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HELLENIC REPUBLIC

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ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

DEPARTMENT OF INFORMATICS & TELEMATICS

HAROKOPIO UNIVERSITY OF ATHENS

OPERATIONAL PROGRAMME
EDUCATION AND LIFELONG LEARNING
investing in knowledge society
MINISTRY OF EDUCATION & RELIGIOUS AFFAIRS, CULTURE & SPORTS
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External Evaluation Committee

The committee responsible for the external evaluation of the Department of Informatics & Telematics at the Harokopio University of Athens consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005:

1. Dr. Georgios B. Giannakis (Committee Chair/Coordinator)
   Department of Electrical & Computer Engineering, University of Minnesota, USA.

2. Dr. Marios D. Dikaiakos
   Department of Computer Science, University of Cyprus, Nicosia, Cyprus.

3. Dr. Haralambos Hatzakis
   Biotronics 3D Ltd., UK

4. Dr. Ilias Petrounias
   Manchester Business School, University of Manchester, UK.

Introduction

I. The External Evaluation Procedure

The External Evaluation Committee (EEC) visited the Harokopio University of Athens (HUA), Department of Informatics and Telematics (DIT) in Athens, on September 8-10, 2014.

Upon arrival, the EEC was welcomed in the University's main administration building by the University Rector, Professor Demosthenis Anagnostopoulos, and had an introductory briefing by: the Rector, the Vice Rectors (Professor Evangelia Georgitsogianni and Professor Apostolos Papadopoulos); the Secretary of the University, Dr. Anastasia Chaliapa; the Legal Counsel, Mr Nicolaos Tsoutsas; the DIT Chair, Associate Professor Malvina Vamvakari, and the Chair of the Internal Evaluation Committee, Professor Mara Nikolaidou.

Subsequently, the EEC visited the DIT premises where EEC members met with all stakeholders, including the academic staff, administrative and technical personnel, undergraduate, graduate (MSc), and PhD students, post-doctoral researchers and alumni. Furthermore, the EEC visited relevant departmental and University facilities.

In particular, this quality assessment (QA) evaluation visit to the DIT at HUA included the following activities:

i) Meetings with:

- Rector and vice rectors;

- Department Chair;

- Academics responsible for the internal QA report;

- All members of the academic staff;

- Teaching assistants and post-doctoral researchers;

- Graduate (MSc) and doctoral students;

- Undergraduate students;

- Alumni;

- Administrative personnel;

- Library staff;

- University Liaison Office;

- Stundent Councelling staff.

ii) Visits to:

- Department Secretariat Office;

- Lecture rooms;

- Teaching and research laboratories;

- University library;

- Student Counselling Office;

- Server room; and the

- Teleconference Center.

iii) Reviews of documents provided before the meeting:

- Internal evaluation report, dated March 2014;

- Erasmus ECTS guide in Greek and English, 2013-14;

- Program of post graduate studies 2011-12;

- Examples of PhD, MSc and BSc theses;

- Student questionnaire and staff-to-student-ratio related statistics;

- List of funded research projects;

- Copies of all presentation slides.

iv) Attending presentations on the following aspects of DIT:

- History and goals;

- Structure and operations;

- Infrastructures;

- Undergraduate education;

- Postgraduate education;

- Students and alumni;

- Services to students;

- Research;

- Mobility and international relations;

- Service to the community and business;

- Strategic planning;

- IT support;

- Internal evaluation support.

All documentation was of high quality, well prepared (reflecting thorough preparation) and was made available to the EEC prior to its visit. Further information that was requested by the EEC was provided along with appropriate explanations in certain cases.

All the members of the academic staff participated in the aforementioned presentations and engaged actively in subsequent discussions with EEC members, answering questions and providing requested clarifications.

Overall, the EEC felt that DIT was very positive towards the evaluation exercise. DIT staff put substantial effort in organizing the visit and provided the EEC with a detailed overview of DIT activities. The EEC wishes to commend the Department on a well-organized evaluation visit.

II. The Internal Evaluation Procedure

With a decision of the Departmental Assembly, DIT created a Departmental Evaluation Team (OM.E.A), which included both academic members of staff and student representatives

and was tasked with the responsibility of creating the appropriate structures and procedures for DIT's internal evaluation. This internal evaluation relied on an extensive set of questionnaires. Those refer to evaluation of courses, instructors, facilities, IT support and administrative services. Questionnaires were filled electronically and in certain cases they were conducted anonymously. Yearly results were analyzed and presented at DIT's Departmental Assembly to be used for improvements both in terms of teaching delivery and program coherence. The internal evaluation document and presentations given during the EEC's visit referred extensively to the procedures followed, to the number and results of questionnaires filled every year and to the level of student satisfaction with IT, laboratory and administrative support.

