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HELLENIC QUALITY ASSURANCE AND
ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

DEPARTMENT OF INFORMATION &
COMMUNICATION SYSTEMS ENGINEERING

UNIVERSITY OF THE AEGEAN

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External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Information and Communication Systems Engineering of the University of the Aegean consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005:

1. Prof Demetres Kouvatso (President)
(Title) (Name and Surname)
University of Bradford, United Kingdom
(Institution of origin)
2. Prof Evangelos Kranakis
(Title) (Name and Surname)
Carleton University, Canada
(Institution of origin)
3. Dr Michael Rovatsos
(Title) (Name and Surname)
The University of Edinburgh, United Kingdom
(Institution of origin)
4. Prof Myra Spiliopoulou
(Title) (Name and Surname)
Otto-von-Guericke-University Magdeburg, Germany
(Institution of origin)

Introduction

The External Evaluation was conducted from 9th to 11th December 2013. It included meetings with the teaching and research staff of the Department, administrative and support staff, students, alumni and their employers, and representatives of local business and other sectors. It also included an inspection of the premises, facilities, and equipment of the Department.

The members of the Committee were provided with extensive documentation regarding all aspects of the Department's activities, including the results of the recent internal evaluation. This documentation also included study guides for all undergraduate and postgraduate programmes offered, lists of publications, statistical data on many aspects of research and teaching, as well as a strategic plan for the future development of the Department.

All documentation was made available on a very comprehensive web site, and the Committee was also provided with copies of all presentations given by the Department during the visit. It is worth pointing out that apart from the expected items on curriculum, teaching, and research, these presentations covered several additional topics, such as graduate employment, public engagement, entrepreneurship and commercialisation activities, online information services, infrastructure and premises, and the Department's marketing plan.

The members of the Committee were impressed with the quality with which the visit was organised by the Department, and with their positive attitude toward the entire evaluation process. The general climate of all discussions was one of openness, constructive discourse, and all-encompassing engagement with all stakeholders. Great care was taken to give the Committee access to all stakeholder groups in meetings where they could voice their opinions freely and independently. Importantly, the Committee was given the opportunity to discuss various matters with a large number of undergraduate, postgraduate, and doctoral students in the absence of teaching staff.

The Department showed a very proactive attitude towards the evaluation and all staff were very helpful throughout the process. In the context of the history of political debate on academic evaluation in Greece, it is worth pointing out that this is not typical for all institutions.

Due to the detailed documentation provided to the Committee and the very positive climate under which the visit was conducted, the Committee focused primarily on their role as advisors, providing the Department with suggestions for future enhancement of their activities. Also, special emphasis was given by the Committee on understanding the views and needs of the different stakeholder groups to obtain a more in-depth view of the state of the Department and the value it provides to the people it serves, i.e. its staff, students, and the local community.

The main observations of the External Evaluation are as follows:

The Department provides a comprehensive and ambitious programme of teaching and research. It should be congratulated for its innovative approach, enthusiasm, and commitment to high academic, administrative, and management standards. Despite its relatively small size and short history, its contribution to the national sector of higher education is significant, and there are areas in both teaching and research where the department can be classed as "leading" at a national level and "competitive" at an international level (in particular: student-staff interaction, academic information systems, quality assurance, and research areas such as security, networks and ICT governance).

These efforts are currently hampered by several structural problems, which are, however, entirely beyond the control of the Department: The Department is under-staffed with regard to the activities it needs to support. Most striking, with this regard, is the lack of a sufficient number of administrative staff, which leads to an excessive requirement for academic staff

members to perform administrative duties. Increasing demands from central government to take on excessively high numbers of students put additional pressure on the human resources available to the Department, and create a significant risk for the future. If these increases continue, there is serious concern that the Department will not be able to deliver its institutional goals to the desired standard.

The Department is also in serious need of additional teaching facilities of an acceptable standard. The Committee anticipates that in the near-to middle-term, the Department's ability to support its current teaching activities will be seriously compromised. In comparison to European/North American standards, it has to be pointed out that the teaching accommodation is clearly sub-standard. This is particularly unfortunate given the Department's excellent reputation with students regarding student-staff engagement, which is facing a significant risk with increasing student numbers if no appropriate teaching facilities become available.

A1. Curriculum for the Undergraduate Programme

To be filled separately for each undergraduate, graduate and doctoral programme.

The goal of the "Information and Communication Systems Engineering" (ICS-Engineering below) curriculum is to prepare students for a demanding market, maximizing their chances for employment in Greece or abroad through a solid background and specialisation in emerging, innovative fields. Further, the curriculum aims to help students (in higher years) make an informed decision on whether they want to enter the market immediately at the end of their undergraduate studies or rather to continue with postgraduate studies. The curriculum pursues these two goals by first giving the students a solid basis on the theories, methods and instruments of mathematics, physics and computer science (in the first three years), and subsequently providing the students skills and hands-on experience on the technical, applied and theoretical aspects of ICT Engineering (in the last two years). The curriculum also pursues the goal of making the students fit for the market by including an internship course. To assist students in entering the international market, the curriculum includes credit-bearing foreign language courses and encourages Erasmus exchanges.

The goals of the curriculum are in accordance with the expectations of the market, taking into account the difficulties faced by graduates in times of financial crisis. The design of the curriculum takes into account the increasing numbers of prospective students of the Department. These students vary in their background and confidence in their academic abilities, and therefore require additional support for their studies.

The curriculum is designed in accordance with the recommendations of the ACM and IEEE on skills and competencies that young engineers in computer science should have when they enter the market. It has strong engineering aspects, as expected by degrees that contain "Engineering" in their title.

Promoting the local economy by retaining graduates in Samos is a further, implicit goal of the Department. It is less pursued by the curriculum itself, and more through the involvement of students in cooperation with local institutions and in the organisation of career days and scientific events in Samos. However, the curriculum also contains a placement (i.e. a credit-bearing internship) which involves the student spending an extended period of time with a company. We refer to this placement as the "internship course" below.

The Department has mechanisms in place to monitor and revise the curriculum with respect to their goals. The Studies Committee for Undergraduate Studies performs an annual inspection of the curriculum with respect to success in the market and usefulness of the courses. They obtain feedback from students and from alumni (through a carefully designed contact mechanism), and take advice from industrial liaisons.

