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

EXTERNAL EVALUATION REPORT

Department of Electronics,
School of Technological Applications
TEI of Athens

May 2010

TABLE OF CONTENTS

IMPLEMENTATION

- Research promotion and assessment, quality of support and infrastructure.

RESULTS

- Research projects and collaborations, scientific publications and applied results.

IMPROVEMENT

- Proposed initiatives aiming at improvement.

D. All Other Services

APPROACH

- Quality and effectiveness of services provided by the Department.

IMPLEMENTATION

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

RESULTS

- Adequateness and functionality of administrative and other services.

IMPROVEMENTS

- Proposed initiatives aiming at improvement.

- Collaboration with social, cultural and production organizations

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

- Short-, medium- and long-term goals and plans of action proposed by the Department.

F. Final Conclusions and recommendations of the EEC on:

- The development and present situation of the Department, good practices and weaknesses identified through the External Evaluation process, recommendations for improvement.

External Evaluation Committee

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

1. Professor **Costas Xydeas** (President)
   Lancaster University, UK

2. Professor **Elias Siores**
   Bolton University, UK

3. Dr. **Christos Verikoukis**
   Telecommunications Technological Centre of Catalonia, Spain

4. Dr**. Georgios N. Yannakakis**
   IT University of Copenhagen, Denmark

5. Professor **Demetri Kalymnios**
   London Metropolitan University, UK

Introduction

The external evaluation committee (EEC) visited the TEI Athens and the Department of Electronics during the 17th to the 19th of May, 2010 period. More specifically, after being briefed in the morning of the 17th by ADIP on the Greek Academic Quality Assurance Review framework and procedures, the EEC visited the TEI Campus and had a short meeting with the President of the Institution, the Vice Presidents and the Head of the Department of Electronics. Furthermore, during the 17th, 18th and 19th of May, the committee also had lengthy discussions with the vast majority of departmental staff and committees, as well as a small number of students. In particular EEC had meetings with i) the departmental committee in charge of internal quality evaluation preparations and departmental report , ii) academic staff members, iii) research and laboratory associates, iv) the administrative support team, and v) a selection of current students and past graduates.

The EEC also had an extensive tour of the TEI Library and all departmental Teaching and Research facilities. Moreover, specific presentations were provided to EEC, by the Head of department and other Senior Academic staff, on major academic topics such as undergraduate and postgraduate teaching and programs activities, research activities, departmental links with Industry and knowledge transfer activities, administrative services and infrastructure, as well as IT support. Note that throughout the visit additional information was requested and appropriate documents were provided and scrutinised by EEC. A detailed list of meetings and documents made available to EEC is presented below. On the 20th of May a first draft of the external evaluation report was compiled. Work on the final version of the report was concluded late on 21st of May.

The visits at the TEI of Athens included the following activities:

The committee met with the following people and in the following order:

- President of the TEI of Athens;
- Head of the Department of Electronics, TEI of Athens;
- TEI Technical Support team;
- Academics responsible for the internal assessment report;
- Division leaders and other members of academic staff;
- Laboratory assistants;
- Technical support personnel;
- Students (from different years of study);
- Administration personnel;
- Library personnel.

The committee was also given access to:

- The internal evaluation report (of 15th January, 2010) prepared according to H.Q.A.A. guidelines by Prof. Nomikos, Prof. Triantis and Prof. Nassiopoulos.
- The program of Undergraduate studies.
- The MSc program which is offered since 1990 in collaboration with Brunel University in the UK.
- Examples of examination papers.
- Examples of Textbooks used.
- Examples of student evaluation reports.
- Staff modules report

- Course syllabus, specifications and reviews.
- Staff CVs.
- Course grade statistics.
- Student final year project reports.
- Examples of publications / Conference Proceedings and edited volumes
- Project deliverables.
- Contract between the Department of Electronics of the TEI of Athens and Brunel University in the UK.

