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HELLENIC REPUBLIC
H.Q.A.A.
HELLENIC QUALITY ASSURANCE AGENCY
FOR HIGHER EDUCATION

EXTERNAL EVALUATION REPORT

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

UNIVERSITY OF PELOPONNESE

JANUARY 2012

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External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Computer Science and Technology of the University of Peloponnese consisted of the following five (5) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Prof. **Ioannis A. Kakadiaris**, University of Houston, Houston, Texas, U.S.A.
(*Coordinator*)
2. Prof. **Marios D. Dikaiakos**, University of Cyprus, Nicosia, Cyprus
3. Prof. **Georgios Kontaxakis**, Universidad Politécnica de Madrid, Madrid, Spain
4. Prof. **Pericles Loucopoulos**, Loughborough University, Leicestershire, United Kingdom
5. Prof. **Nikos Mamoulis**, University of Hong Kong, Hong Kong, China

N.B. The structure of the "Template" proposed for the External Evaluation Report mirrors the requirements of Law 3374/2005 and corresponds overall to the structure of the Internal Evaluation Report submitted by the Department.

The length of text in each box is free. Questions included in each box are not exclusive nor should they always be answered separately; they are meant to provide a general outline of matters that should be addressed by the Committee when formulating its comments.

Introduction

I. Background

The Department of Computer Science and Technology (thereafter the Department) of the University of Peloponnese (UoP) was established in 2002 following a decision by the Greek Government to establish Universities in areas of Greece with no prior University presence, and to meet the increased demand by Greek high-school graduates to pursue studies in Computer Science. The Department's mission is the promotion of the science and technology of computing systems, of information processing and applications thereof, and the formation of scientists that are able to meet the demands of the economy, research, industry and education. The Department is located in Tripoli, the administrative and geographical center of the regional authority (Periphery) of Peloponnese. Although the Department and University started their operation at the dawn of the 21st century, it seems that their design and establishment was influenced primarily by the legacy of the Greek University system rather than by a forward-looking strategy designed to address the serious problems of Greek tertiary education and to develop a model for the Greek University of the 21st century. Consequently, and due to the current dire financial crisis, the Department is facing serious problems and great challenges in pursuing its mission. It is clear that the Department needs to redesign its strategy, mission, and goals, in view of the new context imposed by the crisis and the recent change of the legal framework of the Greek tertiary education. The external evaluation committee sincerely hopes that the Department will find the review at hand and its recommendations helpful in reassessing its current position and future course.

II. The External Evaluation Procedure

- *Dates and brief account of the site visit.*

The External Evaluation Committee (thereafter the Committee) site-visited the Department on the 21st and the 22nd of November 2011. The site visit involved meetings with the Rector and other representatives of the University's Administration, formal presentations by the Department Chair, individual or group meetings with all members of the faculty and the Department's secretariat, a representative of the undergraduate students, a graduate student carrying out his PhD Thesis, as well as other group meetings with students and other personnel. Selected physical facilities were visited including the classrooms, faculty office spaces and laboratories, the library, the computing centre, and the cafeteria.

- *Whom did the Committee meet ?*

The Committee members met on Monday, 20th November 2011, at the offices of the Hellenic Quality Assurance Agency for Higher Education (HQAA) in Athens. A briefing was held starting at 09:30 with Prof. Ioannis Gerathanassis, Member of the Board of the HQAA, joined later by Prof. Spyridon Amourgis, President of the HQAA. At 12:00 the Committee travelled to Tripoli, arriving at 14:00 at the Rectorate of the University of Peloponnese (UoP). There the Committee met with: the Rector of UoP, Prof. Theodoros Papatheodorou; the Vice Rector for Academic Affairs, Personnel and e-Government, Head of the Quality Assurance Unit, and Head of the Research Committee of UoP, Prof. Konstantinos Masselos; the Secretary General of UoP, Prof. Dionysis Kladis; and the Director of the Department of

Computer Science and Technology of UoP, Prof. Georgios Lepouras.

- *Groups of teaching and administrative staff and students interviewed.*

After meeting with the Rector and his colleagues the Committee visited the School of Science and Technology of UoP, where the Department of Computer Science and Technology is located, and interviewed in group or individually all the faculty members (as these are listed at cst.uop.gr/index.php/en/staff-faculty.html at the time of the evaluation) and some of the tenured Laboratory and Teaching staff (Dr. Paraskevi Raftopoulou and Dr. Damianos Sakkas) of the Department. Furthermore, the Committee interviewed a member of Department's Technical staff, Mr. Dimitrios Nassiopoulos, and the two members of the Department's secretariat that were available at the time of the evaluation, Ms. Sofia Kyriakopoulou and Ms. Afroditi Tsafara. During the visit to the School's Library, the Committee interviewed briefly the Librarian, Ms. Hara Drouga. The Committee had the chance to interview one representative of the undergraduate students and one PhD candidate, as well as to informally chat with a student following the M.Sc. program offered by the Department. Finally, the Committee requested to meet with the undergraduate students of the department during their regular class hours, and was offered access to the class of Prof. Manolis Wallace on the course "Digital Design" (1st year) on Tuesday, 22 November 2011. As at the time of the visit the class was scheduled for a midterm exam, the Committee had the opportunity to meet with the complete body of students enrolled at the 1st year of undergraduate studies, as well as with a significant number of more senior students, who had not passed this course. The Committee departed to Athens on Wednesday, 23 November 2011 at 10:00 and met for the rest of the day in order to create the first draft of this report, which was completed within six weeks following the site visit.

- *List of reports, documents, other data examined by the Committee.*

The University and the Department made available to the Committee, at the beginning of the visit or after specific requests, a large volume of documents and data, including samples of final year project reports and doctoral theses that the Committee had the chance to browse at the Library of the School of Science and Technology of UoP. In particular, the following documents were made available to the Committee:

- Internal Evaluation Report of the Department (dated February 2010)
- The presentation made by the Department's Chair to the Committee on the 20/11/2011
- The four-year strategic plan for the Department
- Minutes of the Department's General Assemblies since May 2009
- Minutes of the last selection process according to PD 407/80 (including selection criteria)
- Study guide (undergraduate) for the academic year 2011-12. Guide for the teaching processes followed by the Department (Annex to the Study Guide, edited November 2011)
- Study guide and rules for the graduate program for the academic year 2011-12
- Samples of syllabi, exams, and course material, also available on the asynchronous eLearning platform "eClass" to which the Committee members got access to via a guest account
- Curriculum vitae of the Department's faculty members, with listings of all journals the faculty has published in the last four years, number of publications at that journal, and impact factor of journal
- Yearly report for the Department's activities for the academic year 2010-11

- Yearly reports from 9 faculty members of the Department for the period 2010-11
- Hourly teaching schedule of classes for the current academic year
- Course and teaching evaluation statistics for the academic year 2010-11
- List of enrolled PhD researchers (names, tentative thesis titles, expected year of graduation, publications, current position) and examples of PhD candidates yearly reports
- List of final year project reports for the period 2009-2010
- List of high school visits by the Department's faculty members in the last year
- Description of the Software Systems Research group and the equipment of the Human-Computer Interface and Virtual Reality (HCI-VR) laboratory
- Cooperation agreement with Megalopolis municipality
- A transcript of the UoP Rector's talk on 23 September 2010 on the occasion of the completion of 8 years from the inauguration of the University of Peloponnese
- All other documents available at the Web site of the Department and the Web site of the University

Furthermore, the Committee had access to all previous External Evaluation Reports published at the Web site of the HQAA, especially to the reports of four past evaluations for the Informatics, Information Technologies and Computer Science Departments (University of Ioannina, University of Athens, University of Thessaloniki, Technological Institute of Thessaloniki).

- *Facilities visited by the External Evaluation Committee.*

The Department is housed in the building of the School of Science and Technology of the University. The same building also houses the Department of Telecommunication Science and Technology. The building is located at the end of Karaiskaki Street, near the grove of St. George and 2 kilometres from the centre of Tripoli.

The Committee visited the building and had the opportunity to visit the classrooms, the teaching laboratories, the research laboratories, some offices of the academic staff, the Department's secretariat, the Network Centre of the School, which actually serves the entire University, the School's Library and the Cafeteria. The Committee was offered ample working space at the main meeting room of the Department.

The Committee considers that all these formal and informal contacts allowed it to form a global view of the history and the current status of the Department, the morale of its staff and students, and to gain an understanding of their problems, their strengths and their weaknesses as well as their aspirations.

II. The Internal Evaluation Procedure

Please comment on:

- *Appropriateness of sources and documentation used*
- *Quality and completeness of evidence reviewed and provided*
- *To what extent have the objectives of the internal evaluation process been met by the Department?*

The Committee based the preparatory work for this evaluation on the Internal Evaluation Report (IER) prepared by the Department and dated February 2010, as well as on the information publicly available on the Web site of the Department prior to the site visit. The IER contained data from the academic year 2008-09 and information about the faculty

members last updated in 2008. It was therefore evident that the information available in this document was outdated, especially considering that the Department started functioning in 2002 and therefore a lack of updated data during the past three years constituted an important weakness in understanding the current status of the Department and its dynamics.

For that reason, the Committee requested and received a large amount of additional and updated information, as well as numerous additional documentation to the IER. The Department reacted promptly and willingly at all times to satisfy the needs of the Committee, even for requests received after the end of the site visit. The Committee feels that all the material made available were very helpful and informative.

The Committee members wish to express their gratitude for the assistance and commitment of the Department of Computer Science and Technology of the University of Peloponnese to the process and work of the Committee and for their hospitality. Thanks are extended to HQAA for giving us the opportunity to be involved in such a challenging and rewarding job. Their generous assistance and valuable support is very much appreciated.

As a final introductory remark, it should be noted that as the members of the Committee are not fully familiar with the new legislation concerning Higher Education Institutions in Greece, some of the comments and recommendations could be in conflict with some of the regulations of the new legislation and/or the currently implemented framework.