IMPLEMENTATION

The curriculum implements the Department's holistic view of ICS-Engineering by providing both solid foundations and demonstrating how these foundations are embedded in business and social contexts. The goal of making the students competent for the demanding market, given their possibly low confidence when entering the Department, is pursued through a rigid 3-year block of compulsory courses (accompanied with tutorial offerings, supervision and guidance) followed by a 2-year block of electives in three directions. The applied direction exposes the students to the practical demands of companies; the technical directions familiarize them with cutting-edge technologies; the theoretical direction gives them insights on the fundamentals behind applied solutions. The internship course and the projects incorporated in other courses allow the students to experience the demands of the

market in a real (internship course in a company) or realistic (projects in a lab) setting. The foreign language modules and the Erasmus exchange assist the students in getting acquainted with the culture and expectations towards graduates in other countries.

The curriculum has been designed in accordance to the recommendations of ACM and IEEE, strengthening the engineering aspects, as is expected by Departments that give degrees in Engineering. The curriculum is well-designed and its presentation on the Web as well as the course descriptions given to the students (publicly available) is comprehensive, informative and motivating.

The curriculum is very demanding. Students point out that two of the semesters (3rd and 5th) are more intensive than others, and that a lot of homework is needed in all semesters. In principle, it would be worth considering a revision to the number of ECTS for some courses. However, as long as the number of students assigned to this programme by the Ministry remains beyond the control of the Department, the diversity among the beginners will remain high and the intensity of the curriculum will be necessary. The monitoring done by the Studies Committee is sufficient, should corrective actions be deemed necessary. Students also point out that the amount of mathematics is very high, and the link to ICS-Engineering is not apparent in these courses.

The Department members have the necessary skills for implementing the curriculum, but the number of teachers is not adequate. There are many interactive courses that require intensive guidance and supervision; hence the workload of the teachers is higher than reflected in their teaching hours, which are already high. Infrastructure problems lead to inefficient use of resources: classrooms are too small, so courses needed to be run more than once; classes offered for similar audiences in other Engineering faculties of the University are not open to students of this programme.

RESULTS

The curriculum implementation achieves the Department's goals as evidenced by statistics. First, the average graduation time is 6.03 years, which is excellent given the impeding factors of student diversity and inadequate infrastructure (classrooms). Further, 74% of the graduates of this programme found a job (21% in other countries), 11% decided to pursue further postgraduate or doctoral studies; 47% of the employed ones found a job within three months after graduation.

The internship course incorporated in the curriculum cannot be implemented optimally, because of the very small number of local institutions that are appropriate for hosting students. The exploitation of ERASMUS is sub-optimal, mainly for financial reasons: most students cannot afford the stay in another country during their studies. Students also report that there have been problems with the recognition of ECTS in the past, but other students report that these problems have been alleviated through structural measures.

IMPROVEMENT

One improvement needed in the curriculum concerns the link between mathematics courses and their role in ICS-Engineering. The Committee proposes to the Department that this link be strengthened by adding "for ICS-Engineers" in the relevant course titles (e.g. "Discrete Mathematics for ICS-Engineers"), linking the content of introductory maths courses to higher-level subject-specific courses and considering the option of merging some of them. Synergies with other Engineering departments of the University that offer similar courses should be considered. The Department is aware that the percentage of graduates employed in Samos is only about 6%. This obviously reflects the size and infrastructure of the local market and cannot be influenced by the Department. The Committee recommends that the Department and the Karlovassi Traders' Association, who already collaborate closely, to work jointly on identifying ways of making students more aware of employment opportunities in

Samos.

The Department is aware that the internship course is not exploited optimally, and that the internationalisation achieved through Erasmus exchanges is also suboptimal. The Department plans to negotiate further with the Karlovassi Traders' Association to identify more ways of involving more students in companies during their studies, to provide grants for students who want to go abroad.

A2. Curriculum for the Postgraduate Programme

To be filled separately for each undergraduate, graduate and doctoral programme.

APPROACH

Goal of the "Technologies and Management of Information and Communication Systems" postgraduate programme curriculum is to prepare highly skilled young professionals with advanced problem-solving competencies in specializations for which there is national demand, as well as an international market. The curriculum pursues this goal by a programme on four cutting-edge directions: (A) Security, (B) Management of Information Systems, (C) Web Technologies and (D) Network Technologies.

The goals of the curriculum are inspired by the cutting edge technologies in the international market and in R&D. The Department is involved in EU projects and in the design of the Horizon 2020 agenda for specific areas, and organizes events (summits, summer schools) with international participation; these events allow them to monitor the trends in the international market. Synergies with the local economy and with other institutions of the Aegean University are taken into account, including marine research, area surveillance, political studies and environment protection.

The Department has mechanisms in place to monitor and revise the curriculum with respect to their goals. The Studies Committee for Postgraduate Studies performs an annual inspection of the curriculum with respect to success in the market and usefulness of the courses. Similarly to the Studies Committee for Postgraduate Studies, this Committee acquires feedback from students, alumni and practitioners.

IMPLEMENTATION

The curriculum implements the Department's holistic view of ICS-Engineering at the postgraduate level: the Department considers it imperative that the students acquire skills not only with respect to the technical core of information systems but also with management, security and privacy by design. These are states of the art subjects that are provably attractive for postgraduate students: 50% of the students joining the postgraduate programme did not attend the undergraduate programme.

The curriculum is well-designed. It is very flexible, allowing the students to take the direction fitting best their interests and competencies. The presentation of the curriculum in the Web and the module descriptions given to the students (publicly available) are comprehensive, informative and motivating.

The Department members are experts in the areas covered in the curriculum. Further, they have such international contacts that they organize summer schools, in which students get the opportunity of working under the supervision of renowned foreign researchers.

RESULTS

The curriculum implementation is very successful; it achieves the Department's goals to the full, as evidenced by statistics. Among the graduates of this programme, employment is achieved as follows: 77% of the direction (A) graduates are already working (15% in other

countries), many of those employed in Greece work in the police, while many of those abroad work in public administration; 68% of the direction (B) graduates are already working, 24% of them in Samos; 68% of the direction (C) graduates are already working; 79% of the direction (D) graduates are already working. The number of those who found a job within the first three months after graduation ranges from 49% (direction A) to 68% (direction C).

Internationality is promoted through summer schools, involvement in research projects and, prominently, graduation theses written in cooperation with Universities in other countries.

IMPROVEMENT

The postgraduate studies are very satisfactory. The Department exploits them strategically to increase the visibility of the Department, e.g. by means of participation to international competitions, dissemination of useful Web applications and publicity on the cooperation with local companies and authorities.

A3. Curriculum for the Doctoral Programme

To be filled separately for each undergraduate, graduate and doctoral programme.

APPROACH

Goal of the doctoral programme is to produce young scientists educated to a high academic standard, who are socially responsible members of society, keen to be innovative, and to contribute to science and to national wealth.

The research areas addressed in the doctoral programme reflect the scientific research domains of the Department members and are linked to the directions of the postgraduate studies, allowing the Department to recruit PhD students among the postgraduates. Research cooperation and national/international projects are obviously taken into account.

