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HELLENIC REPUBLIC

H.Q.A.

HELLENIC QUALITY ASSURANCE AND
ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

DEPARTMENT OF PHARMACY

NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS



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MINISTRY OF EDUCATION & RELIGIOUS AFFAIRS, CULTURE & SPORTS
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TABLE OF CONTENTS

The External Evaluation Committee (EEC)

Introduction

I. The External Evaluation Procedure

- Brief account of documents examined, of the Site Visit, meetings and facilities visited.

II. The Internal Evaluation Procedure

- Comments on the quality and completeness of the documentation provided and on the overall acceptance of and participation in the Quality Assurance procedures by the Department.

A. Curriculum

APPROACH

- Goals and objectives of the Curriculum, structure and content, intended learning outcomes.

IMPLEMENTATION

- Rationality, functionality, effectiveness of the Curriculum.

RESULTS

- Maximizing success and dealing with potential inhibiting factors.

IMPROVEMENT

- Planned improvements.

B. Teaching

APPROACH:

- Pedagogic policy and methodology, means and resources.

IMPLEMENTATION

- Quality and evaluation of teaching procedures, teaching materials and resources, mobility.

RESULTS

- Efficacy of teaching, understanding of positive or negative results.

IMPROVEMENT

- Proposed methods for improvement.

C. Research

APPROACH

- Research policy and main objectives.

IMPLEMENTATION

- Research promotion and assessment, quality of support and infrastructure.

RESULTS

- Research projects and collaborations, scientific publications and applied results.

IMPROVEMENT

- Proposed initiatives aiming at improvement.

D. All Other Services

APPROACH

- Quality and effectiveness of services provided by the Department.

IMPLEMENTATION

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

RESULTS

- Adequateness and functionality of administrative and other services.

IMPROVEMENTS

- Proposed initiatives aiming at improvement.

Collaboration with social, cultural and production organizations**E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors**

- Short-, medium- and long-term goals and plans of action proposed by the Department.

F. Final Conclusions and recommendations of the EEC on:

- The development and present situation of the Department, good practices and weaknesses identified through the External Evaluation process, recommendations for improvement.

External Evaluation Committee (EEC)

The Committee responsible for the External Evaluation of the Department Pharmacy of the National and Kapodistrian University of 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. Maria Polikandritou Lambros** (Coordinator)
Western University of Health Sciences, USA
2. **Prof. George Imanidis**
University of Basel and University of Applied Sciences Northwestern Switzerland.
3. **Prof. Harry Ischiropoulos**
University of Pennsylvania, USA
4. **Prof. Barbara Papadopoulou**
Faculty of Medicine, Laval University, Quebec, Canada

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.

Abbreviations

EEC: External Evaluation Committee

UGC: Undergraduate Curriculum

GC: Graduate Curriculum

IT: Information Technology

ETEP: Lab Technical Personnel (Ergastiriako Techniko Proswpiko)

Introduction

I. The External Evaluation Procedure

- *Dates and brief account of the site visit.*
 - The visit took place during the period of June 4th- 7th, 2013 at the Department of Pharmacy, National and Kapodistrian University of Athens.
- *Whom did the Committee (EEC) meet?*
 - The EEC met with Vice Rector Dr. Docoudakis, the Chairman of the Pharmacy Department, Dr. Skaltsounis, faculty members of all of the three Pharmacy divisions, staff, undergraduate and graduate students and postdocs of the Department. The EEC also met with the Vice Rector Dr. Sfingopoulos on June 7th and discussed issues concerning the Department of Pharmacy.
- *List of Reports, documents, other data examined by the EEC.*
 - Several weeks before the official visit, the EEC received the Internal Evaluation Report supplied by the Department of Pharmacy. During the visit, the EEC received a copy of all the Power Point presentations, student handbooks for undergraduate and graduate programs, list of the grants, and a collection of the CVs of faculty.
- *Groups of teaching and administrative staff and students interviewed*
 - The Directors and Faculty members of all Divisions of the Department of Pharmacy.
 - Members of ΙΑΑΧ and the Technical Support personnel (ETEP).
 - Members of the Department and Division Administrative Staff (Secretariat).
 - Undergraduate and Graduate Students and Postdocs.
- *Facilities visited by the External Evaluation EEC.*
 - The EEC visited all the teaching and research labs of each Division, teaching amphitheatres/lecture halls and administrative offices.

