



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

HELLENIC REPUBLIC

**Α.ΔΙ.Π.**

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

ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΠΟΙΟΤΗΤΑΣ

HELLENIC QUALITY ASSURANCE AGENCY

ΑΝΩΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

FOR HIGHER EDUCATION

## **EXTERNAL EVALUATION REPORT**

**Department of Biochemistry-Biotechnology**

**University of Thessaly**

**February 2011**

### External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Biochemistry and Biotechnology of the University of Thessaly consisted of the following five (5) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Professor **Spyros Agathos**, University of Louvain, Louvain, Belgium (Chair)
2. Professor **Kostas Kousoulas**, Louisiana State University School of Veterinary Medicine, Louisiana, U.S.A.
3. Dr. **Anastassis Perrakis**, The Netherlands Cancer Institute, Amsterdam, Holland
4. Professor **Constantinos Deltas**, University of Cyprus, Nicosia, Cyprus
5. Professor **Constantin Polychronakos**, Mc Gill University, Medical School, Montreal, Canada

## ***Introduction***

### I. The External Evaluation Procedure

The site visit was conducted between the 21<sup>st</sup> and the 23<sup>d</sup> of February 2011. It involved formal presentations by the Department faculty, individual meetings with all members of the faculty and group meetings with students and other personnel. Some of the physical facilities were visited including the two main classrooms and individual laboratories.

#### **Monday February 21<sup>st</sup> 2011**

9:00 The EEC was briefed at ADIP headquarters by Prof. A. Gravanis and Prof. S. Amourgis on the aims and procedure of the external evaluation process.

19:00 After arrival at Larissa, the EEC was extensively briefed by the Department chair Dr. Z. Mamouris, on the overall organisation and function of the Dept. and opportunity was given for questions and discussion, which gave the EEC a fairly thorough overview of the Department's profile. Documents (see below) were distributed to EEC members. Some input and answers to EEC's questions were also given by the two vice-rectors of the U. of Thessaly (academic affairs and economic affairs).

#### **Tuesday February 22<sup>nd</sup> 2011**

9:00 In the presence of all Dept. faculty, slide presentations were given on:

- Undergraduate teaching program (Dr. A. Zifa)
- Post-graduate teaching program (Dr. A Moutou)
- Research (Dr. P. Markoulatos)

Ample time was given for questions and there were good exchanges with the entire Dept. faculty.

List of Reports, documents, other data examined by the Committee.

Copies of a variety of documents detailing specific activities of the Dept. were given to each panel member as hard copies and in electronic form. These documents included:

- Organisational chart of the Department Research activities by faculty

members of the Dept.

- Study Guide
- Brochure of Postgraduate Studies
- Program of Postgraduate Studies: Organisational chart
- Program of Doctoral Studies: Organisational chart
- List of Special Research Funds
- Updated list of publications, identifying corresponding author (asterisk) and student by status (undergraduate, postgraduate, doctoral, by different colours).

- Handouts of all slide presentations

- Detailed reports of activities by individual laboratories:

Genetics, Comparative and Evolutionary Biology

Laboratory of Plant and Environmental Biotechnology

Molecular Biology and Genomics

Laboratory of Structural and Functional Biochemistry

Laboratory of Virology and Microbiology

Laboratory of Bio-organic Chemistry

- Groups of teaching and administrative staff and students interviewed

All full-time faculty, individually

Part-time instructors, as a group

Undergraduate students as a group

Post-graduate and doctoral students as one group

Administrative and technical personnel, as a group

- Facilities visited by the External Evaluation Committee.

The two major classrooms

Teaching laboratories

Some research laboratories

## II. The Internal Evaluation Procedure

- Appropriateness of sources and documentation used

Overall, the documentation addressed the main questions the EEC needed for the evaluation.

### Quality and completeness of evidence reviewed and provided

The documentation provided to the EEC was thorough, well presented and of professional quality. It would have been desirable to better identify which of the publications in the lists given were mainly designed and performed on-site (vs. prior to the arrival of the faculty member in the Department).

