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HELLENIC REPUBLIC



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# Accreditation Report

## for the Undergraduate Study Programme of:

**Chemistry**

**Institution: University of Ioannina**

**Date: 29 May 2021**



Επιχειρησιακό Πρόγραμμα  
Ανάπτυξη Ανθρώπινου Δυναμικού,  
Εκπαίδευση και Διά Βίου Μάθηση  
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης



Report of the Panel appointed by the HAHE to undertake the review of the Undergraduate Study Programme of **Chemistry** of the **University of Ioannina** for the purposes of granting accreditation

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## **PART A: BACKGROUND AND CONTEXT OF THE REVIEW**

### **I. The External Evaluation & Accreditation Panel**

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme of the **Chemistry** of the **University of Ioannina** comprised the following four (4) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Professor Georgios M. Kontogeorgis (Chair)**  
Technical University of Denmark (DTU), Denmark
- 2. Professor Emeritus Spyros Agathos**  
Université Catholique de Louvain, Belgium
- 3. Professor John Tsibouklis**  
University of Portsmouth, United Kingdom
- 4. Dr. Petros Sotiriou**  
Member of the Association of Greek Chemists, Greece

## II. Review Procedure and Documentation

Because of COVID-19 restrictions the review was conducted via teleconference (Zoom). It was organized and coordinated with HAHE with the help of the Department of Chemistry of the University of Ioannina. The schedule and agenda of the meetings were as follows:

Monday, May 24, 2021: Preliminary private meeting of the panel.

Tuesday, May 25, 2021: Consecutive meetings with the following agenda

- a) Welcome and short overview of the undergraduate program (UP) with the Rector, vice-Rector/President of MODIP and the Head of the Department.
- b) Discussion of degree compliance of the UP to the quality standards for accreditation with OMEA members and staff and MODIP representatives.
- c) Discussion with teaching staff members
- d) Discussion with current undergraduate students
- e) Private debriefing (panel members only)

Wednesday, May 26, 2021: Consecutive meetings with the following agenda

- a) Discussion with faculty, teaching, and staff members about facilities (classrooms, laboratories, etc.)
- b) Discussion with programme graduates
- c) Discussion with employers and social partners
- d) Discussion with the Directors of three of the Department's Sections
- e) Private debriefing (panel members only).
- f) Discussion with OMEA and MODIP representatives on points needing clarification.
- g) Informal presentation of the panel key findings to the vice-Rector, Head of Department, OMEA and MODIP.

Thursday, May 27, 2021: Private meeting of the panel for report writing.

Friday, May 28, 2021: Private meeting of the panel for report writing.

Saturday, May 29, 2021: Private meeting of the panel for report writing.

Sunday, May 30, 2021: Electronic (e-mail) communication between panel members to finalize report.

In preparation for the visit, the panel received a multitude of material that included background information on accreditation, detailed data related to the programme under evaluation, and operational and educational data. The panel was in close communication with IEG (OMEA) and QAU (MODIP) representatives who were very accommodating in providing additional information. The panel also found that IEG (OMEA) and QAU (MODIP) representatives as well as the faculty, students and staff interviewed were eager and helpful in providing all information requested by the panel.

### III. Study Programme Profile

The Department of Chemistry of the University of Ioannina was established in 1976 and since 1983 it is divided into four sections with the corresponding educational and research laboratories (Inorganic and Analytical Chemistry, Organic Chemistry and Biochemistry, Industrial Chemistry and Food Chemistry, Physical Chemistry).

The stated mission of the Department of Chemistry is to provide high-level education and research in Chemistry by attracting high-level students, providing high-level teaching and appropriate links between studies and work opportunities as well as enhancement of the interactions between studies and research. We have considered these statements as also standing for the programme's *educational objectives*. This mission statement is rather generic and could have been presented more clearly and with more specifics. The task of the panel was to evaluate the undergraduate educational programme (UG), but some comments relating to post-graduate education and research will be included, if appropriate.

The current faculty is comprised of 34 members, who are assisted in their academic and other activities by 14 "EDIP" members (laboratory teaching staff) and additional 7 staff members (technical and administration).

The Department offers an undergraduate programme in Chemistry (4 years, 240 ECTS) and it is involved in several post-graduate programmes, some stand-alone or as the lead and some in collaboration with other Departments from the University of Ioannina. To obtain the undergraduate degree, students must complete 45 courses, of which 36 are mandatory (195 ECTS) and the remaining (9 courses, 45 ECTS) are selected from a pool of 54 electives. The Department is committed to an extensive laboratory education: there are 13 mandatory laboratory classes (80 ECTS), and up to 5 that are associated with the electives. A mandatory Diploma Thesis (15 ECTS) is completed in the 8<sup>th</sup> semester. Students have the option to undertake a two-month industrial/practical internship.

The current student population of the Department is 1029 registered undergraduate students, 143 post-graduate students, 99 PhD students and 15 post-doctoral researchers. A substantial number of undergraduate students (36% in 2018/2019) has been enrolled for 6 or more years. Only *ca.* 34% of the 2535 historical graduates of the Department completed their studies within the four-year timescale. The Department has good infrastructure that includes well-equipped lecturing rooms (total capacity: 600 people; 750 m<sup>2</sup>) and laboratories (5200 m<sup>2</sup>).

