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

EXTERNAL EVALUATION REPORT

DEPARTMENT of Informatics

UNIVERSITY of IOANNINA

Version 1

June 2011

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External Evaluation Committee

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

1. Prof. Maria Petrou (President)
   Imperial College London, UK

2. Prof. Evripidis Bampis
   Universite Pierre et Marie Curie, Paris, France

3. Prof. Costas Iliopoulos
   King's College London, UK

4. Prof. Lydia Kavraki
   Rice University, Houston, USA

5. Prof. Nicolas Spyratos
   Universite de Paris-Sud XI, Paris, France

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. The External Evaluation Procedure

- Dates and brief account of the site visit.
- Whom did the Committee meet?
- List of Reports, documents, other data examined by the Committee.
- Groups of teaching and administrative staff and students interviewed.
- Facilities visited by the External Evaluation Committee.

The external committee, consisting of

Professor Evripidis Bampis (University of Pierre et Marie Curie)

Professor Costas Iliopoulos (King's College London)

Professor Lydia Kavraki (Rice University)

Professor Maria Petrou (Imperial College London) and

Professor Nicolas Spyratos (University Paris Sud XI)

visited the Department on Tuesday June 21 and Wednesday June 22, 2011. The visit consisted of attending formal presentations given by Department members, mostly on Tuesday, and visiting the premises of the University and the Department, mostly on Wednesday. The committee met with the Provost Professor Almpani, and Vice-Provosts of the University on Monday June 20, shortly after their arrival in Ioannina. The committee had also the chance to speak individually to 10 faculty members (from all sectors of research and all levels), as well as to all members of staff collectively, to students and, informally, to technical support staff and administrative staff. As the teaching semester was over, it was not possible for the committee to visit students in the classroom. Nevertheless, the committee requested and met students immediately after the end of an exam, impromptu. About 20-30 students in their final year of study were present. The committee found that interaction very useful and the students most willing to participate. The committee visited the Departmental Secretariat and talked with the four people working there, visited the central University library and the students' and staff restaurants. The committee considers that all these formal and informal contacts allowed it to form a global view of the 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.

During the visit, the Department made available to the committee a large volume of

data, including samples of final year project reports masters and doctoral theses, CVs of faculty members, statistics of student performance, student status and student intake and graduating numbers, course content, exam papers and marked course assignments, as well as a collection of A3 colour posters, describing the research work in the Department, and copies of all the slides of all presentations made.

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 Internal Evaluation Report, initially circulated to the members of the committee, was focused and appropriate. However, some quantitative data were missing. Nevertheless, the supply of the relevant data on site more than compensated for the lack of substantiating evidence of the various claims made in the Internal Evaluation Report.

The Department made an excellent impression to the committee. Most important of all, the Department appears to be working as a team, providing an atmosphere inspiring not only the academic staff and students, but also the supporting staff. This is a major asset for an Institution. This is a Department that deserves to be generously supported in its educational and research mission.

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 main aim of the curriculum is to prepare students for professional as well as research oriented careers.

This is achieved by a well-balanced education in the basic aspects of computer science, accompanied by lab training and project work. The curriculum consists of 27 compulsory courses and about 9 elective courses. The choice of courses and lab practice are comparable with those of foreign corresponding departments. Three of the elective courses may be replaced by a final year project. In addition, the students are encouraged to take a work placement for a few months, in order to obtain further practical experience.

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

The Department was created to fill the demand of Greek high-school graduates to pursue studies in computer science.
The objectives of the curriculum were decided taking into account international standards for such departments.

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

The curriculum is consistent with the set objectives and the requirements of the society at large. However, the immediate environment (the region of Ioannina) offers limited job opportunities to the graduates.

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

The content of the curriculum as well as the content of each course is revised regularly by the Committee of Undergraduate Studies, where students are also represented.

IMPLEMENTATION

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

The curriculum is implemented effectively, by, for example, teaching in house many of the required mathematical courses, to make them more relevant to computer

science.

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

The effort required for each course has been assessed according to the ECTS standards and the weight of each course towards the final qualification has been decided accordingly. The overall number of ECTS units per year is 60, which is the European standard.

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

The structure of the curriculum is rational and clearly articulated in the Department's Course Guide, which is annually updated.

- Is the curriculum coherent and functional?