- To what extent have the objectives of the internal evaluation process been met by the Department?

The internal evaluation document was thorough, balanced and sufficiently critical of weaknesses. It identified the important problems and real strengths of the Department.

## **A. Curriculum**

### APPROACH

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

The curriculum academically oriented is designed to provide the student with

- Broad fundamental understanding of the theoretical and practical of biochemistry and biotechnology (B&B).

- The experience and skills needed to acquire the scientific way of thinking.

- The potential to combine B&B with other fields within the life and basic sciences.

- The potential to apply knowledge of B&B to education and entrepreneurship.

N.B. It would have been desirable for this list of objectives (obtained by the EEC from the slide handouts) to be more explicitly articulated in the Study Guide addressed to the students.

These objectives are to be achieved by a core program of 37 courses and 6 elective courses chosen from 17 offered, plus practical training and a Diploma Project in the fourth year. In addition, a program of lectures by external invited speakers is offered.

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

The objectives were designed by the founding faculty to capitalize on the agricultural nature of the region served and the desire to offer a program unique in Greece. The ECTS system was used as the basis for the educational standards, which were approved by the Department assembly. From the data provided to the EEC, it was unclear whether other stakeholders were consulted. However, there was evidence of buy-in by the City of Larissa, which has provided the Dept with a land plot for a new building.

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

In general, the curriculum is consistent with the stated objectives; however, some areas need improvement, as detailed below under Implementation.

- How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders consulted?

It was decided by the faculty, after informal consultation with students and other personnel.

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

The curriculum is informally evaluated and revised as needed. Revisions are submitted for approval to the General Assembly of the Department. Apparently, there is no formal mechanism for the evaluation or revision on an annual basis.

#### IMPLEMENTATION

- How effectively is the Department's goal implemented by the curriculum?
- How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?
- Is the structure of the curriculum rational and clearly articulated?
- Is the curriculum coherent and functional?
- Is the material for each course appropriate and the time offered sufficient?
- Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?

**Strengths:** In general, the curriculum is coherent with both the objectives of the program and with comparable programs elsewhere in Greece and Europe.

The external speaker program is a valuable addition. A particularly positive aspect of the program is that a significant proportion of the courses involve review and presentation by the students of articles from the international literature.

**Weaknesses: The EEC felt that the total number** of courses required (43 plus the Diploma Project) is excessive in comparison with European and North American benchmarks, while the number of elective courses (6) is insufficient and offered too late in the curriculum (from the 5<sup>th</sup> semester on).

## RESULTS

- How well is the implementation achieving the Department's predefined goals and objectives?
- If not, why is it so? How is this problem dealt with?
- Does the Department understand why and how it achieved or failed to achieve these results?

Overall, the exceptionally high level of commitment of Dept. faculty to teaching serves to achieve the primary goal of the curriculum, which is to prepare graduates for a career in the bioeconomy. However, the EEC felt that the overloaded teaching program accentuates the problem of the prolonged time it takes most students to graduate that extends well beyond the expected four years required for the completion of the courses. Students are allowed to take the exam of each course repeatedly until they pass, which diminishes incentive for study, prolongs time to graduation and allows students to take courses for which they may have no firm knowledge of prerequisites. The repeated exams also add to faculty workload. Although the root cause of the problem is not specific to the Department but relates to a systemic problem in Greece, there are certain factors within the control of the Department that could help partially ameliorate this problem. According to the internal evaluation document, only one student graduated at the end of four years and the number of students graduating within five years has steadily declined from 58% among students admitted in 2000-2001 down to only 21% for students admitted in 2004-2005.

## IMPROVEMENT

- Does the Department know how the Curriculum should be improved?
- Which improvements does the Department plan to introduce?

The Department evaluates the curriculum yearly, with the broad

participation of the faculty. The main purpose of these evaluations is to update the material and avoid overlaps.

