ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

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ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ
ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ
ΣΤΗΝ ΑΝΩΤΑΤΗΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC

H.Q.A.

HELLENIC QUALITY ASSURANCE AND
ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

DEPARTMENT: Electronics (Chania)

TEI: Crete

Version 2

July 18, 2012

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EDUCATION AND LIFELONG LEARNING
investing in knowledge society
MINISTRY OF EDUCATION, LIFELONG LEARNING AND RELIGIOUS AFFAIRS
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External Evaluation Committee

The Committee responsible for the External Evaluation of the **Department Electronics** of the **Technical Institution of Crete** consisted of the following three (3) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

Committee Members

Ioannis (John) L. Volakis, Committee Coordinator
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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
Brief account of documents examined, of the Site Visit, meetings and facilities visited.

The External Evaluation Committee (EEC) first met at ADIP at 9:30am on Monday June 2012. Dr. K. Memos discussed the review goals. Subsequently this EEC met and reviewed the submitted Self/Internal Evaluation report of the Electronics Department at TEI (Chania). This review led to additional information requested and submitted to Dr. Makris, Chair, Electronics Dept. TEI (Chania, Crete).

Below is the list of the Documents supplied and reviewed by the EEC, the groups interviewed during the visit and the schedule followed:

Documents supplied to the external review cmt:
1. Self Evaluation Report (>70pp) describing the curriculum, research, services, labs, dept history and the issues facing the department due to the methods used by the State to accept and move students within the Hellenic Republic.
2. More than 20 theses (Πτυχιακές) as examples of the works carried out by the students during their 8th semester.
3. List of regular Faculty and their publications till 2012
4. Curriculum/Program Study (current and new one to be effective in 2013 or so), including course descriptions, suggested books, responsible faculty, handouts to incoming students.
5. Asynchronous educational e-platform/eClass package (used for placing documents, lectures, homework, teaching material and videos on the web)
6. Annual Report 2010-11
7. Teaching and research budgets
8. Student data (number of available positions, incoming students, annual graduations)
9. Laboratories used as part of their course teaching and for research.
10. Student evaluation process, questionnaires and results of this evaluation.
11. Examples of research activities
12. Guide to regional companies with contact information to help students connect with companies for their practicum.

The EEC met with the following groups:
- Students pursuing their theses (Πτυχιακές)
- Cross section of 2nd, 3rd and 4th year students.
- Alumni currently working in nearby companies/organizations.
- Company leaders (4 persons) who hired graduates of the Electronics Dept.
- Department support staff
- ERASMUS exchange students
- Laboratory students and faculty during undergrad and research laboratory tours.
- Random undergraduate students in the major hallways

Schedule during the on-site visit
11 June 2012:
- Arrived at Chania airport in the afternoon, and was picked-up by Dr. John Makris, Chair of the TEI Electronics Dept, Chania, Crete.

- Met with TEI leadership from 6-9pm.
  The group of faculty was led by Prof. Evangelos Kapetanakis, TEI President. The following were among the faculty who met the EEC:
  Prof. Mihalis Tatarakis, Director of the 3 TEI departments under the School of Chania.
  Prof. Ioannis Makris, Chair of the Electronics Department
  Prof. Ioannis Kaliakatsos, former Chair of the Electronics & former Director of School.
  Prof. Kostantinos Petridis, faculty coordinator of the ERASMUS program.
  Prof. Kostantinos Savakis, Vice President of TEI and President of Mo.DI.P.

  During this meeting, Prof. Kapetanakis provided an overview of the TEI in Crete (a total of 18 departments, 3 of them forming the School of Chania-Rethymno (2 departments in Χανιά and 1 in Ρέθυμνο); 13,000 students, 187 regular faculty and 140 full time equivalent faculty). He also discussed the administrative layout, and mentioned a number of ensuing issues. One of them was the lack of formal graduate programs at TEI. This is in spite of the heavy research program being conducted by TEI faculty and students. As a result, faculty must find collaborators or formal advisors for the graduate students elsewhere. This process creates Intellectual Property Issues, weakens the stature of the departments and forces students to leave the area. A second issue brought up by prof. Kapetanakis was the limited number of the TEI academic staff and the relative inability to hire more.

12 June 2012
- Presentations by faculty (9:30am-12 noon) and Prof. Makris, Dept Chair; Overview of Department programs (teaching curriculum, research activities, services and resources);
- Teaching and Research Laboratory tours (12noon-8pm)---see the list of 25 undergraduate labs and 4 research laboratories given in the last page of this report. Meetings with current Dept students, exchange students and alumni to discuss their impressions about teaching excellence, preparation for professional career, services and experiences/program relevance after graduations.

13 June 2012
- Presentation of ERASMUS program and collaborations with international universities.
- Supplementary department data (faculty resources, student services)
- Curriculum review (current and new program) by Dept. Chair.
- Discussions with Support Staff
- Meeting with company leaders who hire the graduates

The EEC committee left for Chania airport around 4pm and returned to Athens around 6pm. Preparation of this report began on 14 June 2012.

II. The Internal Evaluation Procedure

The internal evaluation report provided to the Committee is rather extensive and included the following sections:

1. History of the Department's creation

   Created in 1984 and has so far graduated 878 students (currently about 60 per year with 18 regular teaching faculty, implying 3.3 student graduates per faculty). By comparison, Ohio State's Electrical & Computer Engineering Dept, ranked #19 in the U.S.A., graduates about 95 undergrad and M.Sc.+Ph.D. students per year or 1.9 per faculty member. Therefore, this Department's student production is excellent by international standards.

2. Department Structure and Department Goals (see later)

3. Focus Teaching and Research Areas

   This department has 3 focus areas: Electronics, Telecommunications, Controls & Information Technology. In their 5th semester, students choose between 2 offered areas of concentration: Telecommunications or Controls & Information Theory.

4. Curriculum program for undergrads and for graduate students, including collaborations with European Universities to enable the degrees and advising of graduate students (see sections 3 and 4 of the internal report)

5. Teaching activities of the regular and temporary/term faculty, student laboratories and activities, electronic teaching means via eClass, and self evaluation process.

6. Faculty and student interactions with other Hellenic and European Universities

7. Plans for continuous academic developments

8. Student services

9. Student statistics (incoming, graduating, class participations, student retention etc)

10. Faculty publications in reviewed journals and conferences

11. Conclusions with an extensive discussion on the positive aspects of the Department, its achievements and connection to the local community as well as recommendations for improvements.

