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HELLENIC REPUBLIC
H.Q.A.
 HELLENIC QUALITY ASSURANCE AND
 ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

DEPARTMENT OF FINANCIAL AND MANAGEMENT ENGINEERING

UNIVERSITY OF THE AEGEAN

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External Evaluation Committee

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

1. **Prof. Nikolaos Georgantzis**, Professor in Behavioral Economics, Agriculture Policy and Development, University of Reading, Reading, United Kingdom
2. **Prof. Anthimos Georgiadis**, Professor of Process Measurement Technology and Intelligent Systems, Leuphana University Luneburg, Luneburg, Germany
3. **Prof. Andy Koronios**, Professor, Head of the School of Information Technology & Management Science, Division of Information Technology, Engineering & the Environment, University of South Australia, Adelaide, South Australia
4. **Prof. John C. Papageorgiou**, Professor (Retired), Management Science and Information Systems Department, College of Management, University of Massachusetts Boston, Boston, Massachusetts, U.S.A. (**Coordinator**)

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 HQA made available to the External Evaluation Committee (the *EEC*) information about the Department of Financial and Management Engineering (FME, the *Department*) for early preparation of the evaluation. The internal evaluation report presented useful information used by the EEC as the basis of the factual evidence.

The EEC visited the Department from Monday 24/2/2014 to Wednesday 26/2/2014. Upon arrival at Chios, the Committee members were met by FME faculty members the Dean of the School, Prof. D. Lagos, and the Vice Rector, Prof. Ioannis Kallas. On behalf of the Faculty, participants included the Head of the Department, Prof. A. Dimakis, Dr. G. Liagouras (Deputy Head of Department), Professors I. Minis and G. Dounias and Associate Professors S. Golfinopoulos, and K. Papageorgiou. An introduction was made by the Vice Rector on the situation in the University as a whole, and the Dean made a shorter introduction to the School. During his presentation, the Vice Rector gave a general overview of the situation at the University of the Aegean and its characteristics, among which they distinguish its endeavour to achieve research and teaching excellence and internationalization. The University is among the largest in Greece, located on six different islands. It was made clear that the innovativeness of the subjects studied and the interdisciplinary approaches to teaching and research constitute the distinctive features of the Institution. On the less positive side, the University's location on different islands creates a constant administrative and organizational challenge. However, when the University participants were asked on the possibility of concentrating the different schools in one location, they seem to recognize some positive aspects in the present structure. Benefits of the actual decentralized location seem to be related to the development of the area and the country as a whole, as well as to the development of "local solutions and know how". A straightforward benefit was emphasized, related to the fact that a distant location at a low population area implies a beneficial span of origins of the people attracted to study and work at the department and the need for specialization with respect to other engineering departments. Several other aspects were discussed including facilities offered to the students, international collaborations, etc.

Following the meeting, a dinner organized by the department followed.

On 25/2/2014, the EEC met all the faculty members and administrative staff of the

Department. Several presentations followed, which were also made available to the EEC online for easier reference. Although presentations were made by individual faculty members, the contents had been previously reviewed and approved by the department. Dr Liagouras presented a general introduction of the department, followed by Prof. Minis on more specific issues. The identity of the department is defined by its orientation towards solving problems of Economics and Administration using engineering approaches. A negative trend in entry marks was discussed and explained as the result of an increase in the numbers of admissible students imposed by the state. The increasing preference of undergraduate candidates confirms a positive evolution of the department's reputation and attractiveness. However, it was observed by the EEC that the numbers of faculty members do not reproduce the shares of subjects in the undergraduate program. A first mention was made by the EEC to a possible weakness regarding the representation of Economics and Management areas in the composition of the department. On the contrary, the areas seem sufficiently represented in the ECTS credits of the program. Another weakness was discussed by both the EEC and Faculty regarding the shift of the students' evaluation system towards an online format which has led to decreases in response statistics and the overall quality of the process.

The Faculty was open to all the observations and suggestions made during the presentations and reminded their continuous efforts to revise and improve the program through a more practical orientation, although they felt that the present structure is mature and sustainable for the next 5 years.

A coffee break took place between 12:00 and 12:20.

EEC member Professor Anthimos Georgiadis explained the current German system as a benchmark. The EEC coordinator Professor Yiannis Papageorgiou mentioned the need for the establishment of a system of pre-requisite courses. Some discussion on this followed with some support for pre-requisites, and some specific reservations related to the numbers of students per class.

Dr. Spyros Golfopoulos presented the part on students' in-service-training. It seems quite well organized and oriented to experience, CV and practice knowledge building among the students, although not all students can participate in the program, due to limited availability of places. A nation-wide web page is also available for info on the institutions offered for the stage. Supervision by Faculty members seems efficient and well organized. A negative aspect, not attributable to the Department's action seems to be that while a strict regulation seems to exist regarding the need for a paid Stage, payment methods are inefficient, leading to substantial delays in the actual money transfer to the students.

Dr. Liagouras presented data on the labor market insertion of graduates and graduate students. A recurrent issue was the professional recognition of graduates by professional associations (*Τεχνικό Επιμελητήριο*). Regarding this, they have not reached an actual convergence except for the case of the Economists' Association. Despite that, the Department has similar salary expectations and employability records to pre-existing well-known departments. Special mention was made to the Department's success in placements in the private sector. This was recognized by the EEC as a particularly positive result within the current economic situation in Greece and the need for a private sector-oriented search in the labour market. Thus, the lack of recognition by the specific professional associations may have created a positive pressure for labour market search over a broader spectrum of professional profiles and a larger geographic span.

The survey carried out so far has proved a useful tool for the assessment of the Department's effectiveness and the EEC proposed its long term adoption as a longitudinal study.