## PART B: COMPLIANCE WITH THE PRINCIPLES

### Principle 1: Academic Unit Policy for Quality Assurance

**INSTITUTIONS SHOULD APPLY A QUALITY ASSURANCE POLICY AS PART OF THEIR STRATEGIC MANAGEMENT. THIS POLICY SHOULD EXPAND AND BE AIMED (WITH THE COLLABORATION OF EXTERNAL STAKEHOLDERS) AT ALL INSTITUTION'S AREAS OF ACTIVITY, AND PARTICULARLY AT THE FULFILMENT OF QUALITY REQUIREMENTS OF UNDERGRADUATE PROGRAMMES. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.**

*The quality assurance policy of the academic unit is in line with the Institutional policy on quality, and is included in a published statement that is implemented by all stakeholders. It focuses on the achievement of special objectives related to the quality assurance of study programmes offered by the academic unit.*

*The quality policy statement of the academic unit includes its commitment to implement a quality policy that will promote the academic profile and orientation of the programme, its purpose and field of study; it will realise the programme's strategic goals and it will determine the means and ways for attaining them; it will implement the appropriate quality procedures, aiming at the programme's continuous improvement.*

*In particular, in order to carry out this policy, the academic unit commits itself to put into practice quality procedures that will demonstrate:*

- a) the suitability of the structure and organization of the curriculum;*
- b) the pursuit of learning outcomes and qualifications in accordance with the European and the National Qualifications Framework for Higher Education;*
- c) the promotion of the quality and effectiveness of teaching;*
- d) the appropriateness of the qualifications of the teaching staff;*
- e) the enhancement of the quality and quantity of the research output among faculty members of the academic unit;*
- f) ways for linking teaching and research;*
- g) the level of demand for qualifications acquired by graduates, in the labour market;*
- h) the quality of support services such as the administrative services, the Library, and the student welfare office;*
- i) the conduct of an annual review and an internal audit of the quality assurance system of the undergraduate programme(s) offered, as well as the collaboration of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU).*

### Study Programme Compliance

The Department's mission is reflected in the structure and the expected outcomes of the undergraduate programme of studies. The programmes of study are fit for purpose.

Measurable and achievable goals are set, which are monitored against well-specified performance indicators (KPIs) and disseminated to stakeholders and the wider society.

Teaching effectiveness is assessed by regularly monitoring student progress and student satisfaction. The assessing panel concurred that faculty are motivated and care deeply about the student experience at the Department of Chemistry of the University of Ioannina. The heavily laboratory-based instruction is at the core of the undergraduate study programme of education.

There are some links between education and research, mostly at the Diploma Thesis stage. Similarly, there is a link between education and the workplace through placements, visits and other interactions.

The level of teaching, pastoral and administrative support available to the students is deemed highly satisfactory.

The panel finds that the Department has established a quality assurance policy that is fully compliant with the corresponding principle.

### Panel Judgement

<b>Principle 1: Academic Unit Policy for Quality Assurance</b>	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

To embed adherence to this Principle, the panel recommends the following actions:

- The practical training should either be made mandatory or be offered to all students who wish to participate in the experience.
- The interactions with alumni should be exploited as a potential means of informing the decision-making process as regards future direction.
- The panel recommends the adoption of formal quantifiable means for selecting the criteria that guide curriculum updates. These should reflect the mission statement of the Department and be aligned with clearly defined long-term goals and educational objectives.



## Principle 2: Design and Approval of Programmes

**INSTITUTIONS SHOULD DEVELOP THEIR UNDERGRADUATE PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE PROGRAMME. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES, THE INTENDED PROFESSIONAL QUALIFICATIONS AND THE WAYS TO ACHIEVE THEM ARE SET OUT IN THE PROGRAMME DESIGN. THE ABOVE DETAILS AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.**

*Academic units develop their programmes following a well-defined procedure. The academic profile and orientation of the programme, the objectives, the subject areas, the structure and organisation, the expected learning outcomes and the intended professional qualifications according to the National Qualifications Framework for Higher Education are described at this stage. The approval or revision process for programmes includes a check of compliance with the basic requirements described in the Standards, on behalf of the Institution's Quality Assurance Unit (QAU).*

*Furthermore, the programme design should take into consideration the following:*

- the Institutional strategy*
- the active participation of students*
- the experience of external stakeholders from the labour market*
- the smooth progression of students throughout the stages of the programme*
- the anticipated student workload according to the European Credit Transfer and Accumulation System*
- the option to provide work experience to the students*
- the linking of teaching and research*
- the relevant regulatory framework and the official procedure for the approval of the programme by the Institution*

### Study Programme Compliance

The programme has developed internal procedures for continuously assessing the effectiveness of the curriculum and teaching. The curriculum meets the internationally accepted standards. The Department prepares its graduates well and equips them with the pre-requisite skills for entering the workplace or postgraduate education.

The panel is of the opinion that input from beneficiaries and stakeholders is not solicited in a systematic way, which in turn impedes the evolution of the curriculum in concert with the latest pedagogical developments and trends in Chemistry.

The panel finds that the programme is substantially compliant with Principle 2.

## Panel Judgement

Principle 2: Design and Approval of Programmes	
Fully compliant	
Substantially compliant	<b>X</b>
Partially compliant	
Non-compliant	

## Panel Recommendations

To improve adherence to this principle, the panel recommends the following actions:

- Critical stakeholders (alumni, companies, graduate schools, and other organizations employing or training graduates) must be actively consulted as regards the evolution of the curriculum. The consultation process must be formal, systematic, and transparent, and with well-specified terms of reference and clear objectives. (All stakeholder representatives with whom the panel met expressed their strong support for the development of such interactions). The panel is of the opinion that stakeholder representation is a uniquely available but underutilized asset.
- An external advisory board (EAB) must be formed, consisting of selected stakeholder representatives with broad and extensive expertise, and given the remit to provide useful guidance to teaching, research and other activities, while also serving as ambassadors and external advocates for the department. The EAB should meet at least annually. Since members of faculty expressed the opinion that current Greek legislation does not permit the formal assembly of an EAB, the panel recommends an informal arrangement.
- It is recommended that renewal of the study programme is guided by both trends in chemistry education and by local needs, especially as regards the underdeveloped areas of the curriculum (quality assurance/quality control systems and legislation principles, big data, metabolomics and chemometrics). It is further recommended that modules on innovation, entrepreneurship, and commercialization are incorporated in the curriculum.
- Pre-requisites must be specified, where necessary, throughout the curriculum. The Department must ensure that all students follow a normal flow in their studies. The panel has been made aware that this is not the case for several students.