Overall, this internal report was enthusiastically prepared, and well written. Coupled with supplementary documents (laboratories descriptions, 2010-11 annual report, ERASMUS presentation, research activity presentations, budget and student tables), this report is a fair and conscientious assessment of the department's status.

Based on the committee's on-site assessments, interviews and questions to the faculty, students and alumni, the internal evaluation report is fair and objective in its presentations and assessments. Therefore, when combined with the supplementary annual report, it is complete and meets the set out objectives in guiding the leadership and faculty to support the Department's goals to provide the students with (1) an integrated curriculum and working knowledge in the field of electronics, (2) specializations in established and growth technology areas, (3) independent thinking tools, (4) professional standards, (5) lifelong learning skills.

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

APPROACH

- **What are the goals and objectives of the Curriculum? What is the plan for achieving them?**

  The goals of the curriculum are to provide (1) a working knowledge in the field of electronics, (2) specializations in the practice of established and growth technology areas, (3) independent thinking tools, (4) professional standards, (5) lifelong learning skills.

  This department and University is primarily focused on undergraduate education as accorded by the governing State laws when it was established. However, based on new State laws, the department is proceeding to establish a Masters program as well.

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

  The objectives of the curriculum are typical and compare well with other curricula worldwide. The curriculum covers all aspects of electronics taught in similar departments worldwide.

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

  Yes, the curriculum is in line with the objectives and the graduates appear to be successful in their careers. It is very rich in technical content. However, given that many graduates (and this is true in all engineering schools) will likely engage in general engineering practices, a 'general engineering' course can be adapted to teach students about the thinking process and social issues facing practicing engineers. Among the items to be included in such a course are: approaches to satisfying design specs, problem solving skills, necessary compromises when solving specific problems, social and community issues, business law considerations, work safety and international standards. As an alternative, the requirements for such a course can be satisfied by seminars with participation from practicing engineers in the nearby region. It is important to note that such a course is not the typical practice in Greece, but is often a 'central' discussion topic in top engineering schools in the U.S.A. For example, Ohio State's engineering College has a special 'first year experience in engineering' program, http://eeic.osu.edu/first-year . This program is considered among the very best in the U.S.A. and is common to all incoming first year engineering students, irrespective of their discipline. That is, although this recommendation is made in relation to this review, it is applicable to all engineering schools.

- **How was the curriculum decided? Were all constituents of the**

Department, including students and other stakeholders, consulted ?

The Department has a typical undergrad curriculum with the inclusions of a thesis (ptyhiaki) and a practicum. The latter is done in the 8th semester while the student is employed at a company of choice. It is clear that the department faculty engage potential employers, students, and the community to ensure their participation. Student evaluations appear to be seriously considered. Also, the department's extensive outreach and collaborations with other Universities allows for inputs from other academics and researchers. The latter allows for inclusion of new materials and technological advances in the curriculum.

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

  Yes. The faculty receive inputs from companies, students, and colleagues from other universities to update their curriculum and laboratories to keep them in line with technological trends and with the society/employer needs.

IMPLEMENTATION

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

  The department has an excellent curriculum aimed at generating excellent engineers. The curriculum covers all essential topics. These include: basic math and physics preparation, circuits, electronic devices, power electronics, digital electronics, optoelectronics, electromagnetic and wireless technologies, controls & systems, signal processing, measurement techniques, modern computer programming techniques, microprocessors and mcirocontrollers, sensors and biotechnologies, power transmission and generation, applications & electronic systems (TV, communication devices), and networks; In addition, during the 6th & 7th semesters the curriculum allows for 2 specializations: (1) control systems and information tehcnologies [digital systems, computer networks, distributed systems & parallel processing, power electronics, signal processing applications/imaging, control networks with applications, smart control systems, organic electronics, mechatronics, multimedia devices, robotics, cost issues & societal integration issues], (2) Telecommunications [radio, radar, wireless/mobile/satellite communications, optical electronics, networks & biosensors].

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

  Very appropriate and rich for students at this level.

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

  Well detailed and communicated to students. Laboratories are relevant but require modernization. The latter is also noted in the department's self evaluation report. As already noted, this is a heavy curriculum and very broad. Some reduction in course offerings will be welcomed.

- **Is the curriculum coherent and functional?**

  Yes, very well thought-out and in line with international standards and

expectations. In fact, the curriculum is too rich [too many topics; it is recommended that some of the courses be shifted to Masters program, as appropriate].

- **Is the material for each course appropriate and the time offered sufficient?**
  Yes, the courses are logically introduced to prepare students from basic to more advanced concepts. It starts with (1) basic math and physics in semester 1, and proceeds to (2) basic electrical and electronics and programming skills in semester 2, (3) Digital electronics, basic optoelectronics, advanced electronic devices, microelectronics, signal processing, measurements, Computer aided design and controls in semesters 3 and 4. As already noted, semesters 6 and 7 are focused on specializations.

- **Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?**
  The department has 18 regular faculty and about 10 full time equivalent (FTE) temporary teaching staff employed to cover the curriculum needs. The teaching faculty have heavy loads, but are quite enthusiastic and highly engaging with students. Student evaluations indicate that more than 70% of the students are satisfied with the course material and their teacher's performance. Unfortunately, a significant percentage of students do not attend the courses regularly, particularly in the first 2 years. Further, notably, only 50% of the total matriculated students graduated. The latter is attributed to State laws that allow non-performing students to remain perennially in the educational system without penalty. As a result, the faculty must inevitably deal with a large number of students who burden the system without ever receiving its benefit. Consequently, they only increase costs for the State and increase faculty loads that would otherwise be used to promote excellence.

RESULTS

- How well is the implementation achieving the Department's predefined goals and objectives?
  The department does an excellent job in implementing the proposed intensive curriculum and in educating those students who decide to follow the curriculum, attend classes and graduate in reasonable time.

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

  N/A

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

  N/A

IMPROVEMENT

- **Does the Department know how the Curriculum should be improved?**

  Yes, the department has already produced a revised curriculum to address the continuing technological developments, the societal needs, and student interests in obtaining gainful employment after graduation.

