



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

**Α.ΔΙ.Π.**

ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΠΟΙΟΤΗΤΑΣ  
ΑΝΩΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

HELLENIC REPUBLIC

**H.Q.A.A.**

HELLENIC QUALITY ASSURANCE AGENCY  
FOR HIGHER EDUCATION

## **EXTERNAL EVALUATION REPORT**

DEPARTMENT OF MECHANICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF THESSALY

January 16, 2010

## External Evaluation Committee

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

1. Professor ***Fokion Egolfopoulos*** (Chairman)  
University of Southern California, USA
  
2. Mr. ***Konstantinos Alexopoulos***  
Mechanical and Electrical Consulting Engineer  
Technical Chambre of Greece, Greece
  
3. Dr. ***Fivos Andritsos***  
Institute for the Protection and Security of the Citizen  
European Commission, Joint Research Centre, Italy
  
4. Professor ***Antonios Zavaliangos***  
Drexel University, USA

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

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

## **Introduction**

### **I. The External Evaluation Procedure**

The External Evaluation Committee (EEC) visited the Department of Mechanical Engineering at the University of Thessaly, Volos during the period 19<sup>th</sup> – 21<sup>st</sup> December 2010.

The team arrived in the evening of December 19<sup>th</sup> and met with the Chairman of the Department, the Committee for Internal Evaluation (OMEA), the Chairman of the Departmental Committee for Quality Assurance (MOΔΠ), several members of the faculty (ΔΕΠ), and representatives of the central administration of the University. During this introductory meeting at the Departmental conference room, the Chairman gave a presentation outlining the profile and basic characteristics of the department. The presentation was followed by discussion during which the EEC requested clarifications and additional explanations on a variety of topics and issues. Subsequently, the EEC had a working dinner with a number of the constituents that attended the presentation.

Campus visits took place on December 20<sup>th</sup> and 21<sup>st</sup>. The EEC met with faculty members, the administrative staff of the Department, members of the technical support staff (ΕΤΕΠ), and motivated undergraduate and postgraduate students. However, no visit was scheduled with members of the adjunct/visiting faculty (ΠΔ407), who appear to carry a significant portion of the teaching load. Finally, the EEC visited research and instructional laboratories, lecture rooms, and the University central library.

The EEC considered several of the documents provided by the faculty including:

- The internal evaluation report (EEA).
- The departmental undergraduate study guide and its recent revisions.
- The departmental postgraduate study guide.
- A brochure describing the departmental research activities.
- Samples of course textbooks.
- Samples of course examinations.
- Samples of course evaluation forms that were completed by the students.
- Selected research publications.
- Samples of Diploma dissertation theses.
- Samples of Ph.D. dissertation theses.

The visit took place in an atmosphere that combined high level of professionalism with cordiality and collegiality. The EEC members are unanimous in wishing to express in writing their gratitude and appreciation to both the Departmental faculty and HQAA for the arrangements of the visit.

The EEC members were impressed by the enthusiastic, open-minded, and forward-looking atmosphere that exists in this relatively young department, which could be the basis for advancing further its image and visibility in the future.

## **II. *The Internal Evaluation Procedure***

The EEC members were impressed also by the comprehensiveness and level of effort that went into the EEA and the compilation of all supplementary material, which became available in an effort to facilitate the evaluation process. The standards were of high quality and comparable to those followed in similar evaluations in major academic institutions abroad. In summary, the material that was prepared covered all possible coordinates that the EEC members needed to have access to in order to conduct a meaningful and effective evaluation.

The aforementioned positive and constructive atmosphere that exists in this young department was the basis behind this comprehensive EEA. However, the report fell short in establishing concrete goals with measureable objectives, which will allow the Department to differentiate itself from other similar departments in Greece. One example is the kind of engineers the Department aims to produce. A distinction between the basic knowledge and technological training of the graduates of the Department has not been clearly defined and stated. Such distinction would allow Industry and postgraduate programs, domestic and abroad, to assess the quality of the graduating students and make the appropriate hiring/acceptance decisions. The Department appears to adopt the educational approach followed in other Mechanical Engineering curricula in Greece, which are notably older and have access to greater resources.

The EEC members appreciate the eagerness of the department to ameliorate and take eventual corrective actions. It is clear, however, that the Department remains 'hostage' to issues that are out of its jurisdiction and control, such as:

- Frequent obstruction of university functions by students.
- Inefficient accounting practices.
- Inefficient and unrewarding legal framework.
- Pervasive academic dishonesty (i.e. copying in exams or homework assignments).