The doctoral programme is governed by the Greek legislation, the University and Department regulations concerning application, pursuing and completion of a PhD degree. It is not a programme of studies, where students have to attend courses and acquire ECTS, but a scientific work in intensive interaction with the supervisor(s) of the doctoral student.

IMPLEMENTATION

The Department implements the doctoral programme as dictated by the Greek legislation, the University and Department regulations. Department members supervise doctoral students in their own areas of expertise, involve the doctoral students in their own research and guide them towards academic excellence.

RESULTS

The doctoral programme is very successful, as reflected in the statistics: among the PhD graduates that are still in Greece, 33% have been elected in positions of Universities and Technological Educational Institutes (TEI); among those abroad, 70% are employed in positions of public administration, many of them in EU positions. This reflects that the Department prepares young scientists that are of importance both in research and in the market.

IMPROVEMENT

The Department involves doctoral students in summer schools and summits to increase the visibility of the Department and to assist them in establishing contacts with research groups and with potential employers. As the Department intensifies its activities with respect to summer schools and summits, the promotion of international contacts for doctoral students will also be increased.

B. Teaching

APPROACH:

The pedagogical policy of the Department is dictated by their goal to equip the students with strong competencies for a demanding market. The policy is implicit, but it translates into strong teacher/student collaboration, close supervision, rigid curriculum and intensive work in the labs, accompanied by small regular homework projects.

Alongside the traditional teaching forms of lectures, lab exercises, and tutorials, the Department uses additional teaching forms that emphasize interactivity: case-study discussions, role-playing games, and in-course projects. Such teaching forms prepare the students for teamwork, make them familiar with the practical challenges of information systems in companies, and assist them in learning how to run small projects, schedule their workload and attend to project deadlines. Further, web-based forms of teaching and remote teacher/student interaction are practiced, including the use of electronic repositories for course materials, and the use of email for anytime exchange with the teacher. It must be noted that interactive teaching forms incur substantial additional workload for the teachers. This workload is not counted in their Hours per Semester Week (HSW). Teacher/student collaboration is not limited to interactive teaching forms. The Department involves students in the summer schools, in competitions and in small real projects, thus helping students familiarize with the practical aspects of project work. Moreover, the Department provides many forms of career assistance, including the organization of career days and making students familiar with entrepreneurship. Teachers act also as advisors to the students in several matters, ranging from advice on course content to advice on course planning and mobility.

The staff/student ratio is low and decreases as the number of beginners of undergraduate studies increases from year to year in an unpredictable way. This is a serious problem, especially because of the Department's dedication to intensive and productive interaction with the students. Teacher/student interaction is a major contributing factor to the success of students in their studies; its sustainability has utmost priority.

The resources available to the Department are inadequate: the classrooms are too small, to the extent that students have to stand in rooms for several courses. The number of computers in the labs is too low, so that students must share computers (making effective programming impossible). Additionally, the number of administrative staff members available to support the teaching staff is alarmingly low.

The Department devotes substantial energy to overcoming the problems of infrastructure. Self-developed applications are used to make course materials available to students and software is acquired for free to allow students to use their own computers for exercises. The Department negotiates with local authorities and stakeholders to find appropriate classrooms and to improve the transportation of students to remote classrooms; it is noted that public transportation within Karlovassi is non-existent, since buses run only when needed to transport local school children. The impact of this on timetabling, including the scheduling of courses during inconvenient hours, is a reason for complaints among the students.

The Department has the means and know-how to pursue forms of e-learning and remote teaching. Although face-to-face interaction between teachers and students is important and popular among the students (all of them praised it), nevertheless the continuing lack of teaching rooms of sufficient size necessitates at present the urgent consideration of solutions of remote teaching.

IMPLEMENTATION

The student lifecycle is managed through a set of procedures for enrollment, course registration, study direction selection, examinations, and award of degrees which are all explained to students in the study guide. The Department also has a defined set of degree programme and assessment regulations, derived from the national regulatory framework.

Extensive information about all courses is published online, and updated regularly. Appropriate course materials (literature, software, etc.) are provided to all students. Apart from general “landing pages” with overall information on each course, there are lecturer-maintained course web pages, which provide lecture logs, videos, slides, links to additional reading materials, etc. This practice is not followed consistently by all courses.

There is a strong connection between teaching and research (i.e., ‘research informs teaching’). In the “research to teaching” direction, the definition of specialisation areas in the degree programmes is consistent with Department’s research lab structure, making sure that course content is adapted to the state of the art in the respective research areas. In the “teaching to research” direction, many faculty members are exploring novel research topics following student projects or student demand which arises from teaching. An example of this is the area of robotics, where overwhelming interest from students to be educated in the area led to an increased focus on this area in the AI research lab. The Department is keen to maintain these strong links between research and teaching, and to strengthen them where possible. This is in line with its vision of providing scientific training to all students, and its focus on close interaction between students and staff.

In terms of quality assurance, courses are monitored through an annual internal evaluation procedure, which involves extensive use of questionnaires to collect student feedback. The results are discussed in faculty meetings, and corrective action is taken where necessary. There does not seem to be a concrete follow-up procedure. Since the University decided to switch to electronic questionnaires return rates for evaluations have gone down, and both students and staff seem to attribute this to the University-imposed switch of medium.

Student mobility is encouraged via a number of ERASMUS agreements with other universities across Europe. The Department’s staff views international exchanges as an enriching and important element of the student experience, and are promoting these schemes wherever possible. They have also embedded foreign language courses in English (mandatory) and French (optional) in the undergraduate curriculum to increase students’ language skills.

At present, a number of inhibiting factors limit the uptake of these study abroad opportunities. One of these is language, with many students reporting that they would be concerned about the risk involved in taking for-credit courses abroad. Another one is clearly financial, with many students lacking the means to support a year abroad. This is connected to a third issue, which is mostly logistical, and involves students being unable to give up their accommodation in Samos while abroad and then return to it. Finally, students are concerned about the recognition of credits at their home institution, which were earned for study abroad. Some of these factors are, in the Committee’s view, down to student perception, and not actual major impediments (the logistical and credit recognition issues, for example, are easily resolved). It is possible that students need more guidance with this respect in order to embrace these study abroad opportunities.

In terms of staff mobility, this is mostly through participation of teachers from abroad in Summer Schools, some of whom spend longer periods of time in Samos and participate in other teaching activities of the Department.

RESULTS

The Department members exhibit great engagement in teaching. They work closely with the students, and involve them to practical projects during the courses. The diversity among the

undergraduate programme beginners with respect to their background makes close supervision and intensive interactive work indispensable from early semesters on. In late semesters and during postgraduate studies, interaction is the key for promoting teamwork and critical thinking.