- **Which improvements does the Department plan to introduce?**

  A Masters' degree will address the strong interests of students and faculty to be scientifically current and to carry out research in areas of innovation and market trends. Indeed, it is imperative that research be an integral part of the curriculum to allow faculty to remain current in their specialties. Even more importantly, given that technologies change significantly every 10 years, research allows faculty to remain relevant and interested in their field of study. For students, research allows them to become independent thinkers and teaches them self study and development methods that will serve them handsomely over their entire career.

  As already noted, the department has introduced a revised curriculum and plans to address technological developments via a Master's program as follows. By leveraging the European Union HiPER (High Power Laser Research), a M.Sc. in Lasers (possibly optoelectronics) is envisioned. This M.Sc. program will result in a European Joint M.Sc. degree. The participating universities include: Imperial College London, Queen's university Belfast, Universidad Polytechnica de Madrid, Universite Bordeaux and TEI of Crete. The plan is for a rotation program with different institutions taking a leading role. However, the TEI in Crete is expected to be a primary degree offering institution about a year after the program commences. This is a commendable development on the part of the department. Of course, expansion to other M.Sc. specializations must also be considered once the procedures are in place. As mentioned, in section E (below) entitled Strategic Planning, the M.Sc. program needs to quickly evolve to a more general, independent and self sustained 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**

  The faculty employ all well-known teaching methods and also employ electronic teaching tools. We observed that a majority of the faculty employ the eClass website to place lectures, homework, and solved exercises on the web. Thus, interested students can obtain all relevant materials needed to achieve excellence. In addition, the Department extensively uses undergrad laboratories to engage students in practical problem solving skills using hands-on methods. Laboratory manuals and writing processes for the laboratory exercises are available for the students. That is, the EEC found that teaching methods are modern and well-structured as compared to international standards. However, as already noted, the Labs need upgrading with new equipment to allow faculty and students to work on modern equipment employed in industry. Importantly, the faculty assign more than 1 book for each class. Thus, students have access to excellent resources outside the class, including access to published journals through the web. The books are most likely to be in English. Therefore, the students are exposed to the English language and scientific/engineering terminology, allowing them for further studies using international literature.

- **Teaching staff/ student ratio**

  It is difficult to state a fair teacher to student ratio. This is because of the large number of perennial students in the program due to the ensuing State laws. A more fair ratio is the teacher to the annual graduating students. So, we focus on this number below.

  To this date, and since its establishment in 1984, the Department far graduated 878 students. Currently the department graduates about 60 students per year using 18 regular teaching faculty, implying 3.3 student graduates per faculty. By comparison, Ohio State's Electrical & Computer Engineering Dept, ranked #19 in the U.S.A., graduates about 95 undergrad and M.Sc.+Ph.D. students per year or 1.9 per faculty member. Therefore, by international standards, this Department's student production is excellent.

- **Teacher/student collaboration**

  As noted elsewhere, the faculty of this Department endeavour to engage students and to integrate them in the curriculum from early on. Some of the interviewed students were quite enthusiastic about their relationship with the department and its faculty. However, due to the current State laws, the faculty

have no means to motivate and engage students into the curriculum during the first year. This is due to poor attendance in the first year. However, as the students progress towards the 2nd and 3rd year, their collaboration with faculty increases significantly. In fact, by the end of the 2nd year, students who are likely to graduate become heavily engaged with the teachers and get mentored well. These students participate in labs, interact with faculty about their Πτυχιακή (thesis) and begin to see themselves as professionals.

To its credit, the department has strong research activities. Therefore, the best students soon find themselves doing research and pursuing studies in the latest technological treads. Again, this is done through individual efforts by the faculty. Also, the department encourages this activity. As would be expected, to enhance the student-teacher collaboration, it is important for the State to allow teachers more flexibility in choosing their grading method and examination process.

- **Adequacy of means and resources**

  The department has 22 undergrad laboratories that support students in their courses. These Labs are listed in the last page of this report. In addition, the department has 4 research Labs. They include: (1) optoelectronics and lasers Lab, (2) electromagnetics and seismology lab, also referred to as the seismoelectromangetism Lab, (3) *computers and information technology* Lab, and (4) *Circuits and Controls Lab*. Very likely, the latter 2 labs mostly support the specialization students during their 6th and 7th semester.

  We note that the teaching Labs visited by the EEC were relatively well organized. They had adequate software for data analysis and automation (such as Matlab, LabView and some circuit analysis freeware programs). Some of the more expensive equipment was in short supply and, on occasion, oscilloscopes had to be exchanged from one lab to another to mitigate equipment failure during experiments. Other devices and circuit boards were made on the premises. This was impressive, demonstrating that faculty are determined to get things done under adverse financial conditions. The approach also demonstrates a "can do" attitude by the students and faculty.

  As would be expected, research labs were better equipped than the teaching Labs. By allocating more of the research overhead to the department and its teaching labs, undergrad labs can be better outfitted as well.

- **Use of information technologies**

  The faculty use all modern means of teaching. That is, they routinely use screen projectors to display lectures, web storage to post lectures, homework and other teaching or reference materials.

- **Examination system**

  The examination system is, unfortunately, by and large dictated by State regulations. That is, the entire grade is based on a final examination as dictated

by State law. Unless the State allows for a more flexible grading system, and one that gives greater control of the examination process to the faculty, as done in most foreign universities, there is little motivation for students to participate in homework, additional readings and in midterms intended to provide a more systematic learning process with timely examinations.

It is noteworthy that faculty routinely discuss ideas to engage students and motivate them in class participation. In one case, a faculty member offered an alternative to determining the course grade solely by the final exam. Said faculty offered a grading system typically used at foreign Universities. Specifically, he proposed to grade the class using a combination of homework, class participation, midterm and final exams. To motivate adoption of this grading system, the total grade was allowed to reach 120%, and thus permits waiving of missed homework or non-perfect exam score. Sadly, this experiment did not work. Students resented the "continuous" commitment during the semester.

The EEC believes that the State should permit departments and individual faculty to choose their grading system and, thus, encourage student learning and commitment. It is expected that this measure may be initially met by student resentment, but would be highly valued by the best students. More importantly, this approach should increase the grade point average of the student population (currently, the average grade point average of graduates is about 6.4/10, i.e. rather low---see attached tables provided by the Dept.) Increasing the grade point average would allow for the best students to pursue graduate degrees at top Universities.