Such fundamental issues must be addressed at a State and societal level because excellence cannot be achieved in a context of inefficiency and indifference.

The EEC members felt compelled to use this platform to express their serious concerns about the future of higher education in Greece in conjunction with the unprecedented circumstances that the country is facing and which could have rather dramatic implications for the future. The current situation causes serious

compromises in skills and knowledge of the graduating students, resulting thus in lack of competitiveness in the international arena. The EEC members realized that only a fraction of the undergraduate students of the Department are meeting the generally accepted educational standards, which, based on anecdotic evidence, does not differ much from other Greek Institutions of higher education.

Last but not least, the EEC agreed that the level of participation of students in the decision-making process is heavily over-weighted. This could create awkward situations, non-optimal decisions, and conflicts of interest, and needs to be reconsidered by the Ministry of Education very seriously in any reforming effort.

## **A. Curriculum**

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

### **UNDERGRADUATE CURRICULUM**

Based on the experience of the EEC members and discussions held during the visit, the undergraduate curriculum of the Department is a 5-year, Central European - style, comprehensive curriculum similar to those in other Greek ME departments. Therefore, it is reasonable to infer that the curriculum was designed to match them. These curricula usually contain courses in basic sciences, engineering fundamentals, core, specialization and elective ME courses, and conclude with a diploma dissertation thesis. The Department's curriculum adds a *mandatory* practical 2-month training period for all students. The practical training is an excellent complement to the curriculum, as it connects the in-class learned material with the practice of the profession, promotes the employability of the students, provides some income, and signals a path to overall personal and professional maturity.

The curriculum is clearly articulated and very well documented. The full details of the program are presented methodically in the web page of the Department. The students have a complete and well-organized view of their studies.

This curriculum is, however, very different than those in the US and UK. The total number of courses in a US institution for the equivalent BS degree has maximum of 130 credits and the MS degree requires a maximum of 30 credits (1 credit=1 teaching hour per week). Therefore, a total of 150-160 credits is required in order to complete both BS and MS degrees. Instead the Department's program consists of 52 4-hour courses, which is roughly equivalent to 208 credits.

### **POSTGRADUATE CURRICULUM**

The postgraduate program has approximately 38 courses, out of which 4-5 courses are repeated every single year and 12-13 courses are alternating every other year. There are no thematic groups of courses. The EEC believes that these courses result from the research directions of individual faculty rather than from strategic decisions. The postgraduate program does not offer an identifiable uniqueness.

### **FEEDBACK AND QUALITY**

The EEC feels that the present model of the curriculum is excessive in terms of number of courses.

The two curriculum revisions implemented by the Department had specific objectives that were met successfully. There is little redundancy between courses. There are indications of the introduction of computational tools and case studies in the classroom.

In the EEA, there are references to positive feedback provided by alumni and colleagues from other institutions with respect to the curriculum, but without any specifics. The EEC wants to commend the department for having a complete list of

alumni with current affiliation. This is a valuable tool for evaluation, outreach and (why not) fundraising efforts. The Department is to be commended for its forward thinking on this topic.

### **RECOMMENDATIONS**

1. The Department along with all ME departments in Greece, should re-examine the structure of their curricula. It is recommended to decrease of the total number of courses. Each curriculum course should be enhanced with **mandatory** homework exercises and projects. Fewer courses with more homework would balance out in terms of overall effort required and will augment the depth of understanding offered in each course. Such reduction in courses could, for example, be implemented by converting several mandatory upper level applied engineering courses into electives.
2. There is only one major omission in the curriculum, namely the lack of Physics in the early years. Physics is absolutely essential, because it facilitates a smooth transition to calculus-based analysis of engineering phenomena. Some basic courses such as Thermodynamics are given too early in the curriculum. An additional course could be Biology, which is becoming more common in modern ME curricula as it is central for establishing the ability of mechanical engineers to communicate effectively and collaborate with health science related disciplines.
3. The department should consider creating more specific, “brandable” postgraduate programs, which may increase participation and thus revenue for the Department.

## ***B. Teaching***

The content of classes and the delivery methods are suitable for the successful implementation of the curriculum. A good variety of textbooks is assigned including many international (translated) textbooks. Some courses include exercises but most of them are not mandatory. Computational activities are often included in the courses. The introduction of case studies is particularly commended. Several courses include demonstrations and laboratory activities. The Department expresses the desire to include more laboratory activities but such an effort needs to focus more on the optimization of the offered laboratory activities rather the raw increase of the number of laboratory contact hours.