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 EEC received all the necessary documentation required to evaluate the Pharmacy Department. The quality of the materials was such that facilitated the work of the EEC. The EEC wishes to comment on the excellent quality of the Internal Evaluation Report, which was clear and comprehensive in providing an overall picture of the state of the Pharmacy Department. All faculty members were very accommodating in providing additional information and answering questions.

A. Curriculum

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

Undergraduate Curriculum (UGC)

APPROACH (UGC)

- ***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 goal of the curriculum is to prepare professional pharmacists to operate in public (community) pharmacies, hospitals, industry, academic research and governmental organizations within and outside Greece. Some of these domains of professional activity may require additional graduate and/or research training at doctoral level, clinical training and continuing education.

The undergraduate curriculum was determined according to national and European regulations and legal requirements governing the education of a pharmacist (XV/E/8341/6/93, Brussels 26.7.1995). The curriculum is thus consistent with its defined objectives and the requirements of society at large.

There is a standing curriculum committee in the Department that can handle adjustments and revisions.

IMPLEMENTATION (UGC)

- ***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?***

The curriculum is compliant with general standards and legal requirements and implementation of its current goals is effective.

The course material is appropriate and the available time is adequate. The level of the offered

science is excellent. The Department has the necessary scientific personnel resources and appropriately qualified and trained staff to implement the curriculum. In fact, this is one of the major strengths of the Department.

RECOMMENDATION #1: As an organizational measure, it is recommended that the rationale of the curriculum be clearly articulated and presented along with other requirements to incoming students in a mandatory orientation.

The structure of the curriculum, although rational and functional for the most part, requires some urgent revision to improve its coherence and functionality. This consists of:

RECOMMENDATION #2: Introduction of pharmaceutical courses in the first two years in parallel with basic science and medical courses. In addition, basic science courses such as mathematics, physics, chemistry and biology should have and articulate clear and direct pharmaceutical relevance.

RECOMMENDATION #3: Introduction of pre-requisites. Students should not be able to take courses scheduled in the later parts of the curriculum without having passed earlier courses with specific functional link. For example, organic chemistry should be a pre-requisite for medicinal and pharmaceutical chemistry.

The EEC further expresses serious concerns about the continued implementation of the curriculum in the wake of the recent reassignment of the Department of Pharmacy to the School of Health Sciences. The University and the Department must secure continuation of teaching of basic science courses such as chemistry, biology and mathematics that are offered by other departments for Pharmacy students.

As a long-term goal, the Department may consider offering an increasing number of basic science courses internally by its own faculty members. For this, the steadfast support of the University will be required for augmenting the faculty and staff basis of the Department.

The EEC considers the establishment of a pharmacology group within the Department that will provide teaching in pharmacology and perhaps later in toxicology and (patho)-physiology as a very good first step in this direction.

RESULTS (UGC)

- ***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?***

Curriculum implementation and its results on the basis of the predefined goals have been adequate. However, the EEC has identified the following major deficiencies that require the urgent attention of the Department:

- 1) The purpose of the 5th year to introduce the student to community pharmacy practice is not functional; there is no quality control, no oversight and no certification of the selected preceptors. Moreover, the EEC considers the duration of practical training of 12 months too long.
- 2) Clinical education and training is insufficient by comparison to current developments in the pharmaceutical education system of certain European countries and of North America and by virtue of recent trends and requirements of society. The lack of clinical focus at undergraduate level (notwithstanding the MSc program in clinical pharmacy) is not in line with international standards and undermines the long-

term reputation of the Department.

3) The pharmacy degree awarded after 5 years and at least 300 ECTS of study is not at the Master level which is considered non-satisfactory and not consistent with EU reforms.

IMPROVEMENT (UGC)

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

The Department indeed understands the necessity to reform and update the program in compliance with current needs and trends. Although reform may in some cases be difficult to implement due to existing laws and regulations, the Department should consider approaches to improve the program in general and the 5th year training in particular. The EEC fully supports and encourages the Department to consider the following recommendations:

RECOMMENDATION #4: Introduce mandatory Clinical Pharmacy courses in the 5th year of the program or, if possible, earlier.

RECOMMENDATION #5: Reduce the practical training in community pharmacy to 6 months.

RECOMMENDATION #6: Introduce a system of certification of preceptors of Pharmacy training under the supervision of the Department of Pharmacy.

