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 ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

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

EXTERNAL EVALUATION REPORT

DEPARTMENT OF ORGANIC GREENHOUSE CROPS AND FLORICULTURE

SCHOOL OF AGRICULTURAL TECHNOLOGY

TECHNOLOGICAL EDUCATIONAL INSTITUTE OF KALAMATA

December 2012

Department of Organic Greenhouse Crops and Floriculture, Technological Educational Institute of Kalamata



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External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Organic Greenhouse Crops and Floriculture of the School of Agricultural Technology, Technological Educational Institute of Kalamata consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. **Prof. George Vellidis**, University of Georgia, Tifton, Georgia, U.S.A. (Coordinator)
2. **Prof. Sophia Kathariou**, North Carolina State University, Raleigh, North Carolina, U.S.A.
3. **Dr. Eleni Maloupa**, Senior Researcher, Agricultural Research Center of Northern Greece, National Agricultural Research Foundation, (NAGREF), Thessaloniki, Greece
4. **Prof. Thomas Panagopoulos**, Research Centre for Spatial and Organizational Dynamics, University of Algarve, Faro, Portugal

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 External Evaluation Committee (hereafter the EEC) visited the Department of Organic Greenhouse Crops and Floriculture (hereafter the Department) of the School of Agricultural Technology, Technological Educational Institute of Kalamata from December 10th to December 13th 2012. On the afternoon of December 10th, the EEC met for about four hours with TEI President Dr. Kanakis (also a member of the Department), TEI Vice-President for Academic Affairs Dr. Kapolis, the Director of the School of Agricultural Technology Dr. Georgopoulos (also a member of the Department) and Department Head Dr. Dimopoulos. Drs. Georgopoulos and Dimopoulos were members of the departmental self-evaluation committee (OM.E.A) which had undertaken the drafting of the Self-Evaluation Report. Student Mr. Maglaras was also a member of the OM.E.A. but was not present at any of the meetings.

On the following day, December 11th, the EEC met separately with the following groups: the permanent faculty members, the temporary faculty members (Εκτακτο Εκπαιδευτικό Προσωπικό), the three technical support staff (Ε.Τ.Ε.Π.), the Department's Administrative Support Office (Γραμματεία) which consists of one person; about 20 undergraduate students, and owners of 3 local agricultural businesses – one dealing with greenhouse crops and the other two with olive oil

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production and/or packaging.

Our meeting with Department faculty was very productive. We met with the 8 permanent teaching faculty (EII) and 4 of the 10 nonpermanent teaching staff. Each meeting lasted approximately 60 minutes.

Our meeting with the Department's three Technical Support Staff (E.T.E.II.) was positive as was the meeting with the Administrative Support Office. In general, the staff was very satisfied with working conditions and their interactions with faculty and students.

Our discussion with the students was extremely positive. The students ranged from first semester students to students who had been in the Department for 8 years. Approximately half of the students had selected the Department as one of their top choices prior to the PanHellenic Exams – a much higher number than encountered in prior evaluations by the members of the EEC. Interestingly, almost all of these were 1st year students and were from the local region. When asked about this, the students provided several reasons for selecting the Department: One was that the Department offered a specific course of study which interested them because of a family business. Another compelling reason was that the Department's degree offers graduates certain professional rights and privileges (for example the right to sell agrochemicals, apply pesticides, develop business plans for agricultural enterprises, etc.) which is a competitive advantage in the job market and provides greater opportunity for entrepreneurship. The most common answer though was that the economic crisis compelled them to stay home and to also consider a career in agriculture. In general, both the current students and the alumni were very satisfied with the Department. 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 two hours and ended only because of time limitations. The student meeting overlapped with the meeting with the 3 local agricultural businesses and the EEC asked interested students to stay and hear what the business had to say about the Department and their interest in the Department's graduates. The majority of the students did stay for the meeting.

On December 12th we toured the TEI's outstanding new residential facility which is located in central Kalamata and then toured the Department's research and teaching laboratories, research and teaching greenhouses, and library. We also had a very candid meeting with 8 alumni for approximately 60 minutes. After the tours, the EEC met briefly with the Department's faculty to obtain clarifications and ask

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questions of topics discussed during the visit and provide a synopsis of our assessment. Then the EEC met with the TEI president, vice-president, the Director of the School, and the Department Head over a late lunch at the TEI's restaurant to discuss and summarize our activities and exchange opinions.

During the preparation of the external evaluation report, the EEC 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 EEC considered several documents provided by the Department upon request of the EEC. *We would like to note that the Department promptly provided all supplementary information the EEC requested even though some of the requests were made during the Christmas Holiday period.* The EEC highly commends the Department for its valuable and honest self-assessment.

The site visit took place in an atmosphere of professionalism and collegiality. The EEC 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. Of special note were the very well-equipped teaching laboratories and the research/teaching greenhouses which are on campus and within easy walking distance of the classroom facilities. All of these facilities are used very intensively to fulfill the Department's teaching mission and provide an excellent environment for hands-on teaching. In general, we find the department' teaching programs 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 who 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 Practical Training (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.

Since 2001, the TEI have been assigned research responsibilities. In response to this, the Department has developed research programs most of which address the needs of the agricultural community of the southern Peloponnese. The EEC considers this as



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a very positive trend but much more can be done.

The Self-Evaluation Report provided information for the period 2001-2011. The Self-Evaluation Report was well written and followed the format provided by HQAA. It contained most of the information needed by the EEC for the evaluation. As noted earlier, the EEC requested additional information which the Department provided. The Self-Evaluation Report provided an accurate and objective portrayal of the conditions we observed during our site visit. In addition it presented potential solutions to the problems identified during the self-evaluation procedure.

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?

The Department offers a single undergraduate program whose mission statement is: *“to develop and diffuse scientific and technological knowledge regarding the production of plant products from organic and integrated management crops, through teaching and applied research, aiming at the scientific and vocational training of the students of the Department’s subject area.”* The scope of studies of the department covers the application of the principles of the technical, biological, physical and economic sciences on organic and integrated production and sustainable



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management of agricultural products, with emphasis on Floricultural and Horticultural products.

Description of the Curriculum

The curriculum was revised in 2009 to reflect the new name of the department which changed from Greenhouse Crops and Floriculture to Organic Greenhouse Crops and Floriculture. The curriculum requires 240 ECTS units distributed over 8 semesters (4 years). It consists of 39 courses which result in 210 ECTS units, a Practical Training (Πρακτική Εργασία) which results in 10 ECTS units, and a Degree Thesis (Πτυχιακή Εργασία) which results in 20 ECTS units. Thirty six of the 39 courses are required (core) courses and 3 are compulsory electives (choice from a limited group of courses). Many of the core courses and elective courses consist of lecture sections and laboratory sections. The students must pass both sections separately to receive credit for the course. Students can take additional lecture courses/sections as electives but do not receive credit towards graduation for them. The curriculum is well described in a modern, attractive, and easy to read Program of Study booklet which is available in printed form and from the Department's website.

