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HELLENIC REPUBLIC
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HELLENIC QUALITY ASSURANCE AGENCY
FOR HIGHER EDUCATION

EXTERNAL EVALUATION REPORT

DEPARTMENT of Civil and Structural Engineering Educators

School of Pedagogical and Technological Education (ASPAITE), Marousi, Athens

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External Evaluation Committee

The Committee responsible for the External Evaluation of the Department Civil and Structural Engineering Educators in the School of Pedagogical and Technological Education (ASPAITE), Marousi, Athens consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005:

1. **Prof. Ted Stathopoulos (Coordinator)**

   Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada

2. **Prof. Michael Delichatsios**

   School of Built Environment, University of Ulster, UK

3. **Dr. Demetra Evangelou**

   School of Engineering Education, Purdue University, West Lafayette IN, USA

4. **Dr. Elena Nardi**

   School of Education, University of East Anglia, Norwich, UK

Introduction

I. External Evaluation Procedure

The external evaluation committee (EEC) visited the site of the Department of Civil and Structural Engineering Educators from 9th till 11th of January 2012.

In the first day of the visit, the EEC arrived before noon. After arrival, there was a meeting with the President and the Vice President of ASPAITE, the Chair of the Department, and the majority of the departmental staff. After this informative meeting and open discussion, there was a presentation by the Chair of the Department.

The second and third days of the visit included

1. group and individual meetings with staff, including faculty (ΕΠ) and teaching/research associates (ΕΤΠ)
2. meetings with students and alumni of the Department
3. lab visits
4. observation of teaching simulation practice
5. visits of the library and IT suites
6. meeting with administration staff (including secretarial and financial services staff)
7. visit and use of the catering facilities
8. exit meetings with the Vice-President of ASPAITE (and Chair of the Internal Evaluation Committee, ΜΟΔΙΠ) and the Chair of the Department

During these meetings and visits there was discussion on related topics where several members of staff were present and responded to questions by the EEC.

The EEC appreciated the hospitality of the ASPAITE administration and its willingness to facilitate our visit and access to premises, facilities and materials pertinent to the external evaluation process. In particular, the EEC wishes to extend its heartfelt gratitude to the Chair of the Department for her tireless commitment to accommodating our requests and facilitating the overall process.

List of reports, documents and other data examined by the Committee

There were a number of documents submitted to the EEC:

1. internal evaluation committee (IEC) report, dated October 2010
2. course guide and proposal for curriculum modifications
3. updated program of study
4. textbook list
5. faculty CVs
6. samples of the work by some laboratories and classes
7. samples of undergraduate theses, lab reports and exam papers

The EEC was impressed by the exemplary level of cooperation and hospitality of the Chair and all members of the Department.

II. The Internal Evaluation Procedure

The members of the EEC found that the evaluation report prepared by the IEC was informative and reflected the current status of the Department.

The objectives of the internal evaluation process were met by the Department.

A. Curriculum

The detailed assessment below refers to the current two-cycle curriculum: the first cycle (4 years = 8 semesters) provides a degree that makes graduates eligible to teach in secondary vocational schools (ΕΠΑΛ); the second cycle (1 year = 2 semesters) leads to a degree in civil engineering technology (structures).

Currently there are no Masters and doctoral programs offered by the Department.

APPROACH

The goal of the curriculum is to offer the knowledge of civil engineering in the area of structures from the perspective of technology education. The curriculum is decided through the participation of all Department stakeholders and is consistent with the goals of graduating educators and technologists in civil engineering (structures).

The curriculum consists of a sound core of basic courses and a limited number of electives. Although it is not reviewed regularly in a formal way, individual instructors update their course material under the same generic description as it appears in the course guide. In addition, proposals for specific modifications of the technological curriculum including possible course deletions, changes to avoid overlapping between courses and the like have been developed and handed to the EEC.

