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**Α.ΔΙ.Π.**  
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ΑΝΩΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

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

## **EXTERNAL EVALUATION REPORT**

DEPARTMENT OF CROP SCIENCES

TECHNOLOGICAL EDUCATIONAL INSTITUTE OF CRETE

December 2011

### **External Evaluation Committee**

The Committee responsible for the External Evaluation of the Department of CROP SCIENCES of the TECHNOLOGICAL EDUCATIONAL INSTITUTE OF CRETE consisted of the following three (3) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Associate Professor, Athanasios Alexandrou (Coordinator)  
California State University Fresno, USA
  
2. Professor, Themis Michailides,  
Kearney Agricultural Center, University of California, Davis, USA
  
3. Professor, George Vellidis,  
University of Georgia, Tifton, Georgia, USA

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

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

## ***Introduction***

### I. The External Evaluation Procedure

- Dates and brief account of the site visit.
- Whom did the Committee meet?
- List of Reports, documents, other data examined by the Committee.
- Groups of teaching and administrative staff and students interviewed
- Facilities visited by the External Evaluation Committee.

### II. The Internal Evaluation Procedure

Please comment on:

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

The Committee of External Evaluation (hereafter the Committee) visited the Department of Crop Sciences (hereafter the Department) of the Technological Educational Institute (T.E.I.) of Crete during the period October 24<sup>th</sup> – October 26<sup>th</sup>, 2011. In the morning of October 24<sup>th</sup>, the team had an introductory meeting with T.E.I. President Dr. Kapetanakis, T.E.I. Vice-President Dr. Savvakis, the Head of School Dr. Goumas, the Department Head Dr. Papadimitriou and the departmental self-evaluation committee (O.M.E.A) who had undertaken the drafting of the Internal Evaluation Report, including members, except Dr. Goumas, also Dr. Lionakis (President) and Dr. Ververidis. The same day the Committee met with the following groups: The departmental members of the secretariat, undergraduate students, graduates of the program, the specialist technical staff (E.T.II.), non-permanent scientific personnel, and the department's faculty.

Our discussion with the students was extremely positive. To ensure that we met a representative group of students, we interrupted an ongoing laboratory section with 28 students. The students were at minimum in their second year of studies with the majority being within the Department for at least 4 years. Although only 4 of the 28 students had selected the Department as their first choice prior to the PanHellenic Exams, 22 of 28 expressed an interest in pursuing a career in agriculture following graduation. We found this to be a very positive reflection of the Department's teaching faculty and staff. The students were very interested in offering us their opinions and the discussion lasted approximately 90 minutes.

Our meeting with a group of 10 Department alumni was also very productive. The alumni ranged from those who had graduated very recently (past semester) to alumni who had graduated from the Department during the 1990s. Details of this meeting

are provided in subsequent sections.

On October 26<sup>th</sup>, the Committee visited various departmental teaching and research laboratories, greenhouses, other facilities at the teaching/research farm (Αγρόκτημα), the cafeteria and restaurant, and the office of International Relations. The committee was also given a tour of the facilities, including computer labs, the Gym and student dormitories on campus.

During the preparation of the external evaluation report, the Committee considered the self-evaluation report, which is extensive and well prepared, and the discussions that occurred during the two-day site visit. In addition, the Committee considered several documents provided by the Department upon request of the Committee. We would like to note that the Department provided all supplementary information the Committee requested at the beginning of the site visit in printed and electronic form.

The Committee highly commends the Department for its valuable and honest self-assessment.

The site visit took place in an atmosphere of professionalism and collegiality. The Committee is unanimous in expressing our gratitude to all the staff, faculty and students of the Department for their honesty, hospitality and assistance in all aspects of the evaluation site visit.

The Department's teaching facilities are very good to excellent. Of special note were the facilities at the Department's teaching/research farm which is within walking distance of the main campus. The farm contained greenhouses, orchards, fields, teaching laboratories, research laboratories, and a limited amount of office space. All of these facilities are used very intensively to fulfill the Department's teaching mission and provide an excellent environment for hands-on teaching. Paid student workers or students conducting their internship were using practically all the facilities we visited. Some of the greenhouses included instructional areas where the students learned about the activity they would be conducting before they engaged in the activity. The Committee agrees that this is an excellent way to instruct students.

In general, we find the department to be in a relatively healthy condition having a curriculum with a good balance between theory and practical experience. Courses are mostly taught by highly qualified personnel that also conduct research, which is disseminated in peer-reviewed journals and conferences of high repute.

We found a very positive relationship between faculty, staff, and students. Faculty and staff were focused on providing the best possible education to the students. This included providing advising, after class tutoring, an open door policy, and an opportunity to do meaningful work for their internship ("Πρακτική"). Students with whom we met were generally very positive about their educational experience and their interaction with the faculty and expressed high levels of satisfaction with their courses and laboratory sections. The students were particularly pleased with the hands-on experience provided by laboratory sections.

The department shares facilities and staff with the Department of Organic Greenhouse Crops & Floriculture which is part of the same School. The Committee considers this sharing of resources as very positive. The Department has added value to its programs and academic operations by standardizing its activities according to the Bologna Process. The Committee considers this as a great asset for the Department's graduates.

Since 2001, the TEI have been assigned research responsibilities. In response to this, the Department has developed research programs which address not only the needs of the agricultural community of Crete but also serve the diverse agricultural needs of the region and contain an important international dimension. The Committee considers this as very positive and recommends that it continues and becomes further strengthened.

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

Overall, the curriculum was designed to serve the diverse agricultural sectors of Greece, particularly crop production and crop diversity, providing students with theoretical and practical knowledge. The importance and value of the Department and School to agriculture in Crete cannot be overstated. In the opinion of the Committee, the Department should be given every opportunity to improve, expand and modernise its curriculum as we enter the era of climate change, globalization, increased world population growth, food safety concerns, increased consumption of fruits and vegetables (produce), and great economic challenges to the agriculture as a sustainable way of life.

The current curriculum consists of 40 (240 ECTS) courses, 34 of which are required (core) courses and 6 are electives. Eleven faculty members in permanent positions and approximately 18 part-time faculty (non-permanent) teach the courses. The Department shares facilities with the Department of Organic Greenhouse Crops & Floriculture, with excellent working relationships between the two departments, including sharing of laboratory spaces and courses. The Committee feels that these synergies should be furthered explored.