Prof. Dounias made the following presentation on the postgraduate program, which started 9 years ago. Orientation is towards providing students with knowledge sufficient to functioning in real-world problem-solving. The structure follows the international standards. A one-year, program with 60 ECTS credits in two different itineraries was chosen to satisfy demand and supply-side desiderata. A 20% of the courses are taught in English and the percentage is increasing. Some ideas were discussed regarding the possibility of collaboration with departments in high demand areas, like Athens. The PhD is organized in standard way for the usual international practices. Few PhDs have completed (8) and 19 are still active.

A lunch break took place between 15:00 and 16:00.

Following this, the Department's research was presented by Associate Prof. Papageorgiou. Results are very satisfactory including 15.000 citations to the approximately 1000 articles and communications presented by the Faculty members. Research is organized and decentralized through the research labs (DeOPSys, MDE-Lab, ΕΕΦΕ, ΕΠΙΠΤ, IDEAL, REL and I4M). Presentations specific to each lab were made. Some impressive results include involvement in the ATLAS project of the CERN experiment and a 2nd prize in an international competition with 50.000 participants. It was noted however, that there is no internal committee centrally planning or coordinating research across labs except for ad hoc synergies, raised mainly for specific projects. Furthermore, the EEC members commented on the need for an evaluation of the impacts according to usual indices like cost reductions, labour creation, dissemination, and patents, to name a few.

The last presentation by Dr. Natasa Konstantelou (the only female faculty member)

ends with Weaknesses and Strengths, based on the preceding information. According to the EEC, some of the Opportunities and Threats mentioned can be used to form a strategic plan. They recognize the need for a synergic management of partial efforts. For example, a forum of discussion of partial team results could enhance the understanding of researchers across disciplines.

Finally, the EEC coordinator, Professor Yiannis Papageorgiou comments on the very strong and positive impression obtained so far, despite the difficulties emerging from the peripheral location.

On the 26/2/2014, the EEC met with the administrative staff (led by Mrs. Monogioudi) who presented themselves and their duty assignments. They appear to be happy with their duty and responsibilities, although the EEC members observed that they are rather over-qualified, as they all have university degrees and even postgraduate studies, including a PhD, whereas they are not involved in “enterprise” or other more strategic tasks which could fit better to their qualifications rather than their current excessive occupation with the application of the fast changing law. The level of e-administration adoption is rather low and several improvements were discussed by the EEC and the staff.

Next, the EEC met with representatives of the local institutions and authorities.

The Deputy Mayor (*Αντιδήμαρχος*) made an introduction on the need for a broader opening of the university towards the local society. Other participants seem aware of the Department’s endeavour to become recognized by the *Τεχνικό Επιμελητήριο*. Also, others complain that the state has not promoted too much of a development plan. Thus, the Department’s role as a motor of development may have been undermined. A committee for the linkage between the University and local society (*Επιτροπή Διασύνδεσης*) has been created to increase the social impact of the University. Despite the positive and enthusiastic attitude of the participants towards the University, the EEC noted skepticism and even opposition by some of the participants regarding the presence of the local community as a source of private funding and donations, which although not absent, seems to be limited considering the economic potential of the island of Chios. Specifically, some of the buildings donated to the University have not produced the expected benefits due to administrative obstacles. A major point of University-Society interaction which received enthusiastic comments by all the participants is the link between the Physics Lab led by Prof. Gkialas and the local Association of Physicists which has brought closer the academic and the secondary education practice in Physics with significant benefits. Another point of interaction regards sport activities in which the Department has a strong presence in trophies like the 5 Intramural Basketball Championships won in a row.

Following a lunch break, the EEC met with 25 students, of which 5 were PhD students. Students spoke spontaneously about several problems they wanted to report. They admitted that some problems existing in the previous structure (under extinction) have been solved in posterior reforms. However, food quality in the subsidized restaurants has decreased and the number of eligible students is kept inefficiently low, given the low levels of usage observed so far. Also some problems with the quality of free housing provided to eligible students also received some criticism with respect to heating and the funding of it. Other problems were mentioned like some specific textbooks which are translations of textbooks in English and the structure of the course time table, fitting too many hours of the same course on the same day of the week.

Following a brief lunch break, the EEC visited the labs in situ. The Heads of the Labs, Senior Researchers and PhD students offered detailed presentations and demonstrations of the research carried out. A very detailed account was given on the ongoing research and projects undertaken in each one of the labs.

Before departing to Athens, the EEC met the faculty members to offer a first oral presentation of the overall impression. First of all, the level of knowledge transferred is very high. However, difficulties due to the peripheral location can be considered too. Furthermore, the balance should be reconsidered across the constituent subjects of Faculty and Curriculum composition. Probably, too many courses are offered. Considering its short life, the Department has a satisfactory to very satisfactory performance.

Overall, the external evaluation visit took place in a highly professional but equally cordial and collegial atmosphere. The Committee members are unanimous in wishing to express in writing their gratitude and appreciation to all the faculty, staff and students of the Department for their excellent hospitality, collaboration and help with all aspects of the evaluation visit, without which this evaluation would not have been possible. The Committee is also tankful to HQA for the logistical support and co-ordination.

II. The Internal Evaluation Procedure

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

The Committee was provided with adequate documentation on all relevant aspects of the Department's operations. In addition, the Committee was presented with a copy of the most recent Department's Internal Evaluation Report that was thorough, detailed, comprehensive, and informative.

The internal committee responsible for preparing the Internal Evaluation Report had performed a good job in collecting the available data, organizing it in very useful forms for the Committee and summarily presenting it.

A. Curriculum

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

Undergraduate Program

APPROACH

- What are the goals and objectives of the Curriculum? What is the plan for achieving them?
- How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?
- Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?
- How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted ?
- Has the unit set a procedure for the revision of the curriculum?