The committee visited:

- All Departmental Facilities in general and research and teaching laboratories in particular, i.e. power electronics; electronics; material evaluation laboratory; telecommunications laboratory; microwaves antenna, digital and optical communications; R&D telecommunications laboratory; computing and data processing; automatic control and embedded systems; micro-systems, sensors and embedded systems, where the EEC had the chance to observe students taking laboratory sessions;
- The main TEI library and the video conferencing facilities for distance learning/teaching.

Finally EEC members were provided with all the information and documentation that was requested with respect to the evaluation exercise.

A. Curriculum

APPROACH

Undergraduate (UG) programme:

The main driver underpinning the department's Undergraduate (UG) curriculum design process has been the education and training of students into competent electronic engineering graduates, for fulfilling the needs of the following three industrial and technological sectors: Telecommunication Systems, Electronic Systems and Information Systems. In the past, the department has undertaken a number of comprehensive curriculum design reviews, as part of the **EPEAEK I** and **II** activities, while being in consultation with interested parties, including Academics, Industry and Students. The currently used UG program of study is characterized by the wide spectrum of skills and knowledge that is required to address the plethora of applications and technologies used in the above three mentioned industrial sectors.

The committee shares the belief with the department that the current curriculum meets the above general objectives and the requirements imposed by employers and the society in general. This has been achieved by i) the work undertaken in the above comprehensive curriculum reviews and ii) the subsequent feedback information and opinions obtained from continuing consultations with stakeholders. Thus, the department has in place annual procedures for the revision and ongoing development and improvement of the UG programme.

Graduate programme:

The department has a significant experience in the delivery of graduate education at the MSc level via its collaboration since 1997 with the University of Brunel, UK in general, and the delivery in the department of the Brunel one-year MSc programme entitled "Data Communications Systems." This is a well-designed part-time (two-year) MSc programme that meets the research and development needs of the UK and Greek employment markets in the rapidly expanding area of data communications. This programme enabled departmental staff to acquire important teaching and co-supervising experience at graduate level and acted as a catalyst in the development (by an appropriately established committee) of their own future and potentially successful graduate educational activities (e.g. proposed MSc in Advanced Electronics in Telecommunications, Industrial and Biomedical Systems).

Doctoral programme:

There is no official PhD programme degree award capability by the TEI educational institutions of Greece. Nevertheless, Academic staff in the department of Electronics co-supervises PhD students who are often supported by departmental externally funded projects (e.g. EU FP7 projects) but are formally registered as PhD students at other collaborating Greek and International Universities.

IMPLEMENTATION

The program of undergraduate and postgraduate studies is satisfactory regarding breath, depth and appropriateness; it combines well theoretical and practical aspects of training in electronics. Moreover, members of staff are appropriately trained and thus ensure that a high quality delivery of teaching material is achieved. However, the currently available laboratory equipment can be improved in certain cases.

In general, the UG curriculum compares well with that found in UG courses of other Greek and International Universities, and meets the accepted undergraduate technological education standards. However, Greek, ministry of education, UG studies policies are highly prescriptive and inflexible (e.g. 2 hours lecture + 2 hour lab for all courses). These rules also allow the possibility for students to undertake an excessive number of subjects per semester, than it is usually pedagogically acceptable (e.g. 5-6 subjects per semester) with the result of students having an unreasonable overall number of contact hours per week. Moreover, such policies also allow students the possibility of studying subjects (theory and laboratory) without the successful completion of other prerequisite subjects. Finally, the Greek educational system allows students to perpetually continue their studies while creating huge organisational/management and resource problems to departments and Universities.

The structure and flow of the curriculum is considered to be rational and appropriately articulated. There exist procedures for course coordination at a departmental level and through the three existing areas of concentration (divisions).

The curriculum is considered coherent and functional.

References, mainly on supplementary textbooks, in most subjects are deemed to be appropriate, but in a few subjects they appear to be outdated, thus revamping of such information is necessary. Thus in some modules, the inclusion of the latest technological developments can substantially improve the currency of the subject (e.g. 802.11 g/n, WiMAX, 802.15.4, LTE etc.). The time offered for the teaching of the various courses is sufficient provided that no disruptions occur.