The contents of courses are rather diverse, a fact that is explained by the nature of the Department. Courses are clearly interconnected and possess a small degree of overlap. Discussions with students indicated that most teaching materials are current and relevant but that some material is dated. PowerPoint files and other electronic media used by faculty are commonly posted in the e-class system so that it is available to students.

Relatively few of the students enrolled in the Department selected this program of study as their first choice when taking the PanHellenic Exams. This reflects the

problems facing the Greek higher education system overall but also indicates that the Department and its curriculum is not well understood and appreciated by the local community. Contributing factors include but are not limited to:

- The plethora of agricultural related programs currently offered by Greek higher education institutions;
- the decreasing size of Greek agriculture and, perhaps most importantly; and
- the system which the Greek government uses to assign students to programs of study based on their scores on PanHellenic Examinations. Students are assigned to programs of study according to score and, in many (if not most) cases NOT by their area of interest. The Committee recognizes that this method causes substantial damage to the academic programs and to the eventual advancement of the nation.

As mentioned above, relatively few of the students enrolled in the Department selected this course of study as their first choice. As a consequence, students are assigned to a science-based program of study without having the appropriate academic preparation. For example they will have inadequate preparation in chemistry, mathematics, and physics. This requires the Department to include these courses in the program of study and further requires the faculty to offer unofficial “remedial” courses to prepare the students sufficiently for the program of study. Students with whom we spoke expressed great appreciation and satisfaction for these efforts and the faculty should be commended for making this effort. It is evident to the Committee that the Department’s faculty were making every effort to provide their students with the tools needed to successfully complete the program of study.

Two major issues were identified by the Committee for the program of study. It should be noted that based on the experience of the Committee members, both of these issues are endemic to departments offering agricultural degrees at Greek Institutions of Higher Education (AEI.)

The first major issue is the low percentage of students passing courses. Table 11-5.2 (pages 129-131) of the Self Evaluation Report tabulates the data. The data combine the theoretical section and laboratory section of each course which in our opinion masks the passing rates of each section. They should be presented individually so that the Department as whole can evaluate the effectiveness of each course in conveying the necessary educational materials as well as the effectiveness of the instructor. Overall, the passing rate of lecture sections (θεωρία) is 36% (percent of students taking the exam). The passing rate of laboratory sections is 61% (p.44). We find the passing rate of the lecture sections to be **unacceptably low** but acknowledge that there are many factors at play. Some of these factors are identified in the Self Evaluation Report and include student and professorial attitudes, course overloading (discussed below), scheduling, taking courses out of sequence, taking the theoretical and laboratory sections of the course during different semesters, and

examination methods.

The second major problem is the extensive delay in graduation time. The Self Evaluation Report states that only 19% of the students graduate within 7.5 years after commencing their studies (p.45). ***This is unacceptable.*** Table 11-6.2 (p.133) indicates that approximately half as many students graduate each year as enter the program (except for 2010-11 when the ratio between incoming and graduating was approximately 1). Again, there are many factors affecting graduation rate many of which are beyond the control of the Department. Nevertheless, the reasons for this phenomenon should be identified and action taken to address this issue where possible. The areas which we believe can be addressed by the Department are:

1. The course load is unrealistically/impossibly large and greatly contributes to the inability of most students to graduate within 4 years. This heavy course load makes the final examination period nightmarish for most students who must prepare for up to 14 individual final examinations (the total of lecture and laboratory sections) and, in our opinion, negatively affects students' ability to successfully complete a course. Furthermore, the Curriculum offers a comprehensive study of crop production with the students becoming "experts" in a large number of areas of agricultural production. We question whether this is necessary for today's stakeholder needs and employment market. Specialization can be obtained in post-graduate programs. Although in terms of knowledge, the Department's graduates may know as much or more than students graduating from a 3 year B.S. and a 1-year Masters from another EU nation, the marketability of the Department's graduates may be lower because they appear to have a single degree that has taken them 7 years to complete. This may not be fair but it is the reality of today's market place.
2. Students are permitted to enroll for laboratory and theoretical sections asynchronously. Generally students prefer the laboratory sections because of the hands-on experience they provide and more regular assessments. Consequently, the theoretical sections are sometimes not passed successfully until years after the laboratory section.
3. New national and internal regulations which discontinue the chain of prerequisite courses and also limit the number of courses offered each semester forcing students to take sequences asynchronously.
4. Very low student attendance rates in the theoretical sections. The students attribute this to high workloads – students must be in class between 30 and 35 hours per week to attend every class session. But there are many factors at play including an ingrained attitude in the students that theoretical section attendance is not necessary. The students with whom we met acknowledged that they indeed did not attend at high rates. However, students exhibited impressive engagement in laboratory or field settings that involve close interactions with faculty and teaching staff. This suggested to the Committee that changes can be

made in the teaching methods used in the classroom-based classes to enhance and promote student engagement, and reduce absenteeism. Students recommended the use of quizzes and midterm exams (πρόοδος) to encourage attendance but also provide an incentive for students to study the material prior to the final exam. New instructional media and technologies can also be used to engage students in courses. These technologies include audience response systems (commonly referred to as "clickers"), quizzes and mid-term tests with multiple choice answers which can be graded electronically, etc. Teachers use clickers to informally assess students' knowledge of a topic before lecturing to see whether students understand a point after it has been explained, and to ask survey or opinion questions during the lecture. This strategy keeps the students engaged during the lecture and encourages attendance.

5. The Department needs to introduce a limit as to the duration of studies. If a student does not manage to finish the degree requirements within this limit should be removed from the list of the Department's students. The Department's secretariat should audit the degree progress of all students at the end of the eight semester, and sent a letter to the student, with a copy to hers/his advisor, indicating degree progress. The advisor should meet with the student and establish a roadmap that will allow the student to finish his degree within the Department's time limit or face deletion from the Department's records.

The TEI has a newly implemented online system for class registration. This has greatly relieved the workload of the Department's clerical support staff, but has proven frustrating for the students. The students indicated that they have a problem of registering electronically for lab sections of their preference because the sections are filled up quickly and the program does not permit them to register (there are fewer lab section this academic year because of budget cuts). However, the Department's clerical support staff use a manual override to place students in the lab sections. We expect these initial difficulties to be gradually resolved and we commend the TEI for moving towards this electronic registration system.