This is a multidisciplinary program and the Committee would like to commend the Department for this curriculum innovation. According to the text of the inception of the Department, its *graduates' main occupation is the design of structure, management and operation of modern technological and administrative systems* “and the can be employed *“either as executives or as consultants in the sectors of organization and administration of production and services, system design of private as well as public institutions”*. The curriculum is based on similar programs of universities in the United States with less content of science and engineering courses, and of European universities with heavier content of science and engineering courses. This program has followed a middle course. It started in 2000-01 following discussions in a conference and with experts; and it was reviewed in another conference in 2003. There are currently 736 students enrolled and so far 244 students have graduated. There seems to exist a stable negative trend in entry student marks. The Department’s representatives say that this is due to the increase of the number of students imposed by the Government. The Government imposes

the number but not the quality. Our committee did not investigate the reason for it.

In pursue of his goal, the curriculum has been built around four academic disciplines: 1) Science and Engineering; 2) Finance; 3) Management; 4) Economics. On the basis of this academic preparation, the graduates are expected to work in the following areas, as listed in the FME Evaluation Report 2011-12: Design and/or management of production and/or service systems, such as financial products and strategies; specialists in cost analysis, evaluation of investment alternatives, business plans, projects, business processes and operations, technological and organizational innovations, economic-technical studies, management information systems, detection and management of threats, electronic markets, complex public service systems (national health systems, education, insurance, etc.) A more detailed listing of prospective jobs is given in the web page of the Department: *Cost analysis, budget control; environmental ramifications of industrial and financial systems; information technology, including computer programming, networks and data bases; financial feasibility analysis of information technology applications; scientific analysis and processing of data and information; general financial, social, economic, organization and business studies.*

The EEC notices that 14 out of the required 41 core courses belong to the area of Physics and Chemistry. It is obvious that this area in the curriculum is over weighted for the careers of the graduates as mentioned above. Other problematic areas in the curriculum, which were also mentioned by the students, is the relatively inadequate sequence of courses on the basis of prerequisites, which creates problems in the understanding of the material in some courses; and the delivery of courses in 3-hour time frames, which makes it difficult for the students to absorb the material. The academically normal approach abroad for a 3-hour course is to be taught in at least two different days of the week in undergraduate programs, so that the students have the opportunity to study and learn the material before they are exposed to the next topic.

Although the Department has a multi-discipline approach, the EEC notices the lack of a significant offering of interdepartmental concentrations and/or sharing of courses with the other two departments, particularly with the Department of Shipping, Trade and Transport. Also, the interdisciplinary approach of the program creates some confusion with respect to the identity of the character of the program and its graduates, particularly as perceived by the broad community. It should be noted that the local community, as it was observed during the committee's meeting with its representatives, perceives the department very favorably as a conduit for their business and economic development rather than as engineers.

Issues concerning the revision of the curriculum relay on the department's board. No continuous mechanism for it has been mentioned.

IMPLEMENTATION

- How effectively is the Department's goal implemented by the curriculum?
- How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?
- Is the structure of the curriculum rational and clearly articulated?

- Is the curriculum coherent and functional?
- Is the material for each course appropriate and the time offered sufficient?
- Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?

There are 14 appointed faculty members and 2 more to be appointed; and an additional 16 faculty members on contract. This is a significantly lower level of staffing than that provided in the law at the time of the creation of the Department. This shortage of staffing, combined with classroom shortages, is creating problems with the delivery of the courses in such a multi-disciplinary program, such as the sequencing of courses with prerequisites, the delivery of all the courses in the curriculum, the class sizes through the delivery of courses in multi-sections, and so on. The existing staff is very qualified to deliver the curriculum and implement its multi-disciplinary goal; and they regularly review and revise their courses.

As noted above, this curriculum follows neither the US nor the European model. As a result, this does not offer a clear identity of the program and its graduates, as perceived by the public. Also, as noted above, there is a discrepancy between the relatively disproportional amount of knowledge gained by the students in science and engineering and the actual job descriptions of the jobs the students are directed to as described by the Department.

RESULTS

- How well is the implementation achieving the Department's predefined goals and objectives?
- If not, why is it so? How is this problem dealt with?
- Does the Department understand why and how it achieved or failed to achieve these results?
- How well is the implementation achieving the Department's predefined goals and objectives?
- If not, why is it so? How is this problem dealt with?
- Does the Department understand why and how it achieved or failed to achieve these results?

The curriculum may have to be reviewed and revised to introduce more flexibility in order to accommodate individual student interests such as making some core courses in science and engineering electives or eliminating them; and allowing more electives such as courses in organizational behavior, human psychology, shipping, etc. from the other two departments. The sequencing of courses by introducing prerequisites is very important and this should be addressed given that this is normal in many, if not all, universities. Given the interdisciplinary nature of the program, the introduction of a capstone course taught through published case studies, which are different from the presentations of student projects (Harvard U., Western Ontario U., and others) and business games, would prove very beneficial to the students before their graduation, maybe taught by a faculty team. Finally, the syllabus and structure of each course available should be more detailed in listing the topics to be discussed in each class meeting for the students' benefit and for maintaining academic standards.

RECOMMENDATIONS

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

Following the above discussion, the following recommendations would be appropriate:

Recommendation A1: Make a significant number of the science and engineering courses electives or eliminate them.

Recommendation A2: Add courses from the other two departments as electives and allow more flexibility in the design of the curriculum so that students can tailor their program according to their interests to some extent.

Recommendation A3: Sequence the courses on the basis of prerequisites to make it easier for the students to absorb the material and for the instructors to deliver it.

Recommendation A4: Make the course syllabi more detailed by including the specific days/weeks the different topics will be discussed; and the tests and exams will be given.

Recommendation A5: Use case studies to deliver some of the material in at least some of the advanced courses.

Recommendation A6: Add a capstone course at the last semester, maybe team taught, based on case studies, in addition to student project presentations.