Interactive teaching and close supervision implies a heavy workload for the teachers; this workload is not included in the official HSWs reported by each teacher. It must be stressed that interactive forms of teaching are particularly suffering from the increasing number of students, because they do not scale as well as traditional lecture-style teaching formats.

Additional workload is incurred by the need to translate course materials into Greek, as dictated by the regulations. In particular, the materials used in many courses, especially in those of the postgraduate and for the last four semesters of the undergraduate programme, are state-of-the-art books or articles written on English.

Finally, the increasing number of students causes an increasing overhead for coursework assignment preparation and marking.

Despite these hindering factors, the Department manages to work efficiently. However, synergies with other engineering faculties could be exploited to increase efficiency; this is not done currently, because other engineering departments of the University do not share their basic level courses.

The success rate varies strongly among the courses.

It is quite natural that courses in later semesters have a higher success rate than those in the early semesters, because beginners have large variation in terms of their backgrounds. The high success rate in later semesters demonstrates that the Department is successful in improving the competencies of all students, and equilibrating initial disparities among them.

However, there are strong differences among the success rates of courses of about the same time (all in early semesters, all in late semesters).

- In the early semesters there is no apparent trend: some mathematics courses exhibit a low success rate, while others have a high rate; the same holds for courses in computer science and systems engineering.
- In the late semesters, this pattern is repeated. It must be noted that late semester courses are electives and some courses are attended by only few students, hence statistics are not representative; for example, a failure rate of 100% for an exam taken by two students is not representative. However, there are courses with a failure rate of 100% among 8 students.

There is no evident correlation between course subject (e.g. mathematics vs computer science) and success rate, so there is no straightforward explanation for these differences. These discrepancies among courses of about the same time must be monitored by the Studies Committee for Undergraduate Studies as part of their annual curriculum monitoring.

There are no statistics concerning the relationship between time-to-graduation and final grade. However, the discussion with students indicates that at least some of the undergraduates are very keen to acquire a good final grade, even at the cost of studying longer; hence, some correlation should be expected. Nonetheless, the average graduation time is 6 years, which is very good for a degree of five years, given the intensity of the programme and the variation in the background of the newcomers. So, there is no indication that a remarkably high number of students purposely delays their graduation to achieve better final grades, and no action is needed.

IMPROVEMENTS

In the future, teaching in the Department will be affected by increases in the undergraduate intake, which are expected to be far above the Department's current (already exceeded)

capacity. Several mechanisms for re-organising teaching are considered to deal with this increase, for example splitting larger courses into several “versions” of the same course (double teaching), broadcasting lectures across different rooms in real time, and making more use of doctoral and postgraduate students in the supervision of student projects and theses.

The Department is keen to explore more distance and online learning methods for delivering courses, both in its existing programmes and for new programmes that might involve collaboration with other departments of the University, other Universities nationally and internationally, and lifelong learning beyond undergraduate/postgraduate studies. The Department should consider introducing web pages for each course; this is important if the Department intends to provide more off-campus teaching.

Producing course materials in Greek language, as required by Greek law, incurs a high workload to staff which is often seen as unnecessary, given the pervasive use of English in the subject area. The Department is considering ways to engage students in the process of developing these course materials, e.g. through producing reports for seminar-based courses that can be used as lecture notes.

Another key area of improvement regards ERASMUS mobility. The Department intends to increase the number of outgoing students, both by raising more funding for scholarships and by negotiating with local authorities to solve logistic problems.

An issue that was uncovered by talking to students was their relative unawareness of how student feedback is used by the Department. The Committee recommends that all feedback results obtained through the staff evaluation procedure be published online so that students are reassured regarding the transparency of the procedure, and staff can respond to comments received, and past evaluation results can flow into students’ decision-making processes, e.g. when they choose optional courses or project/thesis supervisors.

Discussions with students also indicate that not all student concerns can (or should) be addressed by teachers. The Committee recommends that the Department involves students (undergraduates at late semesters or postgraduates) in the mentoring of undergraduate students in early semesters, because student mentors are more familiar with the concerns of beginners.

C. Research

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

APPROACH

The Department constitutes a modern, dynamic and flexible organization aiming for the development of new knowledge as well as consolidation of current knowledge so as to enhance the academic and employment opportunities of the students in an upward mobile, social environment. It aims to prepare the students for a lifetime of learning and creative knowledge acquisition. The Department is engaged in the creation and dissemination of knowledge, promotion of research and the search for new methods and pathways for understanding the many complex and technical problems of today's world.

The Department's implicit policy with respect to research encompasses following objectives: to increase the visibility of the Department nationally and internationally; to concentrate on specific funding programs for fundraising; to be involved in shaping long-term research agendas for specific key areas, e.g. in the context of the Horizon 2020 programme; to establish and maintain links to industry and public administration. These objectives are not part of an explicit research strategy, but they are discernible behind activities like the participation in national and international research consortia, international competitions (which contribute to the objective of "visibility"), and the organization of summits (which contribute to the objectives of "networking" and "involvement in research agenda shaping").

Although the Department has not developed a fully-fledged, formally defined research strategy yet, they are in the process of establishing one. At the moment of writing, they are specifying metrics for research quality assessment, in accordance with international standards.

IMPLEMENTATION

The Department's research activities are conducted through its five (overlapping and collaborating) research groups. These have been established to capitalise on existing research expertise while focusing also on innovative high-impact research areas, and focus on the following theme: 1) Information and Communication System Security, 2) Information Systems, 3) Artificial Intelligence and Decision Support, 4) Computer Systems and Telecommunications, and 5) Geometry, Dynamical Systems and Cosmology. More details for each group are provided in the following sections:

The activities of the Information and Communication System Security group are impressive and include a broad spectrum of research activities ranging from scientific and technical aspects (Formal methods for the Analysis and Design of Cryptographic Protocols, Privacy Technologies, Smart cards, Wireless and Mobile, Network security) to Legal and Regulatory aspects (in, for example, Security and Privacy Economics, Secure e-Commerce, e-Business, e-Government, e-Health, Forensics Investigation, etc.). The group is leading research activities in digital privacy, security and privacy in wireless networks, security and dependability, and security management. Participation in editorial boards of several international journals and conferences points favorably to the research strengths of the group with publications of high citation value. Active participation in international and national projects attracts high quality personnel and international visitors at the postdoctoral and senior levels from eminent institutions and universities like Leuven, Manchester, GeorgiaTech, Columbia, Florida, Singapore, just to name a few. It is also important to highlight the active engagement of the group in many public and private sector projects, and in scientific workshops, which no doubt increase the employability of young scientists trained in the group.