Tenured academic staff is highly professional with considerable educational experience and ability whereas newly hired staff is selected to enhance departmental knowledge and expertise. However, the committee elaborated whether or not the employment of ex-graduates as new staff in the department is good practice.

The large number of external short-term, hourly-paid staff (including scientific laboratory associates) can give rise to academic and administrative difficulties.

In general the department needs much more space for the delivery of this UG program, mainly for laboratories and also for lectures. The existing office space that is allocated to staff is definitely inadequate according to international and academically acceptable standards.
Open-access computing equipment in general is considered to be sufficient.
In contrast, some hardware equipment are outdated and in need of urgent replacement. Furthermore, the simultaneous sharing in laboratories by several students of the same experimental equipment creates impediments to the learning process which can be substantially improved by acquiring extra hardware units.

RESULTS

Overall, the committee believes that the current curriculum implementation is more or less sufficient in achieving the department's goals and objectives. However, due to the implementation issues raised in the above section, there is considerable room for improvement.

The quality of the students at the time of entering the degree course is not as uniform, as it will be normally expected. In particular, there is every year a significant number of "special case" students who are accepted /permitted to register the department's UG programme without level of background knowledge. Also the current system (rules) of transferring students with lower University entry examination results from less popular Institutions/ courses to the most popular and successful Departments (such as the Electronics Department of TEI of Athens) is instrumental in further deteriorating the above mention inequality in student ability . As a result the average level of quality in curriculum delivery tends to adapt to the needs of the weak students i.e. to a relatively low value and this of course is to the detriment of the more bright and able student.

The department has a complete understanding of most of the above-raised issues and needs external help and support, particularly in terms of appropriate changes of rules and regulations.

IMPROVEMENT

In general the department is in favour for keeping the number of contact hours as low as possible and for allowing at the same time students to develop their knowledge through personal study. This practice is established widely in higher education overseas institutions.

The rules and regulations governing the maximum allowed years of study (i.e. double the number of study years) as defined by the educational law of 2007 should be **strictly** applied. Moreover, the current national practice for having the right to take courses (modules) of previous semesters during future semesters (carry modules across years) creates huge educational and progress-related problems for both the students and the academics.
In order to eliminate this undesirable situation it is proposed that new progression rules are introduced so that students may proceed to the next semester only after the successful completion of certain "core" courses which are defined by the department for each semester.

It is well understood and widely adopted in higher education, that experimentation/practical work follows theory and therefore that students should be allowed to take laboratory work only after completion of the theoretical component of a mixed course.

The department needs to maintain involvement with Industry in all divisions/streams of the curriculum design and development.

The first semester has a high proportion of absentees and this is attributed to the widely different educational backgrounds of the recruited students. To ease this problem the institution has proposed to introduce support classes for those who need it.

The department needs better laboratory facilities, both in terms of space and equipment. The department needs much more office space. It is quite unacceptable to have 3 or 4 faculty members residing in one small office. This handicaps the department's educational and research abilities and goals at large.

B. Teaching

APPROACH

The department's pedagogic policy and activities are largely supported by the interaction with and also feedback obtained from students, and is underpinned by the desire for continuous improvement.

The teaching methods used are varied from conventional lectures to highly interactive laboratory type of activity. In general the comments provided by students on teaching methods and quality were positive. The need to employ the most experience and gifted staff on courses delivered in early semesters was also identified and should be adopted.

The current ratio of faculty members over attending students is 1/20 and quite acceptable.

There seems to be a healthy cooperation between active students and teachers. Teachers make themselves available during a number of weekly predefined hours. There seems to be a mutual respect for each other.

As previously mentioned, there are issues related to equipment shortfalls.

Computing and Network facilities are well organised and used. In particular the recently introduced e-class (e-κμάθηση) system has been praised by the students. EEC strongly believes that the departmental use of computing and network services provides a model for the advanced use of ICT f by students and staff in other national and international institutions.