- Thesis/Πτυχιακή

Thesis/Πτυχιακή is mandatory and used as part of preparing the students for their early careers. The department has an opportunity to use the concept of the Πτυχιακή to accomplish several goals. One is that it could assign ptychiakes to capable students who could improve the teaching and/or research labs. The department places great emphasis on student collaboration and teamwork. As such, it is not uncommon for more than one student to participate in a single Πτυχιακή. While this is not a bad concept, it has a few peculiarities. For example, how does one compare two different theses if one of them was performed by a single student while the other was performed by 2, or more students? Should the work of the multiple student theses be proportionally more labor intensive? How does one differentiate the individual student performance and, therefore, grade the theses authored by multiple students? Close examination of the theses over the last three years shows that the department actually uses the "defense" portion of the Thesis/Πτυχιακή to differentiate student performance in the case of multiple student authorship. This is good and the department is encouraged to remain sensitive to the need to differentiate individual student performance without diminishing emphasis on teamwork.

IMPLEMENTATION

Please comment on:
- **Quality of teaching procedures**
  Very effective, and in accordance with international standards.
- **Quality and adequacy of teaching materials and resources**.
  Definitely adequate, and plentiful for the interested student.
- **Quality of course material. Is it brought up to date?**
  The EEC reviewed some teaching material on the web, and they seem quite appropriate and up to date. Homework should become an integral part of teaching. But although the teachers provide homework for continuous learning, the students have little motivation under the current State law to complete the homework. That is, there is no penalty if the student does not complete its homework or labs.
- **Linking of research with teaching**
  This department does an excellent job in integrating research with teaching. Remarkably, it was noted that about 20% of the students pursue further degrees.
- **Mobility of academic staff and students**
  Faculty attend conferences and publish regularly. Also, students have the option to participate in the ERASMUS program, and thus visit other countries and universities.
- **Evaluation by the students of (a) the teaching and (b) the course content and study material/resources**

  Student evaluations appear to be seriously considered. Also, the department's extensive outreach and collaborations with other Universities allows for inputs from other academics and researchers. The latter allows for inclusion of new materials and technological advances in the curriculum

RESULTS

Please comment on:
- **Efficacy of teaching.**
  Teaching efficacy can be evaluated by (1) student placement after graduation, (2) student evaluation questionnaires, (c) inputs from employers, (d) percent of students pursuing post-graduate studies.
  In all these areas, the Department has done an excellent job. For example
  (1) Before the economic crisis, the interviewed students noted that they had no difficulty in obtaining employment.
  (2) Student evaluations consistently indicate that more than 70% of them are happy with the courses; Given the current State law allowing students to stay indefinitely in the system, such high teacher evaluation grades are highly commendable.
  (3) It was found that many of the graduates have done very well after entering

industry with about 20% pursuing post-graduate degrees.

- **Discrepancies in the success/failure percentage between courses and how they are justified.**
  N/A
- **Differences between students in (a) the time to graduation, and (b) final degree grades.**
  The Department provided graduation data indicating that 25+% of the entering students graduate within 5 years. Further, about one-half of the remaining students graduate within 6 years. However, these statistics have strong correlation to the current State laws (grading, examination, and lack of process to terminate non-performing students).

  Again because of State laws, the average grade is about 6.5/10. Increasing this grade point average will require changes in State laws to allow faculty to implement an examination system that tracks student progress and rewards students accordingly.
- **Whether the Department understands the reasons of such positive or negative results?**
  The department faculty understand all issues well. They are proceeding to implement changes in accordance with the new State law 4009.

IMPROVEMENT

- **Does the Department propose methods and ways for improvement?**
  Yes.
- **What initiatives does it take in this direction?**
  The Dept is planning to introduce the Masters program, and to engage students with the curriculum and professionalism during the first 2 years of their program. Also, the Dept understands the need for modernizing its Labs. As noted elsewhere some innovative financing methods should allow them to realize this important step.

C. Research

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

APPROACH

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

The strategic objectives of the department's research focus on three main directions: (a) sustain its current leading position in specific research areas, (b) advance new research directions and (c) integrate its educational program with research activities that benefit the department students. Besides its educational and societal mission, the department is committed to sustaining a high quality research Academic profile that ensures an international reputation.

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

The Department uses the appropriate tools and practices to implement an evaluation of its research activities at the primary level. This includes a self-evaluation report every 5 five years. Also, annual reports are prepared.

IMPLEMENTATION

- **How does the Department promote and support research?**

The department promotes its research output through the well known international practices such as publications at peer-review journals, presentations at international conferences, workshops, seminars, summer schools and technical reports. The high level research of the department is supported by competitive European and National projects.

- **Quality and adequacy of research infrastructure and support.**

The Research quality meets high international standards for this level and size department. Two main research facilities are currently financed by European and National Projects as «Centres of Excellence». The Centre for Plasma Physics & Lasers (CPPL) is a an internationally renowned centre pursuing cutting edge research on Optoelectronics, Lasers and Plasmas and is the National Peripheral European Facility for HiPER acting as a part of a wider European infrastructure in different countries.

First, CPPL is a research facility established by the Department of Electronics and Music Technology and Acoustics (two departments of the Faculty), aiming to promote high quality research in Optoelectronics, Lasers and Plasma Physics for various applications (e.g. Energy). It is an excellent example of the synergy between departments that contributed to the success HiPER. CPPL has been constructed with National and International competitive funds. Currently, HiPER is the only integrated scientific and technological vehicle aiming to place the country into the 21st century world energy map. There is an impressive number of projects/funds (~10 M €) that CPPL has achieved during the last five years or so. When compared to the annual (and declining) teaching budget of 1.3M€/year, it is clear that the HiPER center is a beacon of international stature. In addition, the centre has received funds for the organisation of Erasmus Projects (summer schools) during the last 6 years. Furthermore, the Department via the CPPL has

achieved Erasmus funds for the development of a new European masters degree curriculum (currently in development).