Proposal for Change

The School of Agricultural Technology at the TEI of Kalamata has developed a proposal to merge the Crop Production Department and the Organic Greenhouse Crops and Floriculture Department into a single academic unit. The new department would be named Agricultural Technology and would offer a degree with the same name. The degree would be modified to meet regional agricultural needs not addressed by other institutions of higher learning. Two to three areas of emphasis would be established to allow students to pursue their particular interests. Examples of potential areas of emphasis with regional importance which have been discussed include 1) Olive and Olive Oil Production, 2) Floriculture, and 3) Hydroponic and Aeroponic Greenhouse Crops. The proposal is currently before the Ministry of Education awaiting approval. *The EEC applauds this effort and encourages the Ministry to approve the request rapidly. This is a paradigm shift in educational thinking which should result in more interested students and better prepared employees for the local economy.*

Strengths and Weaknesses of the Current Curriculum

Nevertheless, the EEC carefully reviewed the current curriculum and reports our findings below. The courses included in the curriculum range over a very broad

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spectrum so that students acquire in-depth knowledge about the production of traditional greenhouse crops, floriculture, and to some extent, organic production of these crops. Courses are clearly interconnected and have a small degree of overlap. Eight of the courses have prerequisites. Some material is taught in **excessive** detail. For example, there are 3 vegetable production courses in the curriculum. *The EEC wonders if this type of university-level depth of knowledge is necessary to equip graduates with the skills they need to compete in the marketplace.*

Overall the EEC was impressed by the sincere effort by the Department's members to develop an ambitious and comprehensive undergraduate program. However, in its current form, the curriculum does not meet societal needs. It does not allow for specialization in emerging areas or in areas of high demand. Although the Department claims that it is willing to make curriculum modifications and follow scientific and economic trends, this is not evident in the recently redesigned curriculum (2009) which is traditional and almost identical to the curricula offered at other similar TEI departments. In many ways the Department's curriculum also mimics related university curricula thus doing its students a great disservice by not differentiating itself from other TEI or the university curricula.

Discussions with students indicated that most teaching materials are current and relevant. PowerPoint files and other electronic media are used frequently by the instructors but are not frequently posted in the e-class system. These materials are available to students in the e-class system for a very limited number of courses only.

According to the faculty, 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. However, the percentage of students who selected the Department as one of their top choices was considerably higher in the group of students we met in this Department than in groups of students members of the EEC had met in similar departments during other evaluations. This was especially true for 1st year students. *To the EEC, this indicates that the Department and its curriculum are better understood and appreciated by the local community under the current economic crises when many young people are seeking educational opportunities close to home and especially in the agricultural sector.* Nevertheless, most students who enter the Department, do not have it highly ranked among their choices. Contributing factors to this problem include but are not limited to:

- The plethora of agricultural related programs currently offered by Greek higher education institutions;



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- The decline of interest in agriculture in Greece although this is changing under the crises;
- 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 their score on the Examinations and, in many (if not most) cases NOT by their area of interest. *The EEC recognizes that this method of selecting/assigning a program of study causes significant problems to the individual academic programs and to the overall academic system of the nation and is beyond the control of the individual department or institution.*

Because relatively few of the students enrolled in the Department selected this course of study as their first choice, many are not academically prepared for a science-based program of study. For example they will have inadequate preparation in chemistry, mathematics, and physics. As a result, the Department has included preparatory courses in these areas in the curriculum. During our discussions with the students, there were mixed feelings about these preparatory courses. Some students agreed that they were not prepared and needed the courses while others found them a repetition of high school material.

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

1. The first major issue is the low percentage of students passing courses (data from the 2009-2010 and 2010-2011 academic years provided by the Department to the EEC upon request). Of the data provided, there are between 8 and 9 courses each year (lecture and/or lab) which have passing rates of less than 10%. **Some of these courses have a 0% passing rate.** *The EEC finds these passing rates unacceptably low but acknowledges that there are many factors at play.* In general, passing rates tend to increase with semester of study and the lowest passing rates are found in the earliest semesters. The issue of low student performance in the early semesters is addressed elsewhere in the report. Many courses in the 4th – 7th semesters have passing rates about 50%. Factors affecting passing rates are identified in the Self Evaluation Report and elsewhere in this report and include student and professorial attitudes, course overloading (discussed below), scheduling, taking courses out of sequence, taking advanced course without having passed courses taken earlier in the program of study, and examination methods.

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2. The second major problem is the extensive delay in graduation time. The graduation rate data provided by the Self Evaluation Report (Appendix II, Table 4) indicate that only 9 students of a total of 1367 who entered the Department between 2001 and 2007 graduated in 4 years. Even more disheartening is the fact that only 192 of these students or approximately 14% have graduated. Slightly different data are presented in Appendix V, Table 1 but the conclusions are the same. Approximately 30 additional students were expected to graduate by the end of 2012 – perhaps motivated by new Ministry of Education regulations which require that students be removed from academic rolls after 6 years without receiving a degree. Under any circumstances, these types of graduation rates are **unacceptable**. Again, *there are many factors affecting graduation rate most 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:
- a. The large majority of the incoming students arrive at the Department without a clear understanding of the degree in which they enrolled nor the employment opportunities which it provides. Furthermore, many students do not understand the academic expectations and workload required to succeed in the Department. As a result some students flounder without direction for 2 to 3 semesters. A **mandatory** first semester course introducing the students to the department and academia is strongly suggested. This course would provide an overview of the profession and familiarize the students with its biological, environmental, technical and economical requirements. The class should be team-taught and alumni and area employers invited to deliver lectures. This course should also include trips to relevant local industries and farms. Additional topics for discussion should include ERASMUS, the importance of student evaluations and how they will be used to improve teaching, and other topics that directly affect the students.
 - b. We also suggest the creation of a new course on “Entrepreneurship”. The goal of the course would be to prepare students for the market economy and provide them with the confidence and competence they need to launch a new business or redirect an existing business. Specific topics which can be included in the course are: mission and objectives of an enterprise; ethics in business; social responsibility; business plan



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development; financing; portfolio preparation; etc.

- c. Finally, we propose a capstone course near the end of the curriculum that would push the students to work together in teams and require them to integrate and apply the knowledge they have acquired during their studies. One example would be to develop detailed plans for a start-up greenhouse business. Plans would include both the production aspects and the business/marketing aspects. This type of activity may also provide students with the confidence to pursue such ideas once they graduate. These courses could be added to the curriculum by merging some of the course sequences described earlier.
- d. The course load is 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 12 individual final examinations (the total of lecture and laboratory sections if they are enrolled for the recommend courses for each semester) and, in our opinion, negatively affects students' ability to successfully complete a course. Furthermore, the Curriculum produces highly specialized agriculturalists. Today's stakeholder needs and employment market more often require generalists who can be trained for a specific task. Specialization can be obtained in post-graduate programs or with training provided by the employer. 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 more than 6 years to complete. This may not be fair but it is the reality of today's market place. Furthermore, many students will run the risk of being removed from the Department's rolls after 6 years without receiving a degree under proposed Ministry of Education regulations.
- e. There are very low student attendance rates in the theoretical courses. The students attribute this to number of reasons which include high workloads. According to Appendix III, Table 1, the workload is estimated to vary between 52 and 58 hours per week if students are meeting all course commitments. This is indeed quite high and impossible to maintain if a student must work or is involved in any type of regular extracurricular activity. But there are many factors driving low



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attendance 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 EEC 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 and some faculty 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. Quizzes and mid-term tests with multiple choice answers which can be graded electronically provide instructors with the opportunity to combine traditionally evaluation techniques with new technology that allows these techniques to be applied to large groups of students. Completely new instructional technologies should also be considered. An example which is widely used in the United States and used on a more limited scale in the EU is an audience response system (commonly referred to as "clickers"). Instructors use clickers to assess students' knowledge of a topic after it has been explained. The students' responses are recorded automatically and can be displayed immediately thus providing immediate feedback to the instructor. The clickers are also used to survey student opinions during the lecture. Under the appropriate circumstances, student responses can be used as the results of a quiz. This is a relatively low-cost investment which keeps the students engaged during the lecture and encourages attendance.