In general, the curriculum is coherent. However, it imposes a rather heavy load to the students. This seems to be one of the reasons why the average duration of studies is 5.5 years (as opposed to the planned 4 years).

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

The material of each course seems to be appropriate but the time available to assimilate that material by the students seems to be rather short for some courses.

- Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?

The available staff is appropriately qualified but their number is insufficient in certain subjects, or missing in areas that the department would like to develop further. This particularly affects the Masters and Ph.D. programmes.

RESULTS

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

The training received by the students is of high quality with several of the graduates proceeding to post-graduate studies. This, however, comes at the cost of a longer average period of study.

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

There is a plan to transform the Department to a computer engineering department. If this plan is successful, a side effect would be to solve partly the problem of long

average duration of studies.

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

The Department understands the existing problems and an effort is underway to improve the situation.

IMPROVEMENT

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

In the short run, the Department plans to allow the final year project to start earlier and to shorten its duration. In addition, there is a plan to transform the Department to a computing engineering department (appropriate steps have already been taken and we understand that the plan has already been approved by the Technical Chamber of Greece (TEE)). Such a transformation could solve some of the current problems (especially the rather long duration of studies under the present curriculum). It is to be noted that the current curriculum is quite close to that of a computer engineering department, therefore the transition should be relatively easy to implement.

B. Teaching

APPROACH:

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

The Department offers a Bachelor degree in Computer Science (Informatics) and a Masters degree in Informatics. The Masters programme has five specialisations (Computer Systems, Theory of Computer Science, Software, Scientific Computing, and Technologies and Applications), and it appears to be aimed at preparing students for research.

Please comment on:

- Teaching methods used

The Department uses traditional teaching methods of overhead transparencies, white board and classroom lecturing. Some of the courses have also a lab component that is taught in the computer and hardware labs of the Department.

- Teaching staff/ student ratio

The Department has a large fraction of students that are not active, i.e., they have been registered for more than 6 years. If we consider only the active number of students, which is 401, the student to staff ratio is 401:21, which is approximately 19:1 and is deemed satisfactory.

- Teacher/student collaboration

There seems to be a very good teacher/student collaboration. The general atmosphere we perceived by talking to students was that of a "one team" work. The students we spoke to, selected at random for our discussion, were very happy with the access they had to their teachers and with their interactions with them.

- Adequacy of means and resources

The Department seems to be well equipped, although some of the computers in their teaching labs were quite old. There seems to be, however, inadequacy in technical staff for manning the teaching labs (only one lab technician for the 400 active students). It is to be noted that classrooms, labs, and the building in general are kept very clean, organized and free of graffiti. This is achieved by the combined efforts of the students, academic and technical staff, as well as those of the supporting staff.

- Use of information technologies

The Department uses information technology basically for course administration, that is, as a tool for distributing course notes and projects, communication between staff and students, answering questions of the course, etc. The Department does not seem to make use of information technology directly for teaching.

- Examination system

Several courses have a course lab/assignment component that counts towards the final course mark. There are some courses where the student can pass the course without taking a final exam, but by passing a series of assessment tests. Most courses, however, involve a final exam. The exam style seems to be non-uniform, in the sense that for some courses there are parts of questions that could be considered as bookwork, while for others all questions consist of problem solving. The level of difficulty of the exam questions, from the samples that we checked, was found to be comparable with that of our own Universities.

IMPLEMENTATION

Please comment on:

- Quality of teaching procedures

With the exception of a couple of courses that the students found "too heavy", i.e., too much material, the students were happy with the teaching procedures.

- Quality and adequacy of teaching materials and resources.

In addition to the one book per course the students can select from the EVDOXOS system, the students also receive lecture notes. Further, all textbooks are available in the University library, which is located near the Department.

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

Not all optional courses are offered every year, so the teachers have the chance to update the material they cover.

- Linking of research with teaching

The students have the option to do a research project instead of taking three optional courses. This gives them the chance to come in contact with research. However, not many students select this option, as they perceive that a final year project may take them a year to complete, while passing three "easy" courses will be faster and less work. The students at the Masters level have a compulsory project, which is directly related to research.