The committee also noted that the Department has highly qualified and exceptionally motivated and committed faculty members who overall do an excellent job under the circumstances, and who are willing and able to respond to the challenges that they face.

The number of available elective courses (31) is good and presents the students with many opportunities to pursue courses which interest them. However, it taxes the Department's resources under current economic conditions. It should be noted that no new faculty members have been appointed to the Department since 1997 and an ever-increasing number of courses have been taught by non-permanent scientific staff. Under the current economic conditions, funds are not available for these staff making the electives less available and frustrating the students who are interested in pursuing them. Great care should be taken to prioritize the elective courses in case

decisions must be made about reducing the offerings.

Students provide hard-copy evaluations for classes, and evaluations were processed by member of the Department's clerical support staff. The students we interviewed believed that their feedback had an impact and was considered.

The curriculum seems to be consistent with the requirements of the society, and it was reported that there was involvement of limited number of stakeholders but not students. High involvement of stakeholders is required in order that the department trains students according to the needs and problems of the society.

There is no student participation in the development of the curriculum. Student participation is needed, especially when the curriculum is revised.

The department has set a procedure for the revision of the curriculum as indicated by its Self Evaluation Report and hopefully will set goals for revisions based on this external evaluation.

**Recommendation A1:** The Department has to consider European and global trends in the field and make appropriate adjustments to its curriculum to enhance its relevance, its ability to provide useful skills and knowledge, and its ability to attract high quality students. This said, it is fully recognized that this will not take place unless there is change in Government policies regarding entrance examinations and student assignment to degree programs.

**Recommendation A2:** Establish a mandatory 1-hour seminar for all students in the Department, but particularly incoming students, during which faculty members, alumni, or members of the agricultural industry will present information about agriculture and job opportunities in the field. This seminar can be held once or twice per semester. Alumni suggested that seminars and/or courses in the last year of studies relevant to marketing, agro-business, and preparation of graduates for job placement would be extremely helpful to future graduates. Additional topics for discussion will include changes in the curriculum, ERASMUS, the importance of student evaluations and how they will be used to improve teaching, and other topics that directly affect the students. We emphasize that a method must be found to make participation by the students mandatory.

**Recommendation A3:** Develop and distribute a syllabus at the beginning of each course. The syllabus should also be available on-line along with the course description. The syllabus should contain a detailed description of what material will be covered in class, how the students will be evaluated, what the professor expects of the students, what the students should expect of the professor, office hours and contact details for the professor. Opportunities for students to earn added points towards their final grade should be clearly described in the syllabus. The syllabus acts as a contract between the student and professor. The syllabus may also positively affect student participation since the students will have a better idea of what each lecture entails.

**Recommendation A4:** The Committee recommends that faculty develop teaching approaches and styles that enhance student engagement in classroom-based classes and reduce absenteeism, which currently is unacceptably high. Approaches can include grading schemes that have more than one criterion for grading and that reward participation; team work group discussion formats and other approaches which are definitely within the capacity of the highly dedicated faculty that the committee met.

**Recommendation A5:** The Committee recommends that the Department reinstitutes and enforces the principle of pre-requisite courses. In this suggestion it is implicitly understood that students will be required to pass pre-requisite courses prior to enrolling in more advanced courses. This suggestion will have multiple benefits. Firstly, it will prevent students from attempting to take the final examination of courses years after the course was initially attended. More importantly, it will improve the students' preparation thus providing them with the knowledge to improve their performance and success rate in the more advanced courses. Implementation of this suggestion also directly addresses both the problem of very high length of studies and the low average grades of students.

**Recommendation A6:** The Committee recommends that the Department commits itself to reevaluating its Curriculum on a regular basis and not limit changes to minor adjustments. One of the issues that should be addressed during this self-evaluation is not only the number of courses offered but also whether the degree should be a 3 or 4 year degree. However, the Committee recommends that the Department conducts an evaluation and analysis of market needs before revising the Curriculum. This should provide information on the skills the market requires of graduating students and will make the students more employable and more competitive. The evaluation should include an assessment of both the public and private sectors.

**Recommendation A7:** We strongly believe that the Department consider replacing some traditional courses with courses that provide the students with the ability to used modern technologies which have become important to agriculture. Examples of these technologies are geographical information systems (GIS), remote sensing and other sensing systems, biotechnology, post-harvest processing; produce safety; agro-ecology, and precision agriculture. It has been demonstrated that having taken just one of the above mentioned courses provides graduates with a competitive advantage when pursuing job opportunities. New courses should be added as older courses are eliminated with over-burdening the curriculum with a larger number of courses. The EEC recognizes that financial constraints may limit the department's ability to implement some of these changes.

**Recommendation A8:** The Committee recommends a reduction in the number of courses in the Curriculum. One approach to doing this is by making the mandatory second course in a two-course sequence an elective. Typically, the second course provides a high degree of specialized knowledge. There are several of these

sequences in the program of study. As an example only, we provide the following sequences of courses: Vegetable Production and Specialized Vegetable Production; Plant Pathology and Specialized Plant Pathology; Entomology and Specialized Entomology. These are required courses which provide general and very specialized knowledge in those fields. By reviewing the description of these and similar courses we find that the content is excellent but we question the need for providing such specialized knowledge to students at the B.S. level for all these agricultural fields. We suggest instead that the overall number of courses be reduced, the “specialized” courses be made electives, and the students required to select one or two of the specialized courses of their choice. Again, the sequences discussed here are selected only as an example and are one of several such sequences included in the Curriculum.

Another option that should be evaluated is integrating the theoretical section and the laboratory sections into a single course/grade. Although this will dramatically reduce the number of final exams each student encounters, it will not dramatically affect the overall content of the Curriculum.

## ***B. Teaching***

### APPROACH:

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

Please comment on :

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

### *Teaching Methods Used*

Teaching methods include classroom teaching using PowerPoint presentations, laboratory exercises, activities in the Department's greenhouses, shadehouses, orchards, and fields, opportunities to engage in laboratory research, and fieldtrips in selected courses. Most of the faculty also place class-related material on electronic platforms (e-classroom). The committee also believes that alternative lecture formats that may include participatory components (presentations by students, group discussions) would further student engagement and attendance.