- f. Another major hurdle to graduation is the students' ability to enroll for more advanced courses without having passed building-block courses. This problem can be overcome by introducing more prerequisites. Another problem is that students attempt repeated examinations of one or many failed courses resulting in a confusing and incoherent sequence of attendance. This problem may be solved with recently passed legislation.
- g. The EEC was surprised to learn that the theory and laboratory sections of the same course have different instructors and that in some cases there is little coordination between the instructors. Another weak point in the



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process is the fact that laboratory course attendance is mandatory while that of the theory ones is not. As a result, participation rates are significantly lower at the theoretical courses. *The EEC suggests merging of the theoretical and laboratory sections of a course into a single course with the equivalent credits and contact hours.*

- h. Although the existing coursework covers several aspects of Organic agriculture and of Greenhouse Crops and Floriculture, modernization of the curriculum to incorporate core specialized courses and more field training is critical. Creation of post-graduate level curriculum will help the department to offer complete knowledge in the area of OGCF.

The TEI has a newly implemented online system for class registration, course grades, and documentation. This has greatly relieved the workload of the Department's clerical support staff and has also improved the ease with which students access information and obtain registration and other documents. We commend the TEI for moving towards this electronic registration system.

The EEC 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 is limited by Ministry of Education regulations *and is completely counter-productive to any efforts to improve student engagement and develop graduates which are ready for the marketplace.*

The curriculum seems to be consistent with the requirements of the society, and it was reported to us that a limited number of stakeholders were involved with the most recent revision of the curriculum. Student input was not included in this process. High involvement of stakeholders is required in order that the department trains students according to meet the needs of the agricultural industry.

Recommendation A1: The Department must consider European, national, and regional scientific and economic trends and make appropriate adjustments to its curriculum to enhance its relevance, its ability to provide marketable skills and knowledge, and its ability to attract high quality students. The EEC recognizes that the some of the proposed changes cannot be implemented unless there is change in Government policies regarding entrance examinations and student assignment to degree programs.



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Recommendation A2: The EEC 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 the number of courses required by the Program of Study with the goal of reducing the number courses but also whether the degree should be reduced to a 3-year degree to match similar EU programs of study. However, the EEC 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. One of the issues that should be addressed during this self-evaluation is the whether the degree should be reduced to a 3-year degree to match similar EU programs of study. Also, it should be considered the creation of specializations and post-graduate programs.

Recommendation A3: Establish the three courses described earlier in this section (Introductory course, Entrepreneurship course, and Capstone course).

Recommendation A4: Develop and distribute a detailed syllabus at the beginning of each course. The detailed 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 A5: The EEC recommends that the Department make more courses pre-requisite and enforces this principle. 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.



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Recommendation A6: Modify course offerings to integrate the lecture 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 and will increase attendance.

Recommendation A7: *The EEC recommends a reduction in the number of courses in the Curriculum.* In its current form, the curriculum contains too many courses. The content of the courses is excellent but the depth of knowledge this curriculum provides to students at the B.S. level is excessive. There are several ways to reduce the number of courses. One possible approach is to combine related courses into a single course worth more credit hours but which overall reduces the course load, the examination load, and the overall credit hours. As example only, we provide the following list of courses which could be combined into a single course or at most two courses: *General Horticulture, Special Horticulture 1, and Special Horticulture 2.*

Recommendation A8: 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 biotechnology, post-harvest processing of regionally important crops, food quality and food safety, etc. 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 without over-burdening the curriculum with a larger number of courses.

Recommendation A10: The Department should maintain a list of approved Practical Training (Πρακτική) opportunities and carefully screen new opportunities to ensure that the Practical Training experiences are meaningful and productive. Students are currently permitted to identify and select the place at which they conduct their Practical Training without significant involvement of the Department. Furthermore, we recommend that individual faculty members be assigned to truly supervise the Practical Training and that *the TEI set aside travel funds for the faculty to make unannounced visits to the site* of the Practical Training. Finally, we strongly recommend that each student submit a written report describing his/her Practical Training and then orally present this report to the faculty and students.



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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

The curriculum consists of a series of topics covered by lecture (θεωρία) and laboratory courses. Teaching methods include classroom teaching using PowerPoint presentations, laboratory exercises, activities in the Department's greenhouses and teaching farm, opportunities to engage in laboratory research, and fieldtrips in selected courses. Some of the faculty also place class-related material on electronic platforms (e-classroom). At the time of the site visit, 7 of the courses had some activity on the electronic platform. In general, current students and recent graduates with whom we spoke were pleased with the teaching methods used by the faculty. In sharp contrast to other evaluations in which the EEC members have been involved, the current and former students with whom we spoke provided very positive comments about the lecture courses. Of course, these positive comments were provided by the students who attend their classes regularly. *Nevertheless, our evaluation shows that the Department's faculty provide excellent teaching value to their students.*

The biggest problem which the department faces with respect to teaching is that very few students attend the lecture sections. Both the faculty and the students told us that it is very typical for only 2 or 3 students to attend a lecture out of a class of more than 40. To the faculty members' credit, they teach the lecture regardless of the number of students participating. During our site visit, we observed a lecture taking place with a single student in attendance. Students who do not attend lectures do not

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study the course materials during the semester and attempt to pass the course only by studying for a final exam will rarely gain the knowledge the course was designed to provide. Clearly, this is an obstacle that the Department must address and resolve. The obvious solution is to make attendance of lecture courses mandatory. Although this may bring students to the classroom, it may not necessarily engage them. A multi-faceted approach is necessary to combat this problem.

Several of the faculty members with whom we spoke have adopted a variety of tactics to improve attendance. These include scheduling regular tests, mandatory in-class assignments, and similar activities which contribute significantly to the final grade assigned for the class. Alternative lecture formats that may include participatory components (presentations by students, group discussions) would further student engagement and attendance. Another approach which may work well for some courses is to combine the lecture and laboratory sections of a class into a single course. This would enhance engagement of the students, maximize their ability to process the information and also address the problem of non-attendance. The EEC strongly encourages the Department to consider and adopt strategies with which some faculty have proven effective and to also consider other new approaches. Specific recommendations are provided below.

Another significant problem is that after the first semester, students have the freedom to enrol for any class they wish regardless of its proposed sequence in the curriculum. Although there are a few sequences of courses which have official prerequisites, most of the advance courses do not. This results in students enrolling for classes without the requisite knowledge to succeed in the class. We suggest that the system of prerequisite courses be further expanded and enforced.

The EEC commends the fact that the laboratory sections are of relatively small size and are limited to 20 or less by rule. Because of the reduction in the numbers of incoming students, laboratory sections are rarely at capacity. The EEC briefly observed two laboratories in progress. In both cases all the students were using microscopes or stereoscopes individually and appeared fully engaged with the lab activities. Students expressed their overall satisfaction with the quality of the instruction in the labs. However, the EEC was surprised to learn that the theory and laboratory sections of some courses have different instructors and that in some cases there is little coordination between the instructors. This clearly does not promote cohesion in the curriculum and creates problems for the students attempting to absorb new material.