IMPLEMENTATION

The curriculum appears to be rational, clearly articulated, coherent, and functional. The material and duration of each course emphasizes the area of practice. Recommended books, notes, etc. for each course are appropriate. The delivery of notes and textbooks is late on occasion but the EEC was told that this situation has recently improved. The curriculum includes a practicum.

Notwithstanding the above, the EEC has identified a number of drawbacks. There is a lack of course prerequisite structure and limited integration of the technological and pedagogical aspects of the curriculum. In addition the curriculum is rather long consisting of separate offerings of technological and pedagogical courses. The EEC is in agreement with the comment made by the students that more visits in technical workplaces or more lectures by guest experienced engineers in courses would be very desirable.

Another main issue is the number of staff who implement the curriculum. To start with, the ratio of permanent faculty over temporary (limited contract) instructors (about 30 to 70) is totally unacceptable for the integrity / stability of an academic program. The EEC feels that this is a critical issue that needs to be addressed as soon as possible. In view of the current austerity measures in Greece, a substantial reduction of personnel has already been implemented and – possibly – further is to come. This, however, poses a serious threat for the delivery of the programs. It should be stressed that even at the current budgetary levels the staff make extraordinary efforts to meet the teaching needs at marginal or nil compensation levels. For several teaching staff, further budgetary reductions would render their involvement impossible undermining curriculum integrity and quality.

Given the intensive lab and teaching practice character of the program, the lack of lab assistants, technicians and practicum supervisors is highly problematic.

Issues relating to building size, space adequacy, and other forms of support are discussed in Part D.

RESULTS

In spite of all aforementioned - recently accentuated - burdens and difficulties, the effectiveness of the curriculum is adequate. The quality of the curriculum is partly reflected in that some final diploma theses / reports have led to publications in international conference proceedings. It should however be taken into account that any further reduction of personnel or resources would adversely affect curriculum quality.

IMPROVEMENT

The Department can improve and streamline the curriculum by integrating pedagogical aspects in several technological courses (for example, following the strand of work in education known as *Pedagogical Content Knowledge*). This might require joint teaching and other curriculum innovations. The EEC would like to encourage this kind of implementation as a possible means towards curriculum streamlining.

In a future revision of the curriculum the duration and content of each course should be reviewed in detail for potential adjustment. In this light the EEC strongly recommends the construction of a course prerequisite structure

Furthermore, in order to enhance students' professional awareness, the EEC recommends the introduction of more visits in technical workplaces and industrial sites and more guest lectures by experienced practicing engineers.

Finally, the Department needs to tackle the essential problem of the number of staff on short term contracts delivering the bulk of the curriculum.

B. Teaching

The EEC had the opportunity to discuss issues related to teaching with staff and students throughout the three days of its visit. Discussions were confidential and anonymity was guaranteed to all those who shared their perspectives with us. While we did not have the opportunity to observe lectures or lab sessions, we did have the opportunity for some brief lab visits and participation in a teaching simulation exercise in one of the pedagogical courses. All above were highly informative and the EEC appreciated the availability, enthusiasm and openness of staff and students throughout these discussions and visits. More generally the EEC felt that there is good rapport between staff and students and considered this to be a strength of the Department's culture.

APPROACH

Overall the Department's pedagogic policy with regard to teaching approach and methodology aims at **coverage of extensive content** (see Curriculum section) while adhering to the principles of **student centeredness**. Meeting the particular learning needs of the Department's cohort of students, while covering this substantial content, is a challenging balance and it is largely achieved. However in some courses there is discrepancy between student background knowledge and course content – for example, in mathematics.

Teaching approaches used in the Department are suitably varied. The bulk of teaching is conducted in lectures and in lab sessions taught to reasonably small groups of students. Lecturers tend to use visual means extensively – largely PowerPoint presentations, often enriched by video footage, real-life materials and computer-generated simulations. Labs are sufficiently equipped for student experimental work and practice. However staff expressed concern for the lack of sufficient technical staff for maintenance, service and safety of the equipment (see also Research and Services sections).