RECOMMENDATION #7:-Establish a division of Clinical Pharmacy as a fourth division within the Department that will also encompass all activities in Pharmacology and other medically oriented fields.

RECOMMENDATION #8: Make the diploma thesis obligatory for graduation. This is critical for moving forward to convert the degree to a MSc degree. This will be consistent with practices in most European countries.

Graduate Curriculum (GC)

The Department offers MSc degrees in 3 areas of pharmaceutical sciences, i.e., chemistry and natural products, clinical pharmacy and industrial pharmacy under 6 different subheadings. The objectives and contents of the curriculum of each of these degrees are adapted to the specific needs of the area and to the professional requirements.

The Department has in its ranks appropriately qualified scientific personnel to fully cover the teaching needs of the MSc degrees and the result fulfills universally accepted standards.

The EEC is, however, of the opinion that it may be more efficient to consolidate the course work in one semester, with the exception, perhaps of the clinical pharmacy degree. This recommendation is justified based on the current number of contact hours per day. This consolidation would allow more time towards laboratory work and other related activities and make possible a timely conclusion of the MSc degree after exactly 2 years. Alternatively, the contact hours over two semesters may be increased to reach the equivalent of the currently projected 60 ECTS of course work or 720 to 900 hours.

The EEC also strongly suggests to strictly avoiding duplication of BSc course contents in the MSc program.

These recommendations are made on the grounds of optimal utilization of the time students spend for their education by not unnecessarily extending the studies and allowing young people a timely entrance in the work force.

Finally, following the establishment of pharmacology group and possibly a division of Clinical Pharmacy in the department, an MSc in pharmacology may be considered.

RECOMMENDATION#9: Consolidate the coursework of GC in one semester.

RECOMMENDATION#10: Avoid duplication of coursework between the graduate and undergraduate program.

Doctoral Curriculum

The Department runs an excellent doctoral program producing high quality research results and has good international reputation. The faculty should be congratulated for their efforts and success in this area.

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***

The Department has a long-standing tradition in providing outstanding teaching using both pedagogic and practical methodologies. The teaching methodologies for the most part have evolved over the years and include new methods of electronic communication.

The teaching staff to student ratio, however, is not optimal. The Department requested that 80 new students be admitted in the previous academic year. However, 150 were admitted. The EEC fully agrees with the student limit requested by the Department since the smaller class size will improve laboratory training and administration of exams. Critically, a smaller class size will improve the quality of training in the 5th year. This will facilitate the conversion of the current final degree to MSc degree.

Faculty members are always available to students. The faculty has established student advisors. However, this service is under-utilized by the students. The EEC recommends that the Department and faculty advertise more often the various services and implemented changes to the students.

Laudable and resourceful efforts of the faculty secure functional teaching laboratories. With the reduction of funding from the State and University, the faculty is forced to obtain grants as well as seek support from the industry. Optimally, the University and the State should provide adequate-funds and recourses for teaching laboratories in a timely manner. Moreover, ordering procedure for the supplies is challenging and counterproductive. State must remove these barriers.

The use of information and interactive technologies is adequate for the undergraduate students. This is not the same for MSc students, who will benefit from more interactive methods of teaching. At the level of MSc, the EEC recommends self-learning, problem-based learning and project-based teaching approaches. For example, this could be accomplished by the use of seminar-style courses and journal clubs.

The examination system follows traditional methods and is fair. For the longer duration courses, such as pharmacology, we recommend the use of mid-term examinations. The minimum passing grade is 5 and the majority of the grades fall within the 5-6 range with few grades within the 7-8 range while grades within 9-10 scale are extremely rare. The EEC also recommends that the faculty use the full scale (1-10) for grading. Grading on a full scale will be advantageous to students that excel and have the desire to continue in graduate and

postgraduate studies both in Greece and abroad. Because of the international competition, a better grading system will accommodate the national interests.

IMPLEMENTATION

Please comment on:

- **Quality of teaching procedures**
- **Quality and adequacy of teaching materials and resources.**
- **Quality of course material. Is it brought up to date?**
- **Linking of research with teaching**
- **Mobility of academic staff and students**
- **Evaluation by the students of (a) the teaching and (b) the course content and study material/resources**

Teaching procedures and teaching materials and resources are for the most part adequate with the exception of resources and instrumentation for the laboratories. It will be beneficial for students if instrumentation is brought up to date in all laboratories.