### Principle 3: Student-centred Learning, Teaching and Assessment

**INSTITUTIONS SHOULD ENSURE THAT THE UNDERGRADUATE PROGRAMMES ARE DELIVERED IN A WAY THAT ENCOURAGES STUDENTS TO TAKE AN ACTIVE ROLE IN CREATING THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.**

*Student-centred learning and teaching plays an important role in stimulating students' motivation, self-reflection and engagement in the learning process. The above entail continuous consideration of the programme's delivery and the assessment of the related outcomes.*

*The student-centred learning and teaching process*

- *respects and attends to the diversity of students and their needs, enabling flexible learning paths;*
- *considers and uses different modes of delivery, where appropriate;*
- *flexibly uses a variety of pedagogical methods;*
- *regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement;*
- *regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys;*
- *reinforces the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff;*
- *promotes mutual respect in the student - teacher relationship;*
- *applies appropriate procedures for dealing with students' complaints.*

*In addition :*

- *the academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field;*
- *the assessment criteria and methods are published in advance;*
- *the assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary is linked to advice on the learning process;*
- *student assessment is conducted by more than one examiner, where possible;*
- *the regulations for assessment take into account mitigating circumstances;*
- *assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures;*
- *a formal procedure for student appeals is in place.*

#### Study Programme Compliance

The undergraduate curriculum at the Department of Chemistry of the University of Ioannina encompasses a broad range of topics from the Chemical Sciences and cultivates a student-centred learning environment. Current students and recent graduates expressed their satisfaction with the quality of training that they have received. However, the panel offers the opinion that some traditional subjects could be consolidated to make room for topics of increasing importance in the modern-day application of chemical science (Computational Chemistry, Chemometrics, Metabolomics, Quality Assurance Standards and Regulatory Compliance).

Chemistry is arguably the central natural science and has connections to many other disciplines associated with today's global challenges, especially those relating to sustainability. Therefore, the curriculum should not only reflect these links, but appropriate mechanisms should be put in place to allow students to choose their orientation flexibly such that they can follow their preferred specialisation. Such flexibility is possible only in the fourth year (7<sup>th</sup> and 8<sup>th</sup> semester) of study, where students can choose from several electives, but there are no explicit specialisation paths. The students expressed their satisfaction with the quality and variety of the elective courses. The panel would like to encourage starting this scheme from the third year (5<sup>th</sup> or 6<sup>th</sup> semester) of study and the specialisation can be also mentioned in the Diploma Supplement.

The teaching methods are generally flexible, adaptable and multifaceted and there is a well-organized system of student access to textbooks and instructional material (EUDOXOS and KALLIPPOS) in addition to asynchronous learning *via* the e-class platform and to teleconferencing *via* MS Teams. Students and faculty members endured the difficult period of remote teaching/learning during the ongoing COVID-19 pandemic well, despite some mainly technical problems.

Students are well informed of the available choices through the very clearly written and updated Study Guide and are encouraged to follow a training close to their interests through a Diploma Thesis research project (compulsory, 15 ECTS) and Practical Training Internship (optional, 10 ECTS).

The panel is pleased to note that there is a mutually reinforced and interactive relationship between students and teaching faculty members. The student, under the constant supervision of the faculty member, actively participates, takes initiatives, acquires responsibility and develops critical spirit and the capacity for creative synthesis. Past and current students were enthusiastic about the education they received, and they declared strong bonds with their instructors and institution.

The panel notes that student surveys for course evaluation are carried out on a regular basis (once per semester) and in a transparent manner. There is a system of evaluation of each course in place, *via* questionnaires, which is used to inform amendments to the curriculum and other corrective actions. However, the participation of students in course evaluations is rather modest. Efforts must be made to increase student participation in the course evaluation process, which contributes to the continual improvement of courses and teaching.

The panel finds that the examination procedures are flexible and robust (multiple choice, short written answers, problem-solving exercises, auxiliary teaching, practical examination) and reflect well the learning outcomes of the course. Students are fairly categorised according to degree of engagement with the course. Especially notable is an online and real-time verification tool (SOCRATIVE) of learning outcomes. There is a formal appeal process in place for grades, which is clearly stated in the documentation although information received by the panel noted that the process is rarely used by students.

The panel notes that first year students are suitably welcomed to the activities of the Department by faculty members. Across all cohorts, students, academics and administration

staff have stressed the existence of mutually beneficial interactions that ensure effective support to student learning and cultivate a culture of mutual respect.

The possibility of student mobility via the Erasmus+ programme is commendable: more students should be encouraged to seek such placements. Similarly, Practical Training Internship should become available for all students who apply, by coordinating with more stakeholders from both the private and public sectors.

Faculty members should further encourage their students to participate at national and international talent competitions to enhance their confidence and global outlook.

Students with special needs are well looked after.

The role of the Academic Advisor needs to be communicated to the students more effectively.

The panel finds that the programme is substantially compliant with Principle 3.

### Panel Judgement

<b>Principle 3: Student- centred Learning, Teaching and Assessment</b>	
Fully compliant	
Substantially compliant	<b>X</b>
Partially compliant	
Non-compliant	

### Panel Recommendations

To further improve adherence to this Principle, the panel recommends the following actions:

- Continue to use flexible means of delivering learning targets by exploiting opportunities in asynchronous online learning, synchronous teaching in large as well as small groups, and flexible examination procedures.
- Create flexible curricula where cutting-edge topics such as Computational Chemistry, Chemometrics, Metabolomics, Quality Assurance and Regulatory Compliance are well represented.
- Informal specialisation currently possible in the fourth year (7<sup>th</sup> and 8<sup>th</sup> semesters) should start from the third year of study and should be implemented through relevant consolidation of existing subjects and introduction of new ones that reflect relevant specialisations, as indicated in the previous point.