The EEC has a number of recommendations that would help bring the curriculum more in line with European standards:

-Reduction of the number of core courses required to graduate, from 37 to around 25. This can be achieved by converting a number of more specialized core courses to electives. The following courses are suggested by the EEC for this purpose:

- Introductory informatics
- Cell signaling transduction
- Enzymology
- Biophysics
- Developmental biology (basic concepts could be included in Evolution)
- Immunology (basic concepts could be introduced in General Biology)
- Environmental biotechnology
- Biochemical toxicology
- Metabolic regulation (basic concepts can be introduced in Biochemistry)

These are only suggestions and the final choices will have to be made by the faculty after more thorough consideration.

The total number of elective courses should be increased to about 10 (out of a suggested total of about 35 – see below).

The portfolio of electives offered should be increased, partly by converting core courses to electives and partly by adding courses such as:

- Macromolecular function and structure (including methodologies)
- Functional genomics and proteomics
- Introductory Microbiology

The basis for reducing the total number of courses required to graduate from 43 to 35 in total relates to the method of calculating the number of ECTS credits per course in a manner more conforming to European standards, where the students' own study time and preparation time for a course and/or an exam count towards ECTS points allocated to the course.

Additional suggestions from the EEC:

Bioinformatics should be introduced earlier in the course curriculum.



The vocational training is too early in the curriculum.

The opportunity for attending some electives should be offered earlier in the curriculum.

## ***B. Teaching***

### **APPROACH:**

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

Please comment on :

- Teaching methods used

The combination of classroom teaching, tutorials and laboratory exercises, essays and student presentations appears well-balanced.

- Teaching staff/ student ratio

The teaching staff/student ratio (15/1) appears satisfactory.

- Teacher/student collaboration

Individual interviews with staff and the group interview with the students made it clear that staff is easily accessible.

- Adequacy of means and resources
- Use of information technologies

Access to electronic resources and their use by faculty and students is quite good. Classroom space and quality is severely restricted, especially space for small group tutorials which is basically non-existent.

- Examination system

Examinations are almost always written and rarely oral; some electives depend on written essays. Appropriate weight is given to written essays. Examples of graded written exam papers examined by the EEC indicate a thorough and fair review and grading done by the teaching staff.

### **IMPLEMENTATION**

- Quality of teaching procedures

- Quality and adequacy of teaching materials and resources.
- Quality of course material. Is it brought up to date?

In general, the EEC was impressed by the course materials used by the faculty members. Particularly, the EEC found of great use the initiative taken in a couple of occasions for Greek translations of internationally used textbooks. Course materials are updated yearly to keep them current. Many undergraduate courses require review and presentation of current literature, which motivates students to read and analyse original publications. The availability of all teaching materials through the e-class platform is a definite asset.

- Linking of research with teaching

The high quality of diploma projects is attested to by the fact that many have resulted in or contributed to peer-reviewed publications.

- Mobility of academic staff and students

Opportunities offered by the European Erasmus program for students to enrich their experience by spending a semester or (more importantly) do their diploma project at a foreign institution are not optimally utilised. Although the faculty seems enthusiastic about motivating the students to do so and the information exists, apparently few students take advantage of the program. In our meeting with the students, knowledge of English did not seem to be a major problem. A general reticence by the students to venture abroad seems to be one of the basic reasons for not going abroad. The EEC strongly recommends to the faculty members that students should be more actively informed and encouraged to participate in these opportunities. Students appear to be unaware of who are the two faculty members that are designated as the contact persons, although such information exists on the Department's website (albeit not prominently visible). The link to the Erasmus program, as well as the faculty members responsible as liaisons for the program should be more prominent in the Department website.

- Evaluation by the students of (a) the teaching and (b) the course content and study material/resources

Courses and teachers are evaluated by the students once per semester (at the time of the final exam) using a well-structured closed written questionnaire. The EEC could not discern a formal mechanism for acting upon the results of these surveys, but we can presume that they are informally taken into

account in the yearly course revisions.

## RESULTS

Please comment on:

- Efficacy of teaching.
- Discrepancies in the success/failure percentage between courses and how they are justified.
- Differences between students in (a) the time to graduation, and (b) final degree grades.