Second, the laboratory of "Geophysics & Seismology" uses an advanced network of seismology stations in Crete and South Aegean to monitor seismic activity in the Eastern Mediterranean with high precision. This is a laboratory operated with the Department of Natural resources and Environment. The department of Electronics is offering advanced telemetric electronic technology with applications in the geosciences and production of frontier research on electromagnetism related to seismology. The laboratory is financed through various National and International Projects (at the level of about 3.5 M € in the last ten years) . In parallel, efforts have been undertaken to enhance the research infrastructure of the telecommunication laboratory and the robotics and controls laboratories. The Department is in the process of developing these Labs to reach excellence. Excellence in the areas of control systems and robotics will be achieved by fund reallocation and staff recruitment. Specifically, 4 new academics have been recently recruited in robotics, control systems and VLSI circuits. Furthermore, to achieve educational excellence, the Department has enhanced the curriculum with the introduction of new courses focusing on new technologies (e.g. intelligent control, mechatronics, etc.). The educational and research excellence is exhibited by the faculty continuing successes in competitive national and international research awards (e.g. Transparent electronics: From materials & devices to circuits & systems (LLP / IP-ERASMUS (2013-2015), 5 Archimedes III programs, membership at Thales programme and successful participation in competitive ICT/FP7 projects).

Continuing the department's excellence in telecommunications is also a priority of the Department/Faculty. Research objectives in telecommunications serves to enhance the training of students through research and education, and to promote advanced technologies in the fields of electromagnetic fields and radiation, antennas and microwave, broadband wired and wireless communications and defence applications. This is a student specialization area during the 6th and 7th semester, therefore enhancement of laboratory infrastructure will serve both research and teaching purposes. Faculty in the Telecommunications sector have established strong research collaborations with companies as well as research groups and laboratories of educational / research institutions in Greece and abroad. They have also participated in several research and development programs, while developing multidimensional social activities. Student performance in these research activities is satisfactory. Even more importantly, in the Laboratory of Broadband Communications & Electromagnetic Applications several Master degree and doctoral dissertations, and many diploma theses Were completed.

- **Scientific publications**.

The number of scientific publications over the last five years are 184 (or 36.8

publications per year) with 2012 citations. Importantly, the Department has the highest number of citation indices regarding their scientific publications among peer TEI Departments in Greece. Some of the publications are in journals with high impact factors in the related scientific fields. One of the faculty member has a remarkable h-index=31 (reaching an h-index above 30 in the engineering field is very rare and highly coveted).

- **Research projects.**

The research infrastructure has been developed with an impressive number of National and International competitive projects. Given the focus of the department in undergrad teaching, this level of research activity is rather impressive, and demonstrates the faculty motivation to pursue their best within the established financial and administrative means. Importantly, these projects create jobs through the employment of students, post doctoral fellows and technicians. The total amount of funding has increased to a few million euros, a rather impressive figure for a small Department that has yet to develop a formal graduate program administered locally.

- **Research collaborations.**

The Department is engaged in 17 different collaborations with academic organizations in Greece and 32 worldwide. Further, common research collaborations have been developed through the ERASMUS European Exchange studentship program. Another area of research collaborations pertains to local sponsoring conferences and international summer schools (for example, organic electronics and in HiPER related technologies).

RESULTS

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

Taking into consideration the heavy teaching program given to the Department, the research objectives in the two main streams of research are quite impressive.

- **Scientific publications**

There is a good record of publications in international peer review journals with high impact factor. Invited talks, participation and organizing conferences, all contribute positively towards the Department's scientific reputation and publication record.

- **Research projects**

The Department has an impressive record of National and International research projects.

- **Research collaborations.**

The Department is involved in 49 National and International collaborations.

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

Excellent research output, as depicted by the citation indices (h-index) of the faculty. Spin-off applications have also been realized. Among them is the introduction of finite element software to design and analyze wind-generator blades. Such practices should be further encouraged by the Department. The

department does not have a patent record. This is primarily dues to the inflexible accounting system that does not allow funds for patent applications.

- **Is the Department's research acknowledged and visible outside the Department?**

Department activities are well visible in the local society, in Greece and worldwide. This is done through advertisement of its activities in the daily press, special workshops, leaflets and videos.

- **Rewards and awards.**

The HiPER facility has been selected as a National and European facility for plasma research in energy applications.

IMPROVEMENT

- **Improvement in research proposed by the Department, if necessary.**

The department, the State and community should continue encouraging the excellent research work, collaborations with students and local companies and the modernization of teaching and research facilities. The dual purpose Mechanical Modelshop and Laboratory of Manufacturing and Design is a good example of local engagement in developing an expensive facility without burdening the State directly.

- **Initiatives in this direction undertaken by the Department.**

The new 4009 law provides many opportunities for improving further the Dept. stature by prioritizing received funds, creating modern labs and rewarding those who engage in research, teaching and service excellence. This requires the establishment of objective evaluation criteria that will be widely distributed and accepted by faculty. Doing so, the Department will encourage excellence, increase proposal writing, promote student participation and increase the number of graduate students. The latter should be a central focus as they will become the beacon for attracting excellent undergrad students in the future as well.

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 Chania "parartima" branch of the TEI Crete consists of 3 departments. The department of Electronics and the department of Natural resources are housed in a single building in Chania. The department of Music and Acoustics is housed in

Rethymnon. The building is relatively new and houses a cafeteria/restaurant and a multi-activity room for students.

There are 4 offices that provide student services within the Chania TEI, shared by the 3 aforementioned departments. These offices are:

1) Interconnectivity or career office (γραφείο διασύνδεσης). This office maintains a database of companies/organizations interested in sponsoring the graduates for their practicum and in hiring them afterwards. The information to students is impressive in terms of its extent. It was also noticed that the companies can easily list themselves in the catalogs available to the students.

2) Office of Practice "πρακτικής άσκησης". This office maintains information of companies interested in sponsoring a student in the 8th semester.

3) Office of "entrepreneurship" (also referred to as Liaison office). This office helps with various student and student employment issues. The office also promotes innovation and bridges research to industrial production.

4) International relations Office. This office supports exchange students and staff for the Erasmus program and builds relations with foreign universities and research institutions.

These offices offer great services to the department. They are managed by the central office at Hrakleion. There is one staff member at Chania for each of these services. However, the local staff in Chania are not in close interaction with their Hrakleion counterparts. Therefore, it is strongly recommended that the Chania staff be allowed to develop their own independence to better serve their students there. Further, to better serve the students, we recommend that the 'student services office' offers students, professors and alumni a 'news service.' This way, students, alumni, faculty and even companies can be connected with the program and its activities. Using this service, students can receive information about seminars, announcements from University leaders, company interests, and so on. Concurrently, companies and alumni can benefit from recruiting students and can also influence the curriculum. In the end, such a service is expected to increase student participation, particularly during the first year when they are known to be less focused.