- Mobility of academic staff and students

The Department has signed bilateral agreements with Universities in Bulgaria, Romania, Italy, Poland, France and Spain, mostly via the Erasmus programme. There appears to be some reluctance from the students to participate to such programmes, as they perceive them to cause delays in the final award of their degree. In addition, some students had heard of difficulties in having courses passed abroad recognised as equivalent with corresponding home courses. The number of incoming students through Erasmus is also low (43 for the whole University for 2009-2010). So, overall, the student mobility is low. This appears to be due to language barriers (no agreement with an English-speaking University), financial reasons, student reluctance to move, and partly to misconceptions that a course passed abroad may not be accepted as equivalent with a home course. Academic staff attitude to mobility seems to be very positive.

- Evaluation by the students of (a) the teaching and (b) the course content and study material/resources.

All courses are evaluated each year by the students. The evaluation process was recently modified and this resulted in relatively high participation by the students (about 50% of those registered for a course completed the evaluation form). The evaluation process is pre-announced for each course separately, it is anonymous and overseen by a person not related to teaching. In general, the students were very positive. This came out also from the discussions we had with them.

RESULTS

Please comment on:

- Efficacy of teaching.

The teaching methods followed are traditional methods and we did not perceive any negative aspects in relation to them.

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

There were differences of success/failure rates among courses and these may be attributed to various factors. For example, courses with a significant laboratory or coursework component tend to pre-occupy the students, at the expense of the time they dedicate to other courses.

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

The average graduation time for the undergraduate students is 5.5 years. The average graduation grade is between 6.5 and 7. These numbers are not atypical for Greek Universities.
They should also be judged against the quality of the students that enter the Department, which is with a minimum of 16.3 out of 20 (typical minimum qualification mark for acceptance).
About 3 out of 7 students appear to be stagnating, i.e., they have been registered for more than 6 years (717 registered, 401 active).

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

The Department realises that the 5.5 years average graduation time is rather long. The academic staff believe that part of the reason is the overloading of some courses with material. They had also a long graduation time for the Master programme (2.5 years), which they have taken measures to bring down, by reducing the course content and by structuring the programme better. However, there are no statistics for the efficacy of the new measures as the changes were made recently.
Student stagnation may be attributed to a number of reasons: some students end up at the Department although this was not their first choice, and some students have financial problems and they need to work. These reasons may be combined with the general situation in all Greek universities, with student fatigue after the national entrance exams.

IMPROVEMENT

- Does the Department propose methods and ways for improvement?

The Department, realising that their course content is very dense, proposes to break a couple of courses into two parts, which with the addition of a few extra courses will make the programme of study a 5-year programme, compatible with those offered by other Greek Universities, leading to the degree of "Computer Engineer". This is part of the strategic plan of the Department.

- What initiatives does it take in this direction?

The Department has worked out a complete programme of studies for the 5-year degree and has obtained the approval of TEE, but the final approval is pending at the Ministry of Education.

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?

The Department's main objective is high-quality research as this is confirmed by their peer-reviewed publications in quality national and mainly international journals and conferences. The Department has a horizontal structure, as opposed to hierarchical, with four research labs, two of which have been officially established. At the same time, there is an effort by the Department to organize cohesive research teams based on the research interests of its faculty members. This process is healthy and, as expected, evolving since the Department is relatively new.

- Has the Department set internal standards for assessing research?

As far as students are concerned, standards are set through their final-year project (for those who elect to do one), and the theses required for the Masters and Ph.D. degrees. Overall, the quality of research performed by the students was found to be very high. Masters and Ph.D. theses result in several high-quality publications in well-recognized conferences and journals.

As far as academic staff is concerned, the Department is very well aware of the way research quality is now evaluated through commonly accepted indices such as those computed by Publish or Perish and Scopus. Recent hires reflect very high standards and will significantly enhance the research activities of the Department.

IMPLEMENTATION

- How does the Department promote and support research?

The overall climate in the Department is very conducive to research endeavors. There are multiple collaborations and joint papers of faculty members. Although most of the research drive comes from the individual faculty members, the Department has been very supportive in allocating its (very limited) available resources and in providing laboratory space, offices for graduate students, and a reading room.

- Quality and adequacy of research infrastructure and support.