Exam results were interpreted taking into account the Greek system that permits unlimited number of taking an examination for any given course. Making allowance for this, a satisfactory number of students achieves high scores in most courses. Strikingly, results are much better in elective courses—an additional reason to re-orient the curriculum towards much more of the latter. The EEC is intrigued by the fact that more than 90% of students get 10 for the diploma project. We strongly feel that true excellence should be better promoted by more rigorously differentiating it from mere adequacy.

- Whether the Department understands the reasons of such positive or negative results?

Faculty members provided reasonable potential explanations for the results obtained. The EEC strongly suggests that these insights be used in improving and upgrading the curriculum and the teaching methods.

## IMPROVEMENT

- Does the Department propose methods and ways for improvement?
- What initiatives does it take in this direction?

The Department identified causes of problems that prevent excellence in teaching, most of which are external. The most important relate to the gross inadequacy of the teaching space in both quality and quantity, the small number of teaching staff that results in heavy teaching loads and, until recently, inadequate infrastructure of information technologies (slow internet connection). There is a chronic lack of consumables and supplies for laboratory teaching because of the inadequacy of such budget items, thus these needs are habitually filled by diverting funds from research budgets or from postgraduate tuition fees.

Although it is important to stress the need to correct these with better and stable funding, the EEC finds that internal causes of problems must also be addressed. As detailed above, a reduction in the number of courses required to graduate can relieve the problem of overstretched faculty and staff.

### **C. Research**

#### **APPROACH**

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

This is a department strongly oriented towards research. Because of its thematic orientation, dispersion of research focus is inevitable. The Department has made a very credible effort in organising the diverse interests into specific laboratory groups with a well-outlined theme and faculty members with complementary interests and methodological expertise. Biochemistry and Environmental Biotechnology have the potential for international stature, if given appropriate resources. A new and research-appropriate building and the corresponding equipment will enable them to compete more successfully for operating funds.

The Department's internal standards are well outlined in the internal review document and include internationally accepted metrics, such as number of publications, citations, journal impact factors and the relatively new but well accepted h-index. The flexibility required for the interpretation of these metrics is generally applied.

#### **IMPLEMENTATION**

- How does the Department promote and support research?

The successful implementation of the Ph.D. and two post-graduate programs are important factors in the Department's successes in research. Post-graduate tuition fees are appropriately used to support and subsidize specific research projects. The EEC found that the mechanism for allocating these funds to specific laboratories and projects requires more transparency, as it was not obvious from the documentation provided.

- Quality and adequacy of research infrastructure and support.

The lack of appropriate building and other research infrastructure is a major barrier to achieving excellence. The current building was viewed by the EEC as grossly inadequate. The high level of research activities despite these

deficiencies is strongly commendable.

- Scientific publications.

The department encourages successful and publishable research by promoting high-quality post-graduate programs and maintaining a high level of activity in the doctoral program, given the severe restrictions in infrastructure and availability of sources of external funding in the current situation.

- Research projects.

Given the current limitations in Greek-based sources of operating funding, the EEC finds that the Department ought to take a much more active role in encouraging individual researchers or teams to apply for European competitions, participate in funding applications for international networks and even initiate such networks. Although many of the researchers interviewed stated that they have applied for «Thalis» projects, there was little evidence of efforts to secure international funding, or of an effort by the Department to encourage it.

- Research collaborations.

A large number of collaborations are listed in the internal review document, but neither the object nor the output (in terms of joint publications or joint funding) is clear from the documentation provided. Scientific collaborations should be distinguished from contacts, networking and shared use of equipment (which are also strongly encouraged!).

## RESULTS

- How successfully were the Department's research objectives implemented?
- Scientific publications.

In the past 5 years, 218 peer-reviewed publications and 49 book sections and proceedings have been authored by at least one faculty member. In addition, 10 atomic models of protein molecules were deposited with the wwPDB. Average impact factor was 2.98.