Only 19% of the Curriculum's teaching load is taught by the Department's 9



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permanent faculty members. The majority of the teaching is done by temporary teaching faculty (75%) while the remainder (6%) is done by faculty from other departments through common courses. The primary reason for this is that the number of courses needed for the curriculum is much larger than can be accommodated by the number of teaching hours available in the Department. Some of the factors that have resulted in this condition are that several faculty positions are open because of recent retirements and that 4 of the Department's faculty members hold administrative positions and thus have a reduced teaching load. It should be noted that the Department is very well represented in upper administration of TEI Kalamatas as both the president of the TEI and the Dean of the School of Agricultural Technology are members of the Department. The high calibre of the temporary teaching faculty ensures that the teaching mission is done well although continuing in this fashion is a risky proposition.

Under current Ministry of Education rules, teaching load is dictated by rank. These loads are 16, 14, 12, and 10 hours per week respectively for lecturer, assistant professor, associate professor, and professor. Faculty members are required to meet these loads every semester. Until recently every course in the curriculum was offered during every semester. Now, because of the new national policy which mandates that all incoming TEI students are admitted during the Fall semester, each course will be offered only once a year thus reducing the teaching load in half. Although this is generally a good thing, it has resulted in a conundrum for the faculty. In order for them to meet their teaching load requirements, they are now teaching courses outside their area of specialty. The faculty consider this a potential educational quality problem because, to their credit, they fear that students are not being offered the proper subject matter expertise in these courses. This is a problem that the Greek Ministry of Education must address promptly.

Teacher/Student Collaboration

The students respected the teaching staff both for their expertise and their dedication to the teaching mission. It was evident from our discussions with the current and recently graduated students that the permanent teaching faculty are largely accessible and responsive to the students' needs. Office hours are announced but the permanent teaching faculty make a concerted effort to have an open-door policy, provide assistance to the students outside the classroom, and generally be accessible. Unfortunately the general student body does not take advantage of this open-door policy.



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As mentioned above, the Department employs part-time to full-time temporary teaching faculty. As recently as two years ago, there were as many as 40 part-time teachers. But because of budget cuts and the reduction of incoming the students, the number of part-time teachers is 10 during the 2012-2013 academic year. These part-time faculty do not have offices on the campus unless they are involved in research and have office space in one of the labs. In general, they are on campus only to teach thus reducing their accessibility. Those that contribute to the Department's research program typically are on campus for extended periods.

Adequacy of Means And Resources

The Department has lost several faculty members to retirement over the past 10 years and has replaced only a small number of these. At the time of the evaluation, new scientists had been selected for two of these positions but the positions had not been funded by the Ministry of Education and as a result the new scientist were employed as part-time temporary teaching staff.

Use of Information Technologies

All students were recently issued TEI e-mail addresses although it appears that this is not a reliable means of communication between faculty and students because students do not check email regularly. Some students were not even aware of this development. The Campus does not have wireless connections although offices and laboratories have Ethernet connections. Common use computers are available to the students in the library.

Examination System

Grades for most theoretical sections were assigned from a single final written examination. However, in very limited number of courses, the younger faculty members have incorporated tests, quizzes, in-class assignments, and other activities as described earlier. These things all contribute to the final grade which provides serious incentive for students to attend lectures.

The laboratory section of each course is mostly assessed through laboratory exercises (not in all lab sections) and written and/or oral 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 sections, both grades are used to determine the final course grade. Students do not pass the course until they have passed both sections. Data provided in the Self Evaluation Report (Appendix



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V, Table 2) indicate that most students graduate with an overall grade of between 6 and 6.9 with an average of 6.35 during the evaluation period. The EEC notes that during the evaluation period, no student graduated with an overall 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 allow for the institution to introduce compulsory attendance but to this point TEI Kalamatas has chosen not to do so. 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 mid-term exams will increase participation. Students were quite pleased with the laboratory courses/sections because of the hands-on nature of these classes. They were particularly pleased with laboratories that provided them with the opportunity for extended hands-on activities in the greenhouses and on the teaching farm. They were less pleased with laboratories where techniques were demonstrated only. *Experiential learning clearly engages the students and every effort must be made to expand these teaching opportunities.* During a meeting with Kalamata-area employers, they emphasized that TEI students should have significantly more exposure to experiential learning so that they are more work-ready when they graduate.

Quality and Adequacy of Teaching Materials and Resources

During interviews with students, comments were made that teaching materials used are appropriate. The EEC 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.

Most teaching laboratories were well maintained and well equipped. In most cases teaching laboratory consumables were adequate and equipment was well maintained although in some cases the equipment in the teaching labs appeared a little dated. For example one instructor mentioned that several microscopes were marginally operational because of constant use over 18 years. Until very recently, resources were available to have state-of-the-art teaching equipment and facilities but the choice was made to invest in expensive and sophisticated laboratory equipment (GC-MS, etc.) instead.

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Mobility of Academic Staff and Students

Overall, mobility of staff is low while mobility for students is reasonably good. Thirty-four students participated in study-abroad programs at 13 different European institutions during the 10-year evaluation period. Most went to conduct their Practical Training (Πρακτική) while some also went for studies. One of the stated reasons for not having a higher rate of student exchanges is that the students lack the confidence and language skills to immerse themselves in a foreign academic environment. Because of time constraints, the EEC did not have an opportunity to visit the TEI's office of International Relations to discuss how to improve student willingness. Twelve foreign students conducted study-abroad studies with the Department during the evaluation period. The seminar proposed under Recommendation A2 will make students more aware of study-abroad opportunities. 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.

Five faculty exchanges (4 different faculty members) occurred during the evaluation period. Although some faculty members are well travelled (conferences, cooperative projects), 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

Very few student course evaluations were conducted prior to the development of the self-evaluation report. These evaluations were distributed in 15 lecture courses and 21 lab courses/sections between 2009 and 2012 using the questionnaire provided by the HQAA. Consequently, only a small number of the total courses offered were evaluated. Because of the small number of students attending lecture courses, only 7 of the 15 evaluation attempts included the minimum number of students required (8). In the lecture courses, a total of 76 individual student responses were obtained over a period of 3 years so the sample size is very small when compared to the total number of students enrolled in these courses and even to the number of courses offered during this period. Because attendance in the laboratory courses/sections is mandatory, 20 of the 21 course/section evaluations were considered valid. Overall, ***the evaluation effort put forth by the Department can only be described as inadequate.***

According to the self-evaluation report, the average evaluation results are quite good.

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The self-evaluation report states that about 58% of the responding students (44 of 76 total students) are very satisfied with lecture courses while 18% dissatisfied (14 of 76) with the rest somewhere in between. A much higher percentage of responding students (80%) were very satisfied with the course instructors. Results for the laboratory sections were similar with 62% of the responding students very satisfied with laboratory sections while 11% were dissatisfied. Seventy-five percent were very satisfied with the course instructors while 11% were dissatisfied. The laboratory section results are perhaps more meaningful as the sample size was much larger (in excess of 500 students).

During development of this report, the EEC requested summary evaluations from individual courses to gauge the variability in student responses. These were emailed to us by the Department Head. In general, the responses from individual courses mirrored the trends of the summary data. There are at least 4 laboratory sections in which a significant number of students rated poorly. Any instructor consistently receiving evaluations results below 3 on a scale of 1 to 5 (5 is best) should re-evaluate his/her teaching methods and if appropriate take a short course in modern teaching methods. Funds should be made available by the Department for this type of continuing education activities.

It should be noted, however, that our discussions with the students also indicated that *in general the students were quite satisfied with the quality of teaching* even though individual students had complaints about some instructors. The vast majority of the students with whom we spoke were complimentary about the effort put forth by their instructors. The students also told us that their instructors were accessible and always willing to answer questions and provide academic support.