Currently the faculty consists of 18-19 full-time, tenured/tenure-track members. The postgraduate program is taught exclusively by the regular faculty, approximately 60% of the undergraduate program is taught by full time faculty while the rest 40% is taught by adjunct/visiting faculty (ΠΔ 407).

The full time faculty is qualified to teach the courses of both undergraduate and postgraduate program. Some of them came to the Department with extensive teaching experience, most from US universities, and with none of them from the department itself – a notable and praiseworthy lack of inbreeding. There is a distinct difference in the pedigree of full time and adjunct/visiting faculty. Based on information received from the students directly, the faculty has made a conscious effort in the selection of the adjunct/visiting faculty and the assurance of quality in their courses.

Course evaluations indicate a good quality of teaching and a serious effort to deliver a modern and consistent quality education. Despite the fact that the degree of participation of the students in the evaluation process is rather low, the results of the evaluation are very good and the established process is excellent and transparent.

The quality of the instructional facilities varies. There is one amphitheater of reasonable quality and a number of prefabricated units of questionable conditions. Computational resources are adequate. Laboratory facilities are of variable quality. There are few laboratories that excel in their work and are able to introduce the students to advanced concepts and help them gain a solid understanding of professional practices. Most laboratories are of good quality, both in terms of equipment and appearance. The EEC commends the noteworthy effort of the Department to maintain its spaces in as clean and tidy conditions as possible, compared to other facilities in the Greek academia.

The total number of courses that is offered by the Department annually is about 70 undergraduate and 17 postgraduate of 4 hours per week, which results a total need of 370 teaching hours per week. Based on the declared minimum of 6 hours per week per faculty per semester, the program, in its current form, needs 29 full time tenured/tenure-track faculty with no adjunct/visiting faculty with the exception of sabbaticals or occasional justified absences of faculty. The minimum load of 6 hours should only be reserved for highly active researchers. If an average load of 8 hours per week is used, the total educational program can be fully carried out by ~23 full-time tenured/tenure-track faculty.



The courses are supported by 7 technical staff, which should suffice for the coverage of experimental component of the courses.

A “black eye” for the system (not just in this specific department but everywhere in higher education of Greece) is the low level of participation of students in the lectures. Another major issue is the long time to graduation. Data of early 2000s cohorts of students reveal a graduation level of 65% within 6 years. The same data show that 17% of students did not graduate after 8 years. Data become worse in the mid 2000s. For those entered in 2002 and 2003, more than 57% have not graduated after 7 years. The cost of this delay is unacceptable.

We believe that the faculty of the Department undertakes a serious effort to improve this situation, but frequent student strikes and a pervasive attitude of indifference among the students undermine these efforts.

### **RECOMMENDATIONS**

1. The Department should intensify its efforts to improve attendance of students and participation. Suggested practices:
  - Involve students in research activities early (even from first year).
  - Invite inspiring speakers from the profession.
  - Highlight professional opportunities including opportunities for postgraduate study in Greece or abroad.
  - Highlight alumni success stories.
  - Increase teaching and research efforts on topics related to health, energy, and the environment.
2. Use permanent faculty for the teaching of basic science courses in the early years.
3. Exploit the possibility of teaching a number of courses jointly with other departments (basic science courses, language, mechanics, etc.)
4. Introduce specific teaching (content) based objectives for each course as part of the course evaluations.

## **C. Research**

*For each particular matter, please distinguish between undergraduate and postgraduate levels, if necessary.*

### **Approach**

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

The Department does not appear to have specific aims or policy for research other than the generic aims of publishing high quality papers and participating in externally funded research projects.

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

No evidence was provided on the existence of any internal standards for assessing research, at least at a Department level, other than the established standard procedures for evaluating the department's Ph.D. dissertation theses and the career advancement procedures. In practice, the research quality standards varied a lot from laboratory to laboratory, strongly depending on the leading faculty member of each laboratory.

On the other hand, it was noted that the department's highly transparent and effective web pages, ensuring a comprehensive coverage of both research and educational activities, is an harmonizing factor tending to pull the weaker performers up towards the standards of the leading laboratories.