Student participation in the electronic questionnaire submission is deemed very good and percentages are improving year by year. They are impressive in the 3rd and 4th years of the undergraduate program and the MSc. Overall, DIT showed commitment to the process, thus recognizing that it can help in identifying potential gaps and areas of improvement. From the EEC meeting with the students there was evidence that there had been course updates to improve flow of the program and linkage between courses. Therefore, the internal evaluation procedure is working and taken seriously.

DIT should aim to continuously increase student participation. In addition, means must be developed for taking into account the feedback received from the various forms of evaluation and assessing any resulting improvement.

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

Undergraduate Program:

The objective of DIT's undergraduate curriculum is to promote and further develop Computer Science, with purported focus on telematics-related applications (e-Learning, e-Health, e-Business, e-Services) and the application of Information Technology to advancing Quality of Life. The curriculum's objective is to provide both a solid theoretical foundation and applied/laboratory training on developing software for the world-wide web, for web data and knowledge management, and for the development of telecommunication applications.

The distinct feature and competitive edge of DIT's curriculum is its strong emphasis in "training-by-doing" and the strong engagement of the faculty with students. The latter aspect differentiates the DIT educational process from most informatics departments in other Greek Universities, which cater for much larger student audiences. This emphasis has been by design, and was the major factor influencing the educational approach of DIT.

The selection of courses was influenced by standard computer science (CS) curricula published by professional societies (e.g., ACM and IEEE), and, in particular, the Computer Engineering 2004 curriculum recommendation by ACM and IEEE.

The curriculum is broadly consistent with the DIT's objectives, in the sense that it provides an extensive list of courses related to CS foundations and IT applications. These courses cover both introductory and advanced topics in CS and telecommunications-related applications.

The approach by which the curriculum was decided, could have been better articulated. EEC felt that the inclusion of some courses was influenced by areas of expertise of individual faculty members, which may not necessarily be fully aligned with the core objectives of the curriculum.

The department undertook minor revisions of its curriculum in 2006-2013 in order to induce greater flexibility and choice in the last two years of the undergraduate program. A revision process taking into account the latest ACM/IEEE recommendations is planned for summer 2015 or 2016, along with an introduction of English as language of instruction in selected undergraduate courses.

Graduate (MSc) Program:

The objective of the MSc program is to provide advanced practical training in special topics of computer science and telematics, with an emphasis on network-centric information systems, internet technologies and services, and the development of business information systems. The MSc program is structured in three discrete directions:

  i.   Internet technologies and applications;
  ii.   Advanced telecommunication systems and applications;
  iii. Information systems in business administration.

The first two specializations attract students with degrees in fields related to Computing, while the third specialization accepts also graduates with degrees in Economics and Business Administration. When designing its MSc programs, the DIT made an effort to give them a distinct identity, minimizing overlap with MSc programs offered by other Computer Science and Engineering Departments in Athens.

Doctoral Program:

DIT offers a doctoral program related to the DIT's various subject areas. Similar to other doctoral programs in Greece, the PhD in DIT entails no coursework but only research leading to a dissertation. The first graduate of the program defended her PhD in year 2010 and has since been working with the Department as research and teaching staff.

IMPLEMENTATION

Undergraduate Program:
According to the DIT, the undergraduate curriculum is organized along three main directions, seeking to provide students with:
  i. Fundamentals and core Computer Science background;
  ii. Networking and Internet Technologies;
  iii. e-Services and Telematics applications.
Courses are organized into three groups:
  i. Mathematical Foundations (5 courses offered);
  ii. Compulsory Computer Science courses (27 courses offered);
  iii. Elective courses, specializing in telematics applications (21 courses offered plus Practical Training which corresponds to 2 months of summer internship).
The required part consists of 32 courses, to be taken during the first three and a half years, 12 elective courses, to be taken during the last two years of studies, and a diploma thesis project scheduled for the fourth year of studies.

The EEC concurs with the DIT that the implementation of the curriculum could benefit from a revision to better align with the overall program's objectives and the recent updates of the ACM/IEEE model curriculum. This revision is rather overdue, and should consider the following recommendations:
  i. Streamline the overall number of courses, possibly merging related courses and increasing course effort and corresponding ECTS credits; for instance, a restructure of programming courses (Introduction to Programming, Programming I, Programming II, Object-Oriented Programming, Systems Programming) could improve the overall efficiency in teaching programming principles and skills.
  ii. In the introductory programming course, adopt a language that offers higher-level abstractions, such as Java or Python. This might help students focus more on programming principles and problem solving rather than mere syntax; further, the same programming language could be preferred over C in order to introduce later topics such as object-orientation, multi-threading and web programming.
  iii. Introduce parallel programming principles (multithreading, multicore programming, message passing) early in the programming curriculum.
  iv. Reduce the number of courses on electronics and low-layer telecommunications, as these do not align very well with the main foci of the program (web, applications).
  v. Strengthen the coupling between Probability, Statistics, Calculus and advanced CS courses (such as Artificial Intelligence and Data Mining) by: a) using practical CS examples to introduce mathematical principles; b) adding a laboratory component with state-of-the-art tools (such as Matlab and Octave) to mathematics courses, and c) using these tools to provide hands-on training in elective courses.
  vi. Re-examine the structure and sequence of courses focusing on Internet Technologies and web programming to balance teaching "fundamental" concepts (distributed programming, client-server architectures, application-layer protocols, mark-up languages, client and server-side programming, REST architectures and MVC, user interface design principles), state-of-the-art technologies and languages (Javascript,