It should be noted that the majority of the courses contain a laboratory component. However, laboratory classes are not co-required with the corresponding lecture class. Students would benefit if a single class contained both lectures and laboratory; this would enhance engagement of the students, and maximize their ability to process the information. The committee appreciates the fact that the student groups are of relatively small size. Recently, student lab groups have increased in size which is not a positive trend. Furthermore, students indicated that in some labs demonstrations are used instead of projects in small groups and that the number of students attending a lab session may be excessive. The students also indicated that this is a very recent development and discussions with faculty indicated that the current budget crisis has reduced the number of non-permanent teaching staff used to conduct some of the laboratory sections thus increasing the number of students per section. Students expressed their overall satisfaction with the quality of the instruction in the labs.

### *Teacher/Student Collaboration*

It was evident from discussions with a number of undergraduate students that the teaching staff are largely accessible and responsive to the students' needs. The students respected the teaching staff both for their expertise and their dedication to

the teaching mission. As mentioned earlier, the teaching staff make a concerted effort to have an open-door policy, provide assistance to the students outside the classroom and generally be accessible.

#### *Adequacy of Means And Resources*

The Department has lost 10 faculty members through retirement over the past decade. None of these faculty have been replaced. The last faculty hire was in 1997. Several more retirements are expected over the next three years. **Continued attrition at this rate jeopardizes the teaching mission of the Department.** Already, specialties needed to teach several courses are no longer available within the group of existing faculty. These deficiencies are made up by faculty teaching outside their area of speciality or by hiring part-time teaching staff that may or may not have adequate depth of knowledge. This was not only expressed strongly to us by the faculty but was the only major complaint of the students with whom we spoke. The Greek Ministry of Education must address this issue promptly if this Department's teaching program is to remain viable.

As mentioned earlier, students were also dissatisfied with the increase of the number of students within laboratory sections during the current academic year. In one laboratory section for example, we found 28 students when the previously accepted maximum was 20 students. Overall, however, students were satisfied with the available resources. In most cases laboratory consumables were adequate and equipment was well maintained. Students have adequate access to major libraries and databases through the internet. The library is located in the main campus was well staffed and maintained. It was an attractive space that was in sufficient use by students at the time of the visit. It provides reference material, books, an adequate reading room and a computer room. However, there the students complained that computers are old and slow!

#### *Use of Information Technologies*

All students and faculty have been issued university e-mail addresses. All buildings of the Department (including cafeteria) are equipped with wireless connections. Computer labs are available and staffed by IT support (student worker) but students complained that the computers were dated and slow.

#### *Examination System*

Grades for most theoretical sections were assigned mostly by a single final written examination. Midterm exams are optional and apparently not widely used. Additional options for grading may promote participation and attendance for students, and reduce the currently unacceptably high portion for students that have to take the same course multiple times, thus requiring an excessive amount of time for graduation.

The laboratory section of each course is mostly assessed through laboratory exercises, mid-term exams (not in all lab sections) and final exams. The Department uses a 10-point grading scale and the student has to earn at least a grade of 5 to pass the course. When the course has both laboratory and theoretical parts the average is used. Data provided in the Self Evaluation Report (Table 11-6.1) indicate that most students pass the courses with a grade between 6 and 8.4 with an average of 6.64. The Committee notes that between the years 2001 and 2009 no student graduated with a grade higher than 8.4.

#### *Quality of Teaching Procedures*

Most faculty members are dedicated and enthusiastic about their teaching, but attendance of lecture courses is frequently low. Current legislation does not allow for the instructor to introduce compulsory attendance. However, instructors can implement measures that can encourage and reward attendance, as indicated above (mid-term exams, bonus points for participation in group discussions and presentations, etc.). Students interviewed agreed that the introduction of quizzes and midterm exams will increase participation.

#### *Quality and Adequacy of Teaching Materials and Resources*

During interviews with students, comments were made that teaching materials used are appropriate. The committee examined available books for selected classes and found them to be excellent resources, frequently in effective formats (e.g. plant pathology books with numerous photographs of high quality). Books are available to the students at no cost.

Equipment used in teaching laboratories was adequate, well maintained but also appeared to have not been updated recently. Much of the equipment is original to the beginning of the Department.

#### *Mobility of Academic Staff and Students*

Eleven members of the faculty participated in visiting scientist programs for upgrading their skills. The number is considered satisfactory although the committee would like to see more faculty members are making use of sabbatical leave. Faculty members accumulate sabbatical time, which they can use for their scientific advancement according to a personal plan that fits their needs. During the last five years no faculty has taken sabbatical time. The Committee considers it very important that faculty members make use of a sabbatical to update their skills.

Forty five students made use of the student mobility program Erasmus between the academic years 2002-2003 and 2009-2010. The number is considered satisfactory. The Committee's visit to the office of International Relations showed a very dynamic and active group of staff who clearly strive to recruit students for various mobility programs. It is worth noting that the Department respects the Bologna process and

transfers the credit for the courses that its students earn while studying abroad. Large numbers of students from other European countries are present at the Institution each semester several of which participate in Departmental programs. Departmental faculty customize and teach courses in English for these visiting students as well as involve them in research activities.

At least one faculty member has been successful in pursuing extramural funding for student mobility programs. He developed an US-EU consortium that allowed a total 7 Department students to spend up to 6 months in the USA. This activity is highly commendable. Similar mobility opportunities (ERASMUS, OECD fellowships, etc.) are available for staff and faculty members. Although many faculty members are well travelled, others are not. A concerted effort must be made to introduce this culture to the Department so that all its members have an opportunity to travel abroad and share ideas with colleagues at other institutes.