- Specialisation should be implemented through undergraduate elective courses and postgraduate courses such as to reflect interfaces with Big Data/Informatics, Life Sciences and Engineering.
- Elective subjects should be introduced to prepare students for professional engagement with relevant industries (e.g., Generic Pharmaceuticals, Food and Beverage, Agri-business).
- The role of Academic Advisor should be enhanced: all students must be assigned to a member of academic staff (personal tutor) who will act as a mentor and provide guidance throughout the course of study. A formal procedure must be developed for the assessment of Academic Advisors by students.
- The curriculum must be enhanced to encourage entrepreneurship among the graduate population.
- The Department must evolve strategies towards increased student participation in course evaluations (for example, data collection during class hours or before an exam); each instructor must communicate the importance of participation in the evaluation process.
- In addition to formal courses, regular Departmental seminars (internal and external speakers) and perhaps one-day workshops would allow students to learn about new advances in their areas of study; journal clubs may be deployed for the same purpose.
- The workload of the first two years of study, where students are faced with both theoretical and laboratory courses, is rather heavy. Students with gaps in their basic knowledge (e.g. Mathematics and Physics) must be given the opportunity to catch up through directed private studies that are complemented by tutorial interventions. A review of the curriculum must be conducted, and appropriate changes must be made to balance the workload across all years of the programme.
- Incentives and support must be given to faculty members to learn and deploy new pedagogical approaches and methodologies aimed at improving the students' learning experience. Such courses should be made mandatory for all junior faculty. In parallel, it should be investigated whether such courses can be taken at other departments of the university or indeed at other universities.

## **Principle 4: Student Admission, Progression, Recognition and Certification**

**INSTITUTIONS SHOULD DEVELOP AND APPLY PUBLISHED REGULATIONS COVERING ALL ASPECTS AND PHASES OF STUDIES (ADMISSION, PROGRESSION, RECOGNITION AND CERTIFICATION).**

*Institutions and academic units need to put in place both processes and tools to collect, manage and act on information regarding student progression.*

*Procedures concerning the award and recognition of higher education degrees, the duration of studies, rules ensuring students progression, terms and conditions for student mobility should be based on the institutional study regulations. Appropriate recognition procedures rely on institutional practice for recognition of credits among various European academic departments and Institutions, in line with the principles of the Lisbon Recognition Convention.*

*Graduation represents the culmination of the students' study period. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed (Diploma Supplement).*

### **Study Programme Compliance**

The panel has noted that student progression is an item of major concern in the Chemistry Department. From the time the students are enrolled to the time of graduation, they are given through the Study Guide extensive descriptions of the courses of study and the requirements for successfully meeting the learning outcomes of each course. This information is publicised through the e-course platform and by other means. One recent addition to the procedures of student progress monitoring is the assignment of an Academic Advisor to each student entering Chemistry.

Students having graduated from Chemistry at the University of Ioannina and working abroad compare very favourably with their local colleagues, and in many cases their skills are more advanced. In general, the undergraduate Chemistry programme follows closely the Bologna Convention for award and recognition of higher degrees (based on ECTS) including the duration of studies, rules ensuring students' progression, and terms and conditions for student mobility. Graduates have full professional rights and recently, through the Certification of Oenology in their Diploma, they may choose to become qualified in the wine industry (analysis and quality assurance) fields. This is also the case for full professional rights in school teaching, through the Certification in Educational Adequacy.

The procedures for graduation are clearly spelled out in the Study Guide (Οδηγός Σπουδών), and the students obtain a Diploma Supplement (in both Greek and English) listing all courses attended and the grades achieved. In this context, it is worth noting that the Diploma Thesis written after the last year laboratory placement is compulsory and often extensive. The panel was impressed to learn that some of these theses are integral parts of scientific publications from the Department of Chemistry.

The time to graduation is still not adequately managed in terms of students falling behind (v+1, v+2, v+... years) but important strides have been made in the right direction over the last few years. In this respect, a more rigorous application of prerequisites would help in further reduce the number of stagnant students.

The panel noted the progressively higher average Diploma grade in each of the past few years.

The panel finds that the programme is fully compliant with Principle 4.

### Panel Judgement

<b>Principle 4: Student Admission, Progression, Recognition and Certification</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

To further improve adherence to this Principle, the panel recommends the following actions:

- The number of years a student can remain enrolled with no apparent progress should be limited. Continuation of this undesirable trend will ultimately be detrimental to the quality and reputation of the programme and devalue the degree award.
- More effort should be directed towards students struggling to complete their studies on time, especially since a significant fraction of the enrolled students fall in that category. In addition to a more decisive application of prerequisites wherever possible, proposed solutions should be sought within the current governance framework, e.g., by questionnaires and surveys aimed at enrolled students who are beyond their 4<sup>th</sup> year of studies. While perhaps time-consuming, this is a worthwhile process. This should be considered a point of priority, although the panel appreciates the significant associated institutional and political constraints.
- The programme should take advantage of social media, for example by creating an alumnus LinkedIn group for all graduates, in order to progressively build an extensive stakeholder database.
- Care should be taken so that the concept of Academic Advisor (counselling professor) does not operate on an ad-hoc basis consequent to the open-door policy of the School. Formal procedures should be established for conflict resolution and student support. (The open-



door policy helps in this respect, but it does not guarantee that all students utilize the afforded opportunities.)

- Mechanisms of co-supervision of Diploma Thesis research projects by faculty members from other Departments or Institutions should be established in order to encourage multidisciplinary study.

## Principle 5: Teaching Staff

**INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE QUALIFICATIONS AND COMPETENCE OF THE TEACHING STAFF. THEY SHOULD APPLY FAIR AND TRANSPARENT PROCESSES FOR THE RECRUITMENT AND DEVELOPMENT OF THE TEACHING STAFF.**

*The Institutions and their academic units have a major responsibility as to the standard of their teaching staff providing them with a supportive environment that promotes the advancement of their scientific work. In particular, the academic unit should:*

- *set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff and offer them conditions of employment that recognize the importance of teaching and research;*
- *offer opportunities and promote the professional development of the teaching staff;*
- *encourage scholarly activity to strengthen the link between education and research;*
- *encourage innovation in teaching methods and the use of new technologies;*
- *promote the increase of the volume and quality of the research output within the academic unit;*
- *follow quality assurance processes for all staff members (with respect to attendance requirements, performance, self-assessment, training etc.);*
- *develop policies to attract highly qualified academic staff.*

### Study Programme Compliance

The teaching staff is of high quality, enthusiastic and passionate about their teaching and constructive interaction with the students. The Department follows the standard legal process for the recruitment of new faculty, but the recruitment appears to be based primarily on programmatic teaching needs, rather than strategic considerations that include research directions. Research activities are monitored *via* Scopus while teaching excellence is assessed by means of student evaluations. Research productivity and teaching quality are comparable with those of similar departments, but further improvements are needed, especially as regards research productivity and fund-raising. Teaching load appears to be high, but the situation should improve with the impending new appointments. A rather small percentage of the teaching staff has been mobile by means of the Erasmus+ and related programmes.