A. Curriculum

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

APPROACH

- *What are the goals and objectives of the Curriculum? What is the plan for achieving them?*

The objective of the Department's curriculum, as reflected in its guidebook, is to provide undergraduate students with high-quality scientific knowledge and technical skills covering a wide range of topics in Computer Science. Furthermore, the curriculum aims at enabling students to specialize in three areas of computing, namely theoretical computer science, software programming systems, and hardware. To achieve these objectives, the Department expects its undergraduate students to pass: (i) 30 "core" compulsory courses, which are offered during the first three years of study; (ii) 3 compulsory "specialized" and 5 advanced elective courses, which are offered during the fourth year of study and are drawn from three respective specializations (theory, software, hardware); and (iii) a semester-long B.Sc. thesis. Students are also expected to pass a couple of elective courses and have some practical training outside the University during their last year of study.

Regarding the post-graduate program of study, it appears that the main objective for establishing a M.Sc. course has been to increase the exposure and visibility of the Department, and to attract research-oriented postgraduate students who could later follow Ph.D. studies at the Department. To this end, the Department offers a M.Sc. program with four (4) specializations in Theoretical Computer Science, Computational Science, Software Systems and Computer and Network Hardware. The main objective of the Ph.D. program is to enhance the research activities of the Department and its faculty.

- *How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?*

Specific curriculum objectives were set by taking into account general principles of Computer Science curriculum, the specialization and interests of faculty members, and appropriate Computer Science curriculum standards set by ACM, IEEE, and ECTS. It appears, however, that faculty member predispositions towards teaching subjects have had a quite strong influence on the choice of courses taught and on curriculum structure. The selection of the curriculum objectives appears not to have been the result of a rigorous procedure, involving external stakeholders.

- *Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?*

Overall, the curriculum covers adequately core and specialized topics of Computer Science. Therefore, it is consistent with the general objectives of the study program and with society's requirement to educate students in Computer Science. However, the Department needs to investigate ways of improving the focus of its curriculum so that it addresses a number of challenges: (i) meet the requirements of a highly competitive job market, in terms of practical skills and versatility; (ii) enhance the growth of the local and national job market towards more diversified and sophisticated jobs with a higher added-value, and (iii) improve the mathematical and analytical skills of incoming students, which are on average weaker than those of other CS Departments with more competitive entrance criteria.

- *How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?*

Decisions on the curriculum are made by the Department's General Assembly, following recommendations by the curriculum committee. All departmental stakeholders are represented in this assembly (faculty, teaching and technical staff, students) and can express their views, orally or in writing. Student representatives have raised with the faculty certain curriculum issues that are of particular interest to the student population, namely the establishment of prerequisite courses and the difficulty of certain mathematically oriented courses.

There is no evidence that the Department has established or pursued further contacts with stakeholders who could provide useful input regarding curriculum objectives and structure. For example, the committee received no evidence of contacts with potential employers, business associations, professional and scientific societies. The committee considers that in the future, the Department should take into consideration the opinion of external stakeholders and alumni in future updates of its curriculum.

- *Has the unit set a procedure for the revision of the curriculum?*

The undergraduate curriculum has been revised a few times since the beginning of the program. However, there is no formal curriculum revision procedure. The Department is quite small and, therefore, faculty and students feel that they can discuss and take action on curriculum problems as they arise. It seems that this has been the case since the Department's establishment.

IMPLEMENTATION

- *How effectively is the Department's goal implemented by the curriculum?*

Thanks to the hard efforts of its faculty and despite recurring problems in financing and staffing, the Department has managed to offer an undergraduate curriculum of good quality, which covers all core CS subjects. The Department has gradually identified and enforced prerequisites for certain courses, in order to enhance the smooth transition of students along curriculum pathways. Nevertheless, the curriculum remains quite ambitious, as it comprises a large number of compulsory courses and three specialized paths. Consequently, the number of offered courses is high, despite the small size of the faculty. Furthermore, up until now, only a tiny fraction of incoming students manage to graduate in four years. This calls for a serious reassessment of the curriculum objectives and for an urgent adoption of changes to the curriculum, in the direction of reducing the number of specializations, increasing the effort that students put on core topics, and eliminating subjects that are not central to the CS curriculum.

The M.Sc. program started with four specialization paths, which were reduced to two in the current academic year, probably due to a lack of resources required to cover all specializations. The Department may consider providing greater flexibility to students, by offering more electives at the postgraduate level.

Despite its young age, the Department has managed to attract Ph.D. students and to produce a reasonable number of Ph.D. graduates. Nevertheless, the Ph.D. program is rather unstructured and lacks important aspects commonly found in research-oriented Universities. For example: Ph.D. students are not expected to take any advanced classes; research orientation is provided on an individual basis by academic advisors; the physical

presence of Ph.D. students in the Department is scarce; no training courses are offered on writing and presentation; there is no organized departmental colloquium series and there is no formal requirement to attend research seminars.

- *How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?*

The undergraduate curriculum complies with the ECTS standard with 60 ECTS units per academic year. However, the curriculum appears to be heavier in terms of the total number of compulsory courses, if compared to B.Sc. programs abroad. It appears that the internal regulation allows students to enrol to courses whose teaching hours coincide. Such schedule clashes arise for students who enrol simultaneously to courses offered in different years of the curriculum, due to failures to pass certain courses. This practice is clearly outside the international practice. Typically, EU- and US-based programs do not allow students to enrol from one year to the next unless they have succeeded to all requirements of the previous year. The Department should consider addressing this problem in a future revision of its curriculum and in its internal regulations.

The postgraduate curriculum is comparable to universally accepted standards in terms of its structure and the ECTS required to acquire a degree. The Ph.D. program, however, needs to reach a critical mass of resident, full-time Ph.D. students in order to comply with the best of the international practice. Furthermore, the Department needs to offer its Ph.D. students a more challenging environment for Ph.D. study, by establishing: (i) regular departmental colloquia with guest speakers from third institutions and from inside the Department and University; (ii) research orientation courses, and (iii) the opportunity to attend advanced postgraduate courses.

- *Is the structure of the curriculum rational and clearly articulated?*

The structure of the curriculum is clear and has been improving in recent years. However, the decision to offer three specialized pathways while maintaining a broad coverage of core CS topics has resulted to overloading the first three years of study, where advanced topics appear early in the curriculum (for instance, Computer Architecture I is taught in the third semester; Graphics, HCI, and Algorithms and Complexity are taught in the fourth semester) and some areas are oversubscribed with courses (e.g., there are four courses in hardware/architecture and four programming courses in the core curriculum). On the other hand, in view of the rather weak mathematical skills of the incoming students, the Department may consider strengthening the introductory mathematics curriculum to four courses, covering Calculus I and II, Linear Algebra, and Probability and Statistics. Furthermore, the Department should consider strengthening the students' analytical and problem solving skills throughout its curriculum.

- *Is the curriculum coherent and functional?*

A certain lack of coherence is introduced in the curriculum due to the existence of the three specialized pathways. The need to cover in four years both a broad core of CS and the three specializations, results to a rather heavy course load for the students. This seems to be one of the reasons behind the alarming percentage of students failing to graduate in four years.

- *Is the material for each course appropriate and the time offered sufficient?*

The content of most courses is appropriate and the time offered is sufficient.

- *Does the Department have the necessary resources and appropriately qualified and*

trained staff to implement the curriculum?

The current size of the Department's permanent faculty is not sufficient to cover the curriculum objectives. Until 2009-2010, however, the Department has managed to implement its curriculum thanks to the hiring of full- or part-time visiting professors. Unfortunately, due to the economic crisis, the University is facing dramatic reductions in visiting faculty funding and a freeze in further faculty hiring for the short- and medium-term future. Consequently, the Department is facing a serious shortage of faculty resources in its effort to meet curriculum objectives. The Department also faces a shortage of trained staff and teaching assistants (for lab exercises).

RESULTS

- *How well is the implementation achieving the Department's predefined goals and objectives?*

The quality of training received by the students is good. Already, a number of the graduates proceed to post-graduate studies in Greece or abroad. Nevertheless, it is clear that the Department needs a lot more resources in order to fulfil its mission and objectives.

- *If not, why is it so? How is this problem dealt with?*

The Department is under-staffed and under-funded. Building facilities are substandard. Instruction laboratories and the computing infrastructure are marginally sufficient but far from what one would expect to see in a competitive academic institution established at the beginning of the 21st century. Many decisions taken and implemented hint for a lack of a well-thought strategy by the University and the Department. A lack of consistent and sustained funding from the state budget makes planning for the future very hard.

- *Does the Department understand why and how it achieved or failed to achieve these results?*

The Department should be commended for trying to maintain a high level of academic studies in the face of very serious difficulties and financial obstacles. It is clear that the faculty understand the problems that arise from reduced state budgets and from a lack of proper support from the University's administrative structure. However, several of the Department's problems can also be attributed to the Department's strategy for growth, or the lack thereof.

IMPROVEMENT

- *Does the Department know how the Curriculum should be improved?*
- *Which improvements does the Department plan to introduce?*

It appears that the Department is improving gradually its curriculum, striving to strike a balance between the academic priorities of different research groups in its faculty, the overall shortage of academic and teaching staff, the difficulty of medium to long-term planning, and the difficulty in attracting students who are properly prepared to meet the requirements of highly demanding academic courses. The Department understands quite well that the current economic crisis has brought the institution at a crossroad, where serious decisions for the future must be made in order to safeguard the sustainability of the CS program, to improve its effectiveness and to better shape its identity. The Committee feels that the Department has not developed a strategy for the difficult times ahead. The development of such a strategy must be a top priority for the University and the Department.

B. Teaching

APPROACH

Does the Department have a defined pedagogic policy with regard to teaching approach and methodology?

There is no well-defined and uniformly applied pedagogic policy with regard to teaching. Faculty and instructors do not follow specific directions and deliver their courses on an individual basis. There is no organized teaching quality control by the Department and the University. Still, the impression of the Committee is that teaching methods are appropriate and well received by the students. Faculty members are young and energetic; in addition, they have experience and exposure to appropriate teaching methods from their presence in other tertiary institutes in Greece and abroad.

Please comment on:

- *Teaching methods used.*

Teaching is based on traditional lecturing methods, with the use of overhead projectors and white board. Teaching notes are made available to students. Some courses have a laboratory component, where students receive hands-on practice on the taught material. Laboratory sessions are held in the computer and hardware labs of the Department.