*Evaluation by the Students of (a) the Teaching and (b) the Course Content and Study Material/Resources*

The OM.E.A. provided student evaluation of instruction for courses taught in the Department. The questionnaire is considered appropriate and included questions on teaching, course content and material used. Student evaluation of instruction is used in every semester and course. Discussions with faculty and members of MODIP indicated that after the answers are manually keyed in and analysed by MODIP, the summary goes to the Department where they are distributed to the faculty member, who also receives the hard copies of the evaluation. The Committee acknowledges the fact that the course evaluation process is in its infancy. Improvements can include an electronic evaluation system, which would greatly enhance the effectiveness and accuracy of data analysis. Electronic evaluations would also permit the verbal comments of the students to be included (currently such comments are not transferred to the electronic record, and remain on the hard copy; they may or may not ever be read by the instructors). Specific suggestions for improving the course evaluation process:

- Discuss the importance of the evaluation process with the students and assure them that it will be used to improve the teaching program (see suggestions about informational seminar).
- Review the evaluation form with someone who specializes in creating surveys to ensure that the evaluation instrument provides the necessary data.
- Ensure that the evaluation forms are distributed during class periods near the end of the semester so that students who participate in the course are the ones completing the evaluation.

**Recommendation B1:** Critical teaching faculty positions should be replaced

promptly.

**Recommendation B2:** The introduction of weighted grading where the student grade will depend on midterm exams, quizzes (announced and unannounced), assignments, group discussions or presentations, laboratory exercises and a final exam may provide an incentive for students to attend the classes. Higher attendance and multiple grading options may reduce the currently unacceptably high fraction of students who fail each course.

**Recommendation B3:** New instructional media and technologies can also be used to engage students in courses. These technologies include audience response systems (commonly referred to as "clickers"), quizzes and mid-term tests with multiple choice answers which can be graded electronically, etc. Teachers use clickers to informally assess students' knowledge of a topic before lecturing to see whether students understand a point after it has been explained, and to ask survey or opinion questions during the lecture. This strategy keeps the students engaged during the lecture and has been proven to increase attendance.

**Recommendation B4:** Pre-requisites should be re-established and enforced.

**Recommendation B5:** Evaluations of teaching can be further utilized to support excellence in teaching. The number of student evaluations should be increased before they could provide any useful information. The Department Head should confer with the faculty, discuss the faculty's student evaluation of instruction scores and provide support if needed. Teaching Excellence Awards (or equivalent tools for recognition of excellence) can be instituted to recognize individuals who excel in teaching. These awards should be presented at gatherings of the entire faculty of the TEI to increase their prestige. When possible, the awards should be accompanied by a one-time allocation of TEI resources to improve the teaching laboratory/methods of the awardee.

**Recommendation B6:** An outcomes assessment process with metrics should be gradually introduced for courses taught. The assessment should be referred to individual courses and examine if at the end of the course the student has achieved the learning outcomes as outlined in the syllabus.

**Recommendation B7:** The Committee recommends that the Department encourage faculty to take sabbaticals at other institutions.

**Recommendation B8:** The Committee recommends that the Department ensure that senior faculty are involved with teaching introductory courses. This impresses incoming students and has been proven to increase retention and graduation rates.

### **C. Research**

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

#### APPROACH

- What is the Department's policy and main objective in research?
- Has the Department set internal standards for assessing research?

The department's founding mission, as stated in the Self Evaluation Report, relates to the following subjects: Crop Production, Sustainable Development, and Organic Agriculture.

The Committee understood that the primary mission of the TEI in Greece is teaching and not research although since 2001 there is a clear expectation that TEI faculty also conduct research. There are as yet no national or institutional rules, guidelines, or expectations of research productivity for the TEI. We have taken this into account in our evaluation of the research program. We have also taken into account that there is a very close relationship between the Department under evaluation and the Department of Organic Greenhouse Crops & Floriculture, located on the same campus. The two departments share personnel, research and teaching facilities. This is a positive feature that allows the two Departments to work cooperatively and excel in their research goals. Furthermore, and, even more importantly, several faculty and staff of the Department of Organic Greenhouse Crops & Floriculture substantially support the research and teaching activities of the Department under evaluation.

Although the Department has no specific research policy, as stated in the Self Evaluation Report, after several faculty meetings in 2008, research goals were established so as to include research groups addressing specific research programs.

After considering that the Department under evaluation is within a teaching-intensive institution, the research activities of the Department have been compared to acceptable international standards for teaching-intensive institutions in Europe and the United States. The Committee also compared the Department with respective Departments of Greek Universities. Compared to the above mentioned standards and the State policy towards TEI, the Committee finds that the overall research activities are very satisfactory.

The Committee noted that in general the faculty members of the Department are very enthusiastic with their research and are actively involved in research and mentoring. Many faculty have and are currently supervising MS students and Ph.D. from other institutions who are conducting their research within the Department. These students are generally recent Department alumni.

### *Research Productivity*

Measuring and documenting research productivity is always a difficult task. Some of the means typically used are presentations at international conferences, publications in peer-reviewed journals, and impact on the stakeholders. The Committee has used these three parameters to gauge the Department's research productivity.

Department faculty members have presented extensively at international conferences. Table 1 summarizes data aggregated from CVs provided by the Department.

Recognizing the financial constraints under which the Department operates and the excessively high cost of attending international conferences, we find that the Department's permanent faculty compare very favourably to faculty from peer institutions in this category. Six faculty have presented invited presentations at conferences or other institutions. This means that five faculty have not participated in international meetings. This fact compares unfavourably with peer institutions and efforts should be made, when the financial conditions are improved, to encourage the faculty to present their research results at international venues.

**Table 1.** Presentations at international conferences by permanent faculty per rank during 2003 to 2011.

Rank (number in rank)	2003-2009	2010-2011
Professor (8)	27	1
Associate Professor (0)		
Assistant Professor (1)	8	0
Total	35	1

Permanent and non-permanent faculty members of the Department have published extensively with 135 peer-reviewed publications since 2003 (Table 2), which corresponds to a ratio of approximately 1.7 publications per faculty per year. This ratio compares favourably to well-respected peer teaching-intensive institutions of higher education both domestically and abroad. We also make a special note that the research results have been disseminated in peer review journals that are highly regarded in their field, such as *Metabolic Engineering*, *Biotechnology Journal*, *Science of the Total Environment*, *Planta Medica*, *Current Genetics*, *International J. of Food Science and Technology*, *J. of Science & Agriculture*, *Phytopathologia Mediterranea*, etc. Our assessment is based on review of CVs provided by each faculty member.