There are some links between teaching and research in some of the courses and, especially, at the Diploma Thesis stage even though not all faculty are equally active in research. (The panel failed to uncover if the Department has identified any specific research areas for strategic growth.)

The teaching staff is evaluated by means of student surveys, but student participation is rather low. The evaluation results are communicated to the teaching staff sporadically and are rendered of little value by the lack of meaningful University comparators and benchmarks. The panel notes the absence of specific training in teaching innovation.

The panel finds that the programme is substantially compliant with Principle 5.

## Panel Judgement

Principle 5: Teaching Staff	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

## Panel Recommendations

To further improve adherence to this Principle, the panel recommends the following actions:

- The programme needs to be enriched by securing additional hires in emerging and/or much needed areas in Chemistry. These can be identified with the help of the proposed informal Advisory Board, following the crystallisation of the Department's mission statement.
- The programme would benefit by increasing recruitment outreach to candidates external to the Department. This will allow exposure to new ideas, increase cultural diversity and allow new approaches to teaching, research and organization.
- Teaching evaluations should be communicated to individual instructors in an organized and systematic way. Metrics to compare individual instructor performance to the average evaluations of the University for all key performance questions should be developed. The Department should make it clear to the student population that teaching evaluations are used to improve course delivery, instructor methods, and the curriculum, and that they are utilised to effect increased student participation.
- Annual faculty loads (namely percentage of effort in teaching, research and service) for faculty, both ΔΕΠ and ΕΔΙΠ, need to be explicitly articulated. Annual faculty performance should be collected via faculty input and be evaluated by faculty peer committees. A feedback loop between faculty load and assignments and faculty performance must be created to facilitate the pursuit of academic excellence.
- Actions that can lead to an increase in research funding should be considered. One way is to focus future hires on research-active faculty, including recruitment of experienced external faculty with an internationally competitive record of scientific achievements in chemistry. There is a need to establish a faculty mentoring process for younger faculty and for those who are deemed, by universally accepted performance indicators, to fall short of the expected standard of performance.
- The UoI research office (EAKE) should provide greater support to faculty members in their pursuit of competitive external research funding, especially as regards European projects.
- Develop ways that will allow professional development opportunities for faculty in terms of Sabbatical Leave and/or training in modern STEM pedagogy approaches and evolving best practices. Attendance of short courses/seminars in STEM pedagogy will be particularly useful to instructors with low teaching feedback scores. The rationalisation of course assignments would allow the establishment of a fair teaching load model for faculty.

- It would benefit the Department to establish the concept of joint faculty appointments, either within the University of Ioannina or with other Greek or even Foreign universities. Such appointments will bring an outside perspective that enriches the Department, should contribute to improved teaching practices and may generate joint research opportunities.

To alleviate faculty teaching load such that more time may be devoted to research, some of the teaching may be done by doctoral students and postdoctoral scientists. Invited lectures from high-level researchers from National Research Centers (FORTH, CERTH, Democritos, etc. ) would improve the scope for the initiation of joint research activities.

- Given the modest record in research output by some of faculty members, the panel recommends the establishment of a small group of external scientists, prominent in relevant fields of Chemistry, to serve as mentors and evaluators of the research performance of the Department on an annual basis.

## Principle 6: Learning Resources and Student Support

**INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER TEACHING AND LEARNING NEEDS. THEY SHOULD –ON THE ONE HAND– PROVIDE SATISFACTORY INFRASTRUCTURE AND SERVICES FOR LEARNING AND STUDENT SUPPORT AND –ON THE OTHER HAND– FACILITATE DIRECT ACCESS TO THEM BY ESTABLISHING INTERNAL RULES TO THIS END (E.G. LECTURE ROOMS, LABORATORIES, LIBRARIES, NETWORKS, BOARDING, CAREER AND SOCIAL POLICY SERVICES ETC.).**

*Institutions and their academic units must have sufficient funding and means to support learning and academic activity in general, so that they can offer to students the best possible level of studies. The above means could include facilities such as libraries, study rooms, educational and scientific equipment, information and communications services, support or counselling services.*

*When allocating the available resources, the needs of all students must be taken into consideration (e.g. whether they are full-time or part-time students, employed or international students, students with disabilities) and the shift towards student-centred learning and the adoption of flexible modes of learning and teaching. Support activities and facilities may be organised in various ways, depending on the institutional context. However, the internal quality assurance ensures that all resources are appropriate, adequate, and accessible, and that students are informed about the services available to them.*

*In delivering support services the role of support and administrative staff is crucial and therefore they need to be qualified and have opportunities to develop their competences.*

### Study Programme Compliance

Despite severe budget cuts and the extensive time demands of the many laboratory classes, the Department of Chemistry has adequate funding to support learning and teaching activities that cover the academic needs of its students. Some of the expenses of the laboratory courses are covered from research projects or via other means e.g. help from the university through the budget of its Special Fund for Research (ΕΛΚΕ). The Department has appropriately qualified and trained faculty to deliver all aspects of the curriculum and there are sufficient members of Faculty and ΕΔΙΠ available for teaching and for the supporting laboratories but lacks dedicated laboratory technicians (ΕΤΕΠ) – an acute need where major expensive and fragile instruments are concerned. Adequate classroom and laboratory space are in place. A range of support services, like libraries, dormitories, career counselling, student welfare office, sport and cultural facilities etc. are provided centrally by the University of Ioannina.

The Department's infrastructure is very good and occasionally commendable, for example the nuclear magnetic resonance (NMR) and X-ray diffraction analysis (XRD) and other facilities, are comparable with those of larger institutions.

The panel recognizes that substantial funding pressures exist, which limit the Department's capability to properly maintain its laboratories and equipment.

The panel noted the lack of clearly established emergency response procedures/training and emergency drill for the Chemistry building; a responsibility that rests not only with the departmental but also with the university.

The panel finds that overall the programme is substantially compliant with Principle 6.