Student evaluation of instruction should be done in every semester and course and results shared with the instructor at the beginning of the next semester. This type of feedback will allow even the best instructors to improve their teaching. The EEC acknowledges the fact that the course evaluation process is in its infancy in Greece. 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. 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



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surveys to ensure that the evaluation instrument provides the necessary data.

Recommendation B1: Critical teaching faculty vacancies identified by the Department in the Self-Evaluation Report positions should be replaced promptly by the Ministry of Education.

Recommendation B2: Temporary teaching faculty are currently given 6-month contracts. This is completely counterproductive as it develops an air of uncertainty and decreases morale and productivity. *Temporary teaching faculty should at minimum be offered 1-year contracts.*

Recommendation B3: Introduce weighted grading where a student's grade will depend on midterm exams, quizzes (announced and unannounced), assignments, group discussions or presentations, laboratory exercises and a final exam. This will provide an incentive for students to attend classes. Higher attendance and multiple grading options may reduce the currently unacceptably high fraction of students who fail each course. Simply making lecture courses mandatory may increase student attendance but does not assure student retention of knowledge.

Recommendation B4: New instructional media and technologies should be used to engage students in courses. These technologies may include audience response systems (commonly referred to as "clickers"), quizzes and mid-term tests with multiple choice answers which can be graded electronically, etc.

Recommendation B5: Pre-requisites should be increased and enforced.

Recommendation B6: Student evaluation of instruction should be done in every semester and course and results shared with the instructor at the beginning of the next semester

Recommendation B7: Student evaluations of teaching should be utilized to support excellence in teaching. The Department Head should annually discuss the faculty member's student evaluation scores with the faculty member and provide financial support for improving teaching methods if needed.

Recommendation B8: An outcomes assessment process with metrics should be gradually introduced for all courses taught. The assessment should examine if the student has achieved the learning outcomes as outlined in the syllabus.

Recommendation B9: Teaching Excellence Awards (or equivalent tools for recognition of excellence) should be established at the institute level (TEI) 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,



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the awards should be accompanied by a one-time allocation of TEI resources to improve the teaching laboratory/methods of the awardee.

Recommendation B10: The Department should encourage faculty to take sabbaticals at other institutions with the provision that resources are available to cover that faculty member's teaching responsibilities during the sabbatical period.

Recommendation B11: The Department must ensure that senior faculty are involved with teaching introductory courses. This impresses incoming students and has been proven to increase retention and graduation rates. Furthermore, the EEC strongly recommends that the Department adhere to the following ratios associated with teaching:

- The ratio of permanent to non-permanent teaching staff should at minimum be 1:1
- The ratio of faculty holding Ph.D.s to others should at minimum be 3:1
- The ratio of teaching staff to active students should be below 1:25

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 research mission is to conduct applied research that is important to regional and national stakeholders. This is the development of applied research programs in areas of relevance to Horticultural production including Floriculture both in open air systems and in greenhouses, food safety, plant protection, pathology and entomology, food sensory and greenhouse techniques management, friendly environmentally cultivation methods such as hydroponic culture and air (ozone) pollution monitoring in the greater Messinia region as well as nationwide in Greece.

The Department has made important contributions in several areas since it began its research programs approximately 20 years ago the most mature being the development of insect biological control of pest diseases in horticultural crops, hydroponic systems development of economically important vegetable crops, effects



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of ozone pollution and other stresses on crops, food safety and sensory in olive trees and other food processing applications and accession number vegetable crops gene banking (NCBI). From the beginning of the evaluation period, the Department's research programs have been focused primarily on greenhouse crop production techniques, vegetable crop production and food safety and sensory. Research facilities and equipment ranged from highly instrumented dedicated research labs to a variety of greenhouses with advanced hydroponic equipment and soil-less culture installation with vegetable crops. *The research infrastructure is very good to excellent.*

The Self-Evaluation Report states repeatedly that the TEI of Kalamata has approximately 10 ha (100 στρέμματα) of land available for teaching and research. A big part of this land has olive tree groves and has been rented to area farmers so it is not used at all for educational or research purposes. This land could provide an excellent opportunity for faculty and student to conduct teaching laboratories and applied research on working farms. A small part of the land has orange trees and in an open area in this orchard, there is an ongoing research program on effects of ozone pollution and other stressors on crops (beans) which is an International cooperative program under the auspices of the United Nations Economic Commission for Europe and the rest of the area is occupied by buildings and the greenhouses which cover an area of approximately 3.000 m². The greenhouses are covered with glass or polyethylene film and all are equipped with irrigation and heating control and some of them with highly automatic systems controlling fertigation and nutrient solution monitoring and control as well as substrate and aeroponic systems for soilless vegetable cultivation.

Documentation in the internal evaluation report showed that there is relatively small but steady research productivity. The EEC considers this as a positive step and strongly encourages enhancement of research efforts through a strategic plan that would adapt research to the specific mission and unique attributes of the Department. *In addition, the Department needs to develop a well-defined policy on assessing research output among the different laboratories and faculty members.*

Beginning in 2001, all TEI in Greece were legislatively empowered to conduct research and there is a clear expectation that TEI faculty are to conduct research. However, there are as yet no national or institutional rules, guidelines, or expectations of research productivity. We have taken these observations into account in our evaluation of the research program. We have also taken into account that there is a common agricultural production-related theme/relationship between

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the Department under evaluation and the Department of Crop Production and the Department of Food Technology located on the same campus. These three departments share personnel, research and teaching facilities. This is a very positive initiative since offers the potential for the three departments to work cooperatively and excel in multidisciplinary research projects.

The Department has joint research activities with both regional and national research groups including nearby TEI, the Universities of Patra, the Agricultural University of Athens, the TEI of Epiros, etc. It is also working with local and regional cooperatives and private companies on research activities important to these entities.

The Department does not have a post-graduate program. Unlike other similar departments, it has not taken the initiative to create a graduate student presence on its campus as other similar departments have done by developing agreements with post-graduate degree offering institutions. The Department has instead consciously chosen to pursue a local post-graduate degree. *As a result the research effort has been seriously hampered by the lack of graduate students* and faculty members struggle to conduct their research on their own or with available temporary employees.

The Department has not established research priorities on which most of the faculty members collaborate. Research goals are established by individual faculty members or through small research team collaboration. However several on-going research programs offer opportunities for across-the-board collaboration. These include but are not limited to aromatic herb conservation and sustainable use from native crops of Mount Taygetos for propagation and production (oregano, mountain tea and other herbs endemic to Taygetos), the use of hydroponic systems and substrates, the optimisation of greenhouse operations, food safety and sensory sciences in olive oil, and biological insect control. Clearly the Department cannot focus on all of these programs with limited staffing. One or two areas should be selected to become Departmental priorities and pursued aggressively because it will provide a unique contribution to the local and regional economy.

During the site visit and within the Self-Evaluation Report, the most discussed research activities were the development of a Food Sensory Laboratory for *koroneiki cv.* olive oil and the correlation of the concentration with pungency and bitterness, the insect culture station with complete environmental control conditions for the cultivation of insects (100 m²) with five (5) compartments for beneficial and harmful insects for the agricultural plant protection, eleven (11) greenhouses of 2.400 m²



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fully equipped with environmental system control and hydroponic culture compare to the aeroponic culture with leafy vegetables and strawberries used by the students for their practical experience and degree thesis.