These papers had been cited 773 times (excluding citations by self and co-authors).

Output in number of publications has been steadily increasing and is significantly higher than that of similar departments in Greece (Molecular Biology and Genetics at U Thrace and Biological Applications and

Technology, U Ioannina). In terms of publications per faculty member, the Department comes third among seven comparable departments in Greece.

It is encouraging to see that the impact of publications is increasing from the very moderate level it had been in the early years. However increasing the quality of research output, if necessary at the expense of quantity, should be a high priority. This will require improved external funding for equipment and operating expenses for more powerful and competitive methodologies. In this respect, over the last 10 years it appears that only the sum of €455 k has been obtained for equipment. The Department's competitiveness will depend on securing substantial additional funds for equipment and infrastructure in the future. An excellent step in this direction is the submission of a major competitive proposal to the INTERREG (REGPOT) program for infrastructure funding in excess of 3M€. In addition, it is highly recommended to explore all other possibilities for infrastructure funding, such as sources from local and regional government.

- Research projects.

For operational funding, the Department has secured a total of 1.728.264 € from competitive programs since its inception, which is modest and, apparently, not evenly distributed among the faculty. The EEC recognises the potential of certain faculty members (e.g. from the groups of Structural and Functional Biochemistry or Plant and Environmental Biotechnology) to lead major collaborative funding initiatives within the EC framework and similar programs. The EEC strongly recommends that the number of applications submitted should increase, especially from the more junior faculty (lecturers). Given the very limited opportunities nationally, a better effort should be made to apply internationally. Currently, only 11% of the competitive funding is from international (European) sources.

Better operational funding will also allow the awarding of stipends to doctoral candidates, few of whom are currently remunerated. The EEC finds this unacceptable.

Regarding some of the less competitive research themes, the faculty involved should consider re-orienting priorities that better resonate with the front-line research.

- Research collaborations.

The EEC encourages Department faculty to be more active in seeking

collaborations, especially those that go beyond sharing equipment or material. National and international collaborations of greater depth should be based on the complementarity of expertises and methodological assets to achieve a whole substantially larger than the sum of its parts. The absence of such meaningful collaborations with the researchers of the medical school of U Thessaly is especially noted. As a first step, the EEC strongly encourages specific events designed to find common ground for more substantive collaborations than merely sharing equipment. This could take the form, for example, of a full-day colloquium (ημερίδα) with scientific presentations from both sides. A translational thematic orientation based on human-subject material that such collaborations can provide, should be actively explored.

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

The Department's research is strongly orientated towards practical applications. The establishment of the K-MEDITURA company to utilise research results on functional foods is a good first step in commercialisation and valorisation of some of the Department's research output.

The EEC acknowledges the difficulty encountered by Department faculty in securing intellectual property without technical support on the process by the University. The Department should seek potential external partners with expertise in evaluating patentability and marketability of discoveries against sharing future profits rather than up-front payment for the service. It is recommended that such expertise should be provided by the University Office of Research and Technology Transfer.

- Is the Department's research acknowledged and visible outside the Department? Rewards and awards.

The EEC finds that, considering the size and age of the Department, the participation of faculty in editorial boards, international scientific committees and in the organisation of international scientific meeting is satisfactory.

#### IMPROVEMENT

- Improvements in research proposed by the Department, if necessary.
- Initiatives in this direction undertaken by the Department.

Significant steps are being taken for thematic consolidation of research in the Department. The EEC encourages this on-going effort that should involve

both the recruitment of new faculty and re-orientation of some of the weaker research themes.

The EEC was made aware of the difficulties in attracting new talent in post-docs and faculty, compounded by the new law that permits recruitment of only one faculty member for every five departures.

Faculty already recruited remarked on the absence of start-up funds and even the most elementary office space.

In relation to recruitment difficulties the EEC was particularly distressed by the case of a full professor who accepted a position several years ago but never showed up nor has he resigned his post, thus depriving the Department of one faculty position. This is totally unacceptable, regardless of the authority level at which the inability to settle this matter by declaring the position vacant resides (the University vs. the Ministry). This case is indicative of the impediments to academic success that the Greek system unnecessarily imposes on the academic community. Reforms to eliminate such problems should be made a high priority.