### **Implementation & results**

*How does the Department promote and support research?*

According to the Department, research is promoted through:

- A programme of dedicated postgraduate studies since 1998.
- A series of seminars and conferences, often by invited external faculty and industry.
- Systematic support of young scientists and Ph.D. candidates through their participation in national, EU, and/or Industry funded programs.
- Systematic support of young scientists and Ph.D. candidates with scholarships funded through the postgraduate study fees of the Department
- The policy of the Department regarding the selection of new faculty and the faculty member promotion according to the highest international standards.
- Internal periodic meetings to review the Department's policies and implementation.

The EEC endorses all the above. Indeed, they constitute a set of important practical measures that effectively promote and support research primarily by ensuring a flow of motivated postgraduate and Ph.D. students through the Department's laboratories. All along the interviews with the postgraduate students and the technical supporting

staff, the EEC had the chance to appreciate the high degree of motivation and job satisfaction despite the difficulties like poor infrastructure, complicated procedures, poor physical environment, etc.

As mentioned in the EEA, there are several inhibiting factors like the lack of suitable general infrastructure in the Thessaly region, the lack of central planning, the lack of a solid industrial base at a regional and national level, etc. Some of these items are tackled also in the sections below.

#### *Quality and adequacy of research infrastructure and support*

The quality of research equipment and infrastructure varies strongly across the different laboratories. In some laboratories the quality is adequate while in some others it is well below what the EEC would expect, given the overall funding profile of the Department. The lack of financial resources is certainly not the main reason for these deficiencies.

General infrastructure, like available space, building quality, offices, furniture, auxiliary spaces and equipment are, in general, below what would be expected. It certainly does not contribute to attract and/or retain students and staff. In addition, some essential services are located away from the Department's premises. This situation is to be blamed primarily on the complicated public spending procedures as well as on the initial choice on the location of the Volos premises of the Thessaly University that allow for limited and expensive expansion options.

However, the Department makes a noteworthy and successful effort for keeping their buildings and spaces clean and tidy. There is also a noteworthy effort to solve problems with the Department's own means, making a flexible use of the technical support staff and the existing budget provisions.

#### *Scientific publications*

In the EEA there are concise statistics regarding the faculty's publications. Some of the work performed by faculty staff was already known to the EEC members and is appreciated as of high quality. Given the Greek higher education context and the specific conditions described in other sections, the performance of the Department's researchers is noteworthy even if the average number of papers of the faculty is slightly lower on that of equivalent ME departments abroad. Additionally, the average number of citations is reasonable. It must be noted that there are differences across the faculty members, which cannot be explained only by the age/seniority distribution.

#### *Research projects*

In the EEA there are concise statistics regarding the Department's successful competitive research projects. There is no information regarding the participation to non-successful proposals in order to judge effort and effectiveness. The overall budget of successful proposals is certainly adequate, in particular if the context (new

and small department etc.) and the fierce competition are taken into account.

The mix between the different types (basic and applied research, services to Industry etc.) of projects is quite good. The sources of project financing (national, EU, Industry) are also quite varied, which is very positive. A steady participation in the European Thermonuclear Fusion Programme is an additional stability factor and a window of opportunity for interesting basic research.

The non-homogeneous distribution of the successful competitive programmes across the various laboratories constitutes a risk. This is true in particular for the EC funded projects, which constitute the largest part of competitive funding.

#### *Research collaborations*

A number of bi-lateral informal research collaborations with EU, US, Russian and Asian universities or other research establishments are quoted in the EEA. Collaborative EC funded projects (FP7 and EURATOM) constitute an important means of forging strong relations with academia, institute, and industry. In that respect, the Department seems to be well placed.

The EEC noted that a significant number (five) of the Department faculty members were quoted as researchers in the IMTRONICS institute of the CERETETH Research Centre, one of them (ME Laboratory Director) being quoted as the IMTRONICS Director. The EEC raised the issue with the faculty and asked to be informed on the matter. The EEC is of the opinion that a Research Institute pertinent to the Department could indeed create synergies and mutual benefits as long as the two entities are well distinct and conflicts of interest are avoided.

#### *Applied results & patents*

Some laboratories perform significant practical work for Industry in Greece and abroad and have established a reputation that can ensure a continuous influx of such projects. Working in applications for Industry is important not so much in budgetary terms but for educational purposes and, primarily, for linking/demonstrating the Department's research on practical engineering applications.

No patents or patent fillings have been reported to the EEC.

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

The faculty of the Department has published in some journals of high scientific visibility and a number of faculty members are or have been Editors or Associate Editors of international journals. Indeed, some faculty members are known to the

EEC prior to the Evaluation. Other awards include those of Fellow of ASME and best paper.