There is significant research infrastructure in the Department with the availability of a very well organised library that offers up-to-date access to scientific publications,

both in electronic and paper form. In addition, there is space allocated to research labs and research groups in the building of the Department.
However, there is no person to help with grant preparation, submission, negotiation, signing and follow-up of research proposals. This is particularly important for obtaining and managing European projects.
Another problem is that there is only one staff person for supporting the whole computer infrastructure of the Department, for both its educational and research needs. This forces many academics and their research staff to be involved in the maintenance of their research equipment.
Finally, lack of appropriate equipment for systems research, particularly affects members of staff active in this area, as it hinders their activities in conducting experiments and publishing their work.

- Scientific publications.

The Department can exhibit very high quality publications in widely recognised international journals and conferences, with a high number of citations. Several of the academic staff consistently publish at the top conferences of their respective fields. The members of the Department take pride in their scientific work and publications.

- Research projects.

The Department has benefited in the past from infrastructure projects and had a combined research funding from the Greek Ministry of Education, the General Secretariat of Research and Technology, and the European Commission of around 860K euros per year, for the period 2005-2010. However, as research funding is becoming increasingly competitive worldwide, the research projects that started during 2011 amounted to less than 400k euros. Although not under external funding, several vibrant research projects exist in the Department, involving academics and students, leading to good quality publications and forming the basis for future funding biddings.

- Research collaborations.

There exist many research collaborations among the members of the Department, as evidenced by joint publications. Taking advantage of mobility programs, 5 faculty members spent a semester abroad during the academic year 2009-2010, strengthening research collaborations.

RESULTS

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

Collaborations among faculty members work well and are driven by their individual

interests and ambitions. Although, some well-organized groups exist, the on-going effort to organise around research themes will further help the formation of teams that will have critical mass and thus can tackle larger projects and pursue competitive funding.

- Scientific publications.

Although not uniform, several faculty members have high research impact factors (as these are defined by Publish or Perish and Scopus). Six faculty members had more then 1,000 citations since 1995. The venues where the faculty publishes are mixed: they range from highly visible and recognized ACM, IEEE, and SIAM conferences and journals, to less known, but sometimes easy to participate to, conferences. Overall, the Department can display significant publications.

- Research projects.

The Department has enjoyed initial grants for infrastructure, which have, however, expired or are close to expiring. This creates a major issue for the infrastructure of the Department, as equipment, networks, etc. need to be renewed and maintained regularly. During the 2005-2010 period, the Department has taken advantage of funding from the Greek Ministry of Education, the General Secretariat of Research and Technology, and the European Union (EU). As research funding becomes increasingly competitive, the Department finds itself at a critical point, where more EU projects will be needed to help implement the high research mission and goals, that the Department has set for itself. Although there are not many major European funded projects, there is no lack of informal projects and ideas in the Department that are being pursued with practically no financial support.

As far as Ph.D. students are concerned, the Department has been very active and successful in pursuing programs such as Ηράκλειτος, but several complaints were voiced about the implementations of these programmes. The complaints had nothing to do with the Department itself, but rather with delays associated with the release of the funds by the Government, which creates severe problems to the students.

- Research collaborations.

Research collaborations exist and are driven by the desire and the motivation of the excellent faculty of the Department. Given the geographic location of Ioannina, such collaborations with researchers outside the University are vital for the future vibrancy of the Department and possibly its external funding.

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

This was a difficult point to judge from the information given and the duration of the review visit.

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

Eight faculty members belong to journal editorial boards (including IEEE and other highly regarded journals), which is indicative of the high esteem of the scientific community to the corresponding faculty members. Most faculty members participate in programme committees of various conferences. Several distinctions were noted (Senior IEEE Member, invited lectures at conferences and at other departments).

IMPROVEMENT

- Improvements in research proposed by the Department, if necessary.
- Initiatives in this direction undertaken by the Department.

The Department is in a constant state of evaluating its procedures and processes, including research. In particular, a committee for the internal evaluation of the Department exists and is composed of three active members. The Department seeks to (a) increase the number of its faculty members and cover research areas that are not covered today and/or are complementary to existing ones, (b) enhance its research activities, and in tandem (c) enhance its curriculum.

A strategic decision of the Department, which will affect its research, is its effort to become a Computing Engineering Department. This will affect the research directions and hiring in the Department, in a way that the Department believes will enhance research.