Research infrastructure is impressive, including very good greenhouse and hydroponic culture facilities for vegetable and strawberry production, a modern laboratory for Plant Pathology and Entomology as well as tissue culture laboratories.

The department has access to fifteen (15) laboratories of the TEI installations. The head in ten (10) of them is from this department. These laboratories are working with anatomy and physiology, plant pathology and plant protection, greenhouse and agricultural engineering, soil science, water management, genetic and breeding, tissue culture, seed germination, air pollution etc. Additionally the department use the fruit trees, olive oil trees and vineyards of the campus for the educational and research activities of the students and the staff.

After considering that the Department under evaluation is within a teaching-intensive institution, the EEC compared its research activities to modest international standards for teaching institutions. The EEC also compared the Department with respective Departments of Greek TEI. Compared to the above mentioned standards and the State policy towards TEI, *the EEC finds that the overall research productivity is rather low for the department.* The EEC notes, however, that the Department has only nine (9) permanent faculty members three of which have held administrative positions during the evaluation period.

Research Productivity

Measuring and documenting research productivity is always difficult. Some of the means typically used are presentations at international conferences, publications in international peer-reviewed journals, and impact on the stakeholders. The EEC has used these three parameters to gage the research productivity of the Department's current nine permanent faculty members. ***Based on our assessment, the Department ranks medium to low in research productivity when compared to similar departments at peer institutions in Greece and the EU.***

Post-graduate students drive research activity at academic institutions. The Department's faculty members recognize this and are considering offering a post-graduate degree after the merger with the Crop Production Department is approved. Until recently, TEI were not legally permitted to offer post-graduate degrees. To overcome this obstacle, other TEI developed agreements with academic institutions



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abroad which allowed students to conduct their research at the TEI while obtaining their post-graduate degree from the foreign institution. This Department has chosen not to pursue this approach which has put them at a competitive disadvantage with other similar TEI departments in Greece when comparing research productivity. During the last eight (8) years the Departments 9 permanent faculty members have published or presented the following items:

Peer-reviewed publications: 32 refereed articles in international journals, 2 book chapters, and 11 books or monographs. The publications resulted from current and now retired faculty members. This is an average of 0.63 refereed publications per faculty member per year which is lower than similar departments at other TEI. Clearly some faculty members have not been permanent faculty members of the Department for 8 years but we included all their work associated with the Department even if it was done before they became permanent faculty members.

Conference proceedings, other publications, and presentations: 6 non-refereed scientific journal articles, 58 refereed conference proceedings, 5 non-refereed conference proceedings, and 24 presentations at international conferences. This is an average of 0.95 other publications and 0.33 presentations per faculty member per year which is also lower than similar departments at other TEI.

Other items: During the same period, student thesis projects were represented in about 3% of the Department's publications and presentations. The total number of citations is moderate (1.61 per publication). ***It should be noted that some refereed articles were published in high-impact journals that are important in the horticultural field and are highly cited.*** Also some faculty members serve as editorial board members and as ad hoc reviewers for journals.

Recognizing the high cost of attending international conferences, we find that the Department's permanent faculty members generally do not compare well to faculty from peer institutions in this category. The Department should establish the goal that every faculty member should make at least one presentation at an international conference per year.

Extramural research funding: Until recently the Department's faculty had little incentive to pursue extramural research funding because of an internal research fund available through the TEI. Nevertheless, several faculty members have pursued and received extramural funding from competitive grant programs. Between 2003 and 2012, faculty members have led 5 Archimedes II and III research programs and one Thalis research program in cooperation with other universities and TEI. In general,



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this is a respectable level of activity but the Department is encouraged to increase their proposal writing activities.

Research activities: During the last 5 years, a significant number of the Department's students used the Department's facilities for their Degree Thesis research. During our discussion with the students it was clear that they were eager to participate in research, even without monetary compensation. Funded programs that would support research involvement for a larger number of TEI students are needed.

During the site visit, there was extensive discussion about the importance of addressing local and regional agricultural research problems and securing funding from local and regional business and agencies to support this research. There was high awareness from faculty members that this was a priority and several faculty members are already working with local and regional businesses and agencies especially on olive oil sensory and hydroponics by organising training seminars through life-long learning initiatives. The EEC finds this to be an excellent way to increase the relevance of the Department to these groups and also to increase the dependence of these groups on the Department to solve their problems. Successful outreach activities can make a huge difference in these types of relationships.

The EEC propose the involvement of the faculty members with more research projects national and international as well as with the private sector which is very active in the region.

Exceptional Activities

At the initiative of forward thinking faculty members and industry partners, the Department established the first Olive Oil Taste Laboratory in Greece. Funding for the state-of-the-art laboratory came from internal TEI sources. Soon afterwards, one of the Department's faculty members organized an olive oil taste panel consisting of a cohort of 24 volunteers from the Kalamata region. In late November, 2012, the same faculty member organized an international seminar/workshop on the sensory attributes of Mediterranean olive oil varieties titled "Calibrating Panellists' Minds and Palettes". The workshop was funded by a grant from the Olive Oil Council and local agencies and foundations. International taste experts from Italy, Spain, and the USA led the workshop which was also featured prominently on the website of the Olive Oil Times (<http://www.oliveoiltimes.com/reviews-opinions/trade-events/olive-oil-tasting-seminar-kalamata/30551>). This activity is extremely noteworthy because it engaged the olive oil producers, packagers, and exporters of the region, made the aware of the potential offered both by the Department and the TEI, and established a



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firm foundation for a wide variety of educational, research, and outreach activities related to olive oil production. This is a golden opportunity for the Department to focus its attention on what is unquestionably the most important economic engine of the region.

Recommendation C1: Clearly align the Department's research with the strategic needs and opportunities of regional agricultural production – particularly olive oil, hydroponics, and greenhouse vegetable production. This will entail that the Department's faculty members agree to pursue common activities and focus their resources to solve these problems rather than each faculty member pursuing individual interests.

Recommendation C2: Develop a research advisory group consisting of stakeholders and/or local authorities to identify and support research focused on solving local and regional problems.

Recommendation C3: In addition to merging with Department of Plant Production, explore the possibility of joining forces, either formally or informally, with the Department of Food Technology to further enhance synergism, collaboration, and critical mass which can be brought to solve important local and regional research problems – particularly those associated with olive oil production and adding value to other locally grown fruits and vegetables. This critical mass can also be used to pursue a post-graduate program which may not be feasible within the boundaries of the Department alone.

Recommendation C4: Develop a post-graduate program focused on the research areas identified by Recommendation C1. Post-graduate students will help drive research activity which can easily be done by faculty members loaded down with teaching responsibilities.

Recommendation C5: Faculty and staff should maintain high levels of quality research and outreach despite the acknowledged obstacles posed by the current crisis in the Greek economy.

Recommendation C6: Faculty must improve the visibility of their work, especially their applied research and the relatively small projects undertaken for individual growers and producers. The results of this work 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 are valid outputs for this sort of work which can benefit other stakeholders.

Recommendation C7: All permanent faculty members should be encouraged and incentivized to participate and present at international meetings and publish their



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research findings in peer-reviewed journal articles. This will further the goals of Recommendation C6.

Recommendation C8: The EEC recommends that the Department begin to use paid student workers or students conducting their internship to support its research activities. This has two major advantages: students gain significant research experience and researchers obtain research support at relatively little cost. This approach is used successfully at universities around the world and is used by some TEI in Greece.

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?