The mobility of academic staff and students is excellent and appropriately organized. There is a standing committee for the SOCRATES-ERASMUS program for excellent students to be exposed to outside learning and research experiences. Also, faculty has the opportunity to use continuing education to remain updated on new teaching and research developments. The EEC fully supports the use of sabbaticals for the faculty members.

The evaluation by the students of teaching and course content, material and resources is adequate. For courses taught by more than one professor, we recommend that a separate evaluation be given to the students for each professor. It is also uncertain how the faculty and the Department use the results of the evaluation. The EEC strongly recommends that procedures be established for the proper use of these useful evaluations.

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

The teaching is clearly instrumental in producing the next generation of pharmacists and scientists. However, if one uses as indicators the average graduation grade of 6,32 and the percent of students who pass the core mandatory courses, it appears that effectiveness of teaching does not transform to passing or higher grades. This may relate to two factors: attendance of students is not mandatory, and teachers do not use the full scale (1-10) for grading. Recently, the attendance has increased to over 50%, and the number of students that continue to MSc degrees is also on the rise.

There is a clear indication that success rate in passing the mandatory laboratory courses is high (in the order of 80-90%). This is not the same for the mandatory, non-laboratory courses that is typically 50-60%. Differences in the examination method may be responsible

for this discrepancy. Taking steps to further increase attendance in the core mandatory courses is recommended.

The overall time to graduation is satisfactory. However, there is an apparent discrepancy with the grades of the final degree showing a shift to lower grades. Students entering the Department are of high quality. The expectation would have been that performance in terms of final grades be higher. Excellent and outstanding students must be rewarded with higher grades.

The EEC understands that the Department is appreciating these apparent weaknesses and is thinking of approaches to address them.

IMPROVEMENTS

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

Teaching remains a cornerstone of the Department and is viewed as being overall very good. Furthermore, the EEC is highly impressed and appreciative of the efforts by the faculty to secure the normal operation and functionality of the teaching laboratories. We support the Department in their desires and requests that the State and University provide the funds for the teaching laboratories and remove operational restrictions such as for ordering supplies and instrumentation.

There are individual efforts to introduce new methods of teaching. However, the curriculum committee should be charged with the task to expand these efforts to the entire Department. For the longer duration courses it is optimal to use mid-term exams. Mid-term exams and other educational methodologies will improve attendance.

The EEC also strongly urges the faculty and the Department to establish mechanisms for the proper utilization of the teaching evaluations. These teaching evaluations can be used to bridge some of the gaps between students and teachers. Finally, rewarding excellent and outstanding students with higher grades is desirable and will enable these talented students to compete for scholarships and fellowships in Greece and abroad.

RECOMMENDATION#11: Expand the use of midterm exams in more courses.

RECOMMENDATION#12: Consider using the whole scale from 1-10 in grading.

RECOMMENDATION#13: Increase class attendance.

RECOMMENDATION#14: For courses taught by more than one professor, give a separate evaluation to the students for each professor.

RECOMMENDATION#15: Take into account peer and student evaluations to initiate changes that enhance teaching efficiency.

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?***

Research is an area of excellence of the Department. During the last decade a remarkable growth in terms of peer-review publications and research funds has been noted.

The EEC applauds the current efforts of the Department fully understanding that, at times, these research activities are accomplished under suboptimal conditions. Nonetheless, faculty members of the Department through tireless and valiant efforts have secured considerable funding for research and published research findings of high quality in peer-reviewed journals.

Grants and peer-review publications, two common indices, are used by the Department to assess success in research. Secondary indices include noteworthy awards, organization of national and international meetings as well as memberships in editorial boards and scientific societies.

IMPLEMENTATION

- ***How does the Department promote and support research?***
- ***Quality and adequacy of research infrastructure and support.***
- ***Scientific publications.***
- ***Research projects.***
- ***Research collaborations.***

The Department has a strong foundation for research as reflected by the overall funding. Funding, which is the single most critical driver for research, is the result of the illustrious efforts of senior and mid-career professors. Almost all of the funding, with minor exceptions, however, can be attributed to senior and mid-career professors. The EEC noticed the apparent absence of independent funding by young investigators (assistant professors). Efforts to promote funding by assistant professors are highly recommended. This will promote their independence as well as strengthen and stabilize the Department for the future.