Graduate Program

APPROACH

It is a 12-month program that started in 2005-06 through faculty deliberations. Its goal is to provide engineers with the appropriate knowledge in management and financial engineering. The orientation is towards providing students with knowledge sufficient to function in real world problem solving and its structure looks usual by international standards. The program consists of 60 ECTS in 9 required courses in two different concentrations. Also, a final thesis (15 ECTS) is required, which can be supervised internally or externally, and it could be written in English (about 20% currently and increasing) or Greek. It is the feeling of the committee that they are offering too much; but, they expect to make adjustments once the current evaluation is completed. The Committee notices that the program is in full compliance with the European Commission's guidelines regarding credit hours transfers.

There are currently 49 students enrolled and 139 have graduated so far. They pay low tuition fees, but living costs discourage some of them. However, it seems that preference for studies in this program is weaker than some programs abroad, although such programs are actually even more expensive. The usual student is from engineering and, therefore, the courses offered are from the management/finance/economics areas. Students are often working already and many do not live in Chios.

The Department has plans for basing the program in a higher demand place, like Athens, and also several ideas for collaborating with other institutions. It also considers offering courses/programs on company sites and it seems to be open and active in seeking alternatives. They are offering the program also on a part-time basis and they offer grants to well performing students. Tuition fees were decreased during the crisis, but the picture so far is positive. It should be noted that part of the revenue goes to the Government and this does not help with the Department's budget.

IMPLEMENTATION

Through the curriculum and the thesis, the program prepares the students for dealing with problems in the design and operations of organizations in the private and public sector, introducing technological innovations in such organizations, improving their productivity and competitiveness, and helping with the creation of new and innovative technological enterprises. A number of the graduates proceed to the completion of a doctoral degree.

Due to the unfavorable location of the program, the financial crisis, and the competition from analogous programs on the mainland, there are difficulties in attracting students. As a result, there are semesters in which courses for one only of the two concentrations are offered. The relatively small number of students has the additional impact upon the budget of the Department, which creates problems with the funding of a number of offered services.

RESULTS

The Department continuously evaluates the program and considers alternative options in offering the program such as different location, company sites, online courses, courses in English to attract foreign students, in cooperation with the other two departments, etc. Some of these options could be offered in combination. These options should be tried as well as the offering of a joint graduate program with another institution whether this is a polytechnic school, or an economic or other university, given that this program does not include engineering courses. It should be noted that the majority of students in almost all the MBA programs abroad, and it is assumed in Greece, have an undergraduate degree in engineering.

IMPROVEMENT

Improvements could be achieved by following some of the suggestions mentioned above. The following options should be explored in offering the program:

Recommendation A.7. Offer the program in cooperation with a university in the mainland that offers an MBA or other relevant program.

Recommendation A.8. Offer the program in-part or totally online.

Recommendation A.9. In parallel with offering the program in one or more of the above options, offer the program in-part or totally on a company site.

Recommendation A.10. Offer an additional version of the program as a joint program with the Shipping and Trade Department in the School.

Doctoral Program

There are 19 currently enrolled students in the doctoral program and 8 have been awarded the doctoral degree so far. There is no curriculum in the doctoral program.

B. Teaching

APPROACH:

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

Please comment on :

- Teaching methods used
- Teaching staff/ student ratio
- Teacher/student collaboration
- Adequacy of means and resources
- Use of information technologies
- Examination system

This is a relatively new Department with multidisciplinary academic staff offering a multidisciplinary curriculum (discussed previously). This has significant benefits for learning particularly if an integrative approach is adopted. Such an integrative approach was not observed nor was any particular pedagogical framework for teaching and learning. Despite this however the overall assessment of teaching and learning and the student experience was very satisfactory.

Given the challenges of geography, relatively low national awareness of the Department and its new non-traditional program as well as its limited resources it is advisable to develop a teaching and learning strategy apropos to this context. Adopting an innovative learning framework with a particular focus (for example high teacher-learner interactivity and/or industry-connected learning) could become the 'point-of-difference' for the department. This in turn would deliver sustained competitive advantage that would be difficult to replicate

Teaching methods used

A genuine effort by academic staff to provide high level teaching and learning opportunities for students was observed. This was also highlighted by current undergraduate, post graduate students, as well as recent graduates from the Department. The department staff should be commended for their dedication to their teaching. Some level of coordination of teaching and learning will however deliver even better outcomes.

The Department would benefit from establishing a teaching and learning role to coordinate the teaching and learning initiatives of the Department and drive the implementation of the teaching and learning strategy.

Teaching staff/ student ratio

The staff to student ratios are trending towards unacceptable levels for enhanced learning outcomes. Despite this the relatively small size of the department and the strong collaboration among academic colleagues coupled with the observed student-focused approach provides the ingredients for a powerful 'compete on teaching quality' opportunity.

It is important that both teaching capability and capacity is maintained so as not to move into a failure spiral due to lack of suitable qualified staff to cover the teaching requirements. Failure to replace vacant positions and to further develop staff in the areas of need will not only reduce quality of learning but will also increase the need for the provision of out of the classroom resources putting more pressure on what is already limited support requirements.

Teacher/student collaboration

There was general agreement by both students and alumni that the academic staff of are quite dedicated to their profession, teaching & learning and are empathetic to the needs of their students. However students expressed that the peripatetic status of some of their lecturers was causing problems with their studies, such as unavailability of staff, missing classes and contiguous timetabling of classes making their time in classes unacceptably long

Adequacy of means and resources

There exists a significant issue of adequate resources in this department. The teaching and learning effort is thus hampered by this lack of available facilities and technical infrastructure. This is more pronounced in courses where a practical component exists and the courses have specialized laboratory requirements. For example general and specialized computer facilities appear to be much lower than one would expect to support the teaching and learning activity. This was highlighted as a significant issue by both current students as well as the small sample of DFME graduates which was contacted by the review team. Even graduates who graduated before the financial crisis lamented the lack of resources and identified this as an important issue that needs to be addressed.