IMPLEMENTATION

Student level can be low in terms of background in some disciplines (for example, in mathematics and physics). Students tend to find the exam questions hard and their attempts to pass these exams fail, sometimes spectacularly (with only a handful achieving a Pass). In several courses accumulated failure to pass has resulted in numbers registered on these courses surpassing 200 and students retaking exams several times.

High rates of failure in exams were attributed by staff to weak student background and lack of **attendance**, which is compulsory for lab sessions but not for lectures. A fundamental misunderstanding seems to lie at the heart of the students' failure: students are led to believe (e.g. by legislation that allows non attendance) that course completion is possible without lecture attendance. However, according to staff, the students who succeed in exams tend to be those who attend. Students claimed non attendance as an earned entitlement – and technically this is correct. Some make use of this entitlement in order to work in part-time jobs that allow them to earn a much needed living. However many also said that, as they progress from Year 1 onwards, the realisation dawns that attendance is crucial to success in the exams and completion of the program. They therefore start to attend more.

Still, lecture attendance is too low – in some courses, especially those in the pedagogical strand, lecturers characterised it as detrimentally, even woefully, low – and most lecturers stated that they strongly encourage students to attend. However, strong lecturer encouragement to attend was not always the case.

Furthermore, on some occasions students who faced difficulties with the content of certain mathematics lectures said that they would benefit from extra help. Asked to comment further on these matters, several students mentioned the short and fixed-term nature of most teaching contracts: much of the teaching in the Department (about two thirds, also according to the Internal Evaluation Report) is done by staff on such contracts.

An overall impression from the discussion with students was that they see most of their lecturers as enthusiastic, knowledgeable, well-organised and keen to help.

In terms of their studying practices, students tend to rely on **EClass** significantly, mostly in order to access course materials and information. In some courses, tests and more interactive ways to engage students in learning are employed but these are still in relatively

rudimentary stages of development. Most material and information is still distributed in paper, a practice that, in terms of efficiency, as well as environmental awareness, perhaps needs to be restrained.

Office hours are set by most lecturers and students tend to make use of those. In addition, many students referred to **Email** as the main means of communicating with their lecturers and many stressed that lecturers' response was largely helpful and quick.

Students make extensive **use of the library** and its electronic resources. The Department's electronic access to journals is relatively recent (about a year old) and lecturers and students referred to it as an increasingly crucial part of student learning. Several hundreds of books are steadily on loan from the library and their availability can now be checked via the electronic library catalogue. The EEC was also informed about the new library building that is under construction and it hopes that its completion will bring many necessary improvements.

The EEC appreciated the opportunities that students have to participate in **exchange programs** (e.g. Erasmus) and encourages the Department to maintain and strengthen activity in this direction.

RESULTS

The Department has engaged with at least one attempt to collect **course evaluation forms from students**. The EEC is convinced that it is essential to conduct these evaluations at the completion of each and every course. The form is detailed and addresses most key issues of the student learning experience. It is a Likert type survey (1 to 5 attitudinal scale) and, bar a few questions that would need to be rephrased so that they become answerable in the above scale (they are currently phrased as Yes / No questions), is a well-prepared form. However, in most courses only a minuscule number of students submit the form. We explored the reasons behind such low participation in the course evaluation procedure and we discovered that the forms are given to students on paper (not on line) and during the (usually final) lecturing week of each semester. Of the relatively low number of students who attend, even fewer tend to submit the form. In our discussion with the students it was revealed that many students do not believe that their participation in the course evaluation exercise will result in substantial addressing of their concerns; few also said that they are ideologically opposed to any evaluation that may be used to injure the credibility of their teachers and their program. We felt, strongly, that the Department needs to engage with changing the students' attitudes and demonstrate how the students' concerns expressed in the course evaluation forms are acted upon.