- *Teaching staff/ student ratio.*

Currently, there are 276 active students, registered since 2006 (students beyond the N+2=6 years study period are not considered active). There are 13 teaching staff members (11 regular academic teaching staff members and 2 adjunct/visiting lecturers), which implies that the teacher/student ratio can be as low as 1:21. This ratio is deemed barely satisfactory. Given that the number of registered students is expected to grow in the future (because fewer students will be able to transfer to other Computer Science programs, after the recent change of the respective law), we anticipate the ratio to shrink even further. We urge the Department to take action towards controlling this ratio. We note, however, that there is very low attendance of students in classes, as many senior students work in parallel with their studies or live in other cities and travel only to participate in examinations. Students think that the Department promotes helping economically weak students with remote class support (study at home, use eClass), although the recent curriculum restructuring with the introduction of prerequisites makes it harder to study remotely.

- *Teacher/student collaboration*

In general, there is a very good communication between teachers and students. Students who attend classes and participate in laboratories are very happy that they have access to the teachers and collaborate with them toward improving teaching and learning methods. We confirmed this after discussions with a random sample of students. The relatively low number of active students that participate in teaching and learning activities facilitates this good atmosphere. On the other hand, the committee thinks that this number should increase substantially in order for the studies at the Department to converge with the typical practice in highly respected international Universities. The committee believes that if the vast majority of students participate actively in teaching and learning activities, then the average duration of studies in the Department will gradually converge to the nominal number of four years.

- *Adequacy of means and resources*

The Department uses for its main educational mission the 10 classrooms of the School of Science and Technology. All rooms are equipped with computers and slide projectors. The capacity of each room varies from 40 to 90 seats. One of the rooms is a videoconferencing room that can be used in distance education activities. The committee is happy to report that the building was clean, organized, and the walls were mostly free of posters and graffiti. This is achieved by the good collaboration between staff and students.

The facilities and resources are, however, below what one would expect to see in a young and modern CS Department that started its operation in the early 21st century. Building facilities are mediocre and not designed to cope for the requirements of a modern University. Classrooms are small with poor acoustics and no support for modern instructional approaches (e.g., microphones and speakers, support for students carrying laptops, interactive boards, broadband connectivity). The Committee noticed that some of the computers in the laboratories are quite old, but we were informed that they will soon be upgraded by a recent equipment fund from the Regional Government Periphery. Given the low attendance in classes, the students did not express special complaints about the facilities. We note, however, that the teaching facilities are inadequate for larger audiences. We recommend that, if the attendance increases in the future, the department should be prepared to either split large student groups into smaller sub-classes, or use classrooms (perhaps in other buildings), which are equipped to support larger audiences.

- *Use of information technologies*

The Department makes use of the electronic platform “eClass” to facilitate course administration. The system helps the distribution of lecture notes and assignments, supports communication between teachers and students, and electronic submission of assessment material. Teachers do not generally use electronic means for teaching (e.g., electronic tutor systems, video lecturing). Only a few faculty members use electronic means for student training and learning assessment.

- *Examination system*

Most of the courses (especially core courses) involve a final examination. Most courses also have in-course assessment elements (assignments and mid-term examinations). In some courses there is no final examination, but the assessment is based on laboratory and/or assignment components. The level of difficulty of final examinations varies and there is no established quality control for the examination process. The quality control responsibility falls upon the individual examiners.

IMPLEMENTATION

Please comment on:

- *Quality of teaching procedures.*

Based on feedback from a random sample of students, the teaching quality is very good. The students find only very few courses very difficult. The students enjoy interactive teaching and easy access to the teachers due to small class sizes. There is good teaching support, with additional teaching hours offered if deemed necessary. Transition between chain courses (e.g., transition from Programming I to Programming II) is carefully designed by good collaboration between the respective teachers.

There have been efforts by individual teachers who have volunteered to improve the

background of weak students in the intake.

The Department introduced the mechanism of faculty advisors (assigning an advisor for each student), but the students were not very responsive and as a result this scheme was replaced by a simpler policy, where students can talk to any faculty member they feel as most approachable. Although, this policy seems to work better for the current student-teacher ratio, the Department has to reconsider its policy in view of the increased enrolment.

The Department also approaches students that are left behind (>N+2 years or students failing prerequisites) and offer them assistance on how to proceed with studying with meetings on a regular basis. However, there is a large percentage of students that silently quit the program by being registered for more than 6 years and not responding to the Department's efforts to help them complete their studies. This is a typical phenomenon in Greek universities.

Although the Department keeps track of statistics regarding grades and failure percentages in examinations, teaching quality is not controlled centrally by the Department, but falls upon the responsibility of the individual teachers.

We note that there is no minimum requirement for the number of registered students in a class, which may result in class offerings with less than ten registered students. The course "Practical Training" is not implemented adequately; there are not enough offerings for interns, and the 4-month period requirement does not permit pursuing an internship in locations outside Tripoli (e.g., in Athens).

- *Quality and adequacy of teaching materials and resources.*

For each course, in addition to the lecture notes available to them via the eClass system, the students select one textbook from the system "EUDOXUS" (www.eudoxus.gr). The library is well equipped with sufficient copies of textbooks in a wide range of topics and it is a valuable source of supplementary teaching material. On the negative side, some students complained that the delivery of the ordered textbooks from EUDOXUS is late and sometimes they even receive their books after the respective final examination period. In order to help in this direction, the Department has made a call to senior students to donate their used textbooks to the Department.

- *Quality of course material. Is it brought up to date?*

The Committee examined the material for a sample of courses and found it up-to-date. The committee believes that the faculty and staff are doing a good job in following the up to date standards of computer science curricula and of course content found in modern computer science curricula.

- *Linking of research with teaching.*

A large number of Final Year Projects (FYP) are directly related to the research interests of the supervisor. This offers an excellent opportunity to students to familiarize themselves with the recent research developments and receive training in research methodology. Research results are also brought into some courses, especially electives.

- *Mobility of academic staff and students.*

The University has signed bilateral agreements with four other European universities in Cyprus, Germany, Spain, and Czech Republic via the Erasmus program, to support staff and student exchange. However, there is very little use of this program by the University and no

use by the Department so far. The students are reluctant to participate mainly because of financial constraints for mobility and language barriers. Recently, a small number (four) of students expressed interest in participating in this program in the near future. Most of the academic staff joined the Department only after 2007, therefore it is too early for them to participate in exchanges or take sabbatical leave. So far, only one faculty took sabbatical leave and another is planning to take a leave in the next semester. Sabbatical leaves are also constrained by the lack of adequate teaching staff to cover the teaching needs of the program. In the past, two professors from other Greek tertiary institutes spent their sabbatical leave (12 months each) in the Department.

- *Evaluation by the students of (a) the teaching and (b) the course content and study*

For each course offering, teaching and course content are evaluated at the end of the offering. The evaluation is performed via hand-written forms filled by the students during the final examination. The evaluation results are used by the individual instructors to improve the next course offering. However, the students are not eager to provide feedback (approximately only 10% of the evaluation forms on average are completed). The Department is working towards improving the return ratio by establishing an electronic teaching evaluation platform, which will improve accessibility. There is no system in place for using the student feedback forms in any formal way.

RESULTS

Please comment on:

- *Efficacy of teaching.*

We received mostly positive comments from students regarding the quality and efficacy of teaching.

- *Discrepancies in the success/failure percentage between courses and how they are justified.*

The Committee observed large discrepancies. There are various reasons for this. In some courses with significant laboratory or project work components, students who choose not to spend effort in these components do not pass the corresponding course. In some cases, students choose to focus only on some courses per semester because they regard it too hard to attend and pass all of them. There are some general-education courses (e.g., English, Pedagogics), where success rates are consistently high, because the students either have sufficient background on them when entering the program, or their coursework requirements are lighter compared to core CS subjects. It was noted by some of the teaching staff that students who attend courses usually pass them. However, many students choose not to attend some courses, which they hope to pass with little effort. This explains the high failure rate in some cases.

- *Differences between students in (a) the time to graduation, and (b) final degree grades.*

Although the minimum number of years to graduation is four, the typical period of study is extended to five or six years, mostly due to the culture of the students to prolong their studies and enjoy the student life and not because of an inadequacy of the Department. A typical student would not spend the effort required to graduate promptly. Motivated students would do this. Economically weak students who work and study in parallel or live in other cities extend their study period. The average grade of the Department's graduates is between 7.3 and 7.7, which is typical for Computer Science departments in Greece.

- *Whether the Department understands the reasons of such positive or negative results?*

The Department suggested that the average graduation time of more than 5 years is expected due to the fact that the intake in recent years is weak (an average of 15 or less out of 20 qualification marks in the Panhellenic Exams); the average student faces difficulties to manage the workload and difficulty of courses. In addition, economically weak students who cannot afford to live away from their parents and move to Tripoli have low attendance records, which results in delays in their studies.

IMPROVEMENT

- *Does the Department propose methods and ways for improvement?*
- *What initiatives does it take in this direction?*

The Department has made attempts to improve the quality of the intake and increase the percentage of local students by organizing outreach activities to schools in and near Tripoli. The initiative is new; therefore, the results are not been assessed yet.

To improve the quality of teaching, the Department is currently working toward enhancing the teaching evaluation process, making it electronic. In addition, the Department has plans to promote electronic delivery of courses by means of podcasts and video lectures to help students who cannot attend all classes for some reason (e.g., remote study or time-clashes).

The Committee was concerned about the absence of any quality assurance procedures related to the examination process and would like to suggest that the Department addresses this area as a matter of priority. The quality of every aspect of examination cannot be left simply on the good will of each individual faculty member. It is important that a unified process is established that ensures transparency, correctness, fairness and compatibility across all modules. The Department should seriously consider how best it will ensure that errors do not appear in papers, that a paper is related to the learning outcomes, that the standard of questions is consistent across years and across subjects, that there is clear grading rubric and suggested answers, and that papers with mathematical formulae are typed using appropriate software.

C. Research

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

APPROACH

- *What is the Department's policy and main objective in research?*

According to the internal evaluation report, research represents the highest priority of the Department. The stated policy on research focuses on well known and rather general statements such as (i) recruiting of good researchers as members of academic staff, (ii) attracting good quality doctorate candidates, (iii) generating research income, (iv) being involved in national and international research projects and (v) publishing at journals and conferences of international reputation. These are objectives that one would find in most Departments in research-oriented universities. At this developmental stage of this relatively young Department the generation of research income has been identified as a key lever to achieving a satisfactory research status.