The current examination approach is mainly based on written exams at the end of the semester and also on the completion of laboratory exercise sheets. It is noted that the existing educational law does not allow for any other forms of final examination (e.g. oral examination or continuous assessment)).

IMPLEMENTATION

The level and quality of teaching are considered to be high as evidenced by the results obtained from student questionnaires.

The quality of course material is satisfactory as evidenced by student feedback (score: 3.7 out of 5) but could be improved. There is a strong case to be made for upgrading teaching resources in the department (e.g. permanent projectors and classroom internet access facilities).

In general the course material is up to date; however, as it was raised earlier, in a few courses the inclusion of the latest technological developments can substantially improve the value to students of the subject matter.

Note that staff often provides and supervises research-based final year projects. The EEC, after viewing several representative final year project reports, formed a positive and complimentary opinion on the level and educational value to students of final year projects.

A few students (12 in the last 5 years) participate in mobility-related EU programmes (e.g. the Erasmus program). Some faculty members have good international contacts and the long-term cooperation with the Brunel University has helped the department and its staff significantly.

There is a formal procedure (mostly questionnaires) by which students regularly report on their teaching and educational experience.

RESULTS

In general student evaluation scores on teaching quality are particularly positive. More specifically the vast majority of scores are well above average.

The overall statistic of only 1 out of 2 students being able to complete their studies within 8 years is highly undesirable and the department should work towards the rapid reversal of this trend. The department has firm views on how to achieve this but needs permission in changing certain rules. (see also previous curriculum section)

There are major discrepancies between success and failure percentages between courses (modules). Clearly, courses liked by the students scored well in student questionnaires. In contrast, courses that are not liked by students scored low. These statistics show evaluation trends that are the same for the various subjects from year to year. This in turn suggests that the objective to improve quality by utilising quality evaluation tools, such as questionnaires, is not achieved in by the Department and feedback is merely used as a statistical measure rather than as a means for continuous improvement. Such discrepancies are not justified, especially if actions are not taken to rectify the challenges and issues raised above.

There is a clear and evident link between time to graduation and final degree grades. Most students who complete their undergraduate studies within the prescribed time limits tend to also obtain relatively high final degree grades.

The department presented its own reasons in explaining both positive and negative results. In the former case, the department argued that positive results are due to good teaching practices, whereas in the latter case arguments pointed to the direction of student's ineffectiveness and lack of relevant knowledge background. In contrast, the students interviewed by EEC had clear understanding of the issues involved and have suggested solutions to the EEC including the potential for improving the teaching and communication abilities of staff through appropriate pedagogical seminars and staff development activities. They have also identified certain teaching staff that should be used as exemplars.

IMPROVEMENT

The department has already implemented learning improvements such the organisation and delivery of additional tutorials to supplement lecture materials. There are also proposed other methods and ways for teaching improvements including mid-term examinations with credit, selective visitors from Industry to the department etc, all being documented in the internal evaluation report. The EEC fully supports such initiatives and in addition suggests the following:

- Introduce and implement the practice of using External Examiners for independently assessing the quality of degree standards while formally participating in relevant teaching departmental committee meetings.
- The introduction of internal Examination Subject Moderators for independently moderating examination level and marks.
- The adoption of Group works with credit and examinable written and oral presentation components.
- The introduction of Personal Tutor responsible for the general well being and academic progress of a group of students.
- Whenever possible the adoption of a number of relevant class visits to Industry and Public organisation thus exposing students more the workings of the real work practices and organisational interests.

Comments on the proposed new MSc program

The EEC has considered the recently proposed MSc program of study. The idea of the department offering its own MSc program is generally supported by the EEC. However, the proposed program lacks of focus and it does not provide any evident specialisation and required depth in its three application areas. It seems to be a conglomerate of modules that cover the whole spectrum of subject areas supported in the department. It also proposes to cover an area which is currently covered by the expertise residing in another department within the Athens TEI. Moreover, it was not clear if the level / standard of the syllabus is sufficient for an MSc level degree course.

The department needs to rethink its strategy regarding this MSc program and thus to develop a more appropriate program of studies that will enable students to truly specialise up to Masters level.