### Panel Judgement

<b>Principle 6: Learning Resources and Student Support</b>	
Fully compliant	
Substantially compliant	<b>X</b>
Partially compliant	
Non-compliant	

### Panel Recommendations

To further enhance adherence to this Principle, the panel recommends the following actions:

- The Department should actively pursue funds to maintain and upgrade its facilities. This can be done, for example, by further increasing the services provided to industry and other sectors based on several of the Department's advanced equipment.
- The panel recommends that more technical personnel are hired as this is absolutely necessary for a Department having so many laboratory courses and experimental activities.
- Budget permitting, the Department, perhaps through the University of Ioannina, should pursue the creation of a *Maker Space*<sup>1</sup> providing students with a significant hands-on venue for exploring their creativity. This may be co-ordinated with other relevant departments e.g. Materials Science and Engineering and Biological Applications and Technology.
- The Department must place a higher priority on instituting a comprehensive system of health and safety. Central to this are regular training seminars and drills and the appointment of a dedicated safety officer from its pool of laboratory teaching and technical personnel.

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<sup>1</sup> <http://www.makerspaceforeducation.com/makerspace.html>

## Principle 7: Information Management

**INSTITUTIONS BEAR FULL RESPONSIBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF UNDERGRADUATE PROGRAMMES OF STUDY AND RELATED ACTIVITIES, IN AN INTEGRATED, EFFECTIVE AND EASILY ACCESSIBLE WAY.**

*Institutions are expected to establish and operate an information system for the management and monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students as well as to the academic community.*

*Reliable data is essential for accurate information and for decision making, as well as for identifying areas of smooth operation and areas for improvement. Effective procedures for collecting and analysing information on study programmes and other activities feed data into the internal system of quality assurance.*

*The information gathered depends, to some extent, on the type and mission of the Institution. The following are of interest:*

- *key performance indicators*
- *student population profile*
- *student progression, success and drop-out rates*
- *student satisfaction with their programme(s)*
- *availability of learning resources and student support*
- *career paths of graduates*

*A number of methods may be used for collecting information. It is important that students and staff are involved in providing and analyzing information and planning follow-up activities.*

### Study Programme Compliance

In the University of Ioannina and under the current legislative framework, MODIP is the central Unit of the University, which sets and disseminates the procedures for the internal and external evaluation of the Academic Departments and of the entire University.

The Department of Chemistry (OMEA) has developed a satisfactory information management system for its current students. Suitable KPIs have been established, and there is clear availability of learning resources (mostly through the infrastructure of MODIP), as well as student support both formally and informally. Student progression, success, and stagnation rates are monitored.

The Department has excellent collaborations with some of its alumni that include both joint research and educational activities; this is praiseworthy. The career paths of graduates are not monitored systematically; although the panel does understand the complicated nature of such a task, initiatives should be considered towards the collection of relevant data.

The panel finds that overall the programme fully complies with Principle 7.

## Panel Judgement

Principle 7: Information Management	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

## Panel Recommendations

To further enhance adherence to this principle, the panel recommends the following actions:

- The Department must establish a transparent way by which the student evaluations are included in the annual faculty assessment, e.g., *via* the existing Education/Study Programme Committee. The data should be readily available to relevant faculty peer committees and other stakeholders.
- To motivate increased survey participation, students must be made aware of the importance of the contribution of the evaluation process to the progressive improvement of all modes of delivery of the programme of study.
- A clear strategy related to the flow of information must be developed and implemented. The panel was not clear where the raw data resides, who has access to it, who analyses it, who interprets the analysis, and whether the analysis is communicated or indeed utilized by faculty to the benefit of the programme of study.
- The career paths of graduates are not monitored systematically. A dedicated alumni portal may be developed to promote post-graduation interactions. This community may contribute to the Department's financial support and could facilitate important networking interactions among graduates.



## Principle 8: Public Information

**INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES WHICH IS CLEAR, ACCURATE, OBJECTIVE, UP-TO-DATE AND READILY ACCESSIBLE.**

*Information on Institution's activities is useful for prospective and current students, graduates, other stakeholders and the public.*

*Therefore, institutions and their academic units provide information about their activities, including the programmes they offer, the intended learning outcomes, the qualifications awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students, as well as graduate employment information.*

### Study Programme Compliance

The Department has developed a website (currently only in Greek) that contains all information regarding its educational and research activities. The information is well categorized and easily accessible. Pertinent student-related information is available (study program, classes, news and events).

The presentation of information on faculty members' CVs including key indicators (citations, grants, etc.) is not consistently informative. In addition, not all faculty members have a Google Scholar profile, nor do they present an ORCID ID.

The lack of a website in English inhibits international collaboration and discourages interactions with students from abroad (e.g. via Erasmus+) as evident also from the statistics provided.

The Department has an extensive network of external stakeholders, some of whom are actively involved in its activities. All the stakeholders with whom the panel interacted expressed their willingness to help the Department achieve its goals.

The panel notes the range of extra-curricular activities and the extent of student participation in competitions, events and their engagement with opportunities to disseminate practices and innovation in chemistry related topics.

The panel finds that overall the programme is fully compliant with Principle 8.

### Panel Judgement

Principle 8: Public Information	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

## **Panel Recommendations**

To increase adherence to this principle, the panel recommends the following additional actions:

- The Department should translate its web-site into English. This is a matter of some urgency.
- The Department should consider a more active communication strategy with students, alumni and other stakeholders, for example by issuing periodic newsletters detailing initiatives, awards, success stories, etc.
- It is recommended that all faculty members set up a Google Scholar profile and present their ORCID ID. In addition, standardised CVs should be posted on relevant social media platforms.
- A dedicated site must be developed for alumni that presents strategic initiatives and success stories and includes opportunities for visits and engagement.