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

##### **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?

Considering the severe infrastructure limitations, the Department is making a considerable effort to provide basic services such as wireless access to full bibliography. Much remains to be done, especially in terms of administrative support to research. Faculty and students spend inordinate amounts of time on the paperwork involved in ordering supplies in the absence of adequate administrative and accounting infrastructure. Two full-time secretaries are employed from funds of the post-graduate program. The EEC believes that this personnel can be used to provide some research support in addition to their role in the post-graduate programs which does not appear to justify two full-time positions. In addition, three secretaries manage the undergraduate program. Although they do not report directly to the Department, they can also be used to provide some support to research activities now that most of the tasks have been computerized. In this connection, the EEC was surprised



to learn that 5 1/2 hours per day is considered full-time work for secretarial staff.

- Does the Department have a policy to increase student presence on Campus?

Low attendance at lectures is a problem generally acknowledged, despite excellent relationships between students and faculty. The substandard level of campus facilities is part of the problem but the faculty should make a greater effort to attract students to activities for which presence is not compulsory. It should be noted that this is a problem that goes beyond this Department and is a general phenomenon in Greek Universities.

#### IMPLEMENTATION

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

As stated above, three full-time personnel deal with the undergraduate program and two with the post-graduate ones. The inefficiencies of this set-up have been commented on in the previous section.

- Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic-cultural activity etc.).

Library space and contents is clearly substandard, which is part of the serious building infrastructure problem. However, this is largely compensated by the wide access of the student to the international bibliography through the Department's information systems which include campus-wide wi-fi. The EEC was told that access of students to counseling on an ad-hoc basis has not made the formal assigning of academic advisors necessary. Nevertheless, we believe that a formalization of this process would still be desirable, especially for the weaker students and for those with limited social skills. We would suggest one faculty member assigned to each undergraduate year plus one for the "επί πτυχείω". Even better, all faculty members, perhaps excluding only the lecturers, should be involved in student advising.

#### RESULTS

- Are administrative and other services adequate and functional?
- How does the Department view the particular results?

The Department appears to recognise the problems related to the administrative structure identified in the previous section. However, the leadership of the Department seems resigned to the fact that this is the reality

of the civil service in Greece and nothing can be changed. The EEC strongly disagrees with this attitude and recommends the pursuit of all possible means to rationalize and enhance administrative services.

#### IMPROVEMENTS

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

In the absence of additional funding no immediate solutions are obvious. However, the recently completed computerisation of student services ought to free up administrative manpower that could be used for enhanced support to research activities.

The planned orientation week for new students is also a commendable new initiative.

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

- Please, comment on quality, originality and significance of the Department's initiatives.

The Department has initiated an active program of outreach to students of secondary education and the regional community in general. A few faculty members participate in the social and cultural life of the region and the nation as individuals (e.g. science-oriented articles in newspapers, and holding public office).

Community members have been invited to participate in the academic activities (i.e. priests and judges in the ethics lectures.)

These efforts have already raised awareness of the presence and importance of the Department in the community and should be continued and enhanced.

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

Please, comment on the Department's:

- Potential inhibiting factors at State, Institutional and Departmental level, and proposals on ways to overcome them.

At the state level, underfunding is a serious perennial problem, made only worse by the current economic situation. The most pressing problem, the inadequacy of building infrastructure needs action at the level of the University and the central government. The EEC did not get the impression that the University has undertaken rigorous action to redress this problem, either with institutional resources, or by exerting the maximal possible pressure at the level of the ministry. A more vigorous pressure campaign on this matter should be made a high priority.

The current effective freeze on both hiring of new faculty and operational research funding is a nation-wide phenomenon, over which the Department has little control.

- Short-, medium- and long-term goals.
- Plan and actions for improvement by the Department/Academic Unit
- Long-term actions proposed by the Department.