Although it is acknowledged that the current financial environment may limit the ability to refurbish such technical infrastructure, innovative initiatives should be explored to ensure that an adequate technical support environment is provided.

Indicative initiatives include pooling of different departmental infrastructure to be made available by students of different departments. Another may be active lobbying of technical infrastructure vendors or even local community leaders to donate such facilities to the Department or applying to the cohesion funds.

There was little evidence of any formal or informal support services for those with special needs or for special groups of students.

Examination system

The Department's final year project is a very worthwhile initiative so too is the result of more than 10% of student projects that actually end up being published in research outlets such as journals and conferences; this reflects well on the quality of teaching in this very important curriculum capstone activity.

The Department's assessment and moderation procedures comply with usually adopted international norms; testing is rigorous and there is excellent balance between practical and theoretical tasks.

IMPLEMENTATION

Please comment on:

Quality of teaching procedures

Quality and adequacy of teaching materials and resources.

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

Linking of research with teaching

Mobility of academic staff and students

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

Quality of teaching procedures & adequacy of teaching materials and resources.

The Department offers e-Class (online learning) for many of its courses. The quality of the online courses and the degree of utility of this for current students was not clearly established. It would be useful for the Department to develop a strategy for e-Class as a component of its teaching and learning strategy.

Linking of research with teaching

As will be discussed in the next section, the Department's research activity and outputs are satisfactory as is the higher degrees training through its doctoral candidates. Undergraduate students use the research laboratories for their teaching and this strengthens the teaching research nexus. A systematic approach to identifying capable and interested undergraduate students even from their early years of study and engaging them early in research activity through participation in research projects and research placements in the Department's laboratories, will further strengthen this and 'groom' those students as prospective doctoral students in later years.

RESULTS

Please comment on:

- Efficacy of teaching.
- Discrepancies in the success/failure percentage between courses and how they are justified.
- Differences between students in (a) the time to graduation, and (b) final degree grades.
- Whether the Department understands the reasons of such positive or negative results?

Outside the classroom academic support mechanisms are limited. Departmental academic staff do provide very good support, often beyond the normal expectations, so too administrative staff. However students at risk may benefit from initiatives such as 'help desks' and systematic supervised 'study groups' or similar student support mechanisms. Doctoral students may be used to support such activities. Administrative support of students is very strong with high levels of student interaction with administrative staff to provide non academic assistance in a wide array of areas by the Departments dedicated administrative staff; indeed administrative staff indicated pride in their role of providing service beyond expectations to all stakeholders, academic staff and students.

Although student appeals against assessment results and other academic issues are rare, the Department has in place a transparent and appropriate appeal process. An independent ombud system would also be useful, although this is more often introduced at a University rather than a departmental level.

IMPROVEMENT

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

Student evaluation of teaching is done systematically and the results are used as feedback in improving curriculum and teaching delivery. This systematic course evaluation should be continued and strengthened. Some consideration should be given to the timing of the student surveys with a practice of administering these after the examination period is concluded should be considered.

Recommendation B.1. Develop a clearly articulated teaching & learning strategy focused on definitive strengths of the University and Department. (e.g. A University has a stated strategy of strong Prof-Student interaction).

Recommendation B.2. Develop an online learning and blended-learning strategy.

Recommendation B.3. Explore ways to keep student staff ratios at reasonable levels. Enhance industry involvement in the teaching process.

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

The department considers its research in five areas as very good in relation to the average level of the University of Aegean, according to the presentation given during the evaluation. A large number of the publications of the publication list of the department belong to the basic research physics work at the ZEUS collaboration. It is equally clear that there is an Overall, the research activities of the department, taken also into account the short life of the department reach a satisfactory level. However, research topics are relying on the individual activities of its members at multiple levels and in very diverse areas. There are about eleven funded projects involving collaborations with European partners, competitively funded national projects and services to the domestic public. Only two of the projects belong to the competitive European research. Very little activities concerning the private sector. Doctoral candidates, postgraduate and, sometimes, undergraduate students (mainly through diploma theses) are involved into the research projects, something that the Committee considers as good practice.

The department considers its research in five areas as very good in relation to the average level of the University of Aegean, according to the presentation given during the evaluation. A large number of the publications of the publication list of the department belong to the basic research physics work at the ZEUS collaboration. It is equally clear that there is an overweight towards basic research. Considering the research point of view half of the laboratories are performing satisfactory but there is no evidence for coordination under each other. There is no clear evidence of a department's policy towards a main objective in research.

Recommendation C.1: The Committee recommends that the Department should formally define its research strategy to provide clarity to its members in terms of its research direction and priorities and research topics related to the main profile of it. The department could introduce means and measures to explore appropriated strategies using also external experts.

According to information provided to the Committee, the Department does not appear to have a formal dedicated policy or standards in terms of the evaluation of internally conducted research or of means for research support or unlocking research potential. However, it can be argued that the Departmental policy in terms of research evaluation can be directly inferred from the Departmental practice and requirements in terms of publishing papers in international learned Journals and other peer-reviewed Conferences and Symposia. There is evidence that some faculty members are very well-respected by their peers. There is an assessment of research results built into the process of tenure and promotion of individual faculty members. The Committee noted that there is a clear emphasis on publications in SCOPUS and ISI listed Journals as the bibliographical information used by the Department is based on SCOPUS.

Recommendation C.2: The Committee recommends the establishment of an Annual Activity Reports of the Department and establishing internal research evaluation benchmarks and the identification and dissemination of best practice. Ideally, this should include the peer review of research outputs in order to establish a shared understanding of research impact and quality.

IMPLEMENTATION

- How does the Department promote and support research?
- Quality and adequacy of research infrastructure and support.
- Scientific publications.
- Research projects.
- Research collaborations.