There is no doubt that academic staff wishes to carry out research of high quality but the Department lacks a clear research vision. The research direction of the Department is mainly defined by the research interests of permanent and visiting members of the academic staff. Whilst there is evidence that there are individual areas of good practice, the lack of vision and direction at a departmental level hinders the overall effort in establishing a well-bounded research area that has the potential of growing to be leading at a national and even international level. Through discussions with the academic staff, the Committee recognizes that there is a desire and willingness on the part of the staff to establish a small set of research topics that will act synergistically for a large number of them.

- *Has the Department set internal standards for assessing research?*

The Department is well aware of the indices through which research quality and productivity can be assessed. Each member of academic staff is obliged to submit an annual report in which research activities play a major part. These reports, of which the Committee has seen samples of, could be of great value, if there were used as a way of setting annual goals, reviewing these goals at the end of the year and using them as a way of maintaining or even increasing the quality of research. However, currently there is no formal feedback provided to the academic staff. It should be noted though that the relatively small size of the Department lends itself for much informal communication and there is evidence that this happens extremely successfully.

IMPLEMENTATION

- *How does the Department promote and support research?*

After some years of slow expansion and development it appears that the number of full-time tenure-track researchers has steadied at 11. The Department has recently made efforts to organise the research into different groups or sub-groups which amount to six such groupings at present.

Most of the research motivation and drive comes from individual members of academic staff, both permanent and visiting. The Department has very limited resources dedicated to research. In essence the Department does not have in its control any resources that can be used for promoting and supporting research. There is a small allocation of approximately 500 Euros per staff member for attending conferences but often staff members have to

subsidise part of their travel and subsistence especially when they present a paper overseas.

Recently the University adopted a policy to use a proportion of the overhead from research projects to fund research initiatives in the form of small exploratory projects, travel for staff and support for scholarships.

The Department organises research seminars by mainly inviting scientists from other Greek or international Universities. Such seminars, however, are too infrequent to have an impact on the Department's research environment.

- *Quality and adequacy of research infrastructure and support.*

The library resources are good and there is evidence that some of the research laboratories have sufficient computing resources albeit on a very small scale. The majority of state-of-the-art equipment has been established from external funding and not from University or Government funding. Usually, small grant applications for equipment are funded. There is problem with space generally in the Department but in terms of space dedicated to research this is very problematic. A good percentage of the academic staff and their research students are performing extremely well and certainly stoically under difficult space conditions.

There is no administrative support for providing information about available research grant opportunities but there is a centrally allocated administration unit that manages research grants across all departments in the University. It appears that there is no (or very little) support with grant preparation, submission, negotiation, signing and follow-up of research proposals.

The experimental research infrastructure of the Department is rudimentary. There are very few shared departmental computing, storage and software resources. There are neither established policies nor a strategy for developing and operating experimental computing facilities (clusters, storage, software, data), around which the Department could build joint research activities and develop the know-how of students in experimental Computer Science and Information Technology. There is only one technical staff member providing partial IT support, primarily to the departmental Web site. The Committee observed that some members of the academic staff, even at a senior level, had to deal with system support matters, which is clearly not a sustainable approach.

Ph.D. students are generally happy with the mentorship from their advisors, but some of them are disappointed with the image of the university and the Department (when compared to institutes that they have visited abroad). Ph.D. students often have no an established work space at the Department and there is no synergistic spirit among these researchers. Specifically, they are often working remotely, mostly in Athens, away from the Department and the research and cultural happenings (although quite few) at the Department and the UoP.

- *Scientific publications.*

There is evidence of good quality publications in journals and conferences of international standing. Some of these publications are co-authored by two or more of the Department's members. There is a relatively large number of publications being produced in collaboration with academic colleagues from other Universities, in some cases ex-supervisors, and in others just colleagues with whom they had started projects a few years back.

- *Research projects.*

The Department has benefited from the efforts of individual faculty members in participating

in research projects. The Department has been awarded 2 highly competitive research grants by the European Commission and these could be the focus for further research developments.

- *Research collaborations.*

Academic members of staff collaborate with external partners abroad and this improves visibility of the Department.

There are efforts for joint projects between permanent and visiting members of staff in trying to identify joint research interests and to define areas of innovation and exploration. This is not an easy task as each member comes from a narrow area and in the absence of a strategic research direction; inevitably this is a slow process. Some members collaborate in co-authoring papers and research proposals.

There is continuing collaboration of members of staff with ex-colleagues or academic supervisors at other Universities.

Research students have not as yet developed a culture of meeting in scientific forums within the Department or the School and there is a danger of this creating a sense of isolation.

RESULTS

- *How successfully were the Department's research objectives implemented?*

The Department is aware of the need to develop a research vision in terms of a small number of scientific areas. This is an ongoing effort.

Some faculty members expressed their concern about the lack of a mature academic environment within the Department, which would foster the exchange of knowledge and ideas, the organization of seminars, and the dissemination of best practices in teaching and research. Collaborations and intellectual exchange is mostly performed within the small groups with similar academic and research interests – there are 6 research groups within the Department for a total of 11 regular academic staff members.

- *Scientific publications.*

Publications are not uniform across the Department. It should be noted that this is a young Department with many new members all of whom however having a desire to publish at good quality journals.

- *Research projects.*

This is an area in which the Department wishes to focus in the short term. The Department feels that success in this area will yield results in all other elements of successful research such as attracting good quality research students, publishing at top-tier venues, and collaborating with prominent academics internationally.

- *Research collaborations.*

Research collaborations exist and they are driven by the desire of faculty to develop an international profile. There is continuing collaboration at many levels with colleagues from Universities that the faculty were previously affiliated with. Such an approach may affect the development of individual research identities.

- *Efficacy of research work. Applied results. Patents etc.*

It seems that the main emphasis of the faculty's research is on producing output that can be published in established scientific forums. The Department does not have the resources to expand its impact by establishing transfer of knowledge channels with the industry. In any case such an effort should be pursued outside the Department's geographical region, which does not have an established IT industry. Nevertheless, the Department has already a key role in providing valuable know-how and consultancy services to the University and the Periphery. This practice can be extended further establishing and strengthening collaborations with the Regional and Local Administrations of the Peloponnese, for the benefit of the region and its citizens.

- *Is the Department's research acknowledged and visible outside the Department? Rewards and awards.*

Faculty member publications have received an overall high number of citations. Faculty members serve in committees of international conferences and there are several examples of membership in journal editorial boards.

IMPROVEMENT

- *Improvements in research proposed by the Department, if necessary.*

There is a general statement by the Department about the need for increasing the number of faculty members and enhancing the Department's research activities through increased research funding and a better organization of the Ph.D. curriculum.

- *Initiatives in this direction undertaken by the Department.*

Groups of faculty are currently preparing a number of proposals targeted to attract European Commission Funding.

D. All Other Services

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

APPROACH

- *How does the Department view the various services provided to the members of the academic community (teaching staff, students).*

The Department offers the basic services to its staff members, its students at all programs, as well as to visitors (e.g., the members of this Committee), that are typical to a University Department:

- The secretariat, although currently staffed by only two persons, offers all necessary and basic services to the students and academic staff.
- The UoP School Science and Technology offers full access to its Library to all members of the Department.
- Access to laboratories is straightforward, although the number of technical staff is very limited (currently only one person).
- The Departments' Web site offers to its members direct links to a variety of other services, (e.g., Web mail and Internet services, EUDOXUS, the Career Office of UoP, the Erasmus programme of the University).
- There is a cafeteria on the ground floor of the main building offering snacks and drinks at low prices.
- The Department's area was quite clean and orderly. Cleaning staff were present during the site visit and the toilets were in general well maintained.
- The main building fulfils the legal requirements for access to wheelchair users, although the relative difficulty in reaching the Department by appropriate transportation services makes rather unlikely that someone with special needs might make frequent use of the services offered by the Department.

On the other hand, the Department (and it appears the University of Peloponnese also) has rather limited involvement in the society of Tripoli and only sporadic leadership in the cultural life of the city. It is rather unfortunate that the Department's integration in the cultural and societal surroundings via the services offered and wider activities developed is poor.

- *Does the Department have a policy to simplify administrative procedures? Are most procedures processed electronically?*

There is no formal Departmental policy for simplifying administrative procedures. The academic staff, however, has the relevant expertise and skills that permits them, on individual basis, to implement measures and ICT-based solutions to simplify some procedures in teaching activities or the administrative procedures of the Department. Basic procedures are processed based on ICT systems. However, no specific measures for e-Administration and e-Government have been implemented for the Department. The student's registration will be performed electronically for the Spring semester of this academic year.

- *Does the Department have a policy to increase student presence on Campus?*

Since its beginnings, the Department faced a serious problem due to students registering at the first year of studies and then, taking advantage of loopholes the legal framework in place at that time, transferred to other, more centrally located Departments of other Universities. The Department had no influence on this tactic of "student drain". As the law has however

recently changed, starting this academic year (20011-12) such practices are not allowed anymore, therefore the committee saw numerous first-year students on the Campus. It was observed, however, that more advanced students progressively, and for different reasons, prefer not to take rooms in Tripoli, live with their families or the places of their permanent residence, and just commute on days they have to attend classes or take exams. An important factor contributing to this issue is that there are no public residencies (i.e., student halls) in the city for students coming from low-income families.

Overall, the Department has not established any policy to increase student presence on Campus. Furthermore, the Committee observed deficiencies in the classrooms that make class attendance uncomfortable (e.g., lack of acoustic, students complained about low temperatures in the classrooms in winter, lack of space to accommodate large audiences in the classrooms). Although in several cases solutions to those problems could be straightforward if certain initiatives are undertaken, the Department did not demonstrate any plans towards the improvement of this situation.

IMPLEMENTATION

- *Organization and infrastructure of the Department's administration (e.g. secretariat of the Department).*

The site visit during the Department's external evaluation was mainly performed at the building that hosts the two Departments that constitute the UoP School of Science and Technology, one of which is the Department of Computer Science and Technology. The building has three floors and a total area of 4,500 sq.m. The same building also houses the Department of Telecommunications Science and Technology.

The Department's secretariat is located at the ground floor of the building. The basic infrastructure needed for the proper functioning of the secretariat is in place. There are established hours that the secretariat is attending to the students, whereas the academic and technical staff can interact with the secretaries at any time.