## **Principle 9: On-going Monitoring and Periodic Internal Review of Programmes**

**INSTITUTIONS SHOULD HAVE IN PLACE AN INTERNAL QUALITY ASSURANCE SYSTEM FOR THE AUDIT AND ANNUAL INTERNAL REVIEW OF THEIR PROGRAMMES, SO AS TO ACHIEVE THE OBJECTIVES SET FOR THEM, THROUGH MONITORING AND AMENDMENTS, WITH A VIEW TO CONTINUOUS IMPROVEMENT. ANY ACTIONS TAKEN IN THE ABOVE CONTEXT SHOULD BE COMMUNICATED TO ALL PARTIES CONCERNED.**

*Regular monitoring, review and revision of study programmes aim to maintain the level of educational provision and to create a supportive and effective learning environment for students.*

*The above comprise the evaluation of:*

- *the content of the programme in the light of the latest research in the given discipline, thus ensuring that the programme is up to date;*
- *the changing needs of society;*
- *the students' workload, progression and completion;*
- *the effectiveness of the procedures for the assessment of students;*
- *the students' expectations, needs and satisfaction in relation to the programme;*
- *the learning environment, support services and their fitness for purpose for the programme*

*Programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the programme is adapted to ensure that it is up-to-date. Revised programme specifications are published.*

### **Study Programme Compliance**

The Department has established an Internal Evaluation Committee, named OMEA, that is composed of 4 faculty members and is supervised by the Department Chair. Its function is to collect and analyse all data from the undergraduate programme.

The Department has an Undergraduate Curriculum Committee (named ΕΠΣ) that oversees the undergraduate programme, ensures its smooth operation and makes recommendations for improvements. Recommendations include updates of the curriculum and take into account revisions at relevant European universities and latest developments in the chemical sciences and associated technologies. Revisions address issues related to student needs, student expectations and social changes.

The undergraduate programme is evaluated on an annual basis, both by OMEA and the Undergraduate Curriculum Committee, in order to improve its overall operation and achieve the Departmental goals.

It appears that extensive internal reviews are conducted annually to evaluate teaching, research and service activities. Annual reviews help to identify areas of strength and weakness, but progress towards improvements is slow. Even though systematic external feedback is not solicited, these reviews reflect extensive internal deliberations and careful appraisal of current directions and events.

The panel finds that overall the programme is fully compliant with Principle 9.

## Panel Judgement

<b>Principle 9: On-going Monitoring and Periodic Internal Review of Programmes</b>	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

## Panel Recommendations

To embed adherence to this Principle, the panel recommends the following additional actions:

- The programme must proactively solicit input from key stakeholders, including an Advisory Board, which will enable the implementation of innovative approaches and changes that will improve student experience.
- The panel is of the opinion that establishing an External Advisory Board with selected members from the pool of alumni, local industry, other stakeholders and the wider scientific community, will be beneficial to the Department and have a societal impact.
- The action plan should be communicated annually *via* the Department's website to all stakeholders and be accessible by the public.
- The Department should engage students, alumni and industry in discussions for the formulation of all its strategic objectives. The panel recommends that the students are encouraged to participate in this process.

## Principle 10: Regular External Evaluation of Undergraduate Programmes

**PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY COMMITTEES OF EXTERNAL EXPERTS SET BY HAHE, AIMING AT ACCREDITATION. THE TERM OF VALIDITY OF THE ACCREDITATION IS DETERMINED BY HAHE.**

*HAHE is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HAHE grants accreditation of programmes, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the template's requirements, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees.*

*Both academic units and institutions participate in the regular external quality assurance process, while respecting the requirements of the legislative framework in which they operate.*

*The quality assurance, in this case the accreditation, is an on-going process that does not end with the external feedback, or report or its follow-up process within the Institution. Therefore, Institutions and their academic units ensure that the progress made since the last external quality assurance activity is taken into consideration when preparing for the next one.*

### Study Programme Compliance

This is the first external accreditation of the programme. The process was conducted in an exemplary fashion at all stages, from the ready availability of the relevant material to the interview processes. Even under the COVID-19 constraints, the panel was given the opportunity to interview in depth and was provided with every assistance that it requested.

The Chemistry Department has provided detailed responses to the recommendations emanating from the external evaluation that took place in September 2011 and presented all actions taken in response to the recommendations of that evaluation.

The panel finds that the programme is fully compliant with Principle 10.

### Panel Judgement

<b>Principle 10: Regular External Evaluation of Undergraduate Programmes</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

## Panel Recommendations

To embed adherence to this principle, the panel recommends the following additional actions:

- The panel expresses the opinion that external accreditation is integral to the mechanisms that will inform future developments in chemical education in Greece. Given that this is a process uniformly applied to all Chemistry programmes in Greece, the panel strongly recommends that all related programmes from all Greek universities engage in an open and active coordination of their activities for the purpose of improving Chemistry education across the country.
- The panel recommends that Chemistry departments be asked to provide a list of peer institutions against which their performance may be meaningfully compared. Also, the panel recommends that an experience-sharing event involving European Chemistry Departments take place, such that ideas are exchanged, and best practices are identified, developed and implemented for the common good.
- Through consultation with industry and alumni, the undergraduate curriculum should be made flexible and adaptable such that it accommodates the evolution of new technologies and the implementation of progressively higher standards.

## **PART C: CONCLUSIONS**

### **I. Features of Good Practice**

The Department of Chemistry of the University of Ioannina is very strong in teaching. Faculty is enthusiastic and dedicated to their mission, which is to provide excellent education in Chemistry with special emphasis on experimental skills. The teaching facilities, including the laboratories, are excellent and the proximity of the Department to expanding industries (e.g. in the pharma and food sectors) is an additional asset. The students are happy with their studies and the enthusiasm of the current students, alumni, and employers was evident during meetings with the panel. Evidence was presented by faculty, employers and social partners that programme graduates pursue successful careers in academia, the public sector and industry in Greece and abroad.

Following its previous external evaluation, the Department must be praised for the steps that it took towards improving the undergraduate programme.

The programme has implemented compliant mechanisms for monitoring and ensuring high quality of work and services. The quality assurance policy aims to align practices with the strategic objectives that the Department has set.

The panel acknowledges the amount of work that went into collecting and analysing the material, preparing a substantial volume of documents and organizing the visit. This indicates that the Department of Chemistry at the University of Ioannina welcomes the process, is open to suggestions and to constructive criticism and is committed to striving for excellence.