### **Improvements**

*Proposed by the Department (to the University, Ministry, etc.)*

The Department should suggest to the Hellenic Ministry of Education a number of improvements that relate in principle to the University management model. Such a management model is far beyond the scope of the present evaluation report. However, it is clear that the University, in order to be really independent as the Hellenic Constitution provides for, should have a management structure enabling to set-up strategies, plan ahead and, finally, implement these plans with a tight management by objectives.

*Undertaken by the department*

The Department is relatively small and cannot afford to excel in everything. It should seek to focus on those areas where there are sound indications that it can make itself a name. It should try to create synergies and share resources with other departments in order to be able to optimise the use of resources in research but also in educational activities.

Given the ever-increasing accountability and management requirements of the national and the EC funded projects, the Department should seek to strengthen its financial and management support services. This could be achieved by sharing these services/resources with other departments.

Industry funded research and other applied research or support activities should continue and be enhanced further. For the Department, the added value of Industry funded project is in their educative role and to linking of research to practical industrial applications rather than the additional budget they provide.

### **D. All Other Services**

*For each particular matter, please distinguish between undergraduate and postgraduate levels, if necessary.*

The Departmental supporting services regarding logistics, supply, and procurement procedures, as well as core functions of teaching and research are distributed between the central technical finance and administrative services of the University of Thessaly and the local staff in the Department. Due to the operating procedures regulated by law and the diversification of the financial resources the support service function suffers bureaucratic procedures and lack of effectiveness, in spite of the efforts on the Department level.

However, effective methods of organization in order to provide a better use of the human resources and more extensive use of informatics tools, such as for example paperless procedures, can improve the level of services to the students and staff.

The total number of the members of the staff, employed under different types of contracts, could contribute further to the expansion of both the undergraduate the postgraduate programs of the Department. However, although there is a number of highly qualified employees (including several with Ph.D. degrees), it is the Department's position that there is a shortage of supporting technical staff that, in principle, could facilitate the safe and effective use of the equipment by the junior undergraduate students in the laboratories.

The committee notes that it would be beneficial if an administrator could be appointed within the department in charge of integrating, coordinating and streamlining the administrative and technical Departmental functions in close collaboration with the head of sections, the head of the laboratories and the teaching staff. That could increase the efficiency and quality of the Departmental services.

The committee also noted that the present form of organization of the technical and administrative staff is of island type and therefore the functionality of the administrative support in unexpected workload is only achieved due to the good relations between the members of the staff and their helpful attitude towards their colleagues. Although the undergraduate students find the administrative support satisfactory, a significant improvement could be achieved through a better organization of the administrative functions and the use of informatics in several instances.

The Department has a clear policy towards simplifying the administrative matters as it is evident by the implementation of on-line submission of the course evaluation form and the use of the web for disseminating information related to the Departmental mission and function as well as for teaching purposes. Incoming student registration appears to be outdated, as the need for submitting the required documents the Department appears to be obsolete and most likely based on existing bureaucracy stemming from state laws and regulations. It was enchanting though to realize that all these inefficient and costly processes will be simplified in the near future by implementing web-based registration and thus a more efficient monitoring of student records.

The EEC reviewed the present Library services for students and staff and these were found to be acceptable. The principal concern relates to the physical distance of the

Library building from the Department, which impact negatively the physical use of the Library resources, especially reference books that exist largely in the print form. On the other hand, students and staff have access to the electronic Library resources, which appear to meet the internationally accepted standards. The EEC could not judge the quality of the journal and other electronic documents that are available. However, it was reported that access to about 20,000 electronic entities is warranted, which should be more than satisfactory for the Department.

The management of the financial resources is transparent. Most funds are equally distributed to all faculty members. The EEC believes that the distribution of the ΤΣΜΕΛΕ funds should be based on strategic priorities rather than on an equal distribution basis.

The Department is housed in a renovated industrial building, which used to be a factory. This building accommodates the teaching staff offices, secretariat, the auditorium used by the first year students, and the majority of the laboratories. A small number of laboratories and the classrooms used by the second through fifth year students are accommodated in prefabricated wings nearby. The condition of the buildings after approximately 15 years of use, is rather decent and satisfactory under the circumstances compared with buildings of other universities. However, the need for a new building that would house several Departmental education and research facilities is apparent and will add missing services for the students, such as, for example, a restaurant, and will improve the chances for further development.