Funding sources for the Department include national and European competitions as well as industry. A fair number of grants are the product of collaborations within the Department. This promotes synergy among the divisions and allows for collective use of equipment and resources. Common interests and natural affinities motivate these collaborations. For most research laboratories there are outstanding equipment and facilities. The Department through competitive funding has secured the purchase of high-end instrumentation such as NMR and mass spectrometers. These instruments have significantly elevated the research capacity of the Department and, through publications, have increased the national and international exposure of the Department. However, there are some deficiencies relating to the support and maintenance of equipment and the physical laboratory space. Specifically: 1) There is inadequate support for high-end instruments. 2)

Necessary repairs require lengthy and bureaucratic procedures, which at times hinder research progress.

The EEC ranks the quality and number of scientific publications as excellent. The collective H-index of the faculty places the Department in the top 100 departments of pharmacy and pharmacology in the world. The current ranking on the H-index is 74th together with Cornell University and University of Virginia.

RESULTS

- ***How successfully were the Department's research objectives implemented?***
- ***Scientific publications.***
- ***Research projects.***
- ***Research collaborations.***
- ***Efficacy of research work. Applied results. Patents etc.***
- ***Is the Department's research acknowledged and visible outside the Department? Rewards and awards.***

Research projects cover relevant areas of pharmaceutical and pharmacological interest. Although uneven among the different divisions and the faculty members, funding and publications are overall excellent. Current funding averaging 14.300.000 Euro is outstanding and signifies a dynamic and vibrant research effort. Funds to obtain a 600 MHz NMR instrument, reveal a motivated and energetic research enterprise. Funding from EU (FP7) is also outstanding and denotes the excellent reputation and highly competitive quality of the research scientists in the Department. Several collaborations nationally and internationally have been established. These activities were instrumental in elevating the national and international reputation of the Department. Members of the Department have received prestigious awards for their contributions to research in their respective fields.

The Department is actively engaged in protection of intellectual property. The research effort of the group of natural products and medicinal chemistry has resulted in the formation of a spin-off company.

Collaborations with 35 Industry entities both national and international are cultivated to provide research funds and potential connections for job placement of Department graduates. These activities are not only important to research but also for job creation, vitally important for the Greek economy.

IMPROVEMENTS

The State and the Institution must provide support and critically remove unnecessary barriers that hinder research progress. Specifically, the State and the University must:

RECOMMENDATION #16: Provide funds and support for the uninterrupted use of the NMR instruments.

RECOMMENDATION #17: Provide funds and expedite repairs in the physical laboratory spaces to secure safety of operation, security and appropriate storage of reagents and biohazard material. The Department funding is outstanding, over 14 million euros, and should not be burdened with these challenges.

RECOMMENDATION #18: The State and University may consider the establishment of a Centre of Scientific Excellence in the Department. In North America as well as Europe the concept of Centres of Scientific Excellence has been established in order to direct funds and resources in specialized areas of research and development that will augment the reputation and prestige of the University nationally and internationally. In our view this can be accomplished in the Department of Pharmacy, given the presence of a critical mass of investigators, their funding and eminence in their field.

To secure the future of the Department and consistent with the Department's planning, the EEC recommends the following:

RECOMMENDATION #19: Provide start-up funds for the young investigators.

RECOMMENDATION #20: Provide mentorship for young investigators such as seminars for grant writing, guide and allow young investigators to develop their scientific niche.

A major new direction taken by the Department was the recruitment of a prominent scientist in the field of pharmacology, Dr. Andreas Papapetropoulos. Together with existing young scientists, this recruitment will catalyze the development of a new and much needed direction for the Department both in research as well as teaching. The recruitment must be followed by:

- 1) The appropriate allocation of space.
- 2) Funds for appropriate renovations of the physical space for laboratory training
- 3) Institutional start-up funds.
- 4) Structural reform within the Department that will lead to the establishment of a fourth division to accommodate Pharmacology and clinically oriented activities. This will critically support the recommended curriculum reform to include Clinical Pharmacy.

Beyond the apparent synergy and collaborative efforts, the EEC recommends additional mechanisms, which would provide opportunities for extensive discussions and possible grounds to identify new research opportunities and collaborations. Specifically the EEC recommends the following:

RECOMMENDATION #21: Establishment of departmental core facilities.

RECOMMENDATION #22: Initiate regular internal research seminars. These seminars can be given by faculty members of all ranks but also by MSc and PhD candidates. These "work in progress" seminars can also provide a forum for young investigators to present their work as well as a "think tank" for the development of their grant proposals.