Overall, it should be noted that the Electronics department places strong emphasis on research and teaching. Starting with the department head and the director of the Chania "παράρτημα", the department realizes that research is the most effective approach to improve teaching and increase student interests in the offered educational programs. Therefore, this Department is well guided and well positioned to take advantage of its independence under the new 4009 law.

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 Electronics department until recently was serviced by 3 administrative staff housed at offices near the building entrance (the Dept Chair noted that 1 of the staff just retired), and are therefore easily accessible by students and professors alike. The admin staff seem knowledgeable of the department's procedures and are a shared resource for both departments housed in the Chania building (i.e. dept. of Electronics and dept. of Natural resources). According to Prof. Makris, the Dept Chair, there is a total of 6 shared admin staff.

Also, funded research administration is done and facilitated by an office of three people (2 at Chania and one in Rethymno). While faculty are generally happy with the service from the local staff, this staff relies on guidance and decision making from Hrakleion. Creating a stronger independence of the Chania/Rethymno staff would be highly desirable as they will provide better service.

The library is adequate, and has some 4000 volumes and enough copies of the actual texts used in classes. It also contains several shelves of completed theses/πτυχιακή There is a large computer room with a dozen computers stations as the vast majority of the library's resources are electronic. There is access to global databases as well (e.g. part of the IEEE online). Also, there is easy online access to all πτυχιακές/theses of the department (and the entire TEI). This is very helpful and promotes TEI of Crete and the Department of Electronics.

It appears that the majority of student services and academic business is conducted on line. So, grading, grade statistics, etc. was deemed appropriate. The department acknowledged that some improvements were needed to remove repetitive information and streamline the web site, particularly as relates to the study program and course information.

Many students acknowledged that after entering the department (and this is not unique to this department or University in Greece), for a variety of reasons, they may lose interest in their studies during the first 1-2 years. The EEC saw and interviewed some students that had not graduated in 6, or even 12 years, albeit the latter was an extreme case. Of course, this is a general issue in Greece and stems from the law of keeping perennial students within the system. Given these State imposed limitations, the Departments and TEI in Crete can still act decisively to identify creative ways for increasing student participation in the early years. Some recommendations are the following: (a) provide an individual faculty mentor to each student with a regular meeting schedule, if possible (b) assist students to find summer internships or camps, (3) continue to provide students with connections to other Universities and

coordinate exchange programs (4) spread πρακτική/practicum over 2 years, with the 8th semester being the only one fully devoted to the πρακτική/practicum program, and (5) engage students in activities that support the department and its activities. For the latter, a good example is the use of students to update the school's web site, generate slides and online course materials, Laboratory experiment documentations, among others. Doing so, will increase student interaction with faculty, the school and the community. The department is already carrying out the implementation of these recommendations as they have embraced them.

With Department faculty initiative, a student branch of the international organization of Institute of Electrical and Electronics Engineers (IEEE) was established in May 2010. To date, there are about 30 students of the department that belong to the local IEEE branch. There are about 7 faculty that are IEEE members. This is a commendable effort and will increase the professionalism and student participation in international technical exchanges. The EEC suggests that the TEI and the department in particular, take advantage of the outreach programs available by the IEEE (e.g. invitation to the IEEE Distinguished Lecture Program, funding to host local one-day conferences, organize major conferences to bring many leaders to the city and allow for large exposure of students to the latest technologies etc.).

There is a new building being completed in Rethymno to house the Center for Plasma Physics and Laser laboratory (CPPL) under the already mentioned HiPER European program. This building represents a significant European and Greek investment of more than 4M Euro.   This is a state of the art facility and should boost the department's image and effectiveness in attracting additional research funding, but more importantly higher quality students. The building will house approximately 35 scientific staff and it is scheduled for operation within 2012. Both, the department of Electronics and the department of music and acoustics are involved in CPPL. The EEC believes that this is a great investment example that should create unique excellence within this department. Hopefully, such investment examples can be repeated in other schools.

Last, but not least, there is a well-equipped and stocked Laboratory of Simulations Machining Manufacturing. This is the former Manufacturing and Design Laboratory belonging to the Department of Natural Resources & Environment, and is now shared between the Electronics Department and Natural Resources & Environment. It is a unique lab for manufacturing a range of metallic and non-metallic models and structures. It is extremely expensive to recreate this lab, and its opening to more students within the TEI is highly encouraged.   Notably, this Simulations Machining Manufacturing Lab offers the opportunity of teaching students usage and automation of heavy-duty equipment. Another plus is that the Lab is run by a well-trained lecturer who targets Computer Aided Design manufacturing methods.

RESULTS
- **Are administrative and other services adequate and functional?**
    As noted, the TEI of Crete should consider providing the staff at Chania with

more independence to serve their local students.

- **How does the Department view the particular results.**

  The Dept is making continuous efforts to improve its services within the current financial structure.

IMPROVEMENTS

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

Recommendations:

D-1. Combine the offices of interconnectivity/career "γραφείο διασύνδεσης" , practicum " πρακτικής άσησης" and "entrepreneurship/industry Liaison".

D-2. Offer students "subscription" to a news service from these offices with the most recent opportunities as they become available.

D-3. Within the unfortunate limitations of the existing laws, establish a formal "mentorship" program to keep students involved and interested in their studies during their early, vulnerable years of the program

D-4. Consider establishing an internship program. This could be accomplished as an extension and/or modification of the "praktiki".

D-5. Take advantage of the IEEE outreach programs offered to its student branches Engage students during their formative years in various school activities using them as temp employees (web site prep, lab repair, lab manual updates, lecture material prep, electronic support, summer activities, undergraduate research etc.).

Collaboration with social, cultural and production organizations

The department has already been contributing to the local community. Indeed, some faculty are speakers at local schools, local organizations and sometimes appear in radio and TV, most notably on Public Safety (e.g. earthquake related impact) and the Radio Frequency Exposure issues which are of importance to the public. Importantly, through the ERASMUS program, the department has been sending more than 20 students a year abroad to other institutions for studies. At the same time, the department hosts about 15 foreign students a year over the last few years through the same program. Students of this program were interviewed by the EEC and it was confirmed that a large and rich level of international and cultural exchange activity is involved. The initiative of the department in this front is highly commended. This is an extremely successful activity and can likely be the reason that about 15-20% of the department graduates pursue M.Sc. degrees.