In the opinion of the Committee, the Department promotes research primarily via the following mechanisms:

- (i) Individual activities of the faculty members.
- (ii) Starting in some cases, the creation of an inclusive research ethos within the Department that involves more than one faculty members, doctoral candidates and undergraduate students (laboratories).
- (iii) Some cooperative research within the frame of European projects.
- (iv) There is no evidence of departmental promotion and support mechanisms for

research.

The Committee notes a significant lack of dedicated staff for research support in almost all operating laboratories (7 laboratories, 2 of them officially established). Also the research infrastructure needs significant improvement. The equipment fulfils in most of the cases the needs of the ongoing research mainly in the frame of the ongoing PhD thesis.

Recommendation C.3: The recommendation of the Committee is that the Department would need to find solutions for recruitment of laboratory support staff according to the previously defined strategic research area.

There is no evidence of a single laboratory, which has reached a critical point to generate independent research in terms of excellence or leadership in the topic.

Recommendation C4: The recommendation of the Committee is that the Department would need to improve the infrastructure in terms of equipment in a number of the existing Research laboratories focusing the effort in order to reach the state of the art level. In this way, the department will ensure that all other laboratories will be equipped soon (suggestion: participation to cohesion funds and further EU supporting actions for building research potential).

The Department is active in terms of publications with more than two Journal papers and more than three refereed Conference papers per member of faculty, per annum. These are encouraging publication figures, notwithstanding that they include papers with multiple faculty members as authors.

There is a number of research projects mentioned (53), with an overall income for the department of 3.772.840 €, have been performed in the department during the reporting period. The average budget per year is low (<10k€) for the size of the department. Furthermore, the projects with clearly competitive nature are only two. The majority are from national funds, which are spread in different topics. There is no evidence of planning the applications in terms of establishing more stable acquisition of R&D income and insure visibility in selected fields. Single members of the faculty only are aware of the ongoing Horizon 2020 activities.

Recommendation C.5: The Committee has noticed that the acquisition of R&D projects are based only on individual initiative and recommends to spend further effort and attention in order to establish stable mechanism for following R&D calls and supporting as well as coordinating the proposal activities.

In terms of research collaborations, the Department appears to have a few of active

collaborations with universities outside and fewer inside Greece. Only two direct links with private companies are mentioned, although a direct, sincere relation with the local stakeholders exist. There is remarkable number of summer schools have been organised by the department in varying topics.

Recommendation C.6: The Committee notes that the level of collaboration with industry is not as well developed and recommends strengthening the effort for collaborations with industry and academic institutions inside and outside Greece.

RESULTS

- How successfully were the Department's research objectives implemented?
- Scientific publications.
- Research projects.
- Research collaborations.
- Efficacy of research work. Applied results. Patents etc.
- Is the Department's research acknowledged and visible outside the Department? Rewards and awards.

The overall performance of the Department in terms of research during this initial period in its development is almost satisfactory as described in the previous section. In addition to the above the following issues have to be considered:

- (i) Although many faculty members have publication records ranging from respectable to very good, there is no evidence of fellowships in national and international professional organisations (IEEE, AAAS, etc.) enhancing the international visibility of the Department.
- (ii) The research projects undertaken in the Department involve external research partners, including other EU countries but there is no evidence of stable cooperation outside the funded projects (such as active networks, concerted actions etc.).
- (iii) The doctoral program has been well established according to national and international norms. It is remarkable that many of the present candidates are coming from other Universities. However, there is no formal process of advertising positions and for selecting candidates. Also, there is no uniform funding policy for doctoral students. Some doctoral students are funded by projects and some are not funded at all. The scientific output of doctoral students in terms of publications and conference participations is very good, on average.
- (iv)

Recommendation C.7:

The Committee suggests to the faculty members to increase their effort for

participation to professional organisations that is relevant to the Department's objectives and its international visibility in order to establish stable networks in their field.

Recommendation C.8:

The Committee recommends that the Department should improve the selection mechanism of PhD candidates and also establish uniform and fair funding mechanisms for all PhD candidates

IMPROVEMENT

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

Overall, the faculty level of research is satisfactory in terms of quality and quantity, especially considering that this is the initial period since the creation of the Department. Several faculty members collaborate at international level producing well-cited publications. However, the research in the Department is spread across the activities of each faculty member, covering a large number of topics with little synergy in research activities between laboratories and other departments. This behaviour hinders reaching the critical mass of staff and resources required to deliver outstanding research.

Recommendation C.9:

The Committee strongly recommends that the Department identifies a small number (two to three) of major research topics and focuses its research in order to combine resources, enhance collaboration and deliver research excellence.

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).
- Does the Department have a policy to simplify administrative procedures? Are most

procedures processed electronically?

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

The Department is taking initiatives, within the constraints of the centralized procedures imposed by the State, to maintain and improve services to the academic and student communities. Overall, the administrative staff seem to be satisfied with the number of members and their degree of substitutability among each other in terms of skills, which is a desirable feature for any administrative structure of its sort. The administrative team and most faculty members maintain an open-door policy to the student body, thereby enhancing the quality of the academic environment and faculty-student interaction. Doctoral students are in frequent contact with their advisors and laboratory colleagues.

Regarding the extent to which e-administration is replacing the traditional local provision of services, members of staff recognized the need for a faster convergence to a global provision of e-administrative services. Even when things change in the right direction, the actual implementation of changes takes too long for a number of different reasons like long lags in the supply of material, etc. For example, the platform for e-class is already activated as an option but has not been extensively used by the professors yet, although all teaching materials for courses are provided online. The use of electronic signatures has not been adopted yet, leading to multiple levels of approvals and signatures and long lags between decisions and implementation. Also, eduroam connections are not available.