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 (and in general the University) takes very seriously the services it provides to its members. For example, because the University does not have the resources for helping visually impaired students, it does not accept them. On the contrary, it has infrastructure for students with mobility problems and accepts such students. The University also offers on request transportation for students with mobility problems.

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

Most departmental procedures are processed electronically.

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

The Department, via the University, offers to about 75% or more of its students accommodation at a very low rate, as well as to most students free meals on campus, thus maximizing the student presence on campus. Further, the students, asked independently, confirmed that the quality of food offered by the students' restaurant was excellent and the Departmental facilities were always clean and in good condition. The Departmental building was very clean, and we have no reason to think that this was only a transient state, but rather the result of good care taken by the students and the departmental staff.

IMPLEMENTATION

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

The Secretariat of the Department is located in the University Administration Building, on campus, and not far from the Department itself. The Secretariat accepts students' requests by phone, email or in person. For in person interaction, it is open daily from 11am to 1pm. There appears to be some plans for the Secretariat to be relocated in the departmental building, although this may not be optimal from the point of view of the Secretariat's interaction with the other University authorities.

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

There is a very well organised University library, where the students can access all books associated with their courses. The library remains open long hours every day of the working week (Monday-Saturday) and it is even open on Sundays. There is internet access from all rooms in the halls of residence and there is internet access from the computers of the Department. There is also access to a sports hall. The University runs a counselling service which is offered to students and which appears to be effective and well received by the students. The University also has a converted monastery where exhibitions and other cultural events take place and are open to the students. The graduating students receive their degrees in the Central Hall of the University, in the presence of their relatives. The University also runs a Liaison Office that helps students in finding work during and after they graduate. Finally, the Department offers to the students' union office space and it recently has created a fully equipped reading room with 15 seats.

RESULTS

- Are administrative and other services adequate and functional?

The administrative services offered to the students are adequate and functional. The students were happy with them and the efficiency with which they were served by the Secretariat.
Despite the fact that some students did not appear to know about the careers office, most students were familiar with it, found it very useful and they had taken advantage of its services.

- How does the Department view the particular results.

The Department is very proud for the services it offers to the students.

IMPROVEMENTS

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

The Department would like to be able to accept students with disabilities other than mobility problems, but it does not have the resources to create the appropriate infrastructure for this. Further, the Department would like to offer to the students more common space for daily interactions.

- Initiatives undertaken in this direction.

The Department plans to convert a room which is currently not in use into a Students' Lounge.

Collaboration with social, cultural and production organizations

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

The Department actively participates in the University-wide efforts in recycling and blood donation, as well as in the cultural events organised by the University.

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.

Please, comment on the Department's:

- Potential inhibiting factors at State, Institutional and Departmental level, and proposals on ways to overcome them.
- Short-, medium- and long-term goals.
- Plan and actions for improvement by the Department/Academic Unit.
- Long-term actions proposed by the Department.

The Department has to overcome a large number of inhibiting factors that are common in many other departments of the country. At the state level, this includes bureaucracy, insufficient funding, unclear chartered-status of the alumni, funding of the Ph.D. students, lack of specific actions to help young research faculty members, delays in appointing elected faculty, long delays for receiving the funding from some programs (Ηράκλειτος), and very long procedures for submitting (and resubmitting) research proposals (Θαλής).

Specific inhibiting factors for the Department include problems associated with the geographical location of Ioannina and its accessibility (which has been however improved in the recent years with the construction of the "Egnatia Odos"), the lack of local informatics companies or big enterprises, and the proliferation of computer science and related departments in the recent years in the country.

At the institutional level, the Department is well supported by the University. However, the University needs to spend more effort to understand the particular needs of a computer science department, the equipment of which requires much more frequent renewal than that of other departments, due to the fast rate by which technology in this area changes. It also appears that in the name of even-handedness, the Department receives the same amount of travel money as some other

departments, which do not depend very heavily on conferences for the dissemination of their research work.

The research development of the Department relies on the appointment of four *already* elected faculty members in the domains of Databases, Data Structures, Robotics and Distributed Systems, and three openings in the Domains of Computer Networks, Computer Graphics and Software of Parallel Systems. These appointments and openings will broaden the teaching curriculum and open new or enhance existing research directions.