The Information Systems group has notable research and development activities in data and

text mining, electronic business and entrepreneurship, electronic government, governance and participation, information systems interoperability, information systems security management and decision support systems. The graduate program emphasizes Internet technologies and knowledge extraction from the Web. Private and public sector engagement is substantial. The "Samos Summit" conference has been quite successful for helping to understand the development of ICT in the private sector, the "Aegean startup" in engaging young entrepreneurs in new activities, and "Samiaki Gi" for promoting local products. The group also produces publications that appear in international journals and conferences regularly.

The Artificial Intelligence and Decision Support group has a wide spectrum of research activities in empowering humans to perform collaborative activities, exploiting and integrating information, capturing and mining knowledge from data, and designing and implementing distributed cognitive systems, game theory and random graphs. The group has some active research support at the national and international level and group researchers are engaged in collaborations with several institutions in Greece (Patras, Democritus, State Document Registry, Archipelagos collaboration for the observation of animals, etc.) and abroad. The new initiative for a robotics lab is very encouraging and highly applauded because it will have impact at the undergraduate and graduate program in engaging interested students.

The Computer Systems and Telecommunications group focuses on next-generation networks and services, cellular and wireless networks, heterogeneous radio technologies and reconfigurable networks, satellite communications, Ad hoc, mesh and sensor networking. Members of the group have been involved in several European and nationally funded projects and have acquired considerable experience and knowledge in the above research areas. E.g., IBM (Zurich), FRANCE TELECOM R&D, University of Surrey, CEA LETI, EURECOM, Thales, ISTITUTO TELECOMUNICACOES, etc. Extensive collaboration of the group exists with both the public and the private sector. Additionally, the group has applied for a patent in wireless systems. The publication record of the group is very strong, adding to the group's international visibility.

The Geometry, Dynamical Systems and Cosmology group focuses on geometric problems of relativistic theories of gravitation, dynamics of homogeneous cosmologies, global aspects of the Cauchy problem for the Einstein flow, nature of space-time singularities, history and philosophy of relativity and cosmology. This research group has strong international recognition and collaborations with CERN, Princeton, etc. It has also attracted postdoctoral support that promotes its research activities. It also provides indispensable teaching support to the department as a whole. There is no doubt that potential exists for collaboration with other groups within the department especially in the area of dynamical systems, in security, web management and big data.

Overall, the Department encompasses a broad spectrum of research activities across many important areas, which is notable considering its relatively small size.

It fosters a culture of research independence for its members, allowing both junior and senior members to pursue their research interests, while also identifying potentials for collaboration and synergies. Activities in the groups include all components that are essential to a healthy research environment: strong interaction between teaching and research, a well-structured "people pipeline" from Master's and PhD students via postdocs to academic professors. Though the Department is facing challenges shared by many groups in Greece and beyond due to the current economic climate, it has identified creative solutions to coping with the loss of previous staff and the impossibility of replacing them (due to lack of state funding).

RESULTS

The Department is successful in implementing its research objectives, as evidenced by the careers of their doctoral students and by their scientific activities. In particular, 11 out of the 33 PhD students, who finished their doctorate degrees and work in the public sector, have already University and TEI staff positions (tenured faculty members). The academic staff members publish regularly in scientific journals, conferences and workshops of their research areas and also report books and book chapter contributions. Further, members of the Department are involved in the organization of scientific events and participate in international scientific competitions (with student involvement), thus increasing the visibility and esteem of the Department.

Overall the Department's five research groups have good to very strong elements with research activities and publication record in a variety of journals, conference- and workshop-proceedings, book chapters and books. Research goals of the department are successfully fulfilled and perform well as expected.

Graduates of the department are very well trained and employable. This was evident in several interviews we had with both department PhD graduates and their employers. Several employers emphasised the excellence of the graduates in both theoretical and practical research matters and especially their strengths in mathematical thinking.

The labs of the Department are successful in scientific networking and research fund raising, as evidenced by their participation in national and international research projects, their cooperation with research institutions abroad, including research labs of companies, the scientific visits of scholars from other countries, the success of the summer schools they organize with international participation and the regular joint supervision of theses with scholars from foreign universities. It is remarkable that the labs are involved in many projects, sometimes with rather small funding. As the Department members point out, this is part of their visibility strategy: participation is not solely intended as means of funding but also to establish the Department's labs as good potential partners for projects in their research areas. The research work of the Department is impeded through disproportionately high teaching load and the absence of administrative support in the writing of fundraising proposals. Further, each lab is involved in several initiatives. Some synergies among the labs are already in place; synergies with labs from other faculties of the Aegean University would allow for less administrative overhead during fund raising. As already mentioned the sharing of basic level courses with other engineering faculties would also reduce teaching workload and free human resources for research fund raising.

Members of the Department are holders of awards for scientific papers and winners of international competitions. International reputation is also reflected in the participation of Department members in the organization of scientific events and in invitations for stays in research labs of other countries.

IMPROVEMENT

The Department's research performance is already strong and the Committee was impressed by the research efforts of its staff despite the many other demands on their time.

To improve the research output, visibility, and effectiveness of the existing research group further, a number of further improvements are possible, and some of them are already planned to be undertaken by the Department. We briefly outline the main ones in the following paragraphs:

Developing a specific research strategy would be useful, which sets clear objectives, and regularly evaluates progress. This should include more emphasis on detecting the potential for collaborations among the groups, prioritisation of effort, and engagement in key strategic

activities. For example, it may be more beneficial to be involved in smaller numbers of projects, yet with larger participation from the Department. Or, it may be beneficial to set up one or two key strategic partnerships with institutions abroad, which can be developed in the longer term and called upon in various contexts. Generally speaking, it is useful for research institutions if they are strongly associated with a (usually rather small) number of key competencies, and invited to collaborate as experts in these areas whenever the respective capabilities are needed (by companies, other universities, etc.).

The portfolio of summer schools and other events offered by the Department is expanding, and further growth is expected in this area. The Committee views this as very useful and appropriate instrument to increase international visibility of the Department's research profile. Firstly, such activities are normally financially self-sustaining (and may even generate income that can be fed back into the groups). Secondly, the location of the Department makes for an attractive travel destination for many months of the year. Thirdly, even though successful event organisation involves a significant amount of work, the benefits regarding visibility are much higher as compared to other types of research-related activities.

Overall the department's five research groups have good to very strong elements with research activities and publication record in a variety of journals, conference- and workshop-proceedings, book chapters and books. Research goals of the department are successfully fulfilled and perform well as expected. Focusing on stronger and higher quality venues in the future would help the overall international stature of the department.