**Table 2.** Peer reviewed publications of permanent and non-permanent faculty per rank during 2003 to 2011.

Rank (number in rank)	2003-2009	2010-2011
Professor (8)	53	11
Associate Professor (0)		
Assistant Professor (1)	2	0
Lecturers & Καθηγητές Εφαρμογών (2)	1	0
Non-permanent academic staff (18)	59	9
Total	115	20

As with any academic institution, the level of productivity as measured by publishing varies significantly among scientists. This assessment is further complicated by the fact that in some sectors of agricultural science, data from which publications are created can be collected rapidly while in others, several years of data are required in order to publish. Nevertheless, the data in Table 3 are indicative of individual productivity.

**Table 3.** Number of peer reviewed publications of permanent faculty from 2003 to 2011.

Range of Publications	Number of Faculty
0-2	3
3-4	3
5-6	0
7-8	2
9-10	0
>10	2

In the lowest performing category, there are 2 permanent faculty members at the rank of Professor and 1 member at the rank of Assistant Professor. Under any standards and even with limited levels of funding, two peer-reviewed publications in 8 years can only be characterized as poor. Our opinion is that factors other than the availability of research results are responsible for this poor publication for at least two of the faculty members in this category since we witnessed very active research programs.

In contrast, the publication productivity of the four faculty members in the higher performing categories can be considered good to excellent. One member has published 15 peer-reviewed articles since 2003.

Certain faculty members have extensive research activities that contribute significantly to the national and regional economy. Currently the Department participates in various research programs supported by local, state and European Union funds totalling of 2.75 million €.

The Committee appreciates the healthy balance struck by most faculty between pursuing external funding, executing grants, publishing results (papers, reports, conferences, e.t.c), teaching activities and University service. The Committee noted a healthy diversity in research areas pursued by faculty members of the Department.

The vast majority of the research programs we evaluated address a number of important local and regional agriculture needs such as plant diseases, propagation and virus cleaning of cultivars and disease-resistant cultivars through tissue culture, plant taxonomy and ecology with focus on native, medicinal or endangered plants of Cretan flora, and collaborative projects on molecular and biotechnological applications to just mention a few. Several research projects are being conducted with partners at other Greek and foreign universities and other TEI. Research areas

ranged from research focused on traditional evaluation of cultivars to evaluation of cultivars using molecular markers to sophisticated molecular research focused on metabolic engineering. The Department has developed significant activities in propagating virus-free plants and vines (through virus cleaning), and promoting the cultivation of niche crops with potential for local conditions. In some cases, the research activities of the Department have become vital to the maintenance of key agricultural industries in Crete such as the banana industry where virus-free plants are developed at the Department and distributed to banana growers through a research agreement with the banana growers association.

In the next few paragraphs, we provide a few examples of unique areas of research excellence which we were able to review during the site visit. By unique we mean that these research activities, to our knowledge, are not found at other Greek institutions. The first is the herbarium collection of >30,000 plant specimens including the discovery and description of several new species. This collection needs to be photographed and documented to be used by future generations for further studies of changes of the flora of the island of Crete and of Greece in general.

Another area of major national interest is the mapping of residual populations of endangered native plants and particularly the collection and virus-cleaning of the native grape cultivars from the Kyclades. Creating and maintaining this genetic diversity material is very important for the improvement of cultivated grapes nationally and internationally. Another area of importance and research interest is the collection of tropical and subtropical species of tree crops of local economic importance. Having these large collections of genetic material in an institution is very important for designing future research projects for the improvement of crops, finding disease resistant cultivars, and doing biodiversity studies.

The variety in the activities, the enthusiasm, and the outward-looking, open mentality of the faculty members are commendable. Furthermore and despite the fact that the Department is not allowed to develop autonomous graduate programs, it has developed post-graduate student research opportunities in cooperation with Greek universities (University of Crete and University of Thessaloniki) and Cranfield University in the UK. M.S. students and doctoral candidates use the Department's facilities for their research, supervised by Department faculty.

Department undergraduate students are actively engaged in research projects, as paid assistants, as volunteers, or in the process of pursuing their degree program. In our interview with students it was made abundantly clear that students were eager to participate in research. Funded programs that can support a larger number of TEI students are needed. TEI faculty are strongly encouraged to include support for students in grant proposals.

Research infrastructure, shared with the Department of Organic Greenhouse Crops & Floriculture, is impressive, including very good greenhouse and shadehouse and tissue-culture facilities for grapes, vegetable and flower production, a very modern

laboratory and extensive field facilities associated with the Waste Management Program, very good plant pathology, entomology, and general agriculture laboratories, a well-equipped laboratory of agricultural engineering, and good laboratories involved in research about the local flora and ecology. The well-equipped molecular biology program laboratories were distributed in several buildings causing minor operational problems. The efficiency of that program could be improved by improved a more unified laboratory space in closer proximity to other researchers at the TEI conducting similar work. This could enhance the cooperation of faculty and help more research projects.

There are excellent supporting library services, shared by the whole TEI. However, students expressed their concern with the old computers and the time required to download information and scientific papers from the internet.

**Recommendation C1:** The Committee urges faculty and staff to maintain their high levels of quality research and outreach despite the acknowledged obstacles posed by the current crisis in the Greek economy.

**Recommendation C2:** Improve the visibility of the work, especially the significant quantity of applied research and the many relatively small projects, undertaken for individual growers and producers. The results of this work (e.g. tissue-culture based propagation of cultivars with improved disease resistance) are conveyed to those that ask for it, but little use is made of it elsewhere. The internet, local and national newspapers, and informative seminars and spin-off companies are valid outputs for this sort of work.

**Recommendation C3:** All faculty should be encouraged and incentivized to participate and present at international meetings and publish their research findings in peer-reviewed journal articles. This will further the goals of Recommendation C2.

**Recommendation C4:** Further align the Department's research with the strategic needs of Greek Agriculture and particularly Crete's related industries.

**Recommendation C5:** Explore the possibility to join forces with the Department of Organic Greenhouse Crops & Floriculture to further enhance the already existing synergism and collaboration between the two Departments.

**Recommendation C6:** Identify novel areas for research (with accompanying training) to address current needs and trends, e.g. in organic production, safety of produce, unique minor crops whether conventional or organic, and promotion of niche markets for agricultural commodities.