An important strategic goal is the transformation of the Department from Computer Science to Computer Engineering. There is a pending application that seems to have been approved by the Technical Chamber of Greece (TEE), but is pending at the Ministry of Education. Such a transformation would have a strong positive impact on the appeal of the department to better quality students. It will also help the Department to develop closer relations with local and (inter-) national enterprises and the public sector. The Department's proposal is for a 10 semester curriculum, with one semester devoted to the final year project. The new courses that will be added to the current curriculum will be Networks, Telecommunications and Computer Hardware, in accordance with the international standards. It is to be noted that Computer Engineering Departments of the proposed type already exist at the Universities of Patras, Aegean, Thessaly and Western Macedonia.

F. Final Conclusions and recommendations of the EEC

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

Conclusions and recommendations of the EEC on:

- the development of the Department to this date and its present situation, including explicit comments on good practices and weaknesses identified through the External Evaluation process and recommendations for improvement
- the Department's readiness and capability to change/improve
- the Department's quality assurance.

In conclusion, we found the Department in excellent state from the point of view of human resources, enthusiasm for work and working environment.

There are no significant deficiencies or criticism on teaching, research quality and working environment. Due to its geographical position, Ioannina poses certain constraints on the mobility and outreaching of the Department and the University as a whole. For example, it is not possible for a person from Ioannina to go to Athens in a day-return trip, not to mention going to Brussels or Luxembourg. Nevertheless, there is significant effort in remaining in touch with the broad scientific community. The difficulties are not only in terms of accessibility and time, but they incur increased travel costs, which poses an overhead to the Departmental and University activities. This problem is not particular to Ioannina but we suspect that this may be the case for many departments outside Athens, Thessaloniki and maybe Patras.

The recommendations that follow do not constitute criticism but rather constructive suggestions for improvement.

<u>Recommendations for the Curriculum</u>

To the Department

It is recommended that the Department examines carefully the criteria by which a course is made compulsory or optional in the undergraduate programme. The 27 compulsory courses at the moment seem far too many. Additionally, material that is today considered of great practical value (e.g., Java programming) is not incorporated in compulsory classes.

The Department should examine carefully the purpose of its Master programme, by identifying the market needs and the destination of its graduates. At the moment no such data exist. The creation of a society of alumni (with graduates of Bachelor, Master and Ph.D. degrees) will help the Department understand better the needs of its graduates and connect better with the world of employers. At the moment the Masters programme is focused into preparing students for research. In general, Master programmes tend to be aiming at preparing students for the industrial/employment world.

There are no courses oriented towards practical matters, e.g., Entrepreneurship, the European Union and its regulations with respect to research, employment etc. Such courses should be compulsory for Ph.D. students and offered as elective to undergraduate and Master students. Such courses should not replace technical courses, but for example, they could take the form of a series of compulsory seminars.

To the University

The Department will need help in establishing courses as described in the paragraph above. As these may be common across a few departments, some coordination may be required, as well as resources.

To the Government

The Department should be given the freedom to adjust its curriculum as it feels appropriate, for both the undergraduate and postgraduate programmes, without requiring the approval of the Ministry (i.e., ΦΕΚ). Instead, the offered courses could be regularly and promptly accredited (e.g., every four years) by some appropriate body. It is unheard of abroad for even minor changes in the contents of a course to require ministerial approval, which often in Greece takes months, if not years, to come.

Recommendations for Teaching

To the Department

For the undergraduate courses, it is recommended to rationalise the difficulty of some of the courses and the degree of the lab/assignment component, so that more uniformity among the courses is achieved. It is also recommended to rationalise the format of the exams, so all courses have, for example, a component that a student, who reads the notes and the books can easily answer, and a component that will test the problem solving abilities of the student. Theoretical courses, without a lab component, could have that replaced with assignments, so that for all courses the students have the same incentive to be active during the year, and roughly the same part of the final mark to come from the written end-of-semester exam.

It appears that the majority of students do not select to do a final year project, because it takes "too long". It is recommended to standardise the project work in the way it is done in universities abroad: all projects will be commencing a specific time (or times) during the academic year and they will be expected to be submitted by a specific date, with penalties incurring for late submission. The offered project titles could be announced simultaneously and the allocation of projects to students done centrally, so that they are more closely administered. This will remove the reservations the students have about project selection, allow more students to come in contact with research, and remove the variability that currently exists between

different teachers with respect to project supervision.