D. All Other Services

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

The Department's approach to general support is driven by the particular circumstances of the University's setup across several islands, the relatively small size of the Department in terms, and the way in which it is embedded in a small, rural community in a relatively remote location of Greece. Due to these factors, the Department's support strategy focuses on: (1) Strong student-staff engagement, involving face-to-face interactions on a daily basis and (2) extensive use of digital information systems to support all activities of the Department.

Regarding (1), the Department has developed a culture where students, apart from being assigned a designated Study Advisor who mentors them throughout their student career, meet admin and student staff informally very frequently to discuss study- and career-related issues, but also to receive pastoral care, guidance regarding administrative matters, and help in liaising with other units of the University outside the island. Close spatial proximity in a small-town environment facilitates the development of this culture, which is greatly appreciated by students and staff alike, and quite likely to be unique among similar departments at other universities in the country. Due to this, the Committee does not consider a policy for increasing presence of students necessary.

As concerns (2), the Department puts great emphasis on making optimal use of online and other computer-based information systems to support staff and students. This is motivated, on the one hand, by the Department's own research activities (on business information systems, e-participation, e-governance, semantic web technologies) in areas overlapping with the application domain of academic support and administration. On the other hand, it is a consequence of the resource bottlenecks that the Department is facing most of all lack of sufficient numbers of administrative staff (only two administrative assistants for almost 1000 students and 25 staff). Note that the substantial amount of administrative and support services provided by the Department electronically, places it at the forefront of academic innovation in the country.

IMPLEMENTATION

The Department provides various study-related services to students, such as a modern library, access to online journals, computer labs (kept open 7 days a week due to staffing by doctoral students) with recently upgraded equipment, a new hardware and networking lab, free WiFi in the Department's buildings. Further, non-academic support services are provided through cooperation with the University and local organisations, such as counselling, sports, and cultural activities. It also provides services to third parties, such as technical support to other organisations and business across the island.

The Department has very lightweight administrative processes internally, with a number of small committees that have very specific remits and operate in an effective way. There is a very clear distribution of responsibilities among staff. As an organisation, the Department is delivering an astonishingly high quality of support services considering the limited resources available to it, and it is very creative in leveraging external sources of funding as well as student involvement in developing its support mechanisms further.

RESULTS

Although the Department's strategy and implementation of support services is very effective given the resources available, the current provision of services is inadequate in several respects:

The primary concern is with teaching facilities, in particular the availability of appropriate teaching and study spaces and equipment. At present, the Department is not capable of providing students with sufficiently large and appropriately equipped teaching spaces (as an example, it does not dispose of a single lecture theatre). Most rooms that are being used have been re-purposed and are only appropriate for teaching to a limited extent (in terms of dimensions, seating, acoustics, A/V facilities). Worse still, there are fundamental, alarming concerns regarding capacity: with current (and, to an even greater extent, future) cohorts exceeding, by a lot, existing room capacities (e.g. classes of 200 in classrooms with a maximum capacity of 60 students), the Department will be forced to double-teach many courses as a last resort (which will penalise research and put additional pressure on staff workload, already in excess of national standards and employment contracts), or, in practice, to make it impossible for a large proportion of the students to attend.

Related to this is also the inability to provide sufficiently large computer labs to students, one of whose main complaints is that the number of workstations provided is insufficient for lab sessions as well as practical work students need to do in their own time. While this is partially alleviated with software made available to students, wherever possible, to allow those who own personal (appropriate) PC/laptop hardware to work from home, this obviously affects the nature of group work of such elements of teaching, and also creates an equality issue regarding economically disadvantaged students.

Lack of administrative support, as mentioned above, is another major problem. To use an example of the day-to-day problems this causes, the student secretariat is kept open for many hours every day (as opposed to a few hours per week at other departments in the country) to be able to serve students effectively. This implies that valuable administrative staff time is lost from other administrative activities. More generally speaking, it goes without saying that two (or even three, or four) administrators cannot support a Department with fully undergraduate and postgraduate teaching obligations as well as five research labs appropriately. A substantial increase of administrative resources should be a top priority for the government authorities, it is absolutely essential to be able to continue the functioning of the Department, even more so with a view to the expected (disproportionately high) future increases in undergraduate student intake (which are also beyond the Department's control).

Another major implication of this lack of administrative support is the difficulty academic staff is facing in the preparation of grant proposals for external funding. It is disheartening for the Committee to see that despite the School's extremely broad engagement in national and international funding schemes and their proactive attitude toward attracting external funding both for research as for teaching and student support, lack of administrative support makes proposal preparation and implementation an onerous administrative task for academics. This often forces them to only assume minor roles in larger project consortia, thus effectively limiting their ability to attract larger amounts of funding, which would be desperately needed to enhance the Department's capabilities.

IMPROVEMENTS

The suggested improvements follow immediately from the diagnosis of current problems above, and primarily surround the facilities and staffing issues. These are obviously outwitting the control of the Department and require intervention from the government and the local community.

In particular, the chronic lack of lecture rooms of sufficient size to accommodate UG students of the Department may be effectively addressed by the collaboration with similar Departments in other islands of the Aegean University, such as those in Siros and Mytilene, towards the broadcasting of common modules delivered to all students simultaneously. This should start soon and be formalised later, as appropriate, when all these geographically remote Departments may be joined together as a Polytechnic School.

The Committee does not currently see a need for simplification of administrative procedures within the Department. However, various discussions on different issues highlighted a variety of external bureaucratic hurdles and “red tape” that are serious impediments to many reasonable improvements the Department is trying to make. The most striking example for this is the resistance of government authorities to permit the (zero-cost) establishment of a cross-island School of Engineering that would allow horizontal integration of administrative and support functions (as well as teaching) among several Departments. We want to emphasise that this is an impediment for the Department’s development that is created on top of general resourcing problems, and contravenes the Department’s admirable efforts to improve the situation despite in ways that are resource-neutral.

A possible area for future improvement the Committee would like to propose is addressing subject-specific gender issues, which are not only specific to ICT but more broadly present across all of science and engineering. We believe that a dedicated equal opportunities strategy, which could involve gender-specific marketing/recruitment, mentoring, as well as more proactively addressing gender biases and discrimination and engaging in a dialogue about these issues with students would not only benefit current female students and staff; it could also serve as a distinctive element of the Department’s profile as “female-friendly”, which would be in line with its overall forward-looking, innovative, and student-focused attitude.

Collaboration with Social, Cultural and Production Organizations

The Department engages in a large variety of collaborations with local social, cultural and public administration organisations, and works with many businesses locally and across Greece.

Regarding the local community, the contribution of the Department and the University more general is very significant. The student cohorts of the two Departments in Samos presently make up a third of the local population, with significant benefits for the local economy, including a highly skilled workforce, and more generally vitalising the local community and environment culturally with a constant influx of young people from across the country.