PhP, HTML5), and cutting-edge or emerging technologies (Ruby on Rails, Cloud programming, mobile device programming on Android or IOS).

vii. Enhance the teaching of Software Engineering, both by strengthening the respective course as well as by adding a Software Engineering component in courses dedicated to Web programming and Telematics applications.

viii. Expand industrial collaborations to enable teaching of a few electives or course modules on industrial-strength open-source or proprietary platforms and tools, such as Amazon's AWS, Eclipse, Ruby on Rails, and IBM's Watson.

Last, but not least, the EEC recommends DIT to consider:

i. Adopting and enforcing the notion of course prerequisites in the curriculum. This will ensure that students enrolled in a class have comparable backgrounds, making it easier for enrolled students to follow classes, do their homework, and meet expected learning outcomes.

ii. Fully applying the ECTS principle vis-à-vis the maximum number of credits that a student can subscribe to per semester.

Overall, a systematic effort needs to be undertaken to reduce the total number of courses offered. In addition, the overall number of courses taught per faculty member is high. It should be reduced to allow enhanced effort allocated to research and funding.

Graduate (MSc) Program:

The MSc program started in 2012. It accepts full- and part-time students. The duration of full-time studies is three semesters; part-timers can graduate in six semesters. To graduate, students are required to take a total of 90 ECTS credits, attending 10 courses (60 ECTS), 1 research-orientation seminar (6 ECTS) and completing an MSc thesis (24 ECTS).

A total of 28 MSc-level courses are offered; Department faculty teaches 40% of those courses. Visiting and adjunct faculty teaches the remaining 60%.

During the last two years, the program received approximately 100 applications per year, accepting 63-64 students each year and offering fellowships to 9 MSc students per year, based on academic merit.

Finally, the DIT has established an International Advisory Committee with respected academics from outside Greece, who provide consultation on the structure and progress of the MSc program.

Doctoral Program:

The curriculum of the doctoral program does not involve any course work and is entirely focused on research. The Department has established an annual process to monitor the progress of PhD students with certain minimum quantitative (but somewhat unclear qualitative) requirements for PhD completion.

A total of 21 PhD students are currently enrolled in the PhD program, with a large percentage pursuing their degrees on a part-time basis. Unfortunately, part-time creates challenges related to timely completion, and the uninterrupted focus on research. The DIT however, is making efforts and good progress in attracting research funds that could be used to employ PhD students on a full-time basis.

The aspiration of DIT regarding the career paths of their PhD graduates is not entirely clear.

RESULTS

Based on the discussions with current students and alumni, it appears that the curriculum is highly effective in providing students with the necessary hands-on knowledge and skills in

computer programming and Internet application development. The EEC was impressed by the positive impact that the strong engagement between student and faculty had in the overall development of student skills. This is something that the students seem to enjoy, and consider to be a key differentiating aspect of the DIT program at HUA. Furthermore, the EEC was very happy to note that, according to data provided, DIT alumni performed quite well in the job market, as the majority of them managed to find jobs soon after their graduation. Also, that the Department's alumni thought highly of and cared about their school. Testament to this end is provided by the fact that many alumni showed up during the EEC visit through the word of mouth with a short notice at the end of summer.

B. Teaching

APPROACH:

The teaching methods are rather standard and appropriate for the type of degree programs offered by DIT. Teaching includes a mixture of lectures, labs and seminars. Teaching assistants support labs. There is a mixture of individual and group assignments, with the group ones much appreciated both by the EEC and the students.

The current student-to-faculty ratio is very good and in par with international standards. At the undergraduate level, this ratio is approximately 21:1; at the MSc level it is approximately 18:1. This ratio is markedly lower than other CS departments in Greece.

DIT faculty members are indeed truly approachable. All students and graduates commented very favourably on this aspect, especially as it relates to the open door policy in being readily available to answer questions and offer advice. Extra tutorials are offered to answer questions or clarify issues after the delivery of assignments. This should not be confused with 'spoon-feeding,' as it is recognized that there are a lot of elements of problem solving and extra reading required. Coursework is returned promptly and with feedback comments as well. There seems to be an excellent collaboration between students and faculty. The latter is seen as passionate about their job and the students are seeing them as permeating their enthusiasm to them as well.