C. Research

APPROACH

There are 9 active research/teaching laboratories within the department which relate to the three main departmental technology sectors. Research in these general areas could potentially absorb the research activities of all present and future staff. There are four laboratories fully dedicated to research.

There is no formal departmental strategy in research with clear aims and objectives. Moreover, there is no research committee. It has been mentioned that a research committee will be set up in the near future. When the research activity increases up to the point of creating conflict with the main teaching duties, departmental policy to resolve this problem will have to be established.
The committee believes that more research infrastructure is urgently required, such as space and equipment (both software and hardware). The department can only accommodate PhD students by collaborating with other PhD awarding institutions. The department already utilises this and only available collaborative venue to carry out PhD related research.

There is a close collaboration among the researchers of the department. This was especially evident from meetings with research and laboratory associates. The main motivations for research as identified by EEC are the career development and promotion of individual staff members via their scientific recognition/contribution at international level.

The department is currently working on the approval of a new M.Sc. program on "Advanced Electronics in Telecommunications, Industrial and Biomedical Systems". An appropriately created MSc programme will act as a feeder of PhD researcher in the department.

IMPLEMENTATION

There is no formal research policy. However, the current research activity is realized through the activities of individual staff and their preferred research interests which often relate to their teaching areas and corresponding laboratory activities.

There is no formal research budget; however, there is an annual travel budget for the academic staff members.

The serious lack of research space and appropriate equipment are found to be serious obstacles in planning and developing future research directions

Staff are well aware of the significance of publishing in internationally-recognized, peer-reviewed scientific journals. All evidence presented support this. Staff is encouraged to participate in research conferences.

Academic staff has been awarded a number of research programmes and they enthusiastically strive to win more programmes from externally-funding sources.

There is evidence that the department fully exploits its international and national contacts to the maximum for research collaboration activities.

RESULTS

Formal research objectives were not given to the EEC and the committee cannot quantitatively comment on the success of the department meeting its research goals. However, the committee was informed that all staff is expected to be involved in research activities and that high-quality research output appears to be a vital criterion for hiring new staff.

From the evidence submitted to EEC, the number of publications for the whole department is considered satisfactory, given the difficulties of the research environment. More specifically, over the last 5 years the total number of journal publications, articles in conference proceedings, book chapters (including books) and edited books produced is, respectively, 237, 444, 10 and 16.

The exact number of publications per member of staff is not known. This is because in the internal report the vast majority of publications are authored by more than one staff member of the same department.

The department has participated in a significant number of national research projects (e.g. ΑΡΧΙΜΗΔΗΣ) that supported the research activities of staff members and provided some new equipment. Additionally, research funding has also been secured from international collaborations (e.g. FP7) but such support is generally more difficult to obtain. Not surprisingly this seems to be the case in the last 5 years.

There is substantial inter-disciplinary research within TEI of Athens. Staff members of the department of Electronics collaborate with staff from the departments of Informatics, Medical instrumentation, Physics and Mathematics (among others).

Within Greece, the Department has established an impressive number of national collaborators including the Demokritos institute, University of Athens, Technical University of Athens and the Aristotelion University of Thessaloniki.

There are also clear indications that the Department has a network of International research collaborators in institutions such as Brunel University, Bolton University, and the University of Cyprus.

The collaboration with Brunel University is particularly noted and has brought to the department extensive experience in graduate studies and in international collaboration at graduate level.

Examples of research equipment that had been built within the department were presented to the committee. A number of patents granted was mentioned during discussions but not formally presented to the EEC.

It is evident that the department's research is acknowledged and visible outside the department. EEC was not informed of any special awards or rewards won by departmental staff.

IMPROVEMENT

The department needs to increase participation in national and especially international research projects. The department must intensify its attempt to increase its externally-funded research projects. It is worth noticing that the department has attracted only one FP7 and one INTERREG project over the last 5 years; an ESA-funded project was also presented to the EEC. While all these are important milestones for a TEI department, nevertheless, the EEC believes that there is a lot of scope for improvement in this area. The department is well aware of this situation and indicated clearly the importance of such pursuits.