**Recommendation C7:** The Department Head along with two more faculty members develop a three-member committee to evaluate peer research publications and establish an Excellence in Research Awards given every 2 or 3 years to recognize the best research completed within that period of time. These awards should be presented at gatherings of the entire faculty of the TEI to increase the prestige of the TEI and encourage younger faculty members to excel.

**Recommendation C8:** Encourage the development of a group made by stakeholders and/or local authorities and private sector for possible financial support of research and solving local and national problems.

**Recommendation C9:** The Committee feels that this Department has the academic credentials, support facilities, greenhouses, and sufficient fields for research to support on their own research-based post-graduate program.

### **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?

Adequate administrative infrastructure is in place. However, the work of the personnel in the administrative office (Γραμματεία) can be even more efficient if the professors entered the grades of the students' exams electronically and thus avoid duplication of the work first by the professors and then by the secretaries copying the grades into the computers. The Department has access to web support and computer stations are available to students at the library. Computer stations at the central library are numerous. However, the Committee was told by the students when we met with them that computers are old and it takes a long time to download documents. It is commendable that wireless is available in virtually every corner of the institution.

The Committee noticed that the Department has access to the TEI support services and provides services for the students with learning or physical disabilities. Athletic and catering facilities were impressive, significantly above average.

Based on the information provided in the Self Evaluation Report, discussions with faculty members and students, and actual visits to the Department and related facilities, the Committee considers the functionality of the Department's administrative services and infrastructure effective. When the Committee met with 28 undergraduate students were told that the administrative services were satisfactory in general, but some students expressed concerns with immediate response to urgent requests.

Job placement services for students are carried out through the Career Services Unit. During our meeting with the office representative, it was stressed that, up until 2008 (at which time funding from the European Union was discontinued) the office organized annual "Career Fairs" with representatives from the agricultural sector, industry, government, institutes, foundations etc. The Committee noticed that faculty were engaged enthusiastically in assisting students with choices for agencies to perform their required internship ("Practical Exercise") and considers this to be crucial for student training, academic and professional development, and future job placement.

**Recommendation D1:** The Committee recommends the development of an organized mentoring system for junior faculty (when they are again hired) on issues related to professional growth and development, teaching and scholarly activity. This is also critical for members of the instructional staff in non-permanent contracts. In this process senior faculty and academics outside the institution could be also involved.

**Recommendation D2:** The Committee recommends the development of a retention, promotion and tenure institutional policy which will provide guidance to faculty members on related issues.

**Recommendation D3:** The Committee recommends that the Department institutes a regular program for reward of excellence in teaching (Recomm. B5), research (Recomm.C7), service and outreach for the faculty and staff.

**Recommendation D4:** The Committee recommends that the TEI implements an on-line grade system by which faculty can add student grades to the system and students can view only their own grades. This is important for maintaining confidentiality.

**Recommendation D5:** The Committee recommends that efforts should be made by the TEI to obtain new computers for the library since these computers serve the majority of students.

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

The Department's initiatives are mainly oriented towards maintaining active outreach programs to the community, the local agricultural sectors and the industry. It has developed a number of initiatives with local and regional organizations and has a number of consultancy activities. The cooperation with the islands of Paros and Antiparos and the effort to register historic olive trees are notable. However, there is need for improvement. For instance, workshops on specialized applied topics can be offered (free or for a nominal fee to cover the cost of meetings) to growers. Seminars open to the public can be given on a regular basis (e.g. once each semester) to present those aspects of faculty research programs that are of special relevance and interest to the T.E.I. and to the community.

**Recommendation D6:** The Committee recommends that faculty or other academic personnel organize field days where growers could have the opportunity to see first-hand an important problem and /or problem solving activities.

**Recommendation D7:** The Committee feels that more efforts should be placed in soliciting funding of research by interested grower cooperatives and other organizations to support students' research projects.

**Recommendation D8:** The Committee feels that the higher administrative personnel should solicit gifts and monetary or land donations for the TEI, after presenting the value of services provided by the TEI to the community.

### ***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.

Our meeting with a group of 10 Department alumni was very productive in producing ideas to improve the visibility and effectiveness of the Department within Crete's agricultural community. As mentioned earlier, the alumni ranged from very recent (past semester) to alumni who had graduated from the Department during the 1990s. All were very complimentary of their education and stated that it had provided them with the tools to be successful. They expressed the opinion that between 80 – 90% of the Departments graduates are employed in the private sector.

At least four of the alumni were successful entrepreneurs who own companies providing agricultural services in Crete. These four in particular expressed a keen interest in having closer ties with the Department and receiving newsletters, seminar announcements, and other information at regular intervals. They also expressed a strong interest in continuing education opportunities and suggested that the Department organize seminars on issues important to Cretan agriculture and invite producers, businessmen, and other relevant people.

The alumni were very supportive of the idea that the Department create an Advisory Council consisting of stakeholders which would serve the dual purpose of providing the Department with feedback on what issues are relevant to the stakeholders while also increasing the visibility of the Department among its stakeholders. All of the alumni expressed the willingness to serve on an Advisory Council.

**Recommendation E1:** The Department should define a clear novel identity, mission, and operational niches compatible with: the capabilities and technical competencies of its staff and the needs of the agricultural sector, the food industry and related socio-economic stakeholders in Crete and the Eastern Mediterranean basin. Included in this should be a clear understanding of who are the Department's stakeholders.

**Recommendation E2:** Develop an Advisory Council consisting of stakeholders, the Department Head, and the Head of the School. Stakeholder members should

including leading agricultural producers (farmers) from key commodity groups, agribusiness leaders, and community leaders. The Advisory Council should not be constituted exclusively of alumni. The Advisory Council will serve the dual purpose of providing the Department with feedback on what issues are relevant to the stakeholders while also increasing the visibility of the Department among its stakeholders.

**Recommendation E3:** To develop a research and outreach strategy that will include development of research topics oriented not only towards the needs of the local, economy but also toward the Eastern Mediterranean economy.

**Recommendation E3:** To capitalize on item a) the Department or perhaps the School in conjunction with the Department should develop a parallel program of study in English which will allow the Department to recruit students from the Eastern Mediterranean basin and other countries. This will allow the Department to generate revenue from tuition as well as allow Greek students to electively participate in English language courses.