RECOMMENDATION #23: Initiate Journal club. Journal club can be organized by junior faculty and aim to keep the faculty members and students informed of recent developments in the field.

D. All Other Services

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

APPROACH and IMPLEMENTATION

- ***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?***
- ***Organization and infrastructure of the Department's administration (e.g. secretariat of the Department).***
- ***Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic-cultural activity etc.).***

The Pharmacy Department needs Administrative and Technical Support.

The administrative personnel in the service of faculty and students of the Department of Pharmacy consists of five departmental secretaries and five division secretaries. The main administration office responsible for the students' enrolment is manned by five secretaries. The lead secretary is a capable person who has been asked to delay his retirement. Five more administrative staff are servicing the three divisions of Pharmacy. Despite the limited administrative personnel, the use of computers mitigates the problem. Most of the procedures (such as grade submissions) are done electronically in a timely manner.

The Technical support is inadequate. There are only 2 technical personnel to support 39 faculty members. Furthermore, the Information Technology (IT) staff is only providing services at the University level and not at the Department level, leaving those at the Department who need computer help scrambling to troubleshoot their computers, if such a need arises. Furthermore, because of the lack of IT support the Department cannot have an effective quality control process.

Library:

The evaluation EEC was informed that access to scientific journals is often interrupted due to the economic crisis. The government has difficulties in paying the subscriptions and many publishing houses have already blocked or will block access to their journals. Electronic and physical access to scientific journals is of vital importance to the academic environment and without it research and teaching could be seriously compromised.

Internet Access and Multimedia Room:

The Department offers free internet access to faculty members and students. There is a multimedia room in the Department with 34 computers. However, computer support is non-existent. The Department depends on the goodwill of knowledgeable faculty, IDAX, students or postdocs to solve the computer problems when arise.

E-Class:

The E-Class software effectively supports the teaching needs of the Department.

Transportation to and from the Department:

The transportation to and from the Department is problematic and takes a long time if one wishes to use public transportation to work or attend classes in the Campus. This limits the mobility of the students to attend classes in other areas in the Campus or go to a restaurant.

Athletic and Cultural services:

Students have access to gym facilities and cultural organizations such as University Musical and Theatrical departments.

RESULTS

• Are administrative and other services adequate and functional?

Overall the EEC observed the following inadequacies:

- Technical support is lacking.
- Computer support is non-existent.
- Need for public safety. Of note is the increase in crime activity in the Campus the recent years.
- The EEC noticed inadequate fire safety in terms of fire exits and fire training.
- Inadequate air exhaustion system in some labs may create health hazards.
- Convenient public transportation is lacking.
- Access to electronic scientific journals is interrupted because of not paid subscriptions

IMPROVEMENTS

For the most part the Department provides acceptable services to the students and the staff. Most of the procedures use electronic communication. Department secretary and staff provide sound services. Students and staff have free electronic access to the library. Library is equipped with the relevant subscriptions.

However, the following issues require resolution:

RECOMMENDATION #24: Despite major efforts by the Department, there is inadequate support by the State and University for the following: a) Improve fire safety (provide the blue prints for the Department in order for the fire department to develop emergency plans); b) Reduce occupational hazard by adequate ventilation for laboratories; c) Restrict access to the laboratories by the use of key cards.

RECOMMENDATION #25: University and State must make their priority to improve Public Safety. Security Services are needed so that faculty and students are and feel safe.

RECOMMENDATION #26: The Department should establish and distribute a safety laboratory manual.

RECOMMENDATION #27: There is a need for an additional large amphitheatre

to accommodate the increasing student number and critically for administering the exams.

RECOMMENDATION#28: Increase lab research space to accommodate the expansion of the Department to establish the laboratory of pharmacology.

RECOMMENDATION#29: The State and University must provide Information Technology support. This is important for all functions of the Department from laboratories of students to secretary functions.

RECOMMENDATION#30: The EEC recommends the relocation of the secretarial personnel to a functional quiet space, with appropriate temperature control and ventilation.

RECOMMENDATION#31: The EEC interviewed eight personnel holding PhD degrees that belong to IΔAX. The status of these eight individuals is unacceptable. Currently these PhDs provide viable service and research support. The EEC urges State and University to redefine the job description of these people. The State, University and Department must resolve their situation. This is an urgent issue.

RECOMMENDATION#32: The Department must secure sufficient technical personnel for the functional operation of the undergraduate laboratories.