The department aspires to increase the number of PhD projects awarded through research collaborations with national and international PhD-awarding institutions. The department wishes to introduce a doctoral programme which will strengthen research at TEI. Currently, graduate students are formally registered to another University and are only co-supervised by a TEI staff member. It can be argued that this type of dependency to other Universities needs to be abolished if TEI wishes to boost research quality and income. Furthermore, more recruited PhD students could assist in teaching activities (with remuneration) and thus allow staff members to concentrate more on research activities.

There are no significant international staff exchange visits (i.e. invited lectures, seminars etc) as observed by the EEC. Not all academic staff are involved in research activities.

D. All Other Services

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

APPROACH

The department understands the importance and contribution of administrative services in achieving its goals and aims. Currently there is a complement of 3 secretaries (2 for undergraduate studies and 1 for post graduate studies) in the department.

Secretarial and other departmental staff use an advanced e-infrastructure web based system, while dealing with request and activities related to students (students web) and staff (class web) e.g. student registration to courses, the efficient provision of academic certificates, newsletters, the provision of marks, the provision syllabus related and other information to students.

A career services, student support office exist at TEI level.

General IT support is provided centrally by the institution and includes the management and running of the IT networks.

Student support services are provided by TEI and include help for accommodation, the provision of free meals, the possibility of students to obtain loans and a level medical insurance. There is also a separate financial account to support students in greatest need.

The department places considerable emphasis in the electronic process and provision of administrative tasks. Furthermore there is an ongoing desire by the department to further enhance and simplify its administrative procedures.

The department is encouraging students to undertake other than academic activities (e.g. cultural, sports).

IMPLEMENTATION

There is a useful level of support that is provided from the centre (TEI) regarding general administration activities, financial activities, academic studies and student support and some other departmental activities. The department itself provides extra administrative support with two secretaries allocated to undergraduate support administration and a further one to cover postgraduate administration matters. There is no clear allocation of administrative/secretarial support to academic staff.

The perceived relationship between the departmental administrative staff and other staff/ students is judge to be healthy and productive. Responsibilities are allocated and tasks executed efficiently. However, there is need for formalising the allocation of administrative support responsibilities in a way that is visible to all staff.

ICT services to students and staff are sufficient. Computers, networks, Internet room and WiFi connectivity exists.

The central library facilities are of high standard, and the building is new while, staff is highly professional and helpful to users. Facilities in the library include a teleconference room.

A further high quality teleconference/distance-learning and teaching facility is also available within the departmental building.

The department mention of a number of cultural and sports activities organised for the students but of course the EEC could not easily validate this.

Career advice and consultation to students is a central provision but it seems students were not using this facility. It seems that links between the central career advice office and the department need to be strengthen.

RESULTS

Administrative services are reasonably effective mainly due to the use of web-based systems but there is always room for improvement.

Technical support services are reasonable but not advanced.

IMPROVEMENTS

The functionality and characteristics of the relatively new e-infrastructure used by the department is quite sophisticated and as such it should be used by academic and support staff in a more effective manner (e.g. a wider use of mailing lists to certain group users).

The exposure of students to the services and help offered by the central Careers Office should increase and the appointment of a member of staff in the department to act as liaison officer with the centre is recommended.

Finally, some additional secretarial support to academic staff will be particularly beneficial and will increase staff productivity and effectiveness in carrying out academic duties.

Collaboration with social, cultural and production organizations

The department has been active in establishing relationships with social cultural (city halls, scientific societies, secondary education schools) and production organizations via past EPEAEK and current ESPA programs. In addition, academic staff has significant links and collaborations with production organizations (e.g. N-Topos, EmTech, DATEC etc.).

Members of academic staff are active in the promotion of technologies via public lectures and presentations while aiming to expand the knowledge of non-informed in the subject members of the society. The enthusiasm of academic staff towards this type of collaborative activities is particularly noted.