The EEC also felt that the **policy on student appeals** relating to exam paper grading is neither clear nor sufficiently known to students. We therefore strongly recommend that the Department works towards a clearer and more explicit policy on this matter.

See also ***IMPLEMENTATION*** above for comments on student performance, particularly with regard to some of the more challenging courses.

IMPROVEMENT

As evident in part in the Internal Evaluation Report and in the discussion with staff, there is adequate awareness of most of the issues raised here. In the light of the above the EEC wishes to propose that:

- Student learning needs, particularly in challenging courses such as mathematics and physics, are addressed more explicitly and systematically. Ways forward may include:
    - bridging/transitional courses
    - embedding of the more complex parts of these courses into applications and contexts with which students are familiar
    - streamlining of course content so that more time can be allocated to its more complex parts
    - in service training that equips lecturers with the skills required for aforementioned addressing of student learning needs
    - given the Department's unique expertise in pedagogical and technological

education, research in this field (at university level) would be a niche area of research expertise and would assist with a systematic tackling of all above.

- The Department works actively and systematically towards encouraging students to attend lectures and to realise that lecture attendance is highly likely to improve the quality and timeliness of their studies' completion.
- The Department engages with changing student attitudes with regard to course evaluation, primarily with demonstrating effective addressing of student concerns expressed in the course evaluation forms; also with making evaluation forms available electronically and reaching the entire cohort of students.

C. Research

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

APPROACH

Research should be encouraged and pursued in the area of pedagogical and technological education. Currently research is undertaken in the areas of scientific interest of the individual members of the staff such as building materials, soil mechanics and reinforced concrete. The following review relates to the current situation in the Department.

There is no clear research policy and objectives. For example, staff is pursuing research in areas of their special field (such as building materials, structures, soil mechanics, reinforced concrete) not necessarily integrated with engineering education. However, there is an effort to maintain the labs in good order and the desire to attract post graduate students and external funding. There are no clear standards to motivate research (for example, how many papers per year) and what type of research: namely specific research related to the technological interest of the staff or research related to pedagogical and technological education.

IMPLEMENTATION

There is great individual enthusiasm in the Department to do research but not clear institutional advice and support on how to achieve these objectives. Nevertheless, there is some research output as an outcome of individual efforts as well as limited success in attracting MSc students and obtaining sporadic support from programs such as Archimedes. However, research implementation is limited owing to the heavy teaching load and to the pending need of updating the labs with new equipment.

RESULTS

It should be noted again that research output is limited and mainly related to the individual interests of the permanent staff but not clearly integrated with pedagogical and technological education. Most of the research work is done in collaboration with other Universities.

IMPROVEMENTS

The critical areas that need changes to improve research are:

1. The infrastructure (buildings and labs) need updating
2. The teaching load has to be reduced
3. But more importantly the department has to focus research on pedagogical and technological education in Civil Engineering (where the uniqueness lies)
4. Subsequently, a post graduate degree should be developed. The postgraduate program may consist of a Masters degree in pedagogical and technological education.

In planning this Masters degree the Department may benefit from the Masters program in Education offered collaboratively with Roehampton University of the UK and considered quite successful. Currently, a newly-developed Ph.D. collaborative program is under negotiation with the same university but the EEC was not given any details about it. Please note that degrees from such collaborative programs are jointly provided by ASPAITE and Roehampton University.

D. All Other Services

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

Support services

There is one secretary responsible for processing records for hundreds of students.

Some processes are electronic - student files - but there is room for improvement as in signing up for courses electronically. Grade submissions and progress reports should also be processed electronically.

Travel

Staff report that they are able to travel to conferences and other professional engagements such as supervision of practica in various locations in Greece, using funds from either research grants or other sources. Overall mobility seems to be limited due to limitation in funding.even though the EEC was informed by the administration that staff can be funded for 2 travels to conferences abroad and 2 travels to conferences in Greece from the regular budget.