RECOMMENDATION#33: The Department must have uninterrupted electronic access to scientific journals relevant to pharmaceutical sciences.

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.***

By reviewing the strategic planning and perspectives for improvement of the Department, the EEC has identified 4 major factors at the State level that impede progress:

- 1) The State delays significantly the hiring of teaching and research faculty.
- 2) The State does not provide adequate resources for the normal and uninterrupted teaching and research activities.
- 3) The State limits the flexibility of the Institution and the Department to self-govern.
- 4) The State must pay the subscriptions for electronic access to scientific journals.

The EEC endorses the following proposals and requests of the Department according to which the State must:

- 1) Secure needed resources.
- 2) Relax the regulations that will enable Institutional and Departmental governance.
- 3) Support academic freedom and responsibility.
- 4) Facilitate the initiative of the Department to create a Clinical Pharmacy speciality (see Rec. #7).
- 5) Support the plan of the Institution for the creation of a Centre of Excellence in the Department of Pharmacy (see Rec. #18).
- 6) Consent with the proposal to convert the final degree to a Master of Sciences (see Rec. #8).

At the Institutional level, the EEC supports the application of the Department for funds to:

- 1) Equip the Pharmacology laboratory (see Rec. #29).
- 2) Support core facilities and provide Informational Technology support (see Rec. #16-#18, #21, #27-#29).
- 3) Enable structural improvements relating to personal, fire and occupational safety (see Rec. #25-#26).
- 4) Create a fourth division with clinical orientation including Pharmacology (see Rec #7).
- 5) Offer increasing number of basic science and medical courses internally by faculty members of the Department.

The EEC further discussed the need that the Institution provides the framework and conditions for the optimal integration of the Department in the School of Health Sciences. This will take advantage of the opportunities to synergize with other departments. It will further strengthen the efforts of the Department of Pharmacy to augment their clinical aspects of teaching and research.

At the Department level, the EEC recommends the establishment of bylaws compliant with University and State laws and regulations. Bylaws must define the process of decision-making and of the implementation of the strategic plan.

The Department must develop a strategic plan. This strategic plan should be regularly reviewed for deliverables and implementation. As part of this plan, an annual departmental retreat should be instituted.

RECOMMENDATION#34: Establish departmental bylaws that will be in harmony with University regulations and State laws.

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 Department of Pharmacy is nationally and internationally recognized. This has been achieved by excellence in research and high quality of education. The Department developed a broad range of graduate programs covering all aspects of pharmaceutical sciences. There is a high success of job placement after completion of the MSc degrees.

An excellent doctoral program producing high quality research is in operation.

The quality and number of scientific publications is excellent and places the Department among the top 100 departments of pharmacy and pharmacology in the world.

The Department has attracted substantial funding from European sources.

The Department has established a respected network of international collaborations.

All of the above constitute tremendous assets and showcase the success of the Department.

Recommendation of the EEC for Education:

- Establish Clinical Pharmacy Practice in the undergraduate curriculum.
- Revise the fifth year of studies.
- Convert the final degree to MSc.
- Institute a mechanism for regular updates of the curriculum.

Recommendation of the EEC for Research:

- Facilitate the establishment of Pharmacology laboratory.
- Create a clinically oriented division for research and teaching.
- Establish a Centre of Excellence within the Department.
- Adopt mechanisms to improve synergy and integration of research faculty.

Recommendation of the EEC for Other Services:

- Improve safety as the utmost priority.
- Resolve the status of IΔAX personnel.
- Provide adequate technical and information technology support.

Recommendation of the EEC for Governance and Operations:

- Streamline processes for decision making.

- Establish departmental bylaws.

Summary of all the EEC Recommendations:

RECOMMENDATION #1: As an organisational measure, it is recommended that the rationale of the curriculum be clearly articulated and presented along with other requirements to incoming students in a mandatory orientation.

RECOMMENDATION #2: Introduction of pharmaceutical courses in the first two years in parallel with basic science and medical courses. In addition, basic science courses such as mathematics, physics, chemistry and biology should have clear and direct pharmaceutical relevance.

RECOMMENDATION #3: Introduction of pre-requisites. Students should not be able to take courses scheduled in the later parts of the curriculum without having passed earlier courses with specific functional link. For example, organic chemistry should be a pre-requisite for medicinal and pharmaceutical chemistry.

RECOMMENDATION #4: Introduce mandatory Clinical Pharmacy courses in the 5th year of the program or, if possible, earlier.