The Department works closely with the regional government and municipality, as well as with the local trade association. Local authorities have supported the government by providing classrooms, and by organizing lodgings. Currently, the regional government wants to use the ESPA programme to complete the refurbishment of newly purchased premises, so that they can be used for teaching, and to identify further buildings that serve other functions (eg museum) but could also be partially used by the Department. The municipality is aiming to find a quick solution to the public transportation problems faced by the students (bus transportation between the centre and the harbour area). The trade association provides discounts for students wherever possible, and has established a welcome office that provides students and their parents with “survival kits”. It is also considering the revamping of grants for students; the Committee recommends ERASMUS grants for students who wish to study abroad but are not financially able to support participation in such exchanges.

The Department works with several other organisations and communities locally, for example with the ARCHIPELAGO NGO, which hosts many (mostly international) student volunteers for conservation projects, Samos Airport (where the Department installed a free public Wi-Fi service), local community administrations (through the provision of e-participation Web portals), local start-up and entrepreneurship initiatives and many others,

more often than not in the role of the initiating party and source of new collaborations.

An important contribution to the local economy is also made through the organisation of many workshops, conferences, summer schools and other forms of “science tourism” by the Department, the University, and its partners. Again, the Department is in constant discussions with different groups of local stakeholders to enhance the provision of facilities for these events, both in terms of accommodation and conference spaces, as in terms of transportation.

The Committee was impressed with the depth and breadth of collaborations between the Department and other organisations in its environment. (Note that we have only commented on local collaborations in this section, there are many other efforts, e.g. participation in national student and start-up competitions, internships/placements of students outside Samos, exchanges with foreign universities in terms of ERASMUS and research collaborations, and within the University of the Aegean in many different ways.)

It is clear that all parties involved benefit from these collaborations and that both students and staff value the opportunities that arise from these collaborations very highly. The Committee felt that the local communities, especially their public administration authorities, could be more proactive and responsive to the needs of the Department, some of which are fundamental, e.g. student accommodation and transportation. Through various discussions, the Committee identified a number of ideas that it would recommend the Department to pursue further: marketing Samian products through the use of many of the online technologies the Department is able to develop, and for students to act as “ambassadors” for the island and its products across Greece and abroad (especially if (co-)funded by local business and government); developing an integrated “living lab” across the island using innovative ICT (sensors, web portals, wireless communications etc.) that allows organisations, communities, and individuals to be connected and could help showcase much of the Department’s research while supporting the island as a whole; developing scientific tourism further, possibly integrating it with on-site/off-site mixed-mode teaching and lifelong learning, which has the potential to produce income needed by the Department for key future investments. This will, however, require a plan for concerted action as the island is still in need of top-quality facilities for larger events in some respects.

E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors

For each particular matter, please distinguish between under- and post-graduate levels, if necessary.

Previous activities within the Department were planned without the presence of a concrete strategic plan. The Department has, of its own initiative, conducted significant steps toward a repeatable, transparent, and methodologically sound process for developing a strategic plan, which is now in its final stages of completion. This methodology involves the establishment of a vision, mission, and identity for the institution, deriving measurable objectives from these, developing metrics for the quality with which each of its functions are fulfilled, assessing the current state with regard to these metrics, setting concrete goals for improvement, and mapping these to a concrete plan of action. At present, all but the final two stages of this process have been completed, and the Department plans to complete these remaining steps within the next few months.

The Department's strategy is led by a mission and vision based on "enabling positive change" across all of its activities, and high-level objectives that derive from its identity defined in terms of the role it aspires to play in society, toward its students, its staff, and the local community. These goals involve improving the quality of life in the country through its training and research activities, training responsible and academically excellent students, helping staff to become internationally distinguished researchers, and to become an international centre for learning and scientific excellence.

In terms of metrics, it proposes sensible and quantifiable metrics for all areas of activity, and has made significant inroads into capturing data that will allow for their measurement and significantly contribute to goal formulation. Much of the work that has gone into the development of appropriate information and data collection systems (for the most part, these are based on in-house software development, often through student projects) is now paying off, as it will put the Department in a very strong position to develop its strategic planning capabilities further. For example, the Department already has full employment data for all its past graduates, on study duration, average marks, student feedback, which is enviable even for much larger institutions abroad.

While a specific plan for action is still to be formulated, many of the proposed objectives can already be discerned (and many of these have already been mentioned in other sections above), for example: the intention to improve the Department's visibility through improved marketing; plans to use distance learning technologies more at a postgraduate level and to introduce tuition fees for postgraduate students; to enhance the provision of internships and ERASMUS exchanges; to lobby for the establishment of a School of Engineering; to improve its facility and staff situation; to contain the undergraduate intake numbers so as to maintain close staff-student engagement.

This list of examples is given deliberately in order of increasing dependence on external factors, many of which are closely related to the current economic climate, or to central state bureaucracy which will be hard to overcome. Nevertheless, it is important to make them part of the analysis, even if some of them cannot be directly addressed. The Committee would recommend introducing this additional dimension of "dependence on external factors" against its objectives, as it may be correlated with the difficulty of objective achievement, and

may help categorise different goals as short-, medium-, or long-term.

The Strategy Plan was complemented by a SWOT analysis, which was presented to the Committee and highlighted problems, challenges, risks, and accomplishments of the Department. The Committee found this to be very useful and important as an input for the formulation of future plans. One dimension that was, however, not sufficiently taken into account was that of resources, and the fact that resource limitations necessitate prioritisation of goals. From the Department's current situation and existing problems, it is obvious that it will not be possible to address all issues and "cover all bases" to the same extent, at least not in the near future. Our recommendation would be to put more emphasis on prioritisation, and a clear recognition of the fact that some objectives have to be missed in order to achieve others, and that this should be also seen as an opportunity, as excellence in certain aspects can lead to more tangible and useful improvements than broadly achieved average quality.

Beyond being a generally useful "rule of thumb" we believe that this is particularly critical for this specific Department, more so than for other institutions, as we believe that there is a risk of over-stretching its human resources in the longer term. Indicative of the breadth of themes and objectives across which the Department is planning to innovate are the following examples: The aim to provide a five-year undergraduate programme with very strong mathematical foundations, while also covering several theoretical and practical specialisation areas, focusing on employability, providing practically focused internships, sending students abroad, doing substantial project and thesis work, limiting study duration, while also catering for entrants with lower qualifications; the aim to maintain staff-student engagement while introducing more distance learning methods, collaborations with other departments, new (including more international) postgraduate programmes, lifelong learning and summer programmes; the aim to expand the activities of research labs into novel directions such as robotics and big data, getting involved in more externally funded projects, improving synergies among research groups; initiatives to improve internationalisation, entrepreneurship and commercialisation, event organisation, marketing of the Department. While none of these compounds of objectives is necessarily contradictory in itself, this list (which only lists some of the suggestions the Committee heard) of items alone would not permit more than one or two members of staff to focus on each of them, unless appropriate ways are found to achieve some of them jointly. It is essential that the Department critically reviews the importance of each planned activity, evaluates its difficulty and expected impact, and quite significantly narrows down the set of "key" objectives, with others only retaining subsidiary status.