In addition, the Department provides significant support to the principal informatics infrastructure of the School, as well as to the whole University. Given the disperse geographical presence of UoP in five different cities in Peloponnese, such support activities are becoming even more complex. UoP operates within the School of Science and Technology a Network Centre with the main ICT infrastructure. This Centre is staffed daytime by technical personnel, however as the related services are basically 24/7, some of the Department's academic staff volunteer with their own efforts, expertise and time to the operation of the Network Centre.

- *Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counselling, athletic- cultural activity etc.).*

The Department uses for its main educational mission the 10 classrooms of the School of Science and Technology. All rooms are equipped with computers and slide projectors, apart from whiteboards, and, in general, student seats in rather good condition. The capacity of each room varies from 40 to 90 seats. One of the rooms is a videoconferencing room that can be used for distance education activities.

The single person that constitutes the Department's technical staff has been charged with the additional responsibilities to: (i) control the cleanliness of the spaces allocated to the Department, and (ii) quality control of the services offered by the cafeteria.

The library is modern and well equipped with a large number of books (according to the Department's Web site more than 11,000 volumes) and counts with a very good and

comprehensive collection of relevant journals, as well as subscriptions to the main electronic library services offered to the Greek Universities through the Hellenic Academic Libraries Link. The library also offers Internet access and students have the opportunity to make up to 100 copies per month using their library card.

The building that hosts the Department has a very spacious courtyard, which is however mostly used as parking lot for the staff and student's vehicles. An open-air basketball court exists within the School's premises, which however has an appearance of abandonment and underuse. Some other sports fields exist in the surroundings of the building, which were in use by several people during the site visit.

RESULTS

- *Are administrative and other services adequate and functional?*

The administrated services offered by the secretariat are indeed functional, however they still suffer from the lack of personnel. In the IER it was mentioned that four persons staffed the Department's secretariat. However, at the time of the site visit there were only two active secretaries, the other individuals being on leave (maternity or other type). One of the two secretaries is working under a temporary contract, which is financed by the Department's income from tuition paid by the M.Sc. students.

During the interview with the two secretaries, the Committee learned that the relations with the academic staff and the students of the Department are in general good. It appears that the secretariat is the main place where people turn for help and assistance during the daily operation of the Department. On the other hand, the secretaries declared that their duties include tasks that should have been responsibilities of the University's Central Administration, something that might be a result of inadequate training of the staff at the secretariat of the Central Administration. It seems that for the moment no important incidents have been registered, although if this situation continues this might lead to conflictive situations as the Department's secretariat cannot effectively support further workloads.

According to the secretaries, the ICT administration platform is not particularly user-friendly. Furthermore, no established procedures are predetermined and adequately codified for each activity the secretariat must perform. Moreover, and despite the fact there is a relative high rotation in the secretariat's personnel, there is no formal training followed by the new secretaries, they rather learn by doing. This sometimes leads to improvising and might be in general counter-productive, considering also the limited personnel currently available.

It was observed that procedures related to student services were implemented with some degree of elasticity, referring to deadlines, requirements, etc. Currently, however, the secretaries reported that, provided the increase in the number of students registering in the courses this year, the procedures have been followed in a more strict manner.

The Committee had also the chance to browse the minutes of the Department's General Assemblies of the past two years. It was observed that the procedures that govern the Department's operation are very rigid in some occasions and therefore counterproductive – and this might be due to the established procedural framework that governs the operation of the University. In some cases the General Assembly must decide and authorize activities such as allow a staff member to attend a (national or international) conference or to visit for a short period their collaborators at another University, to ratify the list of students that have the right to receive free meals (in this case the Committee considered inappropriate the fact that personal data of these students, such as their family income, is published in the

minutes).

Regarding the building that hosts the Department, it should be noted that it was constructed with plans and specifications to become a specialized secondary education high school (*Πολυκλαδικό Λύκειο*). However, it never functioned as such and it was handed over to the University by the regional Administration to operate as University Faculty building. Consequences of this fact on the quality and adequacy of the available resources have been already described in Section B on Teaching.

In general, the building is not suitable for a University Department. Classrooms are also located in the basement, with limited access to natural light, with poor acoustics and inadequate heating. There is already a space limitation for faculty member offices that will be exacerbated if the number of the Department's faculty increase. Some faculty members do not have offices and are just hosted in laboratories. Adequate office space for PhD researchers is not available. There was a plan to build a new building, also described in the IER, but unfortunately there is no progress due to lack of financial resources. It was mentioned that the nearby newly constructed building, which currently hosts the Department of Economics, has more adequate infrastructures and space enough to host the Department of Computer Science and Technology. The Committee however did not have the opportunity, nor such a visit was scheduled, to site-visit the neighbouring Department of Economics and have an own opinion on this matter.

The building offers all standard facilities to wheelchair users (e.g., ramps, elevators, adapted toilets, etc.). However, no data were provided on the number of people with special needs that make regular use of the Department's facilities. Regarding the building's cleanliness and general appearance, this was found to be satisfactory. The walls were in general free of graffiti and clean, so were the floors in the corridors and the office spaces, as well as the toilets. One thing that was noted however was the fact that ashtrays were present throughout the building and all over its corridors, despite the fact that smoking in Greece is not permitted in any closed public spaces, including Universities. Moreover, in the main desk at the Network Centre, located at the buildings basement, there was an ashtray full of cigarette butts.

The Committee, during its visit, did not observe any interruption of the academic or evaluation process by student political groups.

The Committee was very satisfied with the School's library, which serves both Departments hosted in the main building. It should be noted that there is no central University library in Tripoli, as other Departments of UoP also housed in the city, maintain and operate their own libraries. One librarian staffs this Department's library, although in the IER it was mentioned that in the past three contracted employees staffed it. Despite the fact the library has been created and developed according to all international regulations, methods and technologies and has a friendly atmosphere to foster studying and academic activities, it was reported that the students in fact do not make extensive use of these facilities. The main reason for that, as it was explained to the Committee, was that students prefer to study at their homes or residences in Tripoli, which in fact are not very distant from the Department's premises. At the time of the site visit at the library (late afternoon on Tuesday 22/11/2011) only one person was using the library's reading space.

Internet access, as well as access to the Web services offered by the Department, such as the virtual classroom "eClass", the Web mail tool, the electronic library, and the remaining services provided by the Network Centre of UoP, is offered from PCs available in both the Department and the School's library. Nevertheless, it was mentioned that some PCs in the classroom laboratories are old (some date from the Department's establishment). Furthermore, the laboratories are only accessible during operation hours, which are mainly

imposed by the fact there are two guards in charge of the protection and security of the laboratory equipment, who rotate in two 8-hour shifts daily. There is no access to the laboratories in the weekends, although some students have expressed their desire to do so. Another issue that is of concern relates to the fact the effective student population has increased since this current academic year, something that will have immediate effect on the increasing demand for laboratory space and new equipment. In fact this need has already been witnessed by the Department in the courses of the first semester for freshmen.

Finally, access to the Department, which is located in the outskirts of the city, is in practice mainly pedestrian, as the Committee saw a large number of students walking to the School in the morning hours. The students confirmed that there is a bus connexion with the city centre, which however is unreliable in terms of time schedule and slow. Therefore, although the ticket price is rather moderate, the students prefer to save this money and either walk to the Department or use their bicycles. Taxi costs €5 to and from the city centre. Some students claimed that the bus service is not sufficiently supported by the municipality due to conflicts with the sector of the city taxis.

- *How does the Department view the particular results.*

The Department is happy with the services of the secretariat and the library. On the other hand, the Department recognizes the fact the building does not offer adequate space for its laboratories and office spaces. However, no plans were provided to the Committee related to classroom improvement. The Department's engagement in supporting the University's Network Centre is consuming a big amount of the time of some of the academic staff.

IMPROVEMENTS

- *Has the Department identified ways and methods to improve the services provided?*

A common denominator in all discussions related to the weaknesses in the services provided by the Department was the lack of funds. The lack of financial resources and financial independency of the Department has been in generally considered as the principal cause of the Department's problems in securing new laboratory spaces, better conditions in the classrooms, more modern laboratory equipment or even more academic staff. The IER contains a section relating to ways to improve the services provided.

The annex of the four-year planning document the Department presented to the University's administration in 2008, the Department requested funds to amend and improve several of the issues identified. For example, in that document there were provisions for the creation of new classroom laboratories and the update of the equipment in the existing ones, for the update of the systems and office equipment at the Department's secretariat, for subsidies for the students' housing and meals, and for cleaning services and repairs to the main building.

- *Initiatives undertaken in this direction.*

Initiatives have focused on improving the organization of the administrative procedures of the Department, the implementation of a better electronic administrative platform for the secretariat, and outreach to the local society. The academic staff is actively contributing to the development of an improved electronic administrative platform that, in the long run, could eliminate the unnecessary administrative tasks they are currently asked to perform. The Departmental outreach activities will be discussed in the next subsection.

Collaboration with social, cultural and production organizations

Please, comment on quality, originality and significance of the Department's initiatives.

The Department offers opportunities for four-month internships at local companies and organizations. However, the work overload that the development and monitoring of such activities implies for the Department, and the limited interest demonstrated by the students so far to make use of such an option, did not allow this initiative to get established as a regular activity in the Department. Detailed information on these activities is provided at the Department's Web site.

Some students complained that the city does not offer them sufficient and good quality access to Internet, especially to those with limited financial resources to have Internet access in their homes or residences.

Regarding cultural and athletic activities, it was mentioned that some athletic events and sporadic cultural activities have been organized by the students or the academic staff, monitored by specialists that were detached to Tripoli by the Greek State. However, such initiatives have been discontinued due to lack of funds. On the other hand, the students interviewed mentioned that the small size of the city offers few options for entertainment. In general, the Committee observed that the integration of the Department, and by extension of the whole University, within the city's cultural and societal life is quite poor.

This is mostly due to the fact that a large part of the Department's academic staff does not reside permanently in Tripoli, and the vast majority of the students do not have family in the city. Many of these students travel to their places of origin in the weekends and some, mostly from the most advanced years, only commute to Tripoli to selectively attend courses and take examinations. As it has been also mentioned in Section B, the Department recently started focused outreach activities to some of the city's high schools, in order to disseminate the Department's profile and the prospects of studying there.