It is also recommended that the students who elect to do a practice placement to various companies, are asked to report to the Department when their placement is over. In this way, any companies that do not really offer to the students the opportunity to have some real working experience will not be used again.

There are currently a large number of stagnating or giving up students. In order to deal early with such students, it is recommended that each student is assigned some mentor during the first year (personal tutor), who will keep an eye on the attendance and performance of the student and be able to help him/her overcome any difficulties.

There seems to be an excessive number of General Assemblies (more frequent than once per month) as well as various committee meetings. The Department may decide to authorise certain committee chairpersons and the President of the Department to make decisions by themselves, being only accountable to the General Assembly that will meet, say, twice per year and which will have the option to replace them, should the need arises. In this way significant academic time will be freed, to be dedicated to scholarly duties, more relevant to teaching and research (including lab supervision, invigilation (proctoring), proposal writing, etc).

To the University

Establishing an "Excellence in Teaching" award, given each year to a teacher with proven success in teaching, will give an extra incentive to members of staff to improve their teaching skills. Further, establishing an introductory training session for new lecturers, possibly offered by the Education Department of the University, could also help maintain and improve teaching standards.

To the Government

It is recommended that the transfer of students from one university to the other is totally stopped. It should be left to the universities to decide if and how they will accept students from other universities. It is impossible for a Department to plan its teaching schedule if it cannot control fully the number of students it accepts.

<u>Recommendations for Research</u>

To the Department

The Department can become more proactive in seeking external visibility, research collaborations and funding. It is recognized that all the above are very difficult tasks, especially with the current economic situation in Greece and Europe, but it is

believed that the Department has the potential to succeed in those tasks, given the high caliber of its members.

The geographical location of Ioannina poses all the typical roadblocks that departments outside the main cities of Athens and Thessaloniki have. Among them, academic staff need to travel far to attend talks and conferences. Attendance of conferences is difficult as almost no support can be provided by the budget of the Department. Hence, the academics may want to seek other avenues to increase their visibility. These may include: volunteering to participate in evaluation committees of EU projects, seeking posts within professional societies and task committees, organizing conferences through societies, exploiting any mobility money that is available for faculty and students, nominating faculty and self-nominating for awards and positions, and others). A heavy burden is placed on the academic staff to be proactive to a degree that is not required by academic staff in corresponding departments, for example, in Athens. An additional factor that requires the faculty members of this Department to be extremely proactive is the small fraction of senior members in the Department. For example, participation in EU projects requires extensive networking and understanding of the process, the burden of which falls entirely on young faculty at the moment. Such efforts should also be supported by available funds both at the Departmental and University levels. The Department has done an excellent job and should continue hiring outstanding faculty members further improving the quality of the Department.

To the University

In contrast with other sciences, most of the research in computer science is disseminated through conferences. The budget allocated for travel to conferences needs to be drastically and immediately increased. The current situation prevents very capable faculty from presenting their work and networking within their communities. This adversely affects the visibility of the Department and its capability to attract external funding. Although it is known that in the long run research funding can provide conference support, the process needs to be jump-started by the University (and the Government) by any possible means.

The technical staff of the Department for systems administration consists of one person only. This single person cannot possibly cover the educational and research needs of such a large body of students and faculty. It is estimated that 3-4 people are needed for such a task and their presence is indispensable for the growth of the research program. Similar considerations should be given to grant support.

Equipment becomes quickly outdated and more money needs to be allocated to the departmental budget in comparison with other departments. Furthermore, the creation and efficient management of shared high-end computational facilities can benefit the Department and possibly other departments (e.g., Physics) and be a win-

win for the University.

Any efforts to create and strengthen an incubator for the formation of companies by faculty members and students will in the long run help the Department and probably the University as a whole. The Department faces a huge challenge by the absence of computer-related companies in its immediate geographical area. Help for better connection with any kind of industry will also be beneficial in the long run.

Any allocation of money that will enable the Department to give nominal prices for excellence in research to students and faculty (e.g., best thesis award), will help the morale of the students and faculty.

Incentives for excellence and recognition of teaching and research efforts will be greatly appreciated by the Department. Recognition efforts may include a special day for the Department, or a public lecture in an established lecture series by a distinguished member of the Department.