DIT recently moved to a new purpose-built building. As such, both the teaching (one fully multimedia-equipped lecture theater for 120 students, one lecture theater for 50 students and two for 30 students) and lab facilities (one 35-seater fully equipped Linux, PC Lab, open until 20:00 7 days a week, one 32-seater thin clients lab open same hours, and a 10-seater iMac lab with the same opening hours) are new. They were adequate and adequately planned for the level of students accepted at the time of construction. The State-imposed increase in student numbers will put these resources under increased strain. Evidence of appreciation of these new facilities is documented in the student questionnaires in the last academic year.

Assessment is being conducted via a mixture of lab exercises, assignments, and final written examinations. All courses have the latter. There is a compulsory practical/development dissertation performed over two semesters. Over the last two years, DIT has introduced an optional, credit-bearing, practical training in industry. This is deemed very useful by students, some of who even voiced the opinion that it should even be made compulsory. It certainly adds valuable experience to those who choose to take it. The MSc program comprises three specializations, two of which mention 'applications' in their title. Yet, the program learning outcomes emphasize less the applications part. This could be a missed opportunity, which would allow differentiation of DIT from other CS departments in Greece.

IMPLEMENTATION

Teaching runs smoothly and this is corroborated by the students. There is a faculty member for student advising per academic year, although students feel that they can seek help from any faculty member. The undergraduate program handbook is thorough, but could also include weights on course requirements. In addition, reading lists could benefit from regular updates. The Library does provide copies of standard textbooks and is in contact with DIT regarding course needs and new texts. Students do use the library to borrow textbooks,

according to the Librarian, while lecture Powerpoint presentations, additional reading material and resources are made available online.

There is evidence of linking research with teaching in later years of the undergraduate and MSc programs; e.g., on mobile computing, and very large data management.

Erasmus and Erasmus+ collaborations are in place with other EU Universities. Several students have taken advantage of this and others plan to do so over the coming academic year. However, incoming students present a challenge as the undergraduate handbook is in English but instruction is entirely in Greek. DIT considers offering a number of MSc courses in English to attract foreign students. DIT relies on external instructors to teach about 60% of the MSc courses. Students identify no major differences in quality between these and DIT faculty. In addition, DIT uses visiting external international academic staff for guest lectures. Mobility of DIT academic staff abroad could be improved. Evaluation by the students of the quality of teaching, facilities and resources is very positive and is improving year on year.

It is highly commendable that courses are taught as prescribed in their syllabi, and without any hours lost or shortcuts due to e.g., student strikes. This is something that will give potential employers confidence that students indeed possess the knowledge that the programs state. DIT should consider bringing employers to talk to students about skills that they require from graduates. These may range from CV writing to general employability skills. HUA offers a general service, which students can visit on a voluntary basis to receive such advice, but EEC feels that DIT should consider incorporating this aspect into their undergraduate and MSc programs.

RESULTS

From an academic point of view, the low student-to-faculty ratio makes for an ideal teaching environment. Students are extremely positive about it and they see it as a major reason for studying at DIT. About 94% of graduates find related jobs within 6 months of graduation, 4% within 12 months, while the rest 2% are doing their military service. Given the current economic climate, this statistic is truly impressive. A good 26% of students graduate on time (4 years), 69% within 5 years, 75% within 6 years. Average degree grade for those graduating on time is 8.0, for those graduating in 5 years is 7.0, and for those graduating in 6 years is 6.75. These figures are not unexpected, since students who take longer to complete their degrees are weaker and, therefore, one would expect their final degree grade to be lower.

IMPROVEMENT

DIT does not plan (and may not need) 'wholesale changes' in conducting its teaching. It has seen an increase in student numbers imposed on it by the State, and the way that this has been handled so far is by teaching the same material twice or three times in smaller classes.

DIT monitors latest technology (namely recording of lectures, online courses), and will consider possible adoption of these initiatives. Piloting of videos and recording of lectures has already taken place and is welcome by students and faculty. DIT also considers delivery of some MSc courses in English to attract also Erasmus students. DIT needs to carefully consider time and cost implications of development of online courses. Gain-loss analysis is due if some courses are to be taught in English. DIT has a number of international guest lecturers. These should continue, and increase but also complemented by more seminar speakers from Industry.

MSc specializations exhibit less overlap than what a number of students desire in order to gain business and entrepreneurship skills, or, improved appreciation of technologies.

DIT needs to consider any potential impact on attendance as well as any legal implications of recording and videoing of lectures from both staff and student perspectives (permissions from both sides may be required).