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

Potentially inhibiting factors at State level for the further strategic development of the Department of Electronics include many of the rigid rules and regulations governing TEI education. Specifically mentioned here are those rules related to the transfer and matriculation of students from different TEI organisations that have different cut off entry levels, rules concerning the maximum allowable time that students can register on undergraduate program, multiple examinations etc. Such policies lead to overcrowded classrooms, two tier student standards residing in the same class, and in latter years to the characteristic Greek phenomenon of "limnazontes". Other State inhibiting factors are the lack of funding for upgrading classrooms, laboratories and other capital infrastructure including appropriate staff office accommodation. Above all, the State needs to release funding promptly for the filling of existing vacant departmental positions earmarked according to strategic planning and directions.

Institution-related inhibiting factors revolve around the practices and models used in the distribution of funds to Departments. Currently funds are equally shared amongst Departments and within each Department they are also equally shared amongst academic groups. This practice may be egalitarian but does not consider the real needs of the Department and its academic groups. Put simply, it does not take into account the specific plans that the Department develops which may include new initiatives in terms of undergraduate, postgraduate and / or research programs, and their respective associated needs and funding requirements.

The short term goals of the Department are clear, succinct and well communicated to all staff and students. They are rightfully student centred and focus on student services improvement and better academic delivery of the curriculum. The Department's efforts in this respect are commendable.

Medium term goals are directed towards the expansion of laboratory and office space according to real needs, and the development of new postgraduate degrees courses to be offered by TEI with or without the collaboration of third parties. This latter goal will add credibility and kudos to the Department, allow "lifelong" learning opportunities for its students and help establish a research minded cohort of students who may wish to pursue Doctorate level studies in other organisations and in collaboration with the Department.

It is very difficult to make long term plans within a TEI framework or environment and in relation to an often unstable and turbulent Industry. The Department recognises this and will continue to provide the 'backbone' of engineering personnel as required by Industry.

Plan and actions for improvement by the Department are well documented in the Internal Evaluation Report and they are also detailed in this report.

Long term actions are based on the Department´s core activities, as a primarily teaching and learning organisation focusing on the current and future needs of industry, as well as on applied research and consultancy.

The Department endeavours to continue serving its TEI defined aims and objectives within this academic niche and strives to develop appropriate curricula and applied research activities that serve the ever increasing and ever changing needs of Industry and Society.

F. Final Conclusions and recommendations of the EEC

The Department of Electronics is viewed by EEC as one of the leading technological departments in Greece. The department has progressive views and its staff strives for improvements in the quality of operations and the learning experience that is offered to students. The committee offers the following recommendations and commendations within the form and spirit of this evaluation process, as a means for reflection and further developments in reaching excellence.

Space

There is lack of adequate space for teaching and faculty member's offices, space which is vital to the correct operation and development of the department. Each faculty member should have a modest but private office; The lack of space in most of the laboratories visited by EEC was apparent and this is detrimental to both teaching and research activities. There is urgent need for a considerable amount of additional research laboratory type of space, now that the department is trying to seriously expand its research.

Technical infrastructure

The proposed new research laboratories should be properly equipped, according to the needs of corresponding research groups and operate under a research planning and management structure that must be established and be operated by the department.

The teaching infrastructure should be used to the maximum while offering students enhanced distance learning opportunities. This infrastructure, in terms of i) hardware and software and ii) related support staff, must be fit for purpose.

Administrative infrastructure

As departmental quality assurance procedures are put in place and evolve, there is need for increased secretarial support which can be absorbed by the current secretarial personnel or might require additional staff.

E-services should be more efficiently used (e.g. mainlining lists for specific groups) and updated according to departmental needs.

Funding

The EEC believes and strongly supports the case that funding from the TEI centre to the department should be distributed in a manner that reflects the strategic plans and priorities of the department and also relates to the size and needs of the separate student groups and activities carried out within the department.

Incoming research funds obtained via the R&D route and from collaborative projects with industry and other organizations (e.g. FP7 projects) should increase and develop into a major income stream for the department. This will provide the needed funds for maintaining continuity in the employment of research personnel in general and in-between project periods of time in particular.