Services to the academic community (Department faculty, staff, and students) are of high quality. Classrooms and labs were nicely designed and well maintained. The Department's secretariat appeared well organized and conscientious. Internet access for faculty and staff is excellent. But because there is no wireless internet on the campus, students are limited to the library or computer labs if they need internet access. Library services are excellent and these services were in high demand both by students and faculty. Food services were impressive and significantly above average and also in high demand by students, faculty, and staff. Food costs are subsidized by the TEI and meals are available at very low prices. The Department is moving toward simplifying administrative procedures by processing many procedural items electronically. For example all final grades are posted electronically and can be viewed by students electronically. Overall, the TEI makes consistent efforts to increase student presence on campus by providing attractive and comfortable facilities, including laboratories and classrooms and by providing students with an opportunity for extracurricular activities. These opportunities are



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expressed as the music room discussed earlier and efforts to organize student music, theater, and other cultural clubs. In addition, the TEI encourages student sports clubs to utilize the athletic facilities. Although the Department does initiate these activities, its faculty members actively participate in TEI initiatives.

The TEI Kalamatas operates an excellent student residence facility near the city center. The facility is new, functional, well maintained, and safe. Students with economic needs are given preference and the remaining spaces are located via a lottery. Public transportation, which is subsidized by the TEI, stops at the gate of the facility.

The EEC had a long and productive discussion with the three technical support staff (E.T.E.Π.) They appear to be very well educated and trained and provide critical support for the teaching and research missions of the Department. In general, they are quite satisfied with working conditions in the Department.

Areas under the umbrella of “Other Services” with room for improvement include:

1. Student advising and orientation. The internal report mentions the presence of a “faculty advisor”, *but students unanimously indicated during the EEC’s meeting with the students that they were unaware of such an advisor*. Students were frustrated by lack of knowledge of TEI procedures in cases of grievances with faculty over academic issues (regarding grades, etc.)
2. Student access to information about job openings for possible employment upon graduation. TEI Kalamatas Placement / Professional Development Office (Γραφείο Διασύνδεσης) is an excellent venue to provide such services according to the Department’s self-evaluation report (p. 24), but alumni indicated that they had received little or no help in efforts to identify possible positions for employment and were not even aware that this service was available. There even appeared to be confusion among the Department’s faculty about what services were available. This is an area of critical need especially under today’s economic conditions and must be addressed immediately.
3. Athletic and cultural facilities. Open-air athletic facilities (stadium) are available. A special sound-proofed room is dedicated to practice of musical instruments. This room is located in the laboratory wing of the Department’s facility and is in regular use.
4. Transportation. The TEI is approximately 7 km from the center of the city and most students must use public transportation to get there. Current bus



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fares (1.60 euros round-trip) are high for student standards and may play a role in suppressing attendance.

The four technical support staff (E.T.E.II.) appear to be very well educated and trained and provide critical support for the teaching and research missions of the Department. Their primary complaint was lack of on-campus support for repairing mechanical and electrical problems associated with the greenhouses and research laboratories.

Recommendation D1: Assign an active faculty advisor to each incoming student upon their arrival at the Department. Depending on the number of students, faculty members will need to advise several students simultaneously. Access of students to academic advisors may contribute to reduced class failure rates, reduced frequency of classes that must be taken multiple times, and reduced absenteeism.

Recommendation D2. Implement an orientation program for new students to familiarize them with expectations and standards of the Department as well as available services. Such orientations should also be done periodically to familiarize students with mobility programs such as Erasmus.

Recommendation D3. Enhance assistance and services offered through the TEI Kalamatas Placement / Professional Development Office (Γραφείο Διασύνδεσης) to students and to alumni regarding professional opportunities, position openings and networking.

Recommendation D4. Develop additional facilities (e.g. an indoors athletic space) for student use on campus which will improve student life.

Recommendation D5. Facilitate a reduction in bus fares or develop a discounted monthly or annual pass for students. This would promote class attendance and presence on campus.

Recommendation D6: The TEI should institute a regular program for reward of excellence in teaching (Recommendation B7), research (Recommendation C7), service and outreach for faculty and staff.

Recommendation D7: Student evaluation of all courses should be implemented immediately and results made available to the instructors soon after the course is completed. We recommend that completed evaluations be submitted to the administrative staff where data will be digitized and summarized. We also recommend that the instructor of each course be provided with the cumulative (of all courses) high, median, average, and low evaluation scores for that semester so that they can compare themselves to their colleagues. This should promote an interest in



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improving teaching methods when necessary.

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. 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 farmers and agricultural businesses. 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 TEI and to the community.

Recommendation D8: Faculty or other academic personnel should organize field days where agricultural producers could have the opportunity to see first-hand an important problem and /or problem solving activities. These field days should be geared towards solving important production issues that also affect local added-value industries.

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.

Major Reorganization: The School of Agricultural Technology at the TEI of Kalamatas has developed a proposal to merge the Crop Production Department and the Organic Greenhouse Crops and Floriculture Department into a single academic unit. The new department would be named Agricultural Technology and would offer

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a degree with the same name. The degree would be modified to meet regional agricultural needs not addressed by other institutions of higher learning. Two to three areas of emphasis would be established to allow students to pursue their particular interests. Examples of potential areas of emphasis which have been discussed include 1) Olive and Olive Oil Production, 2) Floriculture, and 3) Hydroponic and Aeroponic Greenhouse Crops. Serious discussion must take place between faculty and regional stakeholders to ensure that these areas of emphasis are relevant to the regional and economy and will result in high quality jobs for the graduates and economic development. Cooperation with the Department of Food Technology will also be vital in development of the areas of emphasis as it is very likely that courses in Food Technology will be necessary for at least one of the areas of emphasis.

The new degree would contain a set of core courses which are common to all students who would select their area of emphasis after their first academic year. The ability of students to select an area of emphasis after they have been given the opportunity to explore their interests through coursework and contact with their instructors is a radical idea for Greek higher education and should be implemented. ***The EEC agrees with this proposal which has already been approved by the Institution and has been forwarded to the Ministry of Education for approval. It is a forward-thinking and worthy initiative that should be implemented.*** It has the potential to markedly increase both the effectiveness and the marketability of the teaching and research programs of the School of Agricultural Technology. The EEC also agrees that the projected areas of emphasis and excellence are well reasoned and strategically designed and that they will nicely utilize the unique location and assets of the TEI at Kalamata. The TEI is located in the heart of one of Greece's most privileged and important regions in terms of oil, olives and greenhouse productions.

Three-Year B.S. Degree: Although merging the two departments and offering a new degree with areas of emphasis requires major reorganization, it may not be enough to differentiate the "New" reorganized department from other similarly reorganized departments at other TEI in Greece. Similar reorganization efforts are already underway at these other institutions. The New Department requires something that makes it significantly different and offers students something that is not currently available in Greece. ***The EEC strongly recommends that the Department consider offering a 3-year B.S. degree compliant with the Bologna process.*** The focus of the degree should be to develop work-ready students. Such a B.S. degree, complemented by a post-graduate degree when appropriate, would create a highly employable graduate.



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Post-Graduate Degrees: The School of Agricultural Technology should immediately begin the process of developing post-graduate degrees in areas complementary to the undergraduate degrees which are offered and will be offered following reorganization. Students ardently expressed the desire to be able to pursue a graduate degree in Kalamata. In addition, the research capacity of the Department of Organic Greenhouse Crops and Floriculture is limited by human resources and the current permanent faculty members expressed a strong desire to offer a post-graduate degree as a solution to this problem.