Grant management

The office of grant management seems to be adequately staffed for the volume of work. A brief visit with staff indicated that a budget surplus exists from research overhead and program management funds while any decisions of spending are made by the central administration. Staff can request internal funding support for purchasing of lab equipment or other related items from the central administration. The decision making process does not seem to be clear to staff.

Safety

Instances of safety issues were reported to the EEC by lab instructors attributed to the large number of students in each section resulting in very low instructor to student ratio ~1/20. A number of staff reported on the urgent need for lab support staff hiring to secure safer working and learning conditions. The EEC was also told by the ASPAITE's administration that safety of the equipment cannot be assured since labs and workshops are also used by 13-15 year old students from EPAL-EPAS. This is clearly not an acceptable state of affairs.

Library and IT

The ASPAITE website is basic and could use improvement with regards to interactive aspects afforded by contemporary web platforms. It can be expanded to include ways to showcase student achievement and invite opportunities for collaborations such as student exchanges, research etc.

The ASPAITE library is small but seems to be running well. The holdings are available in an electronic catalogue; there is access to journals and free internet. A trained librarian shared encouraging facts with the EEC regarding the number of students using the resources, checking out books, responding respectfully to the rules and regulations set by the library staff. A degree of informality afforded by the small size of the community is utilized to resolve issues and challenges in a friendly manner. Members of the community value this highly.

IT

IT facilities are adequate and overall student participation to available services such as the e-class, access to the web, electronic records, communications, etc is on the increase. The IT

facilities were last upgraded in 2009 .

Software seems to be regularly upgraded and the department tries to purchase appropriate software and keep up with upgrades.

Student support services

The EEC noticed that there is reference to an Enterprise and Employability Service in the Program Guide. However students seemed to be unaware of its existence.

Space and buildings

ASPAITE is located on a beautiful lot with great views of the Olympic Stadium facilities and beautiful vistas of Athens. The facilities are accessible through two train lines - one stop within the premises - as well as a bus line.

The grounds are beautiful with buildings spread along spacious paths and cobble stone walkways. However, the current state is one of disrepair as evidenced in overgrown hedges, bushes and flowers.

Most buildings date back to the 1950's – original construction - or 1970's. Buildings are unevenly heated, inadequately ventilated and, based on our observations, either overcrowded or underused. Very little, if any, maintenance appears to take place and the EEC was told that there is practically no budget for repairs or maintenance.

Classroom space seems adequate for number of students. Classrooms are equipped with instructional IT. Lab space is severely limited with courses being 'hosted" in other units' lab space.

Some old equipment has been upgraded to digital facilitating continual use for instructional purposes. The costly removal of old equipment is an unresolved issue. Under these conditions, with labs appearing to be in use 100% of the time, it is not clear how maintenance and upgrades are handled.

Safety and security are of concern as evidenced in the graffiti-covered walls, piles of trash and reports of vandalism. There is one security person per shift and staff report challenges in staying late in their offices and otherwise moving freely on campus afterhours.

The quality of public toilet facilities is poor.

Restaurant

Three meals are available to all students on a daily basis. The quality of the food is good, seems to be nutritionally balanced and includes fresh seasonal salads and fruits. The dining room and cooking facilities are spacious but otherwise basic.

Student housing

Based exclusively on student reports, the quality of student accommodation is very low. The housing unit is open and access is not controlled. Some students reported that conditions are suboptimal with regards to hygiene – cockroaches, mice, etc. A good quality student housing facility is highly desirable because many students come from afar. Having said that, the EEC was also made aware that funding pertaining to these services goes directly to the National Youth Foundation (EIN), which operates the Student Residence Hall with its own staff and budget, without being accountable to ASPAITE in any way. This arrangement holds until August 31, 2012.

Overall, the EEC strongly recommends that significant steps are taken to address the issues of maintenance, safety and hygiene of the premises. Furthermore, upgrading of processes

related to student life, administration and learning should be implemented.