Funding support for international conference participation exists but should be strengthened and used as a staff development tool.

Teaching load

Teaching load could be reduced in order to free time for academic staff to pursue their R&D, links with Industry as well as other academic interests. This can be achieved by the restructuring of the current course delivery framework that accepts first year students into two cohorts i.e. in September and February every year. The number of examination periods is currently excessive and counter productive to the teaching aims of the department and the teaching experience offered to the students. The department should seriously consider the development of a new examination framework (e.g. the abolition of February examination period).

Teaching loads and allocations within the department should clearly relate and reflect the load of staff in other areas such as research and administration.

Learning and teaching quality control

The EEC recommends that the department in general and the UG Studies Committee in particular, examine its procedures for ensuring the quality and consistency of examination papers, course specifications and course materials. The studies committee should formally review all teaching activities annually (examination results, student progression, student feedback, graduate achievements and statistics etc.), identify appropriate actions and developments and prepare an Annual Teaching Review (ATR) document. This can be used to effectively provide all the necessary information and evidence needed in future external evaluations.

Furthermore a regular and formal meeting (once a semester) between student representatives and academic staff, to discuss emerging teaching problems will also greatly help student's development and satisfaction.

The online availability of student performance and feedback statistics from previous semesters should be considered by the department.

The adoption of the 'External Examiner' role, for obtaining independent expert advice and also for quality assurance purposes, is highly recommended.

Commendations

EEC commends the high degree of enthusiasm and commitment that all departmental staff exhibit when carrying out their academic and administrative duties.

EEC also commends the quality of documentation and support provided to the committee for the purpose of this evaluation.

EEC commends the progressive attitude and thinking of departmental staff to accept changes and to consider new educational schemes and methods while striving for academic excellence.

The EEC key findings are summarised in the table below:

	Curriculum	Teaching	Research	Services	Strategy
Approach	**Very good** Well-thought, detailed and sound.	**Good** There are plans for extra tutorials, particularly for first semester students. **Limited / Restrictive** Lack of formal introduction of new staff to pedagogical training and practices (i.e. teacher training courses, peer-review, etc.) **Restrictive** More teaching space is required	**Very Good** Positive attitudes and outlook for future activities with local national and international collaborators **Limited** No formal departmental research strategy and committee.	**Very Good** Infrastructure web-based system **Very Good** Student support services	**Very Good** Appropriate for TEI and positive **Restrictive** State government funding support is needed for implementin g plans
Implementation	**Good** Need for more space.	**Very Good** Quality of teaching procedures and course material **Good** Concerns on timely delivery of textbooks **Limited** Mobility of staff and students	**Restrictive** Limited budget; lack of space **Limited** Research activity objectives are not apparent	**Excellent** Central library facilities / teleconference, distance-learning facility, WiFi service **Limited** Not clear to the EEC the allocation of administrative / secretarial to academic staff	

Results	**Satisfactory** Within the present national regulations for higher education.	**Very Good** High student feedback scores **Limited** Discrepancies between success and failure percentages	**Satisfactory** Sufficient number of publications and volume of activity **Limited** Quality of peer-reviewed journal articles should be improved	**Good** Administrative services are, in general, reasonably effective	
Improvement	1. Effort to reduce the student load to realistic levels 2. Additional specialized classes (tutorials) for 1st year undergraduates . 3. Lab and office spaces 4. Change of regulations on the number of years of study and the unlimited times of retake exams	1. First semester students: Reconsider nature and workload; more individual support 2. Redesign the proposed MSc program to provide clear specialisation	1. Increase participation in international projects and research visit exchanges 2. Provide ability to award PhD	1. Existing e-infrastructure can be used more effectively 2. Better links between the department and the TEI career office	

The Members of the Committee

Name and Surname	Signature
1. Professor Costas Xydeas (Chair)	
2. Professor Elias Siores	
3. Dr. Christos Verikoukis	
4. Dr. Georgios N. Yannakakis	
5. Professor Demetri Kalymnios	