
- Micro/minirobots: promising technologies for edutainment aims, Y.Baudoin, 3d IARP workshop on Microtechnologies, 23-25 april 2003, Moscou, Russia
- Advanced Adaptative Control for Outdoor Mobile Robotics Systems Facing Unstructured Environments: application to Humanitarian Demining, Y. Baudoin, Key-Note at IARP WS on Adaptative and Intelligent Robots: Present and Future, Moscow, Nov 2005
- Intelligent Information System for Humanitarian Demining, ICICT-IEEE , Dec 2005, Cairo, Egypte

C. FLORIDA INSTITUTE OF TECHNOLOGY

B.1. Institutional information

Website: <http://www.fit.edu/>

More than 37,000 students have earned degrees at Florida Institute of Technology which is the only independent, technological university in the Southeast US. These graduates confirm the university's commitment to developing leaders and professionals in the fields of engineering, the sciences, business, aviation and psychology.

The FIT runs Undergraduate programs in science, engineering, aeronautics, business, humanities, mathematics, psychology, communication and education (science and mathematics); master's programs in science, engineering, aviation, business, psychology, communication, education (computer, environmental, mathematics, science and teaching); and doctoral programs in science, engineering, psychology, and science and mathematics education.

Residence halls are wired to access campus information services and the various national and international networks and resources, including Internet, Internet 2 and NLR. Florida Tech is a member of the Florida LambdaRail, which is part of the National LambdaRail, providing the most advanced and high-capacity academic national network.

Public access computer labs, including an Applied Computing Center (ACC) in the library, supplement many specialized academic unit labs. The ACC features a digital media lab where students can develop their digital skills. Sixty-eight fully equipped and laptop-ready multimedia classrooms and laboratories further enhance the student learning experience.

Students can also take advantage of an online student information system. Self services range from course registration, access to academic records and financial services.

C.2. Personnel information

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EDUCATION:

- Ph.D. University of Delaware, Applied Ocean Science, Newark, Delaware, 1990.
- M.S.,BS American Univ., Environmental Systems Analysis, Wash., DC, 1976,1995.

EXPERIENCE:

- 1999-Present Associate Professor-College of Engineering, DMES Dept., Florida Tech.
- 1992-1998 Assistant Professor-College of Engineering, DMES Division, Florida Tech.
- 1990-1992 Post Doctoral Fellowship, University of Delaware, Applied Ocean Sciences.
- 1987-1989 Physical Scientist, NOAA, Strategic Assessments Branch, Rockville Maryland.
- 1984-1987 Graduate Research Scientist, University of Delaware, Newark Delaware.
- 1976-1984 Principal Investigator & Chief, Technical Analysis & Data Management Section, Maryland Department of Natural Resources, Annapolis, Maryland.
- 1989-Present Owner, KB Science

PROFESSIONAL ACTIVITIES:

Society Memberships: Sigma XI, AGU, ASLO, SPIE, ERF, ASEE, CERF, IEEE, Past President, Maryland State Chapter NAEP, Peer reviewer for ASLO, SPIE, PERS, DOE, ASTM, DOD & EPA Peer Review Panels; Conference Co-Chair, *Conference on Remote Sensing of the Ocean and Sea Ice*, SPIE, 1998 thru 2006; Remote Sensing Int. Workshop & Short-course: *Hyperspectral Optical Signatures and Imagery*, Course Coordinator and Instructor, at 1977, 4th Int. Conference on Remote Sensing for Marine and Coastal Environments, Sponsored by: ERIM, SPIE, Silicon Graphics, Inc., Orlando, FL.; Invited Session Chairman, *Hyperspectral Optical Signatures & Imagery*, 4th Int. Conf. on Remote Sensing for Marine and Coastal Env., 1997, Sponsored by the ERIM, Orlando, FL.; Program Committee Member, 4th International Conference on Remote Sensing for Marine and Coastal Environments, 1997, Sponsored by ERIM, NASA, and NOAA/NESDIS, Orlando, FL.; Program Member, Eco-Informa, *Computer Networks for Env. Information*, Orlando FL., 1977; Session Chair, Session: *Remote Sensing Platforms*, Eco-Informa, *Computer Networks for Environmental Information*, Orlando, Florida, September, 1977; Member NSF Scientific Advisory Board, CenSIS, Subsurface Remote Sensing, Engineering Research Center, 2005-2006.

PEER REVIEWED BOOKS & PROCEEDINGS (selected):

Bell, B., Bostater, C., (ed.), 1980, *Development, Use, and Value of Water Quality Criteria and Standards*, June, 23-25, Wash. D.C., US EPA, EPA-440/5-81-001, (peer reviewed), 368 pp.

·Bostater, C., Santoleri, R., (ed.), 2000, *Remote Sensing of Oceans & Sea Ice VI*, SPIE Vol. 4172, (peer reviewed), Bostater, C., Santoleri, R., (ed.), *Remote Sensing of Oceans & Sea Ice and Large Water Regions 2005*, European Remote Sensing Conference Proceedings, SPIE Vol. 5977.

PATENTS: Inventor, 1998, US Patent 55,751,424, *Scalable Non-contact Optical Backscatter Insertion Probe*; Inventor, 2000, UK Patent 2334098; Hong Kong Patent HK1022014; Patent Cooperation Treaty (PCT) Pub. No. WO98/20321 for KB Science; Canadian Patent 2,269,620.

PAPERS IN PEER REVIEWED PROFESSIONAL BOOKS (selected):

·Bostater, C. R., Ambrose, R. B., Bell, B., 1981, Modeling the fate and transport of chemicals in estuaries: current approaches and future needs, In: *Aquatic Toxicology and Hazard Assessment*, Branson, D. R., Dickson, K. L., eds., ASTM, Philadelphia, Pa., *ASTM STP 737*, pp. 72-90.

AWARDS: *NASA Award for Innovative Achievement*, Design of an Optically Shallow Water Quality Buoy, (also see *NASA Tech Briefs*, Vol. 24, No. 11, p.69).

RECENT PROJECTS: Project Lead, US Department of Education, Open International Curriculum, Remote Sensing, Robotics & Risks of Humanitarian Demining & UXO Detection, \$85,000; Co-PI, NASA Hyperspectral Airborne Remote Sensing Protocol, \$880,000, 2001-2005.

Checklist

All questions have been answered	<input checked="" type="checkbox"/>
Each page has been numbered	<input checked="" type="checkbox"/>
The proposal narrative has been co-signed by the EU and US project leaders	<input checked="" type="checkbox"/>
The budget is indicated in Euros and checked for calculation errors	<input checked="" type="checkbox"/>
A signed original of the financial identification form is attached (see 5)	<input checked="" type="checkbox"/>
The application includes the letters of commitment from all the partners in the project, drafted and signed by a senior representative or a member of the academic staff of each institution, together with details of the qualifications and precious experience of the participating institutions (including a copy of the CV of staff involved in the project)	<input checked="" type="checkbox"/>
The original application has been signed by the legal representative of the coordinating institution	<input checked="" type="checkbox"/>
The original and 3 copies thereof are being sent before the closing date	<input checked="" type="checkbox"/>
The necessary copies and, if necessary, translations are being sent to each of the other participating institutions before the closing date	<input checked="" type="checkbox"/>