**Recommendation E4:** The Department should also develop focused plans to increase its visibility and impact on the local community. Outreach efforts could involve: workshops on their area of departmental expertise; development of an Arboretum where diverse plants, including native and endangered flora, could be seen and appreciated (this could not only serve for teaching purposes but would also provide excellent community outreach, become a source of potential fundraising through private donors and regular plant sale events, and could involve both students and the community at large in volunteer positions for the maintenance of the Arboretum. (Many agricultural universities in the United States have an Arboretum associated with them, and successful models are available.)

**Recommendation E5:** The School of Agricultural Technology of TEI Crete has developed a noteworthy proposal for the future (Πρόταση Μετεξέλιξης της Σχολής Τεχνολογίας Γεωπονίας του TEI Κρήτης.) The principle idea of the proposal is to combine the two current departments and reorganize the two programs of study into a single Plant Production program with elements from both original programs. The new program of study will be designed to include emerging technologies important to 21<sup>st</sup> century agriculture with a focus on meeting the future needs of agricultural production in Crete. The Committee agrees that this proposal is an excellent template for beginning a comprehensive discussion about the future of the School of Agricultural Technology of TEI Crete. However, we also suggest that the School and departments take a more regional rather than local perspective as they prepare for the future.

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

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

Conclusions and recommendations of the EEC on:

- the development of the Department to this date and its present situation, including explicit comments on good practices and weaknesses identified through the External Evaluation process and recommendations for improvement
- the Department's readiness and capability to change/improve
- the Department's quality assurance.

The most important conclusions reached by the Committee are assembled here. The detailed recommendations in each area that can be found at the end of the corresponding sections, numbered accordingly, are not repeated here.

### *General*

The Committee was impressed with the teaching and research facilities available to the students, including field, greenhouse, and shadehouse facilities and well equipped laboratories. These include the facilities of the Department of Organic Greenhouse Crops & Floriculture with which the Department has an excellent working relationship and routinely share personnel and resources. There was excellent IT support and very good library facilities. We found a very positive relationship among faculty, staff, and students. Faculty and staff were focused on providing the best possible education to the students. This included providing advising, after class tutoring, an open door policy, and an opportunity to do meaningful work for their internship ("Practical Exercise"). Despite this, less than 20% of students graduate within 7 years even though the program of study is officially a 4-year program. It should be noted that based on the experience of the Committee members, this issue is endemic to departments offering agricultural degrees at Greek Institutions of Higher Education (AEI) but must be resolved if these programs are to survive in the current competitive environment.

The Department should develop a novel identity and a cohesive, long term mission. In so doing, areas of local and regional importance must be taken into account using modern methods and advances. In particular, the new strategy should take into account factors such as the prime geographical location of the Department's facilities, which can act as a powerful magnet for international students, visiting faculty and research scholars. Additional advantages include the prime facilities, the existing close interaction with the Department of Organic Greenhouse Crops & Floriculture, and the overall excellent quality of human capital. The Department under evaluation would do well in adding a strong International dimension to its

future, by offering accredited courses and degrees in the English language.

Unbiased evaluation metrics of performance for members of the faculty members must be established at the Institute, School, and Departmental level. These metrics must be used to evaluate the performance of individual members of the faculty, the Department, and the School and **must include teaching and research performance** (and outreach if that becomes a future mission of the School). A system must be established to recognize and reward high performers and motivate underperformers. Underperformers who refuse to improve their performance should be removed from the Institute. Performance evaluations must be conducted regularly – we suggest annually. Faculty members, Departments, and Schools which are not fulfilling the mission entrusted to them by the taxpayers of the state are consuming resources which should be allocated to those who are performing.

Similarly, an award system should be developed to recognize student academic performance at multiple levels – Department, School, and TEI.

#### *Curriculum*

The committee recommends that the department reduce the load of mandatory courses by converting some specialized courses to electives, introduces a compulsory policy with respect to the availability of a detailed syllabus; that it introduces an electronic evaluation system for classes; that it limits the transfer of prerequisite courses but also introduces measure to prevent registration for courses for which the appropriate pre-requisites have not been successfully completed; that it incorporates components (availability of additional grading options; group discussions and class participation etc.) to encourage attendance; and that it introduces a faculty-led student advisement program to assist students in decision-making for enrolment and reduce time to degree. Students, staff and faculty need to work together to reduce the length of the degree program, which is currently unacceptably high.

#### *Teaching*

The Department should establish processes to assess the efficacy of teaching and act upon the findings. Electronic evaluations should be implemented. Teaching excellence should be acknowledged and rewarded through a TEI-based assessment system as described earlier.

#### *Research*

The Department should concentrate its activities in targeted areas of demand that can catapult the program into excellence, while maintaining the present high quality of research and outreach. Research excellence should be acknowledged and rewarded through a TEI-based assessment system as described earlier.

#### *Planning*

The Department should develop a long term vision with main aims to carry out a thorough review and restructuring of the curriculum to truly reflect the core aims and objectives. The Department should also draft a research strategy that will include specific methods and procedures for the identification, fostering and development of high-impact, high-relevance research areas. Lastly, the Department should encourage and assist faculty, staff and students in design and implementation of novel and expanded outreach efforts. This Department exceeds the standards of a teaching-intensive institution in most areas with clearly strong potential for sustained excellence, innovation, and strategic planning to best address current trends, needs and opportunities related to agriculture in Crete, the eastern Mediterranean basin, and elsewhere.

The School of Agricultural Technology of TEI Crete has developed a noteworthy proposal for the future (Πρόταση Μετεξέλιξης της Σχολής Τεχνολογίας Γεωπονίας του TEI Κρήτης.) The principle idea of the proposal is to combine the two current departments and reorganize the two programs of study into a single Plant Production program with elements from both original programs. The new program of study will be designed to include emerging technologies important to 21<sup>st</sup> century agriculture with a focus on meeting the future needs of agricultural production in Crete. The Committee agrees that this proposal is an excellent template for beginning a comprehensive discussion about the future of the School of Agricultural Technology of TEI Crete. However, we also suggest that the School and Departments take a more regional rather than local perspective as they prepare for the future.

The Members of the Committee

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