The current building structure seems to be severely conditioned by a pre-existing number of older buildings which, apart from creating a segmented campus life, they lack the basic facilities to comply with standard practices world-wide facilitating access to students with special needs. Although the new buildings tend to possess the desirable characteristics to tackle these problems, they also seem to be the result of a suboptimal planning. For example, toilets are rather large, including a shower which no one uses, but they are not separated for male and female users, not to mention handicapped ones. Finally, other aspects of campus life like a place for student interaction during off class periods are also absent due to the decentralized location of buildings and the separation of the University across different islands.

IMPLEMENTATION

- Organization and infrastructure of the Department's administration (e.g. secretariat of the Department).
- Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic- cultural activity etc.).

The members of the administrative staff, appear to be happy with their duties and responsibilities, and proud for their overall contribution to the University and the

Society. Some have been since the beginning here and are emotionally linked to the department. Almost everybody seems to have a university degree and even postgraduate studies. However, their qualifications contrast with an almost exclusive dedication to support activities. They have some involvement in fundraising support, but they certainly could have more strategic tasks. For example, an “enterprise office” seems to be totally missing. Such an office could coordinate the department’s fundraising efforts which are totally decentralized and fully delegated to the labs. This would also help the department benefit from its administrative staff’s skills, which seems prepared for involvement in more strategic activities compared to its actual almost exclusive support and law-compliance concerns. For example, the word “The Law” (ο ΝΟΜΟΣ) appeared several times during the discussion, indicating that the fear of non-compliance with the law makes too many people responsible for signatures and decisions, posing unreasonably high burdens to any personal initiative for a change within the administrative structure.

RESULTS

- Are administrative and other services adequate and functional?
- How does the Department view the particular results?

The administrative services of the Department are adequate and functional, although tasks are over-concentrated on relatively low level of secretarial support leading to an under-exploitation of the skills of the existing staff. Also, e-administration has not been developed yet to the ideal level.

IMPROVEMENTS

- Has the Department identified ways and methods to improve the services provided?
- Initiatives undertaken in this direction.

As was noted by the EEC and admitted by the Staff, a program offering personal incentives for visits to similar administrative structures abroad could provide them with state-of-the-art information and broaden their horizon regarding their professional profiles, duties and careers. The EEC stressed the need for more internationalization.

While the overall impression was positive, the EEC agreed on the following recommendations

Recommendation D.1. Seek further internationalization through supporting visits to similar university administration units abroad.

Recommendation D.2. Establish levels of administrative action at a more strategic level, similar to an “enterprise” office.

Recommendation D.3. Design the new buildings and restructure the old ones for

a more inclusive and socially responsible architecture, lowering the barriers to students with special needs..

Collaboration with social, cultural and production organizations

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

During the meeting with local institutions and authorities, the EEC noted the interest of the local society in the University as a whole. A committee (Επιτροπή Διασύνδεσης) promoting the linkages between the University and the surrounding society seems to play a central role in the search for University-Society synergies. However, the negative reaction of some local representatives to the EEC's proposal for private financial support to the university reflects the remainders of a long history of skepticism regarding the University's search for private support. In fact, even the cases of actual support by private funders who have donated buildings to the University of the Aegean, have not yielded the expected benefits yet, due to a variety of reasons related with the political and legal status quo. Other collaborations like the links between the Department's Physics team and the high-school Physics teachers' association seem to yield important synergies. An equally positive interaction seems to exist between the Department and the local society in terms of sports. However, given the tradition of the local society in wealth creation, it was felt that there is still a lot to expect from the University's efforts seeking for private funding and the response of the local community to such efforts.

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.

Recommendation E.1. The possibility of moving the Department within a Polytechnic School on the mainland should be considered.

A number of adverse factors are mentioned in the Department's Internal Evaluation

Reports that affect the operations and the growth of the Department: Delay in the establishment of the Aegean University Polytechnic School ; the generalized recession which continually erodes enrollment and attendance; lack of provision of incentives to students who enroll in Institutions near the borders ; the location of the Department far from any urban constellation with substantial population, a fact that is taking its toll on the Department's attractiveness; and so on.

The Department was established in an era during which plenty of funds were available through the E.P.E.A.E.K. program for education. New programs and departments were approved on the merit of the respective proposals without taking into consideration other factors, such as the best geographical location and the proper place of the program/department within the overall educational system of the country. As a result of this careless approach, we have this Department which is unique in the country located in a remote island, within a Business School, the moment that it belongs to a Polytechnic School and a more central location.

The current location creates several problems such as that of lack of attractiveness of the Department to students of all levels as well as to distinguished and/or visiting professors; the problem of very limited opportunities for students to enrich their education through real life experiences in businesses by doing course or program projects, part-time work, or summer internships, which could evolve to full time jobs upon graduation. Of course, regional university programs, similar to those that are offered in the mainland, are important. But when a program is unique, it does not belong to the region because in that way it causes unfairness to the majority of the student population of the country. According to statistics provided by the Department only 7.9% of students come from Chios and another 4.6% from the rest of the Aegean.

Regarding the establishment of an Aegean University Polytechnic School to include the Department, it should be noted that similar programs in the world in actual fact belong to polytechnic schools. In such cases, courses can be shared among the departments, particularly of the core program; professors of different departments can form teams and work on joint research projects, submit proposals for research grants, co-author research papers, and so on; and graduate/doctoral students can profit from living and working in such an environment and serve as research or teaching assistants, something that currently cannot happen as very few of them reside in Chios. However, the establishment of an Aegean University Polytechnic School under the current and expected future economic conditions of the country is quite improbable if not impossible.