RECOMMENDATION #5: Reduce the practical training in community pharmacy to 6 months.

RECOMMENDATION #6: Introduce a system of certification of preceptors of Pharmacy training under the supervision of the Department of Pharmacy.

RECOMMENDATION #7: Establish a division of Clinical Pharmacy as a fourth division within the Department that will also encompass all activities in Pharmacology and other medically oriented fields.

RECOMMENDATION #8: Make the diploma thesis obligatory for graduation. This is critical for moving forward to convert the degree to an MSc degree. This will be consistent with practices in most European countries.

RECOMMENDATION #9: Consolidate the coursework of GC in one semester.

RECOMMENDATION #10: Avoid duplication of coursework between the graduate and undergraduate program

RECOMMENDATION #11: Expand the use of midterm exams in more courses.

RECOMMENDATION #12: Consider using the whole scale 5-10 in grading.

RECOMMENDATION #13: Increase class attendance.

RECOMMENDATION #14: For courses taught by more than one professor, give a separate evaluation to the students for each professor.

RECOMMENDATION #15: Take into account peer and student evaluations to initiate changes that enhance teaching efficiency.

RECOMMENDATION #16: Provide funds and support for the uninterrupted use of the NMR instruments.

RECOMMENDATION #17: Provide funds and expedite repairs in the physical laboratory spaces to secure safety of operation, security and appropriate storage of reagents and biohazard material. The Department funding is outstanding, over 14 million euros, and should not be burdened with these challenges.

RECOMMENDATION #18: The State and University may consider the establishment of a Centre of Scientific Excellence in the Department. In North America as well as Europe the concept of Centres of Scientific Excellence has been established in order to direct funds and resources in specialized areas of research and development that will augment the reputation and prestige of the University nationally and internationally. In our view this can be accomplished in the Department of Pharmacy,

given the presence of a critical mass of investigators, their funding and eminence in their field.

RECOMMENDATION #19: Provide start-up funds for the young investigators.

RECOMMENDATION #20: Provide mentorship for young investigators such as seminars for grant writing, guide and allow young investigators to develop their scientific niche.

RECOMMENDATION #21: Establishment of departmental core facilities.

RECOMMENDATION #22: Initiate regular internal research seminars. These seminars can be given by faculty of all ranks but also by MSc and PhD candidates. These "work in progress" seminars can also provide a forum for young investigators to present their work as well as a "think tank" for the development of their grant proposals.

RECOMMENDATION #23: Initiate Journal club. Journal club can be organized by junior faculty and aim to keep the faculty members and students informed of recent developments in the field.

RECOMMENDATION #24: Despite major efforts by the Department, there is inadequate support by the State and University for the following: a) Improve fire safety (provide the blue prints for the Department in order for the fire department to develop emergency plans); b) Reduce occupational hazard by adequate ventilation for laboratories; c) Restrict access to the laboratories by the use of key cards.

RECOMMENDATION #25: University and State must make their priority to improve Public Safety. Security Services are needed so that faculty and students are and feel safe.

RECOMMENDATION #26: The Department should establish and distribute a safety laboratory manual.

RECOMMENDATION #27: There is a need for an additional large amphitheatre to accommodate the increasing student number and critically for administering the exams.

RECOMMENDATION #28: Increase lab research space to accommodate the expansion of the Department to establish the laboratory of pharmacology.

RECOMMENDATION #29: The State and University must provide Information Technology support. This is important for all functions of the Department from laboratories of students to secretary functions.

RECOMMENDATION #30: The EEC recommends the relocation of the secretarial personnel to a functional quiet space, with appropriate temperature control and ventilation.

RECOMMENDATION #31: The EEC interviewed eight personnel holding PhD degrees that belong to IΔAX. The status of these eight individuals is unacceptable. Currently these PhDs provide viable service and research support. The EEC urges State and University to redefine the job description of these people. The State, University and Department must resolve their situation. This is an urgent issue.

RECOMMENDATION #32: The Department must secure sufficient technical personnel for the functional operation of the undergraduate laboratories.

RECOMMENDATION #33: The Department must have uninterrupted electronic access to scientific journals.

RECOMMENDATION #34: Establish departmental bylaws that will be in harmony with University regulations and State laws.



The Members of the EEC

Name and Surname	Signature
1.	_____
2.	_____
3.	_____
4.	_____
5.	_____