Note that this comment should be read as advice, not as a criticism – we were impressed with the enthusiasm and ambition of the members of the Department, but are concerned that they may eventually deplete their resources, possibly without a resulting major enhancement in any specific area. It is important that the workload is allocated in a way that is sustainable in the long term.

Finally, the Department should eventually establish a Quality Assurance and Control Model, which is not hard to produce from the framework they have already developed, but is essential to "close the loop" between assessment, decision making, plan implementation and re-evaluation. The members of the Department are very aware of this, and during the Committee's visit it became evident several times that there is a need to identify more clearly how assessment is used in a forward-planning way, so that it becomes meaningful as a management instrument. Many of these procedures are new to the Greek academic system. The Department has to be specifically praised for its openness to adopt them early and voluntarily a number of years ago. It is essential to avoid the perception that such procedures become "box ticking exercises" and that they are used for meaningful reflection and rational action informed by objective appraisal of the status quo. This is particularly true of a small

department, where members of staff have to invest a significant amount of their own time into conducting these procedures.

F. Final Conclusions and Recommendations of the EEC

For each particular matter, please distinguish between under- and post-graduate levels, if necessary.

The Committee is impressed by the energy, innovative spirit and persistent commitment of the Department in delivering high-quality research and education, despite the adverse circumstances it is facing. We are concerned that the unpredictable number of beginners in the undergraduate programme, the sub-standard classroom facilities and the inadequate number of administrative personnel will in the mid- or long-term compromise the scientific and teaching excellence of the Department. We therefore recommend that the labs of the Department prioritise their activities in order to be able to make best use of their limited resources by focusing on key themes and areas. A focus on more high-profile and innovative activities is likely to bring about efficiency savings that will allow the Department to improve its profile and grow in quality.

The detailed conclusions and recommendations below are organized in the thematic areas of *Teaching Excellence*, *Career Assistance for Students* and *Research Excellence*. It is stressed that the Department is performing very well despite many hindering factors. They are eager to improve, face challenges and obstructions creatively, and are open to new ideas for improvement.

Teaching Excellence:

The Department has developed and implemented very good undergraduate, postgraduate and doctoral study programmes on Information and Communication Systems Engineering. The curricula reflect the Department's holistic view on the skills and competencies a student must acquire to become a good ICT Engineer, a responsible employee and a good scientist. The Department meets its goals, despite serious hindering factors: the number of undergraduate beginners is not under the control of the Department and exceeds the classroom capacities; the background of the beginners varies substantially, demanding serious teaching effort and a rigid programme. Despite these obstructions, the Department's postgraduate programme runs excellently, the doctoral programme is very successful and the undergraduate programme is successful. This success comes at the cost of a high teaching workload, putting research excellence and ultimately also teaching excellence at risk.

Following improvements are recommended in this direction:

- The Department should consider ways of reducing the workload of the undergraduate programme, both for students and for teachers, while still complying with the guidelines of ACM/IEEE and the expectations of the Technical Chamber.
- The Department should identify and exploit synergies with other Faculties that offer degrees in Engineering, e.g. by sharing basic level courses with them.
- The Department should streamline the curriculum of the undergraduate programme, emphasizing progressively the relevance and value of mathematics for ICT Engineers both in the titles of the mathematics courses and the examples used there in.
- The Department must cooperate with all stakeholders to find solutions for keeping the number of students in agreement to the available facilities. New forms of teaching should be considered. Since the students value the intensive interaction with the teachers,

remote teaching should be considered as a last option only.

Career Assistance for Students:

The Department is eager to assist students in having a successful career after graduation. The Department has introduced *Aegean Startup*, *StartMeUp*, *WeGov* for the promotion of new ideas and the mentoring of start-ups. They also maintain an alumni database which is used for statistics, for networking and to promote the visibility of the Department as incubator of successful graduates. All these initiatives are excellent.

Following concerns of the students concerning their career have been identified, for which improvements are needed:

- Students feel unsure as to whether their degree is recognized as an engineering degree similar to those of other technical universities. The Department explains to the students that the degree is 5 years and the diploma is accepted by the Technical Chamber. The Department must take care that this issue is settled officially.
- The Department must find ways of improving the chances of its students to go abroad via the Erasmus exchange program. The Department must work with stakeholders to ensure grants for students eager to go abroad and bring back know-how that is useful for the local economy. The Department should use University cooperations and summer schools as instrument for winning Erasmus incoming students.
- The Department monitors the quality of the curricula and their contribution to the Department's strategic goals. For this purpose, the Department involves several stakeholders, including practitioners from industry. However, this is done unofficially, subject to formal constraints. The Department should make the involvement of practitioners formal, e.g. by introducing an Advisory Board.
- The Department is very successful in organizing summer schools and summits, which serve as incubator for contacts, research and industrial cooperation, and increase the Department's visibility. The Department must involve undergraduate students more in summer schools, so that they can participate to international networks and have more opportunities to access mobility activities.

Research Excellence:

The Department members are very active in research, participate in research projects, and sustain a broad range of scientific cooperations. They use their research esteem and scientific skills strategically to increase the visibility of the Department and to influence the international research agenda in their respective scientific domains. The use of international competitions, summer schools and summits to this purpose is laudable. In doing so, the Department also increases the reputation of the University and acts as promoter for the local economy.

To sustain the advantages thus achieved, the Department should:

- interact with stakeholders to acquire the necessary funds in order to continue the good practice of increasing visibility through participation in competitions;
- maintain the good practice of increasing visibility through summer schools, and negotiate with stakeholders so that facilities on the island are adequate to the expectations of the external participants;
- exploit summer schools more effectively to attract scientific researchers from abroad for longer stays and involve them in the joint supervision of students.

It is recommended that the Department strengthens its cooperation with other faculties of the Aegean university and identify a small number of cutting-edge technologies, which can be used in joint research initiatives over the future years.

The Members of the Committee

| Name and Surname | Signature |
|-----------------------------|-----------|
| 1. Prof Demetres D Kouvatso | _____ |
| 2. Prof Evangelos Kranakis | _____ |
| 3. Dr Michael Rovatsos | _____ |
| 4. Prof Myra Spiliopoulou | _____ |