Regarding increasing the student presence on Campus, the Department does not have a clear policy other than the reputation that has established of being a “different” Department based on the positive overall atmosphere that has been mentioned in a previous section. The EEC members agree that the Department tries hard to achieve this goal and that it is hard to implement other plans based on constraints and priorities imposed by external factors.

In summary, the Department is very attentive and sensitive to the various services that are available to teaching/research staff and students and has provided a very realistic description both in the EEA and during the various interviews of the deficiencies and shortcomings that need to be addressed. It became clear though to the EEC that the issues raised stem largely from funding and administrative constraints imposed by the ministry of education and to lesser extent by procedural deficiencies at the Departmental and/or the University level.

#### **Collaboration with social, cultural and production organizations**

The collaboration with industry appears to be satisfactory as a notable number of faculty members are involved in a variety of professional activities at local and state level. The involvement in other social and cultural organizations could not be quantified adequately by the EEC members.

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

*For each particular matter, please distinguish between undergraduate and postgraduate levels, if necessary.*

It was a pleasant surprise to verify the commitment of the Department on continuous quality improvement concepts. The EEA was very rich in data and reflected a major effort. However, it lacks specific definitions of goals and objectives. Just aiming at excellence is vague. Specific objectives and associated quantifiable metrics, based on strategic priorities, must be defined and implemented at all levels. Indeed, the EEA can be used as a first step in that direction.

The Department is facing a large number of inhibiting factors both at internal and external level. The University appears to be particularly supportive of the Department and the EEC confirmed this very fact through interactions with members of the University Central Administration.

At the State level, the inhibiting factors are rather severe for three reasons:

1. Funding is uncertain at all levels. While the Department could function with the current resources, the desire for growth is always healthy especially in a competitive environment, as long as growth is pursued through strategic planning.
2. The fragmentation of the University buildings and services creates several issues like resource sharing, joint activities and the lack of a stimulating campus atmosphere.
3. More important, as discussed more extensively in the Introduction section, the prevailing atmosphere among the university students is a major dysfunction of the higher education system and needs critical attention by the leaders of the country.

At the Departmental level, the inhibiting factors are:

1. The obstacles in bringing good students and faculty in the Department and keeping them involved.
2. The mentality that further improvements will be achieved only by increasing the financial and human resources. Strategic optimization of resources is the answer to the difficulties of the times.
3. The desire to emulate other Greek established ME programs. There is a distinct need for the creation of a unique identity that will allow the Department to compete intelligently.
4. The adherence to a strict rotation system in the leadership of the department may prevent opportunities to take advantage of the management capabilities of specific faculty members while forces those who possibly lack relevant skills to take administrative responsibilities.
5. Of concern is also the fact that the department failed to identify a person to hire in a large number of recent faculty searches. This needs to be analyzed and appropriate corrective actions should be taken.

The EEC believes that the department has the right mentality to adapt to change and will readily capitalize on the recommendations resulting from the evaluation process.



### ***F. Final Conclusions and recommendations of the EEC***

*For each particular matter, please distinguish between undergraduate and postgraduate level, if necessary.*

The EEC members concluded the following:

1. The Department has managed in 18 years to develop to one of the best in the University of Thessaly and, through intense and well-thought hiring, to increase the visibility of its undergraduate program as well as the intellectual output through the research of a large number of the faculty. These achievements are very notable and substantial and should serve as an example in the higher education in Greece.
2. The atmosphere in the Department is particularly positive and appropriate for improving its visibility even further and for achieving further growth.
3. There are significant issues that need to be addressed at a State level, as discussed in the previous sections.
4. The Department's undergraduate curriculum is overloaded and does not serve properly both students and faculty.
5. The Department should capitalize on the results of the EEA and this report and continue the strategic planning process with the following actions: (a) identify a small group of peer departments (6-8 units, with a mixture of Greek, European and US units and a balance between similar units and units that the department aspires to emulate) and compare metrics against them, (b) define specific and measureable goals and objectives, and (c) develop strategies to meet the said goals and objectives. The existing Department's resources need to be optimized further.
6. Emphasis should be placed on student retention.
7. The postgraduate needs to gain brand recognition.
8. There is need for a rather comprehensive and realistic strategic plan that should address future growth as well as the further improvement of the practices based on the existing resources and the unique capabilities of the Department.

## The Members of the Committee

| Name and Surname | Signature |
|------------------|-----------|
| 1.               | _____     |
| 2.               | _____     |
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