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

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

The Department was established in 2002 following a decision by the Greek Government to establish Universities in areas of Greece with no prior University presence, and to meet the increased demand by Greek high-school graduates to pursue studies in Computer Science. This decision appears to have been based on political rather than on academic or geographical grounds given that, at the time of the University's foundation, there were already several CS-related University Departments in operation in Greece, and the Department's premises are 2-3 hours drive from major CS Departments in Athens and Patras. It appears that before the creation of Department there was no strategic plan on what areas the Department will pursue and on what areas will faculty be hired. In addition, the first few years of the Department's existence, the Chairmen were not full time members of the faculty. It should be noted that only one member of the faculty has the rank of full professor. Additional inhibiting factors include the low quality of building infrastructure, the quality of incoming students (an average of 12-15 points -out of 20- in the Panhellenic Exams), limited funding from the University and the Government, and geographic dispersion of UoP.

During the visit to the Department, one of the review sessions focused on Strategic Planning. The Committee was provided with the four-year plan of the Department that was formulated in year 2008. The position of the Department with respect to related departments in the Greek University system was not analyzed and is an issue that should be seriously considered in the Department's long-term strategy. The existing strategic plan reads as concatenation of the plans for the individual research groups outlining their plans and their financial and hiring needs. The objectives stated could have been improved if they were: Specific, Measurable, and Attainable. As we understand the four-year was never implemented neither was there a plan for revising it. Furthermore, the students were not aware of the research and educational goals of the Department.

Synergies with the Department of Telecommunication Sciences and Technology in the areas of undergraduate/graduate curriculum and research activities have not been considered. A brief analysis of the undergraduate curricula of the two departments—at least over the first two years—suggests that teaching activities could be amalgamated to better serve their respective undergraduate curriculums. A successful collaboration in this direction will help both departments to face the upcoming constraints due to lack of funds for hiring temporary teaching staff and the increasing number of students in the near future.

The Committee noted an increased effort for the faculty to organize in larger teams to address larger research questions. However, the lack of concrete research vision to better structure the research activities prioritizing those areas where the Department can make a difference relative to the other Greek Departments of Computer Science hampers these efforts. The Committee noted a strong effort from certain faculty members to help UoP to establish bonds with the local authorities and increase collaboration. For example, the Department is ready to sign agreement with Megalopolis municipality to help with their administrative tasks.

It is commonly admitted that the University faces serious problems due to decentralization both at the academic and administrative levels. The Rector of the University told the evaluation committee that they are working towards a plan for moving all Departments along the axis Korinthos-Tripoli-Kalamata, with the central administration remaining at Tripoli.

F. Final Conclusions and recommendations of the EEC

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

I. Conclusions

Whilst there is evidence that there are individual areas of good practice, the lack of a clear strategic plan with vision and objectives at both University and at departmental levels hinders the overall effort.

The Department has a very low number of permanent teaching staff and very few funds for hiring temporary teaching staff, making it very hard to cover its teaching needs. Thanks to the hard efforts and high level of enthusiasm of its faculty and despite recurring problems in financing and staffing, the Department is offering an undergraduate curriculum of good quality that covers all core CS subjects. The orientation of the M.Sc. is currently being re-assessed by the Department and it is expected to change in the near future.

Despite its young age, the Department has attracted some Ph.D. students and produced a small number of Ph.D. graduates. Nevertheless, the Ph.D. program can be improved in a number of ways. The balance between PhD and MSc teaching has to be defined within the framework of a strategic plan.

The Department understands quite well that the current fiscal and economic crisis has brought the institution at a crossroad, where serious decisions for the future must be made in order to safeguard the sustainability of the CS program, to improve its effectiveness and to better shape its identity. The committee urges the Department and the University to develop a strategic vision and objectives for the difficult times ahead.

II. Recommendations To The Department

a) Curriculum

From the outset, the Department has adopted an ambitious plan vis-à-vis its curriculum development, introducing three specializations in its undergraduate and postgraduate (M.Sc.) programs that span a wide spectrum of Computer Science and Technology areas, relying to in-house resources for the teaching of general science courses (mathematics), and planning to offer a significant number of advanced, specialized electives in the undergraduate program. Such an approach might have been plausible in the historical context of the Department's founding, where the government promised and provided support for: (i) the hiring of a sufficient number of visiting faculty members to cover teaching requirements; (ii) the increase of the Department's faculty by hiring tenure-track staff, and (iii) the development of adequate laboratory and building infrastructure. With the current economic crisis, however, the government has been unable to meet its promises, substantially reducing University funding, severely reducing the hiring of visiting staff, and putting new building and faculty hiring plans on hold for an unforeseeable period. Consequently, the Department is obliged to address its curriculum revision by taking into account the new situation, which is defined by reduced government funding, the new law on tertiary education, the expected increased intake of incoming students, and the need to educate graduates that will be able to get jobs in a competitive job market and contribute to the development of the national economy. The Committee believes that in this new context, the insular attitudes previously practiced by the Department and the University should change. To this end, the institution should take full advantage of the opportunities that the new law on Higher Education has to offer, and actively seek the establishment of synergies

and the sharing of resources with other Departments and Schools of the University, as well as with distinguished University and Research Institutions in Greece and abroad (**recommendation A.1**).

Taking advantage of the expected transformation of the Department of Computer Science and Technology and the Department of Telecommunication Sciences and Technology into programs of study of a new School that will be established according to the recent law on Higher Education, the Department should seriously consider sharing part of its teaching load with the Department of Telecommunication Sciences and Technology (DTST), especially for courses commonly offered by the two Departments, such as: Mathematics, Physics, Digital Design, Networks, Information Theory, Programming, and Algorithms (**recommendation A.2**). A successful collaboration in this direction will help both departments to face constraints arising from the lack of funds to hire temporary teaching staff and from the expected higher number of incoming students. Furthermore, the Department should consider eliminating the hardware specialization in its B.Sc. program, due to the lack of a critical mass of faculty members in this area, or offering some hardware-oriented specialization jointly with the DTST (**recommendation A.3**). Such a decision may contribute to the reduction of the extensive number of compulsory courses that comprise the core curriculum, making room for additional electives and offering more flexibility to students. Similar recommendations hold for the M.Sc. program, the orientation of which should be re-examined (**recommendation A.4**).

The Department should also explore the possibility of providing multi-disciplinary or highly specialized training in topics such as Software for Telecommunication Systems, Business Informatics, Computational Finance, Data Analytics etc., in collaboration with other Departments, such as the DTST and the School of Economics and Business. Such an approach may help the Department diversify itself from nearby CS Departments, in Athens and Patra, and develop a competitive edge in training scientists for emerging computing-related domains. To this end, the Department and University should undertake a study to identify potential synergies and promising areas for new curriculum development (**recommendation A.5**). The Committee strongly encourages the Department to identify external stakeholders, such as Scientific Organizations, Chambers of Industry and Commerce, the Technical Chamber of Greece, Computer Science, and Computing-related industries, innovation centres, government ministries, and the regional administration, and consult with them for the implementation of recommendations A.1-5.

Another issue that needs to be addressed is the importance of student internships. The EEC has noted that only a very low percentage of students do a practice placement (i.e., internship) via the “Practical Work” course. Such courses are compulsory in many Computer Science Departments worldwide, helping students to acquire solid, real-world technical experience, and to gain insight into the industrial working environment, preparing them for future employment. The Department should put further effort toward promoting this element (**recommendation A.6**). We understand that there are certain constraints, such as the lack of computing industry in the region; however, the EEC believes that these constraints can be alleviated by adding flexibility on the duration of the module and establishing good contacts with the local industry as well as organizations at major cities.

Besides the aforementioned issues of strategic importance regarding curriculum development, the EEC wishes to present a number of recommendations on practical issues on curriculum management and implementation. In particular, the Department should establish and implement a formal procedure for curriculum evaluation and revision (**recommendation A.7**). Such revisions should take in consideration recent trends in

Computer Science internationally and modern programming languages should be part of the core. Such revisions should receive input not only from the faculty but also from the respective stakeholders (e.g., students, alumni, potential employers) (**recommendation A.8**). The current list of prerequisites should be maintained and re-visited at the end of the first year of full implementation as to what additions might be needed (**recommendation A.9**). Teaching and evaluation methods should move towards a more hands-on approach and continuous evaluation approach, increasing the lab component of both compulsory and elective courses, and the number of courses that use frequent assessment of the learning outcomes through quizzes, homeworks, laboratory exercises and midterm exams (**recommendation A.10**). Finally, the Department should re-evaluate and revise its Ph.D. program so that it meets the criteria of Ph.D. programs in established research-oriented Universities (**recommendation A.11**). For example, the Department could institute a procedure that examines the suitability of the student for PhD work. This procedure could be the grade on a small number of selected high quality postgraduate courses or an oral/written qualifying examination. Furthermore, the Department could offer workshops to the Ph.D. students that will help them improve their research, writing, presentation, creativity and leadership skills. A rigorous departmental colloquium should be established and all Ph.D. students should be required to attend it on a regular basis. The Department should put some publication requirements to Ph.D. students, focusing on premium publication forums (journals and conferences).

Summary of recommendations on curriculum:

- A.1 Develop and implement a plan for establishing synergies and for sharing resources with other Departments and Schools of the UoP and with other Universities and Research Institutions.
- A.2 Develop and implement synergies with the DTST of the UoP in order to share the teaching load of introductory courses of joint interest (mathematics, physics, digital design, information theory etc.).
- A.3 Discontinue the offering of the hardware stream or offer some relevant specialization in collaboration with UoP DTST.
- A.4 Review and Revise the M.Sc. Program.
- A.5 Explore the possibility of offering multi-disciplinary programs of study in collaboration with other departments of the UoP.
- A.6 Review and update the current framework for internships and promote it to the student population.
- A.7 Establish a formal procedure for curriculum evaluation and revision.
- A.8 Identify external stakeholders and establish a mechanism to receive input from all stakeholders concerning curriculum evaluation and revision.
- A.9 Maintain the current list of prerequisites should and re-visit at the end of the first year of full implementation to identify revisions and additions that might be needed.
- A.10 Increase the lab component of both compulsory and elective courses, and the number of courses that use frequent assessment of the learning outcomes through quizzes, homework, laboratory exercises and midterm exams.
- A.11 Re-evaluate and revise the Ph.D. program.

b) Teaching

The Department has taken steps in establishing mechanisms for teaching evaluation.