### **II. Areas of Weakness**

The panel identified some areas that require special attention:

- The programme needs to engage its stakeholders (current students, alumni, employers and social partners) actively, systematically and formally. The Department and its faculty make extensive efforts towards the improvement of the undergraduate curriculum, but these improvements lack critical input and feedback from non-departmental stakeholders. It is important that the Department adopts an outward-looking stance. The panel has received feedback indicating that the Department's stakeholders will be more than willing to participate in this effort.
- The process to analyse and translate the findings of assessments into curriculum improvements should be transparent and systematic and engage not only faculty but also the students. Increased student participation in the evaluation of the courses is integral to the long-term success of the Department.
- The undergraduate programme, while providing an overall very good education in Chemistry, lacks flexibility and does not offer the option for the students to take courses

from other departments, to attend special courses or to specialize in areas of personal interest.

- The heavy faculty workloads limit growth opportunities and may have impacted negatively upon the research output and fundraising efforts of the Department, both of which must be improved.
- The Department has not articulated its mid-term and long-term objectives, nor has it presented its strategic vision for growth in a rapidly changing world.

The panel recognizes that certain actions may be beyond the control of the Department, but several steps are within its means and could be implemented at no financial cost. The panel acknowledges the several changes the Department has implemented following its previous external review, which is taken as evidence of the willingness to embrace a culture of change towards progressive improvements.

### **III. Recommendations for Follow-up Actions**

The panel applauds the Department for having implemented several policies aimed at improving the delivery of the programme. During the panel meetings, it became apparent that there are several limitations imposed by forces beyond the Department's control, and that the capacity to implement innovative solutions is often impeded by the same forces. Recognizing these constraints, the panel limits its recommendations to steps that could be implemented within the current context.

- The panel recommends that the programme establishes an External Advisory Board (EAB) consisting of industry and academic representatives. This does not need to be a formal entity if the current framework of operation does not permit its establishment. The employers and social partners that interacted with the panel offered praise to the Department and noted their willingness to engage with such an initiative. The EAB work may be complemented by relevant market analysis and through consultations with alumni and the Association of Greek Chemists.
- An additional strategy towards the same goal may be for the Department to seek accreditation of its undergraduate degree pathway from an international body, such as The Royal Society of Chemistry (this strategy has been deployed successfully by some Greek University departments, e.g. Patras ChemEng.). It is the opinion of panel members that the Chemistry pathway at Ioannina is capable of meeting the expected standard for Bachelor's level qualifications and could easily reach Master's level accreditation, if strategically desirable.
- The panel recommends that the Department implements steps aimed at increasing flexibility in the curriculum. For example, introducing the "special course" concept where students can investigate in depth a topic of personal interest (perhaps in preparation for the Diploma Thesis), open up the possibility to take elective courses from other Departments (to a limited degree, e.g. 5-10 ECTS). Similar benefits may be obtained by engaging alumni/employers as guest



lecturers and by implementing the study of new topics, such as Chemometrics, Computational Chemistry, Quality Assurance and Quality Control Systems, Big Data and Metabolomics, among others. The cultivation of transferable skills (presentation, entrepreneurship, etc.) in students is integral to their future professional development.

- The panel recommends that systematic and rigorous feedback mechanisms be implemented towards the assessment and evaluation of teaching effectiveness and to identify corrective actions. The current approaches appear rather *ad hoc* and do not follow a holistic view of the curriculum, but rather address temporary and course- or instructor-specific needs. It is recommended that a peer committee assesses the programme outputs and that the findings are communicated to all faculty members. The results of these evaluations must be utilized systematically for the continuous improvement of the programme.
- Given the potential of faculty and their demonstrated passion for teaching, such frameworks would improve student experience.
- The panel recommends that the appraisal of the teaching and research contributions of members of faculty are conducted in a way that results in specific actions that improve weak performance and reward excellence. Faculty are not expected to excel in both teaching and research but acknowledged for contributions to either both categories. To this effect, the panel encourages further interaction with other Departments and complementary research institutes in Greece, including short research visits and participation in teaching / seminars, etc.
- The panel recommends that the Department organises annual “retreats”. These need not be formal events and could be of short duration (one or two days). The events may be facilitated by an independent/external leader and may be used to identify deliverables, consider strategic planning and specify means for achieving the departmental goals. During these retreats, faculty would have the opportunity to assess data related to the teaching and research activities and formulate plans of action.

In the first of those “retreats”, the panel recommends that the Department:

- a. Identifies their vision and produces a department-relevant mission statement that specifies the hallmarks of the Ioannina Chemistry graduate
  - b. Investigates ways to increase research funding and quality of output
  - c. Considers if the barriers created by traditional divisions in the discipline of Chemistry serve the mission and vision of the Department. For example, the Department may wish to adopt a Pharmaceutical Chemistry Theme under which aspects of computational, organic, inorganic, analytical, and physical chemistry, and formulation science come together under the umbrella of each of a few named therapeutic molecules. Similar themes may be created readily in the areas of Environmental Chemistry and Food Chemistry.
- The panel recommends that the Department advertises new faculty positions globally and that it strongly welcomes applications from outside the Department’s own staff/previous students, with a view to attracting new Faculty with the capacity to obtain starting ERC-level

funding and to expand the participation of the Department at Horizon Europe research grant applications and consortia (e.g., COST actions).

- It is strongly recommended that the Department intensifies efforts towards increasing its income. Given the severe budgetary constraints within which the Department operates, innovative approaches must be developed to augment and diversify revenue streams. These include, but are not limited, to exploring its human resources and equipment to perform contract work.

#### IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **1, 4, 7, 8, 9, and 10.**

The Principles where substantial compliance has been achieved are: **2, 3, 5, and 6.**

The Principles where partial compliance has been achieved are: **None.**

The Principles where failure of compliance was identified are: **None.**

Overall Judgement	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

## The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

- 1. Professor Georgios M. Kontogeorgis (Chair)**  
Technical University of Denmark (DTU), Denmark
- 2. Professor Emeritus Spyros Agathos**  
Université Catholique de Louvain, Belgium
- 3. Professor John Tsibouklis**  
University of Portsmouth, United Kingdom
- 4. Dr. Petros Sotiriou**  
Member of the Association of Greek Chemists, Greece