Commendably, through the ERASMUS program, the department did host an intensive summer school on "Optoelectronics, Laser and Applications" in 2006, 2007 and 2008. These schools bring students and professors from other European institutions including Imperial College, Insubria University, Vilnius University and the University of West Bohemia. New summer schools addressing topics on"Organic Electronics & Applications - OrEA" and on "Applications of Electronics in Plasma Physics - AppEPla" in 2010, 2011 and 2012 have taken place. The EEC recommends that such activities be expanded, and carried out with a regular schedule to attract more students and researchers from across Europe.

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

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

Please, comment on the Department's:

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

The current law classifies TEI and Universities as "Ανώτατα Ιδρύματα," but specifies that Universities should focus on "Theoretical or Basic Research " while TEI should focus on "Applied Research". This classification and subsequent differentiation is not as appropriate. In fact, since the mid 1990s, leading Universities in the U.S. have successfully integrated strong experimental and application activities into their engineering programs. In fact, the focus for practical training within the best engineering schools worldwide has never been more pronounced. Some TEI is Greece are therefore in a unique position to become leading engineering institutions by building on their practical training experience. One may actually note that access to the top high school students is all that is missing in making some of these programs truly pacesetting. Research integration is another necessary aspect of leadership, and this department has done a commendable job to carry out high quality research within the Department. . Therefore, this department is well positioned for pursuing excellence in the years to come. One may even state that this dept has the potential to become the one of the best Electronics Dept in Greece over the next 10-15 years. .

Unfortunately, in spite of its excellent research activities, and its effort to integrate research and teaching, the current Greek law for selecting students hampers significantly its efforts. For example, the department cannot project its excellence within the current Greek entrance examination laws, and even loses about 70 entering students who immediately transfer to urban centers within the Greece. That

is, the current law hampers competition among Universities. Currently, the department ends up with approximately 130 students a year. To achieve and maintain a high level of research, the quality of the incoming students must increase and the number of these students must decrease. . The department is not staffed to accommodate more than 60 students a year, which is the number of graduating students per year. That is, in spite of the department's excellent faculty and good research activity, the current law does not allow the department to recruit high quality students. As already noted, the department has been successful in attracting funding from external non-hellenic research programs.. These programs and their funding should be further enhanced. Additionally, the overhead structure of these programs should be adjusted to reward the faculty bringing the funding and their home departments. Doing so, support staff will be increased, laboratories will be improved etc. In fact, it is routine in the U.S. to use research overhead to supplement faculty salaries, and therefore open new faculty slots as the department research increases. It is again commendable to note that the department has been collaborating with other universities to offer Masters and Ph.D. degrees. This TEI is now in the process of establishing its own Masters program. Additionally and as mentioned earlier in the Curriculum section, the department of Electronics is a participant in the HiPER program of the European Union (High Power Laser Research). The Curriculum Development Project of this program, Plasma Physics Applications (PLAPA), envisions a Masters program in Laser Fusion. That is, through PLAPA, this department will have its first Masters specialization (i.e. in about a year's time from today). This EEC highly recommends the introduction and discussion of other more general Masters degree specializations. In large part, because of this department's research success, there is strong interest by the TEI degree to have the appropriate State laws to offer Ph.D. degrees. The Electronics Dept can now participate in Ph.D. programs by collaborating with other universities which already have established such programs. Obviously, being able to offer Ph.D. programs and degrees is a big step for every organization involved. Department personnel point to the prestige concomitant to such a program and degree.

This EEC, recommends that the dept. of Electronics proceed first with its plan to establish the Masters degree program and then revisit the Ph.D. program establishment (without partner universities) after a minimum of 10 Master's students have graduated in which the Electronics department at the TEI of Crete is the leading degree granting institution.

At the writing of this report, the economic situation is very challenging, posing increased pressure on the department's graduates and limiting their career opportunities.

This EEC commends the department's enthusiasm and creatively to increase their impact in research and the community, in general. Nevertheless, these hard times

may actually create opportunities for some of the TEI students. The absence of plentiful jobs may be a motivation for starting their own activities and initiatives. This EEC recommends that the department and the TEI of Crete at large, identify opportunities for students interested to pursue their own businesses. As mentioned in recommendation D-1 above, this important activity may be accomplished by freeing current support personnel from other day to day activities. Student assistance could include guidance on law, financing, Intellectual Property, etc. In the event of a "spin off" potential, the TEI may also provide guidance and mechanisms to take their research outside the Institution.

Recommendations:

E-1.   Allow TEI the flexibility to specify a limit on the number of students they accept each year.

E-2.   Restructuring the distribution of indirect costs from external projects to better outfit the labs and other student services.

E-3.   The Department should continue its effort to establish a Master's program. Said M.Sc. program should start with the field of Lasers to accommodate the HiPER European program the department participates in. However, the M.Sc. program should expeditiously evolve to a broader scope, self sustained M.Sc. program not necessarily reliant on any specific European program funding.

E-4.   The Department should not proceed with a stand-alone Ph.D. program (i.e. without partnering with another institution which already has an established Ph.D. program) until at least 10 Master's students have successfully graduated in which the Electronics department at the TEI of Crete is the leading degree granting institution.

E-5.   The TEI and the department should seek opportunities for commercialization of their research work. The TEI should free and devote existing staff to assist and guide students to start their own businesses and/or spin offs of TEI work.

F. Final Conclusions and recommendations of the EEC
For each particular matter, please distinguish between under- and post-graduate level, if necessary.

Overall, this is an excellent department with enthusiastic faculty and staff. Its teaching curriculum is rich and extensive. Its research is among the very best. Its labs are numerous, and the provided services are in the right direction. Therefore, this Department is well guided and well positioned to take advantage of its independence under the new State law. Below, we summarize some of the recommendations already noted in the report above.

1. It is important for the State to allow teachers to choose their grading and examination methods. This will address the low attendance of students during the 1st and 2nd year

of the program. A progressive grading approach, typical across the world, should increase the grade point average of the student population and raise the stature of the Dept and the TEI of Crete.

2. The State should allow the TEI of Crete and each Department to recommend the number of annual entering students based on available resources.

3. The department, the State and community should continue encouraging excellent research work, collaborations with students and local companies and the modernization of teaching and research facilities.