Currently, each course is evaluated by students at the end, via hand-written forms filled by the students during the final examination. The Department plans to launch an electronic teaching evaluation platform, which will improve accessibility. However, there is no systematic mechanism for using the course evaluation results and for teaching quality control, in general; it is left to the discretion of each teacher to consider feedback by students in order to improve course offerings in the future. The Committee believes that the current teaching quality control procedure is inadequate toward reaching the teaching quality standards of a modern university. We recommend the establishment of a systematic mechanism for teaching quality control, which enhances the current approach and introduces additional methods for monitoring student learning, including mid-term course evaluation surveys and use of rubrics for measuring the extent to which learning outcomes have been achieved during the course (**recommendation B.1**). The teaching quality control process should be documented; statistics on teaching effectiveness should be collected, published, and compared to verify whether course effectiveness improves over the years (**recommendation B.2**). The Department should establish a Teaching Excellence Award to recognize the efforts of its faculty and increase healthy competition between teachers (**recommendation B.3**).

The Department should also establish quality control for the appropriateness and difficulty of final exam papers and for the examination process, in general. It is important that a unified process is established that ensures transparency, correctness, fairness and compatibility across all modules. The Department should seriously consider how best it will ensure that errors do not appear in papers, that a paper is related to the learning outcomes, that the standard of questions is consistent across years and across subjects, that there is clear marking scheme and suggested answers, that papers with mathematical formulae are typed using appropriate software. External advisors or peer review mechanisms can be used in this direction (**recommendation B.4**).

The Committee observed that a large percentage of students fail many courses during their first year of study. This is mainly due to the culture of students in Greek universities to relax after a hard year with Panhellenic exams and take advantage of the current University regulations, which are not strict against students who fail many courses. When these students decide to try more seriously with their studies, their effort is hindered by time clashes between courses offered in the first and the second year; it is common that students register in two courses (of different years) that are taught at the same time. The Committee suggests that timetabling should be designed more carefully in order to avoid time clashes between courses that have low success rate in year i and core courses in year $i+1$. Teaching could be distributed more uniformly across the week, to help in this direction (**recommendation B.5**).

Summary of recommendations on teaching:

- B.1 Develop and implement a plan for teaching quality control.
- B.2 Develop and implement a plan for collecting statistics related to the quality control objectives and outcomes.
- B.3 Establish a Teaching Excellence Award
- B.4 Establish a quality control procedure for the appropriateness and difficulty of final exam papers and for the examination process, in general.
- B.5 Design timetables in such a way so as to avoid time for classes to be distributed more uniformly across the week, to help in this direction.

c) Research

The Department carries its research currently in an undirected way. The Department was unable to articulate a research vision that could be shared by the majority if not its entire faculty. The stated 'policy', as defined in the internal assessment report, considers operational matters such as for example the need for research income. Whilst these are important considerations for the sustainable development of research (and needs to be considered as part of a wider strategy - e.g., recommendation U.1) the department will need to develop its research identity that in turn will facilitate the generation of research funding, the attracting of good researchers and the increase in output at top-tier research outlets. Therefore, the Committee strongly urges the Department to develop a cohesive and coherent research strategy that will represent a shared vision by all faculty and will be externalised to the University and more widely to the Greek and international academic community (**recommendation C.1**).

During the site visit, the Committee observed that there is evidence of good quality research by individual faculty. However, there seems to be absence of a team spirit, despite the presentation of the Department in terms of research groups. It seems that individual faculty would rather collaborate with colleagues from other institutions, mostly in other Greek institutions, rather than with colleagues in the Department. The Committee whilst recognising the enthusiasm of individuals for their research activities it nevertheless would like to encourage faculty members to explore strategic collaborations within the Department so that the research identities of groups will eventually emerge. Therefore, the Committee recommends that individual faculty develop, as much as this is possible or desirable, research alliances with colleagues at UoP (**recommendation C.2**).

The Committee realises that it is very unlikely that there will be any opportunity for expansion for a few years to come. However, the new University structures to be soon implemented as part of the new legislation for Higher Education may present opportunities for developing alliances that might prove to yield innovative research directions with consequent advantages for the Department and the University as a whole. The Committee therefore, recommends that the Department (aided by the management of the University) actively seeks to explore potential collaboration with other cognate subjects such as those that might be found on other Departments (e.g. Telecommunications, Economics etc) (**recommendation C.3**).

The Committee understands and shares the Department's desire to attract research funding. To this end, the Committee recommends that the Department sets up clear procedures for (a) identifying funding opportunities, (b) supporting individual faculty or groups to prepare proposals for funding, (c) encouraging the transmission of knowledge and expertise from faculty who have been successful in attracting funds to less experienced members, (d) monitoring progress of applications and (e) providing support for administering projects (**recommendation C.4**). The Committee commends the efforts that some faculty members have made in submitting collaborative proposals with international academic institutions and industry. The Committee would like to encourage the Department to pursue this since such activities are likely to have not only a financial reward but also wider exposure of the Departments research expertise to an international audience.

The Committee had evidence of some elements of good research culture but this was the exception rather than the rule. The Department has held occasional seminars with visiting academics and these should be increased in the future. Regular seminars of research students should be established. Regular discussion forums involving faculty should be established although the Committee understands that most faculty meet socially. The Committee recommends that the department considers how best to establish and maintain a

research culture (**recommendation C.5**).

The Committee observed that Doctorate candidates were in essence left to work by their own accord. Such a situation places undue stresses on the candidate and could potentially hinder their work. Furthermore, the Department is unable to monitor progress in a formal way and consequently it might be unable to introduce ameliorative actions. Therefore, the Committee recommends that the Department establishes a programme of instruction which at the very least will guide Doctorate candidates, at the beginning of their research, on rudimentary research activities such as (a) research methodology, (b) report writing, (c) research paper writing, (d) reviewing of research papers, (e) assisting in research proposal writing, (f) participating in research meetings (**recommendation C.6**). As part of the same recommendation the Department should introduce a programme of monitoring progress of Doctorate candidates and formally manage the process throughout the lifecycle of the PhD work.

The Committee observed that the Department does not have in place a complete process to monitor research progress of faculty members. Each faculty member is required to annually fill in a form detailing progress in the year and these forms are forwarded to the University. However, neither the University nor the Department provide any feedback to individual faculty members. The Committee recommends that a formal process is established, supported by relevant documentation to assist the University, the Department and the individual faculty member to (a) establish research goals for the year, (b) review the degree by which these research goals were met and (c) collaboratively agree on any actions that will ensure a sustainable research development (**recommendation C.7**).

Summary of recommendations on research:

- C.1 Define a research identity that is unique to UoP compared to other institutions in Greece based on the strengths of its faculty.
- C.2 Ensure that individual faculty members develop their own identity independently to any other collaboration that they may have with colleagues in other institutions. This should be done in the context of the overall research strategy of the Department.
- C.3 Encourage interdepartmental synergies towards setting up new, relevant and innovative research that could eventually provide a unique research identity (see also recommendation A.5 on curriculum development).
- C.4 Establish structures and procedures for assisting in the identification of research funding opportunities and for monitoring progress of proposals.
- C.5 Adopt and implement methods that will foster the research culture (e.g., seminar series, open house day, poster day showcasing research, summer schools making use of the excellent local touristic attractions and infrastructure).
- C.6 Establish formal structures and processes for training Doctorate candidates in general principles of research work and to monitor the progress of each candidate in a formal way on an annual basis. Reward structures for meeting the research goals could be established (Research Excellence Awards for students).
- C.7 Establish formal processes for setting research goals for each faculty member, by the faculty member and agreed with the Chairperson of the Department, the monitoring of the degree of attainment of the agreed goals, and any actions that may need to be taken by the faculty member, the Department or the University in support of the member's research development. In addition, proper reward structures for meeting the goals should be established (Research Excellence Awards for faculty).

d) All Other Services

During the site visit and interviews, it became clear that the Department's Secretariat works well, within the limits imposed by the staff shortage and unclear delimitation of their duties and responsibilities. In order to increase the efficiency of the Secretariat's work, a manual with guidelines for the function of the Department and detailed protocols for each procedure within the Departmental activities should be elaborated (**recommendation D.1**). It has been also observed that the Secretariat's staff is well integrated within the Department and their relations with the faculty members, as well as with the students are good. In order to maintain the secretaries' motivation and reward their dedication and good performance, feedback should be provided annually to the administrative personnel and, if yearly objectives are met or even surpassed, a way to recompense this success could be foreseen (**recommendation D.2**). In terms of modernizing the available infrastructure and tools available to the Department's Secretariat, and considering the current lack of funding for software development towards developing and improving e-learning and e-administration services, it is advised that the Department makes use of the available resources (final year projects, MSc projects, full-time technical support staff) to upgrade to electronic services wherever appropriate (**recommendation D.3**).

Specific measures and initiatives can be taken in order to motivate the students and increase their presence on campus. The Department should motivate and support the creation of a student delegation, with its own Web site, newsletter, cultural and athletic initiatives, happenings, etc., which would develop activities independently of political parties or other politically-oriented organizations (**recommendation D.4**). The Department should seek ways to promote the added value the well organized library of the School can offer to the students, as well as to make the library facilities more attractive to students to use for their daily studies and term project works (**recommendation D.5**). The Department should perform low cost interventions in the building and classrooms to improve the comfort of students attending classes (e.g., employ electric heaters in winter, install microphones and loudspeakers in larger rooms to improve acoustics) (**recommendation D.6**).

Finally, it is important that the Department keeps promoting and maintaining the good aspect and cleanliness of the Faculty's building and take appropriate measures to enforce the application of the law against indoors smoking in public buildings (**recommendation D.7**).