Consequently, the possibility of transferring the Department to one of the existing polytechnic schools in Athens, Thessaloniki, or Patra should be considered. Such a solution would provide the opportunity to many prospective undergraduate, graduate and doctoral students to benefit from getting their education from this

unique Department; it will eliminate the above discussed unfavourable conditions for the Department; and it will prove beneficial to the country from many points of view. It is expected that it will be favourably received by the faculty given that with few exceptions the professors are currently commuting; and by the students given their above mentioned geographic distribution.

Recommendation E.2. Improve the infrastructure of the Department in terms of classrooms, computer and other labs. If the above recommendation cannot be implemented, it will be necessary for the State to provide the Department with additional classroom space, necessary for teaching the courses in smaller class sizes and allowing class interaction; and scheduling the courses in their right sequence from the teaching/learning point of view.

Recommendation E.3. Redesign the undergraduate curriculum to eliminate the confusion as to what the nature of the program and its graduates clearly is. The current curriculum has been designed with one of its major objectives the recognition of its graduates as engineers by the TEE (Τεχνικών Επιμελητήριοι Ελλάδος). As it was discussed above, the positions for which its graduates are aiming at are not for mechanical or chemical engineers. Of course one cannot doubt the usefulness of the students' background in these engineering fields for some of these positions. But one cannot argue either that additional exposure to other disciplinary backgrounds such as human psychology, organizational behavior, economics, etc. would not be as valuable. It is, therefore, the EEC's opinion that a more balanced interdisciplinary curriculum would be beneficial to the graduates of the Department.

Recommendation E.4. Offer the graduate curriculum in other, or in more than the current, options.

It is clear that the current option has been judged as not attractive to many students, due particularly to the remoteness of its location. It is, therefore, the EEC's opinion that additional options should be considered such as at company sites, in electronic forms, and as joint programs.

Recommendation E.5. Under any circumstances, the Department needs additional full time faculty. Without doubting the contribution of the Department's faculty-on-contract and/or part-time, additional full time faculty members are necessary for building the future of the Department by redesigning its curriculum; keeping up-to-date with teaching methods and materials; conducting research and getting involved with other professional activities that will contribute to the national and international reputation of the department; and providing a variety of academic services to the Department and its students.

Recommendation E.6. Take advantage of the technological revolution that is

changing the world of education. We are living in an exponential growth of the technological environment affecting automated processes in providing services to the students; and educating them through technological approaches in the form of electronic materials, courses through the internet, electronic communications and interactions, and so on. Almost everything can be accomplished electronically without at the same time losing the interpersonal contact. There are forecasts of scenarios that will result in the closure of many of our traditional brick and mortar universities within a dozen or so years. The Department, gifted with technologically oriented faculty, should continuously think and operate vis-à-vis this technological revolution in designing courses, using teaching methodologies, providing teaching materials, and so on. Also, many of the student and other services should be designed on the basis of technology, even within the constraints of the official law and paper dominated environment.

Recommendation E.7. Establish a mechanism within the Department, or in cooperation with the other departments in the School, to conduct fundraising. Although it is not customary in the Greek university system, given the decreasing financial support from the State budget, it is time for the Greek universities to organize fundraising from other sources such as alumni, businesses, and other local and national possible benefactors, as it happens in many other countries. The Department should assign this task to one of the administrative staff, update the list of alumni, create a list of local and national businesses and other national and European institutions, and start approaching them for specific projects or for a general fund. Obviously, the start will be difficult and the fundraising limited but the idea will get established and it will gradually start producing more results.

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 summary, the EEC was satisfied to very satisfied with the work the Department is doing, noticing the dedication of the faculty and administrative staff to teaching and servicing their students, in spite of the constraints they are operating under such as financial, staffing, and infrastructure constraints. The Committee, under the different sections of this report, has made some constructive comments regarding

the improvements the Department could make, realizing the fact that some of the improvements depend on changes in the financial and legal environment.

More specifically, the EEC believes that the undergraduate curriculum would better prepare the students for the jobs the Department is preparing them if it emphasizes more some areas which are more relevant to such jobs and de-emphasizes areas more peripheral to those jobs; introduces more flexibility in the program through electives; sequences better the courses by introducing prerequisite courses; and introduces more case studies particularly at the high level courses.. At the graduate level, improvements could be made by introducing joint programs and programs offered in different locations and/or in different forms.

In the area of teaching improvements could be made by developing teaching-learning strategies based on the strengths of the Department, use of technology, and industry involvement. The services could be improved by better consolidating them and further introducing technological approaches; and by modifying the infrastructure to make it more comfortable for the students and accessible to handicapped students.

In the area of research, the faculty is performing satisfactory in terms of quality and quantity. Several faculty members collaborate at international level producing well-cited publications. However, the research in the Department is spread across the activities of each faculty member, covering a large number of topics with little synergy in research activities between laboratories and other departments. This behaviour hinders reaching the critical mass of staff and resources required to deliver outstanding research connected to the teaching topics of the department. Synergies between support actions (summer schools, networking, technology transfer, and internationalisation) and research need to be coordinated and focused in strategic areas. Means and measures to increase participation to the European and international research need to be reinforced. A strategic plan building a sustainable research potential is needed. This could be performed within the frame of the cohesion plan of the region in collaboration with the stakeholders and the help of the University's administration.

Recommendation F.1. The Committee strongly recommends that the Department identifies a small number (two to three) of major research topics with synergies under each other and more overlap with the teaching topics of the department. Then the research should focus on them combining resources and enhancing collaboration in order to reach research excellence.

At the strategic level, the Committee notices that the geographical isolation of the Department has adverse consequences for the growth of the Department; the

Department's students; the professional growth of the faculty; and, also, the overall student population of the country. As a result, a possible relocation of the Department in the mainland should be considered. Other improvements that are necessary is the professional staffing of the Department; the classroom, laboratories, and other infrastructure; a better professional identification of the Department and its graduates; better incorporation of technology in teaching and services; and the establishment of a mechanism, with involvement of the alumni, for fundraising.

The Members of the Committee

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