Research

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

APPROACH

According to the internal report and the research-related presentation, the DIT aims at high-quality research with clear identity and concrete thrusts of specialization, having as ultimate goal to put this "research-wise young" department in the highly-visible radar screen nationally and internationally. The approach purports also monitoring mechanisms and policies to define the DIT research foci; a framework to facilitate and secure external funding; disseminate results; and, ensure responsible research in accordance with established codes of contact. The claimed thrusts include design and implementation of e-services and their impact to society, information and telecommunication systems to support these services, and development of Internet and networking technologies to interconnect these systems.

Discussions with students suggests that there are only a few organized research teams with (under/post) graduate students and faculty. Metrics and lack of research presentations from faculty testify that the DIT is at its initial phase as far as research and development efforts are concerned. Few groups are formed and among the active ones about a third is on areas at the "fringes" of DIT research thrusts; e.g., research topics related to electronics and PHY-layer optical telecommunications are typically met in Electrical Engineering Departments. While excellence is welcome even in peripheral IT areas, this may bias the strategic definition of DIT's research identity, which could affect future research streams, as well as faculty hires.

From the internal evaluation report too it turns out that the DIT does not yet have thorough internal standards for research assessment. In fact, there is no institutional capacity to collect comprehensive and comparative research information enabling quantitative research expenditures and outcomes.

IMPLEMENTATION

The research carried by DIT is documented in journal and conference publications, it is recognized through third-party references, and it is supported by a growing number of research grants. Being at its infancy, the faculty research performance is well above average in numbers (5 publications per faculty per year), about a third in high-quality venues, but with relatively low student participation (about one student/researcher per faculty member).

Cross citations (exceeding 45 per faculty member) is high for the stage of the department, but this number was neither cross-validated by Google Scholar nor by H-indices of the faculty members (both searches showed low scores for the DIT faculty). Even though the funding per faculty per year is currently average (35K/year/faculty), the DIT exhibits very encouraging growth in funding efforts and success rates in securing external funds from diverse national and international sources (8 projects funded in the last year alone with 9 out

of 11 faculty members participating).

The department/university offers travel support to attend one conference per faculty per year, which is complemented by projects and MSc program funds, thus allowing each faculty member to attend up to three meetings per year. The department provides laboratory space and networking infrastructure that is certainly sufficient to carry out the planned research efforts. A challenge could be the lapse of subscriptions to journals that researchers may request from the library, and which are not covered by the Hellenic Academic Libraries consortium.

Albeit promoting application services and student expertise in the curriculum, DIT does not seem to have funded projects from industrial partners.

There are limited institutional research collaborations within HUA and with other (non-) Greek universities. However, there are individual collaborations with universities both abroad and in Greece. One would expect more collaborations within DIT, as well as among DIT faculty and with the popular HUA departments of Nutrition, Geography, Home Economics and Ecology.

RESULTS

With only 3-4 years since the MSc program started and only one PhD student graduated, it is premature to report on solid research results of any department worldwide. However, the DIT has taken concrete steps to initialize its research and dissemination procedures, as well as demonstrate persistent efforts and success in securing funds from external sources. The DIT faculty have started to put together thorough procedures to assess and monitor research productivity, and they have done their part in simplifying and coordinating grant submission efforts. Further, being aware of the need to improve visibility of the department, most faculty members have been aggressively submitting papers and participate in international conferences in Informatics. They are also well cognizant of the need to permeate these research efforts, improve their visibility, consent, and have all faculty members participate in order to boost their research profile in the near future – a challenging task if one takes into account the stringent financial conditions of the country coupled with the increased student enrolment without commensurate increase in faculty members and resources.

Some of the factors that are inhibiting the achievement of better research outcomes include the limited levels of funding, which leads most PhD students to work part-time; the lack of critical mass and large teams with complementary competencies pursuing common research goals; a differentiating research profile and/or flagship projects; and, the minimal number of DIT faculty. The scientific publication record of the department varies in quality and quantity depending on the area, although especially junior faculty exhibit a positive gradient in this regard. There are relatively few publications in world-class journals and conferences, and more publications in less visible venues. There is no critical mass of collaborating faculty across the different constituent knowledge areas of the department to leverage the unique composition of the faculty. It would be nice to see high-visibility applied projects to go along the Department's claimed niche of Applied Informatics.

In terms of research excellence and international recognition, the signs are truly positive, but the department should continue to raise the quality and visibility of its research by targeting high-quality and selective international conferences, which will further improve objective publication metrics (aim also for visible paper awards and related recognitions). In addition, hire strategically to build critical mass, not only to cover teaching needs in response to the increased enrolment, but also to attract competitive research projects from the EU (suggested areas include artificial intelligence, security, computer vision, and big data

analytics).
IMPROVEMENT The DIT wishes to improve its research profile by solidifying its identity and revealing research foci of excellence. Further, it is poised to improve its research quality as assessed by standard metrics, and develop international collaborations by enhancing the mobility of its students and faculty, as well as through joint research proposals and grants. Their goal to raise external funding to 500K Euros/year, reduce overhead of grant submission procedures, and improve the PhD and postdoc mentoring programs are highly commendable. However, these plans need to be well thought out and formulated, and more importantly they need to be based on a well-defined strategic plan that sets the Department's overall research identity, promotes excellence (as measured by h-index of faculty and placement of graduates), and differentiates them from other IT departments in the Athens area (5-6 AEI and 2-3 TEI).