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.

In general, the EEC agrees with the strategic goals of the Internal Evaluation Report subject to comments made in this report.

Two issues are identified as fundamental to the Department's strategic planning:

First, at the Department level, every effort should be made to bridge the pedagogical and technological cultures in both teaching and research. This will result in the creation of a niche, that of pedagogical and technological education, which is a unique academic area in the Greek educational landscape.

Second, the administrative structure of ASPAITE consisting of an **appointed**, instead of elected, council appears to be problematic and undesirable by the staff. The EEC is aware of the relevant Greek legislation that defines the terms of administration for all schools (including ASPAITE). However, the EEC also understands that its report can include recommendations that may imply the need to reconsider relevant legislations. The EEC wishes to stress that its recommendations should not be seen as a critique on the qualifications and suitability of particular individuals in the ASPAITE administration. The remit of its report is the evaluation of the work of the particular Department and its more general comments, including ASPAITE's administrative structure, have been included only insofar as they relate to improvements within that department of ASPAITE that the EEC was invited to evaluate.

F. Final Conclusions and recommendations of the EEC

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

Overall, it is the EEC's view that the department functions adequately in spite of several existing resource constraints and limitations. The Chair of the Department, as well as the majority of faculty and staff, is admirable for their commitment and dedication. There is a climate of cooperation and collegiality that is conducive to a stimulating academic life. Specific recommendations to rectify drawbacks have been made in this report. The EEC's major recommendations follow.

GENERAL RECOMMENDATIONS

The EEC strongly recommends that:

- Every effort is made to bridge the pedagogical and technological cultures in both teaching and research.
- ASPAITE tackles the essential problem of the number of staff on short term contracts delivering the bulk of the curriculum.
- The administrative structure of ASPAITE is reconsidered in the light of the findings of this report.

SPECIFIC RECOMMENDATIONS

The EEC strongly recommends that:

- The Department improves and streamlines the curriculum by integrating pedagogical aspects in several technological courses; the duration and content of each course is reviewed in detail for potential adjustment; a course prerequisite structure is constructed; more visits in technical workplaces and industrial sites are introduced, as are more guest lectures by experienced practicing engineers.
- Student learning needs, particularly in challenging courses such as mathematics and physics, are addressed more explicitly and systematically.
- The Department works actively and systematically towards encouraging students to attend lectures and to realise that lecture attendance is highly likely to improve the quality and timeliness of their studies' completion.
- The Department engages with changing student attitudes with regard to course evaluation, primarily by demonstrating effective addressing of student concerns expressed in the course evaluation forms; also by making evaluation forms available electronically and reaching the entire cohort of students.
- The EEC encourages further research collaborations between the technologists /engineers and pedagogues through joint proposals, joint supervision of students, faculty and student exchanges.
- In order to improve research, the infrastructure (buildings and labs) need updating; the teaching load has to be reduced; and, a Masters degree in pedagogical and technological education is developed.
- Significant steps are taken to address the issues of maintenance, safety and hygiene of the premises; furthermore, upgrading of processes related to student life, administration and learning are implemented.
- The university administration streamlines the procurement process to facilitate the department research activities.

EEC ENCOMPASSING POSITION REGARDING PROGRAM STRUCTURE

The EEC examined the current structure of the program and makes the following recommendations:

- Maintain the current structure of the two degrees but improve it according to above recommendations in order to reduce the length of the program and integrate its technological and pedagogical aspects.
- Alternatively, design a new four-year program which integrates technological and pedagogical aspects, and leads to a unique degree in Technology Education.

In either case develop a post-graduate program and encourage staff research activity in the field of Technology Education.

The Members of the Committee

Name and Surname Signature

1. __Ted Stathopoulos_____
2. __Michael Delichatsios_____
3. __Elena Nardi_____
4. __Demetra Evangelou_____