4. The Masters degree (now in planning) should allow students and faculty to be scientifically current and to carry out research in areas of innovation and market trends. This graduate degree will also support the integration of teaching and research, a critical aspect of excellence. Leveraging the European Union HiPER (High Power Laser Research) is important and welcomed. E-4. The Department should not proceed with a stand-alone Ph.D. program (i.e. without partnering with another institution which already has an established Ph.D. program) until at least 10 Master's students have successfully graduated in which the Electronics department at the TEI of Crete is the leading degree granting institution.

5. The Dept and TEI of Crete should restructure the distribution of indirect costs from external projects to better outfit the labs and other student services. This is imperative as funds from the State are not likely to allow for continuous Lab improvements. That is, the faculty should leverage research euros and related indirect costs to improve Labs on an annual basis. Also, Lab improvements can occur by curtailing temporary teaching staff as much as possible.

6. A 'general engineering' course can be adopted to teach students about the thinking process and social issues facing practicing engineers. Allow some independence of the Chania staff to better serve the students.

7. We recommend that the 'student services office' offers students, professors and alumni a 'news service." By registering entering students in this service, there is better potential to better engage students with the profession and curriculum early on. Other recommendations to improve student services are: (a) provide an individual faculty mentor to each student, (b) assist student to find summer internships or camps, (3) provide student with outreach opportunities to other Universities and coordinate exchange programs, (4) spread πρακτική/practicum over 2 years, with the 8th semester being the one fully devoted to the πρακτική/practicum program, and (5) engage students in activities that support the department and its Labs.

8. Combine the offices of interconnectivity/career "γραφείο διασύνδεσης" , practicum "πρακτικής άσησης" and "entrepreneurship/industry Liaison".. Integrate the web presence and user experience of the services now provided by these offices.

9. Consider establishing an internship program. This could be accomplished as an extension and/or modification of the "πρακτική/practicum.

10. Take advantage of outreach programs available by the IEEE (e.g. invitation of IEEE Distinguished Lecturers, funding and hosting local one-day conferences, organize major conferences to bring many leaders to the city and allow for large exposure of students to the latest technologies etc.).

11. Continue to develop regular summer schools/camps

12. The TEI and the department should seek opportunities for commercializing their research work. The TEI should free and devote existing staff to assist and guide students to start their own businesses and/or spin offs of TEI work.

The Members of the Committee

    Name and Surname   Signature

1. _____

2. _____

3. _____

4. _____

5. _____

Ερευνητικά Εργαστήρια Τμήματος Ηλεκτρονικής

1. **Εργαστήριο Οπτοηλεκτρονικής, Laser & Τεχνολογιών Πλάσματος**
   Περιλαμβάνει τους παρακάτω εργαστηριακούς χώρους 5, 8, 10, 12, 15, 20, 28, καθώς και το κέντρο αριστείας CPPL (Centre for Plasma Physics and Lasers) του Ρεθύμνου.
2. **Εργαστήριο Τεχνολογίας Υπολογιστών & Πληροφορικής**
   Περιλαμβάνει τους παρακάτω εργαστηριακούς χώρους 1, 2, 6 και 26.
3. **Εργαστήριο Τεχνολογίας Κυκλωμάτων & Αυτοματισμών**
   Περιλαμβάνει τους παρακάτω εργαστηριακούς χώρους 3, 4, 13, 14, 25 και 27.
4. **Εργαστήριο Ευρυζωνικών Επικοινωνιών & Ηλεκτρομαγνητικών Εφαρμογών**
   Προέρχεται από τη συγχώνευση των Εργαστηρίων Μικροκυματικών Επικοινωνιών & Ηλεκτρομαγνητικών Εφαρμογών και εριλαμβάνει τους παρακάτω εργαστηριακούς χώρους 7, 9, 11, 18 και 19.

<u>Παρατήρηση</u>: Όλοι οι διαθέσιμοι χώροι των Ερευνητικών Εργαστηρίων χρησιμοποιούνται (άλλοι περισσότερο και άλλοι λιγότερο) και για την εκπαίδευση των προπτυχιακών φοιτητών.

Εργαστηριακοί Χώροι Τμήματος Ηλεκτρονικής
(used as part of the curriculum)

α/α Εργαστηριακού Χώρου	Όνομα/Δραστηριότητα Εργαστηριακού Χώρου
Παλαιό Κτίριο - 1	Ηλεκτρονικών Υπολογιστών & Προγραμματισμού
Παλαιό Κτίριο - 2	Μικροϋπολογιστών
Παλαιό Κτίριο - 3	Ψηφιακών Κυκλωμάτων - VLSI
Παλαιό Κτίριο - 4	Ηλεκτρονικής & Ηλεκτρικών Κυκλωμάτων
Παλαιό Κτίριο - 5	Ηλεκτρονικών Στοιχείων
Παλαιό Κτίριο - 6	Υπολογιστικής Νοημοσύνης & Τεχνολογίας Λογισμικού
Παλαιό Κτίριο - 7	Τυπωμένων Κυκλωμάτων
Παλαιό Κτίριο - 8	Φυσικής
Παλαιό Κτίριο - 9	Τηλεπικοινωνιακών Συστημάτων & Δικτύων
Παλαιό Κτίριο - 10	Μετρήσεων & Οργανολογίας
Παλαιό Κτίριο - 11	Μικροκυματικών Επικοινωνιών & Ηλεκτρομαγνητικών Εφαρμογών
Παλαιό Κτίριο - 12	Οπτοηλεκτρονικής & Laser
Παλαιό Κτίριο - 13	Συστημάτων Αυτομάτου Ελέγχου
Παλαιό Κτίριο - 14	Ηλεκτρονικών Ισχύος
Παλαιό Κτίριο - 18	Ηλεκτρομαγνητικών Εφαρμογών
Παλαιό Κτίριο - 19	Ασύρματων Επικοινωνιών
Νέο Κτίριο Υπόγειο - 15	Μηχανουργείο
Νέο Κτίριο Υπόγειο - 20	Laser & Τεχνολογίας Πλάσματος - CPPL
Νέο Κτίριο Ισόγειο - 25	Επεξεργασίας Σήματος & Σχεδίασης VLSI
Νέο Κτίριο Ισόγειο - 26	Μικροεπεξεργαστών & Μικροελεγκτών
Νέο Κτίριο Ισόγειο - 27	Ρομποτικής & Ευφυών Συστημάτων
Νέο Κτίριο Ισόγειο - 28	Μικροηλεκτρονικής & Νανοηλεκτρονικής