D. All Other Services

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

APPROACH

The fairly new DIT has inherited a rich tradition of good teaching practices, work ethics and operations from HUA, one of the older educational establishments in Athens. The Department, hosted in a brand new six-floor building, outside but close to the main University campus, provides clean, modern and well-equipped spaces. The quality of the working environment, free of problems common to the Greek Academic environment (such as student strikes, missed lectures, lack of proper infrastructure etc.), has provided a very positive experience for the students and academics and it has been commented frequently during the EEC visit, stressed as one the main differentiators of the Department.

EEC noted the enthusiasm and strong commitment of the Chairperson and her team in establishing effective administrative procedures and an "open door policy" for the students. The fairly low students-to-faculty ratio, combined with the young age of the teaching personnel and a sense of a close and growing community has assisted in promoting and implementing this strategy, which in return has proven to be highly attractive for students.

Most of the administrative procedures are currently tasked to the Department's faculty. There is no structure, policy or budget for work-studies (students assisting in low-level administrative tasks). Introducing that may reduce admin workload to the members of the faculty, and help them focus to more strategic directions and other academic tasks. The University also supports the Department via a number of centralized services such as career office, library, IT support, legal and financial teams. EEC noted comments from students for the lack of catering facilities within the campus, which we understand is in the process of being resolved via the procurement of outsourced catering.

The Student Counseling office is truly an asset for HUA and highly commendable. This is a free service operating for almost 10 years within the University campus, dealing with a number of issues such as personal relationships, work related stress, psychological disorders, and disabilities. This service, not common to most Greek Universities, has justified its existence and represents a model for other Institutions.

IMPLEMENTATION AND RESULTS

The DIT houses two computing laboratories (one equipped with 35 modern PC workstations and one with 10 MAC workstations), a well-equipped electronics lab with 36 workstations, and a thin client lab with 32 workstations. All facilities endorse adequate open access policy for the students. A large (120 attendees) lecture theater with multimedia equipment and 3 modern and well-equipped classrooms are available for lectures.

Information technology (IT) support is currently managed and provided mainly from the University's support team. The DIT maintains agreements with Microsoft, SAP and Oracle for academic licensing. Internet Wi-Fi access is also provided throughout the Department.

There was no evidence for the provision of extra curriculum activities such as sports or social clubs. Hygienic conditions throughout the building were excellent. The presence of building

security is also a plus.

DIT aims to use more electronic and online systems for inter- and intra-departmental communication and other activities such as document management, workflow and procedure management and library access. There is a strategy to experiment with the provision of online access to recorded lectures.

The EEC noted that the current organization and infrastructure of the DIT's administration is effective for the current size of the department, but may not scale effectively to support future growth. An area of potential improvement concerns quality assurance activities, which currently appear to be ad hoc.

IMPROVEMENTS

The DIT should assess and carefully consider future administrative needs as its programs grow with the introduction of new MSc courses and research activities, and the state-imposed influx of a much larger number of students that will increase the student-to-faculty ratio.

It is EEC's observation that the department is facing the common challenges of a fast growing organization with the imminent need to structure better its operations to support future growth. The faculty expects completion of the first cycle of operations later this year, upon which, certain decisions for changes could be taken and implemented.

Support for IP exploitation (e.g., spin offs and licensing agreements) should be also considered as part of a growth strategy. This is further encouraged by the involvement in current and future EU projects; protecting and commercializing generated IP is a key demand for FP7 and H2020 sponsored research activities.

Collaboration with social, cultural and production organizations

One of the strategic planned aims of the DIT is to foster collaborations with social, cultural and production organizations in the local, national and international community. This is both in the founding principles and the vision of the School, and the extended focus on Applied Informatics in the program descriptions. However, no ample evidence of such links were provided during EEC's visit.

It is commendable that attempts have been made to engage the local (Singular, Alpha Bank) and the international industry (Siemens) by seeking visiting lecturers and by collaborating in research. The DIT hosts the annual ICT forum that attracts more than 500 attendees from the local ICT community, has hosted FOSSCOM 2013 (the free and open source meeting) and the 1st Open Data Hackathon in 2014. Six student projects received Innovation awards.