Summary of recommendations on other services:

- D.1 Develop and update regularly a manual with guidelines for the function of the Department and detailed protocols for each procedure within the Departmental activities.
- D.2 Establish a procedure to provide annual feedback to all administrative personnel.
- D.3 Develop and implement a plan to upgrade the electronic resources.
- D.4 Motivate and support the creation of a student delegation.
- D.5 Promote the added value the well-organized library of the School can offer to the students.
- D.6 Perform low cost interventions in the building and classrooms to improve the comfort of students attending classes
- D.7 Enforce the application of the law against indoors smoking in public buildings.

e) Strategic Planning

The Department is urged to appoint an external advisory board, consisting of renowned academics, entrepreneurs and innovators from Greece and abroad, which would advise about the development and implementation of the Department's strategic plan. This plan should

cover all aspects of the academic process (curriculum, teaching, research, and outreach) (**recommendation E.1**).

The Department is urged to develop a coherent strategic plan taking into consideration all available data (including this external evaluation report) and by engaging all stakeholders. The Department is urged to develop objectives that are SMART: Specific, Measurable, Attainable, Relevant and Time-Bound. This plan should provide to the Department a unique identity. It is especially important that the plan is attainable given the current economic conditions but also that it should allow for future changes in science, technology and the economy (**recommendation E.2**).

This plan should include plans that will prepare the Department for an increased number of enrolled students. Specifically, the percentage of students who register and attend the program and do not transfer to other programs (e.g., in Athens) is expected to drastically increase in the future, because of a recent law that prevents such transitions. This will have the positive impact of having more students attending the program. On the other hand, it will bring new challenges in terms of sustaining high-level teaching quality even in larger classes, increase of space requirements, for classrooms and laboratories (**recommendation E.3**).

The Department is urged to develop an operational plan implementing the strategic vision and specifying the mechanisms monitoring its implementation and how the plan will be updated (**recommendation E.4**).

The Department is urged to develop a mentoring mechanism for its young faculty. The young faculty of the Department will benefit from mentoring in deciding and pursuing their research interests, locating research funding to support their research and how to serve the profession and the society. For example, the Department can organize workshops in proposal writing (**recommendation E.5**).

The Department is advised to develop a plan on how to reduce the expected graduation time from 5.5 years currently to less than 5 years (**recommendation E.6**). This can be achieved by increasing the student participation in class and promoting a new study culture. Upon success, this action would bring several benefits. First, the number of active students will drop (increasing the teacher/student ratio) and teaching will become more effective. Second, it will achieve better balance in student attendance to classes and examinations. Third, it will improve the image of the program and the Department to the society, improving, in turn, the quality of the intake.

The Department should redouble its outreach efforts to high school students. The Committee urges the Department to provide visually appealing outreach materials and to extend its reach to schools beyond Tripoli. Effort should be made for the full Periphery of Peloponnese to be covered (**recommendation E.7**).

Summary of recommendations on strategic planning:

- E.1 Appoint an External Advisory Board.
- E.2 Establish a Strategic Plan that includes SMART objectives.
- E.3 Specifically account for increased number of students at the Strategic Plan.
- E.4 Develop and implement procedures monitoring the implementation of the Strategic Plan.
- E.5 Develop and implement a Faculty Development and Mentoring Strategy.
- E.6 Develop and implement a plan for students to graduate in time.
- E.7 Develop and implement a thorough plan for Outreach.

II. Recommendations To the University

The External Evaluation Committee is grateful to the management of the University for the support it provided to the Committee during its visit to the Department. The Committee is also grateful for the opportunity that its assessment of the Department of Computer Science and Technology offers the University as a whole to reflect on its strategy and its handling of academic affairs at a Departmental level.

The University's management expressed unequivocally their support to the Department for its teaching and research. The EEC very much welcomes the confidence that the University Administration (Rector's Council, Senate) places in the Department and it hopes that this support will continue in the new University structures that are due to be established in response to the new legislation on Higher Education.

The EEC wishes to encourage a greater degree of involvement of the University Administration in strategic matters of direct relevance to the Department but, the University might wish to take this opportunity to develop strategies applicable to all University units. The University ought to develop an overarching strategy that will clearly articulate the University's vision about Computer Science at UoP and the University's expectations of the Department for ensuring that the strategy will be implemented. Therefore, the EEC recommends that the University establish clear measurable targets that will need to be evaluated on an annual basis (**recommendation U.1**).

Since the Department is very young, the University is urged to facilitate the appointment of an external advisory board, consisting of renowned academics, entrepreneurs and innovators from Greece and abroad, which would advise on the development and implementation of a Departmental strategic plan that will consider the recommendations of this report (**recommendation U.2**).

The University should also accept its obligations to the Department in terms of the support that the central management and administration may offer the Department if the University has any expectations of the Department to meet the agreed strategy. Immediate action is needed towards allocating funds for a new building that would host the School, solve spacing and equipment problems, and improve its image to students and the society (**recommendation U.3**).

The Committee observed that there are no central requirements for ensuring quality of teaching by a Department. Quality of teaching is an area that receives special attention by most Universities with a national or international reputation. Indeed some Universities have dedicated quality assessment and assurance committees. Teaching evaluation is a general concept that should be controlled and implemented by the University on all taught programs in all Departments. Therefore, the Committee recommends that the University takes action towards establishing teaching quality control mechanisms including the delivery of lectures, introduction of new courses, the review of courses, and the examination processes (**recommendation U.4**).

The EEC observed that there is no University strategy for the research being carried out across the University. Most Universities worldwide that aspire to be research-led tend to have strategic goals backed up by operational procedures and resources to ensure that their aspirations can become a reality. In the absence of such a research strategy, the Committee recommends that the University develop a strategy, in consultation with its Departments and possibly with external agents, to establish a research strategy (**recommendation U.5**). The University needs to take ownership of research and needs to clearly articulate its expectations of the Department in terms of key performance indicators.

Currently, there is no mechanism to account for the workload of the faculty. The University should not expect that research would somehow be carried out on an informal basis and be

dependent on the desire of individual faculty to carry out innovative work. University wide procedures have to be established that provide credit for teaching, research and service and allow for transparency. For example, performance in teaching should also be considered in tenure and promotion processes (**recommendation U.6**).

The University should organize a number of training workshops appropriate for different levels of seniority. For example, proposal writing workshops for junior faculty and leadership workshops for senior faculty (**recommendation U.7**). Using the funds in its disposal from the research overhead the University should establish mechanisms that a Department can receive financial support based on the productivity of its faculty. These funds could be used to support Departmental Programs (e.g., research development, outreach, research/teaching excellence awards) and to reward especially productive faculty using a variety of mechanisms including providing funds for attending conferences or offering one-year fellowships (**recommendation U.8**). The University should provide mechanisms for technology transfer and the creation of spin-off companies (**recommendation U.9**).

The University should examine ways for establishing Ph.D. fellowships and/or assistantships and on facilitating Ph.D. students to be housed in Tripoli. If the Department considers that it will not be able to attract a critical mass of Ph.D. students, then it should examine the possibility of an institutional collaboration with another University or Research Center (e.g., Demokritos, Athena, FORTH) to provide joint Ph.D. programs (**recommendation U.10**).

The University should consider seriously the problems students face with the transport means to and from the city centre. For that, the University could approach the local municipal administration in order to seek ways to improve the existing public transport means (**recommendation U.11**).

The Committee noted that there is a high percentage of staff and students, who do not live in Tripoli and we believe that this is a general phenomenon for all Departments of the University. Therefore, it is not easy to construct strong bonds between the University and the city. We encourage longer presence in the city and more interaction with the local society. The University could take specific initiatives to encourage the local society offer rooms and apartments to students at low, affordable prices. In general, the University should undertake initiatives to encourage students to stay in Tripoli and discover the cultural offers of the city, the nature and the city surroundings, and promote the leisure activities that can be carried out in the region (**recommendation U.12**).

The University should also pursue funding for building student residencies, which would increase the presence of students on Campus and in the city. In general, similar faculty incentives should be considered (**recommendation U.13**).

Summary of recommendations to the University:

- U.1 Develop a strategic plan for the role of Computer Science Discipline in UoP.
- U.2 Establish an advisory board to assist the Department in the development of a strategic plan.
- U.3 Allocate funds for a new building for the Department.
- U.4 Establish teaching quality control mechanisms.
- U.5 Establish a research strategy.
- U.6 Establish a clear workload policy and faculty evaluation procedures.
- U.7 Provide Faculty Development Opportunities
- U.8 Provide resources for Research Initiatives.
- U.9 Encourage and support financially Technology Transfer.

U.10 Establish Ph.D. fellowships and/or assistantships.

U.11 Seek to improve the existing public transport to and from the city.

U.12 Provide incentives for the students to stay in Tripoli.

U.13 Develop a plan for building student residencies and incentives for the faculty to live in Tripoli.

III. Recommendations To the Government

The current geographically distributed model for development for UoP has hampered the Department's efforts to establish connections and meaningful collaborations with the other departments at UoP (e.g., social sciences and nursing). The merits of a geographically distributed university need to be re-examined (**recommendation G.1**).

There is an urgent need to develop a strategic plan for the development of Computing in Greece. It appears that there is no coordination among the various Departments while the quality varies from Department to Department. Having a strategic plan will allow informed decisions at both the national and university level (**recommendation G.2**).

Consideration should be given towards aligning undergraduate/graduate curriculum rules with the Bologna system (**recommendation G.3**).

The Committee urges the Government to establish the "Greek National Science Foundation" (analogous to US National Science Foundation) with significant budget that will support scientific endeavours through targeted calls. It is critical that reviews and decisions of support are transparent and based on merit review criteria only (e.g., analogous to those of the US National Science Foundation) (**recommendation G.4**).

The Committee appreciated the restrictions and risks that tertiary institutions face in Greece due to inadequate funding. The Committee recommends increasing the operational budget of Institutions based on critical evaluation of their needs. For example, the evaluated of the assessed Department has a very low number of permanent teaching staff and very few funds for hiring temporary teaching staff, making it very hard to cover the teaching needs (**recommendation G.5**).

Currently, there is no mechanism to account for the workload of the faculty. Country-wide procedures have to be established that provide credit for teaching, research and service and allow for transparency (**recommendation G.6**).

Summary of recommendations to the Government:

G.1 Re-evaluate and modify the current model for geographically distributed universities.

G.2 Develop a strategic plan for the discipline of Computing in Greece.

G.3 Align with the Bologna system.

G.4 Establish a Hellenic National Science Foundation.

G.5 Increase spending for University Education.

G.6 Establish a clear workload policy and faculty evaluation procedures.

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