Expanding the number of faculty to ideally 40 but at least 30 is one important long-term goal of the Department. Although this may be unrealistic under the current circumstances, the EEC sees this as a high long-term priority.

Building of new premises on land donated by the city is another high priority that will require some breakthrough in the funding situation.

A study of the connectivity of students to the job market is also planned and appears to be a realistic and commendable short-term goal.

The EEC found that the declared intent to define directions of research excellence within the Department is commendable but it will have to address the problems of underfunding, as discussed in previous sections.

## ***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 EEC was highly impressed by the highly professional preparation of the internal evaluation and the cooperative and collegial attitude of the Department members. There seems to be a genuine will to succeed in the unfavourable current circumstances. The faculty members are congratulated on their collective, as well as individual efforts.

**Strengths:**

- The presence of some experienced and highly productive mid-career and senior faculty, and of a small number of promising lecturers.
- The motivation, enthusiasm and commitment of all faculty members to teaching.
- The unique nature of many of the research themes that strive to respond to the needs of the mostly agricultural region served by the university.
- Some of the research programs have the potential to achieve international stature.
- The two postgraduate programs produce graduates with skills relevant to the development of the bioeconomy in Greece, in addition to helping finance a considerable part of the Department activities.
- The contribution of research findings to the creation of a spin-off with potential in the development of functional foods and antioxidants.

**Weaknesses:**

- The totally substandard and unacceptable building infrastructure.
- The chronic underfunding, largely due to state negligence and outside of the control of the Department leadership.
- Lack of a sufficient number of high-impact publications that would give the Department international visibility.
- Marked inhomogeneity in the track record and promise of the junior faculty (lecturers), with a few striking – both positive and negative – exceptions.

-An effective freeze in the recruiting of new faculty. Creative ways to recruit based on competitive funding from international sources is a solution that should be seriously looked at.

### **Opportunities:**

-Potential collaboration with the medical school researchers to take advantage of clinical material for more translation-oriented research. Such efforts need to be encouraged by the University administration.

-Potential for broader scientific collaborations that will permit successful applications for funding from international (European and other) sources, to by-pass the current paucity of funding within Greece. Faculty members should intensify their efforts to obtain such funding.

-Attracting foreign students to the post-graduate program, which will require the development of courses in English.

### **Threats:**

-The ability of most junior faculty members to assume future leadership is a grave concern. Promotion to the higher echelons should be very judicious and selective.

-Failure to secure funding for a new building, which may result in severe limitation of teaching and research activity as the current premises deteriorate.

-Failure to increase faculty size as a result of the hiring freeze and other funding constraints.

- The likelihood that those few faculty members with great potential might consider leaving for better positions given the difficulties and problems in Larissa, as outlined in other sections. This is of dual concern, as there is a freeze in new hires and when such new hires are permitted they require a very lengthy procedure.

### **Main Recommendations:**

-A creative solution must be found for the problem of funding the building of new premises. If no funding for a new building can be found, a serious consideration should be given to the possibility of housing the Department's activities within the premises of the Medical School. In addition to solving the problem of deteriorating infrastructure, this will also serve to enhance fruitful collaborations.

-Strict adherence to the highest standards of merit as the only criterion for hiring and promoting faculty. This does not appear to have been so in a few

cases.

-Participation in University committees should be more widely distributed among faculty to avoid concentration of this responsibility on a single person.

-The faculty members should concentrate more intensively on creative ways of increasing funding, especially from international sources, with the creation of strategic alliances where necessary and possible.

-The faculty members should take a more active role in encouraging student participation in international exchange programs.

-The Department should pursue more actively the recruitment of faculty members at all ranks, so that the minimum critical mass will be achieved. Creative ways must be found to get around the current hiring freeze (e.g. bring in participants in the Marie-Curie program).

The Members of the Committee

UNIVERSITY OF THESSALY  
DEPARTMENT OF BIOCHEMISTRY &  
BIOTECHNOLOGY

Name and Surname

Signature

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