Most of the outreach activities were coordinated at DIT and at HUA levels, but so far they have relied heavily on personal contacts of the Faculty with Industry. However, EEC recommends a more proactive and structured approach to fostering those links with the industry and the local community, for example by:

- Approaching local companies to submit projects for and supervising MSc students and in general interacting more at the Department's events and activities;
- Making several presentations to the industry, articulating the unique differentiators

and capabilities of DIT and seeking input in creating curriculum better fit to the market needs;

- Proactively contacting local startups within the informatics market segment and other social and cultural bodies and by organizing more seminars tailored for companies and employees.

In order to promote such activities, the DIT may utilize HUA's infrastructure, such as larger auditoriums, meeting rooms and facilities, and other available resources such as the Business Liaison Office.

It is also noteworthy that during the meetings with undergraduate and graduate students, awareness of entrepreneurship was not obvious to the EEC, which is something that DIT may want to consider in its strategic aims of the MSc program and the vision of HUA altogether.

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 DIT is a new Department within an older and well-established academic institution. In the first 8 years of operations, it has tried to create a unique identity within Informatics and Academia in Athens, Greece and abroad. To a certain extent, there is evidence to support that this goal has been partly achieved. This is outlined by the ability to attract Greek and European research funds and the oversubscribed applications for entry to the MSc programs (2:1). However, stronger identity is needed with respect to academic positioning.

The Department has now reached a stage where strategic decisions for growth must be taken and implemented. After 8 years of operations, there is enough educational and research output to allow a critical overview of the current operations and identify improvements where possible. The expected increase in the number of students without the proportionate increase in faculty will result in upsetting the low ratio of student vs academics with potential negative impact to the quality of education and research output. It is a concern how the department will be able to cope and adapt to this growth.

EEC noted that the faculty members collectively consider those future challenges, and have established a short-term (2014-2018) growth plan. According to this plan:

1. The three main goals of the department remain the same (the provision of high quality of education, the promotion of good research and the enhancement of the Department's identity within the Academic community). Growth is expected within 4 cornerstones: Infrastructure, Teaching, Research and Collaborations.

2. Well-defined metrics are established and actions and timelines are proposed for the implementation of the strategy.

3. Comprehensive SWOT (Strengths-Weakness-Opportunities-Threats) analyses were conducted for the current position and for each of the strategic cornerstones that define growth according to the faculty.

All faculty members are optimistic for the sustainability, growth and further success and international recognition of the Department and expect that the graduates will have an important role in international research activities and the economic recovery of the country.

The EEC congratulates the faculty for the substantial effort invested in defining the future of DIT and putting together such a concrete plan for how to achieve that. EEC finds the goals and the implementation strategy are mostly reasonable and has the following comments:

1. The emphasis on improving the quality of research output and education should be maintained and not sacrificed in an attempt to achieving quantitative targets that sometimes appeared unrealistic.

2. A coherent strategy for increasing collaborations with local and international companies and mainly SMEs (Small and Medium Enterprises) is not clearly defined, which, in our opinion should be one of the main goals of the department.

3. The substantially increased number of new students in the next years without commensurate increase of resources will necessitate a new way of working and a far more streamlined and efficient workflow to be adopted. It is unclear in the current growth strategy how the Department will be able to cope with that.

F. Final Conclusions and recommendations of the EEC

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

Executive Summary

All in all, the DIT has had a very successful initial phase especially in offering high-quality education in Informatics, thus fully justifying the value of resources invested by the University and the State in its growth and expansion. The challenges ahead are many, particularly in this stringent financial times that the country is going through, but must be addressed if DIT-HUA is to take the next steps that should mainly focused in enhancing collaborations in various directions, boosting its visibility, and scaling up its profile in research, funding, and outreach.

Toward these goals, the DIT could benefit from further clarifying and clearly articulating its identity. This is important for a number of reasons. It is needed in order to: (i) position itself in terms of its research; (ii) to attract strong new faculty, when financial conditions allow, that fit with this identity; (iii) to recruit non-DIT/HUA PhD candidates; and (iv) to position and market DIT programs at the undergraduate and MSc levels. The EEC appreciates that there are a large number of pending faculty appointments. Nonetheless, this issue should be resolved now rather than wait until positions are filled. DIT works toward developing a clear vision. It is positioned in an area where technology is fast moving and the defined identity will evolve. While crystalizing this vision is something that needs careful consideration and many discussions, it will certainly increase the visibility and competitive edge of DIT.

DIT has initiated some collaborations with other HUA Departments. It needs to strengthen those and reach out across other Institutions, thus promoting its strengths and complementing them with other groups' expertise.

Specific Recommendations follow.

Recommendations for Curriculum

1. The department needs to establish a permanent curriculum committee, whose first task should be to redesign its undergraduate curriculum. This redesign needs to be informed by (i) surveying both the needs of the industry within Greece and EU in general, (ii) the cross-disciplinary nature of the department's educational mission and objectives, and (iii) the courses been offered by other Universities.