To the Government

The current research restrictions on travel support (for example, the fact that it does not cover conference registration) are outdated and should be lifted. Computer science disseminates information at conferences whose registration runs easily at 500-900 euros. The cost is prohibitive especially for junior faculty members.

The Department has very good buildings and its infrastructure is totally respected by faculty and staff (the spaces are clean, there is no graffiti, no smoking is allowed, etc). It is a wonderful investment from the part of the Government. This very civilized and pleasant working environment should also be maintained by the allocation of the appropriate funds.

Current delays in the administration of research programs are unacceptable and pose a huge burden on the academic staff and students. Many problems were noted with the administration of programmes such as Ηράκλειτος and others. Delaying allocated funds in computer science can have devastating effects as research that is now current may be outdated two years from now. Students who were supposed to receive such funds were severely affected if not demoralised.

<u>Recommendations for Other Facilities</u>

To the Department

It is recommended that the Department becomes more proactive in reaching out to the local community. This will help connect its students and its graduates more with the local potential sponsors and employers, and dispel the misunderstanding the general public has about the nature of Informatics. The connection with the local community may be achieved, by donating, for example, some of the obsolete departmental equipment to local IEK or schools, and by organising annually an open day, where the activity of the Department is shown to the general public and to invited local potential collaborators and employers.

Interactive exhibits (e.g., around their 3D printer and CAD system) during an open day may play a significant role in attracting and inspiring local young people.

To the University

It is recommended that the Departmental Secretariat is given larger premises. Further, there should be a better coordination among the various sources that send documents to the Secretariat, so confusion and redundancy is avoided.

There is no reason for the Secretariat not to be open during normal working hours, instead of the 11:00-13:00. As most business nowadays is conducted electronically, this is not expected to cause major disruption to the workflow of the Secretariat; it can save a lot of hassle to the unsuspected citizen who may feel intimidated to knock on the door when confronted with the sign of the open-to-the-public hours.

Currently, the library expects the teachers to notify them when a new textbook is needed for a course. The library could be more proactive in soliciting new titles of textbooks. For example, at the beginning of each summer, the library may ask explicitly the teachers which textbooks they plan to use in the forthcoming year and order several copies of newly recommended volumes.

To the Government

It is recommended that the announcement of the various new laws and regulations is (i) simplified so legal terms and reference to other laws and paragraphs of laws is minimised or eliminated and (ii) that the delivery of various notes, memos and letters is rationalised, so that one source only (and by a single means at a time) is sending documents to the University, to avoid confusion and redundancy.

Finally, it is recommended that the procedure of appointing new members of academic staff or promoting existing ones is simplified, removing the requirement for the publications of each candidate to be submitted in full and in multiple copies. There is no such requirement in foreign universities, as one can easily access the publications electronically, as long as the list of publications is submitted.

Recommendations for the Strategic Plan

To the Department

There is a need to articulate the research activities of the Department by establishing Sectors (Τομείς) with critical mass. This will improve the visibility of the Department and the efficiency of its operations on a day-by-day basis.

Establishing an annual report of the research achievements of the Department will contribute in disseminating its activities in the outside world.

Establishing relations with other departments of the University with modelling and computational/simulation needs (Biology, Chemistry, Physics, Medical School) will create the chances of interdisciplinary research, rationalise costs and resources, and enhance and promote the image of the Department within the University.

In order to become compatible with the Bologna agreement (the 3+2+3 scheme), the Department should consider transforming its current degree programme as follows: the first three years of the current programme lead to a Bachelor degree; the fourth year of the current undergraduate programme becomes the first year of the Master programme, while the second year of the Master will be a modified version of the current Master programme. These modifications would also fit perfectly with the 5-year curriculum of the planned transformation of the Department to a Computing Engineering Department.

To the University

The relation of the Department with the University seems to be excellent. However, it is recommended that the University recognises the peculiarities of computer science as a distinct, dynamic and fast evolving discipline, and takes that into consideration in allocating resources especially for travel and renewal of equipment.

To the Government

In contrast to Greek universities, most European universities currently function under the Bologna scheme (3+2+3). It is recommended that the Government adopts the Bologna agreement, so that Greek universities become compatible with their European counterparts. This will facilitate student mobility, joint degrees and curriculum compatibility.

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UNIVERSITY OF IOANNINA

DEPARTMENT OF COMPUTER SCIENCE

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