Incoming Students: The number of students entering the Department from 2001 to the present has fluctuated wildly (ranging from about 250 per year between 2001 and 2005 and about 20 between 2006 and 2010 to 0 in 2011 and about 50 during the current academic years) as a result of Greek Ministry of Education policies. Some of the fluctuation is a function of changes in the minimum PanHellenic exam score used by the Ministry to admit students. When the minimum score was set to 10 for the TEI as well as the universities, the number of students allocated to the Department dropped dramatically. In 2011, no students were allocated to the Department by the Ministry. These types of fluctuations make planning and administration of teaching programs incredibly difficult and are deplorable. Furthermore, they negatively affect the morale and productivity of the Department.

The EEC finds the current method of admitting and allocating students to be counterproductive. The TEI in general have been allocated students who have scored poorly on the PanHellenic exams and have no interest or aptitude for their degree programs. The admission system for the Greek higher education system must be radically modified so that incoming students are allowed to pursue the careers to which they aspire.

Stakeholder Involvement: Stakeholder involvement is critical to the success of the New Department. If stakeholders become involved and feel that the Department is providing a valuable service, they will support it both financially and politically. Stakeholder involvement would also facilitate the Department's ability to target research and outreach to the needs of the local economy (and the larger economy of Greece's agricultural sector). Industry can serve as source of funding for specific applied projects as well as for scholarships for students who excel in their studies and/or become involved in relevant work or research as part of their (Πρακτική Εργασία), Degree Thesis (Πτυχιακή Εργασία), and post-graduate program. Regular involvement with industry can also lead to significantly better employment opportunities. In the past year, the Department has made significant strides in



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outreach with two extremely successful recent workshops – one on Hydroponics and one on Olive Oil Sensory Evaluation. It is also organizing a successful series of Business Management seminars on campus. The newly established Sensory Lab is a wonderful addition to the Department, an asset and an investment that will benefit the Department (and others at the TEI) in multiple ways.

The faculty are encouraged to strengthen and expand these outreach efforts through additional regular workshops that familiarize local growers, industry and other stakeholders on the programs and expertise of the Department and that maintain a regular give-and-take between the Department and the local community and economy. Active participation of students in the organization and delivery of outreach (e.g. workshops) will provide students with valuable experience and will enhance student networking and engagement. There is a tremendous potential for success.

Our discussion with 6 Department alumni produced many ideas to improve the visibility and effectiveness of the Department. Five of the 6 alumni were recent graduates and only two were securely employed. All were very complimentary of the education they received and stated that they thought it had provided them with the tools to be successful even though success was elusive. They expressed the opinion that the majority of the Department's graduates would have a difficult time finding employment in southern Peloponnese because the area was saturated with graduates from the Department. A different type of graduate was needed for the employment opportunities that now existed. The alumni also 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 local and regional agriculture and invite producers, businessmen, and other relevant people.

The alumni were very supportive of the idea that the New 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.

Expanded mobility, internationalization, and participation in international research teams: The Department will improve from further emphasis on mobility and internalization through enhanced participation in programs such as Erasmus, visits and sabbaticals at other universities (in Greece and elsewhere) and hosting of



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seminars by other scientists visiting the area. Such efforts will be extremely useful both for students and faculty, and will promote research competitiveness and growth. In addition, it is very important that faculty members become involved with multinational research teams and position themselves to pursue European funding opportunities. Significant growth of extramurally-funded research will require long-term strategic planning.

Recommendation E1: The TEI of Kalamata should immediately implement the idea of merging the Crop Production Department and the Organic Greenhouse Crops and Floriculture Department into a single academic unit with new and novel degree offerings which would meet local, regional, and national stakeholder needs.

Recommendation E2: The New Department resulting from the merger described in E1 should offer a 3-year B.S. degree compliant with the Bologna process.

Recommendation E3: The New Department should offer a post-graduate degree relevant to the new B.S. degree.

Recommendation E4: The New 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 the Peloponnese. Included in this should be a clear understanding of who are the Department's stakeholders.

Recommendation E5: The Department should develop focused plans to increase its visibility and impact on the local community. Outreach efforts could involve: workshops on their area of departmental expertise and stakeholder interest (olive production for example) and field days during which improved production, harvest, and storage methods can be demonstrated. These efforts should build on and expand on recent successes.

Recommendation E6: The Department should develop an Advisory Council consisting of stakeholders, the Department Head, and the Head of the School of Agricultural Technology. Stakeholder members should include 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. The Advisory



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Council should be involved with recommendations **E4** and **E5**.

Recommendation E7: Expanded mobility, internationalization, and participation in international research teams

Recommendation E8: The Department should consider developing a research, teaching, and demonstration arboretum of native aromatic plants to promote this emerging industry. The arboretum could not only be used for teaching and research 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.

Recommendation E9: The current method used by the Greek Ministry of Education to allocate students to different universities, TEI and departments within these institutions is absurd. It must be replaced by a system in which students are allowed and encouraged to pursue their career interests.

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 EEC are assembled here.

General

The EEC was impressed with the teaching and research facilities available to the students including lecture rooms, well equipped laboratories, and greenhouses. There was excellent IT support and outstanding 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

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providing advising, after class tutoring, an open door policy, and an opportunity to do meaningful work for their Practical Training. Despite this, only 14% of the students who have entered the Department over the past 10 years have graduated. It should be noted that based on the experience of the EEC 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, agricultural sectors of local and regional importance must be taken into account. In particular, the new strategy should take into account factors such as the prime geographical location of the Department which allows it to address important established and emerging regional agricultural industries such as olive and olive oil production and conventional and hydroponic greenhouse crop production. Additional advantages include the excellent facilities, available farm, and the overall excellent quality of human capital. The Department should add a strong international dimension to its future by encouraging more of its students and faculty to participate in international exchange programs.

Unbiased evaluation metrics of performance for members of the faculty must be established at the Institute, School, and Department 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. 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 EEC recommends that the Department: streamline its curriculum using the strategies described earlier; introduces a compulsory policy with respect to the availability of a detailed syllabus for every course; that it introduces measures to prevent registration for courses for which the appropriate pre-requisites have not been successfully completed; that it incorporates components (availability of



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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 completion. Students, staff and faculty need to work together to reduce the length of the degree program, which is currently unacceptably high. The EEC also recommends that the Department pursue a 3-year Bachelor's degree.

Teaching

The Department should establish processes to assess the efficacy of teaching and act upon the findings. It should fully utilize the student evaluations of courses to improve instruction as discussed earlier. 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. 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 meets or 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 the southern Peloponnese. In turn, the Greek Ministry of Education should support the Department in its effort to redefine itself.

The School of Agricultural Technology at the TEI of Kalamatas has developed a proposal to merge the Crop Production Department and the Organic Greenhouse Crops and Floriculture Department into a single academic unit. The new department would be named Agricultural Technology and would offer a degree with the same name. The degree would be modified to meet regional agricultural needs not

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addressed by other institutions of higher learning. Two to three areas of emphasis would be established to allow students to pursue their particular interests. Examples of potential areas of emphasis which have been discussed include 1) Olive and Olive Oil Production, 2) Floriculture, and 3) Hydroponic and Aeroponic Greenhouse Crops. The proposal is currently before the Ministry of Education awaiting approval. *The EEC strongly endorses this initiative.*



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The Members of the Committee

**TECHNOLOGICAL EDUCATIONAL
INSTITUTE OF KALAMATA
DEPARTMENT OF ORGANIC GREENHOUSE
CROPS & FLORICULTURE**

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