2. The redesign should create a curriculum that (i) reduces the number of required courses to just those that are truly at the core of the various sub-fields of study, (ii) differentiates it from other more traditional departments, (iii) provides a rich set of elective courses that will foster specialization, and (iv) reduces the frequency by which it offers some of the elective courses.

3. The new curriculum should streamline courses currently not at the core of the CS program. If these are required for graduate student training, they should be offered at the graduate level.

Recommendations for Teaching

1. With respect to teaching the EEC believes that DIT is to be commended for the way that it approaches teaching. However, EEC believes that given the challenges that DIT faces and its current strategic plan, DIT needs to seriously evaluate and consider whether this is the only and most efficient way to provide high quality education or whether the same quality can be achieved in other ways.

Recommendations for Research

1. The EEC recommends fostering cross-disciplinary research via well-integrated research groups, and continuously growing research funding. This should not come at the expense of pursuing excellence in individual faculty members' core research fields, but in combination with it. The department should create reward mechanisms for engaging in such research and recognize the risks and additional time costs (vis-à-vis teaching duties) required to establish such collaborations. Discussions with industry on how to apply DIT results on particular problems that are of relevance to them would be a first step to establishing exciting cross culture.

2. The department should identify strategic areas in which it can achieve excellence and acquire critical mass (especially given the constraints on new faculty hirings). These groups should be cross-disciplinary in nature so that faculty members with cohesive interests and complementary strengths are brought in close "proximity" to interact. Consider priority hires in AI, Security, Vision/Graphics, and Data Analytics with emphasis on Nutrition- and Home-Informatics to complement HUA strengths.

3. Faculty should be encouraged to apply for EU and other overseas sources of funding to the largest extent possible. A culture of "revise-reposition-and-resubmit" should be encouraged. Grant writing workshops, visits to funding agencies and conversations with program managers should be facilitated. Junior faculty would benefit immensely from mentoring by senior faculty on assembling proposals and partnerships. If such capacity does not exist in the department's senior faculty, they should use their professional network to identify appropriate mentors in other institutions.

4. The department should aim to increase its research visibility and impact by encouraging and rewarding publications in top journals and conferences, as well as targeting prestigious awards. Possible ways would be to have faculty create pages on Google Scholar, and also highlight their major research results and publications in the department's web site, which could also include publication metrics.

5. The international visibility of the department should be raised with collaborations with high-ranked institutions. Faculty or student mobility/stays in such institutions with as much financial support as the fiscal circumstances would allow.

Recommendations for Other Services

1. The Department needs to consider adapting its current administrative methods, anticipating the increase of student numbers without proportional increase in resources. Certain tools could be considered, including better use of technologies for streamlining efficient operations.

2. The Department needs to create a committee on knowledge transfer partnership (KTP). The role of this committee should be to foster and create collaborations with

industrial and social partners with priority to local SME organisations.

3. External Industrial Advisory Committee (EIAC): In order to create better cohesion with the local economy, an EIAC should be established, recruiting from the pool of local successful entrepreneurs, in the field of business informatics, ideally from the Alumni population of the Department. This new committee should be given authorities and opportunities to participate in establishing, implementing and monitoring the strategic plans of the department, including quality controls, changes to the curriculum, and input to research direction.

4. The Department should establish methods to inspire the new generation of entrepreneurs in Athens. One of the desired outcomes and strategic targets should be to produce young entrepreneurs starting new business ventures in the general field of business informatics. Our observation, based on the percentage of graduates with aspirations to start businesses, is that the Department could improve in this direction. Although, we appreciate that the current financial situation appears to prohibit the creation of new ventures, success to this objective is critical for the local society. Certain actions could be considered (perhaps in collaboration with other Institutions) that may lead to that, such as:

   a. Annual business plan competitions open to undergraduates and postgraduates with financial and/or academic merit prices and rewards.

   b. The creation of an incubator to assist new graduates entrepreneurs with the creation and growth of start-up companies.

   c. The creation of a group of private or institutional investors with desire to potentially invest in similar start-up commercial activities.

5. The Department should methodically foster a much stronger relationship with its Alumni. An Alumni Committee should be created to systematically manage relationships. Frequent communication with its alumni should create mechanisms and opportunities to leverage further outward looking activities, resulting to the creation of collaborations with external entities. Recommended alumni activities could include the creation and dissemination of a newsletter, with current news, case studies, and success stories.

6. The Department should create a Social Sustainability Mission and lead by example in creating social related activities for the benefit of the society with emphasis to the local society. Often initiatives on social sustainability have a philanthropy or society integration core (both can be desirable contribution to the current society challenges). The new generation of entrepreneurs should be realised early on, and be inspired, by the notion that the boundaries of work and higher purpose are merging into one, and doing good is really good for business. Faculty members should teach that by example, and even create a structure to promote such notions.

The Members of the Committee

    Name and Surname   Signature

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