



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
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Accreditation Report for the Postgraduate Study Programme of:

Algorithms, Logic and Discrete Mathematics

**Department: Informatics and Telecommunications
Institution: National and Kapodistrian University of Athens**

Date: 15 September 2023



Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο

Επιχειρησιακό Πρόγραμμα
Ανάπτυξη Ανθρώπινου Δυναμικού,
Εκπαίδευση και Διά Βίου Μάθηση

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης



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Report of the Panel appointed by the HAHE to undertake the review of the Postgraduate Study Programme of **Algorithms, Logic, and Discrete Mathematics** of the **National and Kapodistrian University of Athens** 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 postgraduate study programme of **Algorithms, Logic, and Discrete Mathematics** of the **National and Kapodistrian University of Athens** comprised the following four (4) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Dr. Sotiris Skevoulis (Chair)**
Pace University, New York City, USA

- 2. Mr. George Kolipetris**
Postgraduate Student, Department of Electrical & Computer Engineering, Xanthi, Greece

- 3. Prof. Emeritus Panos Papamichalis**
Southern Methodist University, Dallas, USA

- 4. Prof. Emeritus Nicolas Spyratos**
Université Paris-Saclay, Paris, France

II. Review Procedure and Documentation

The External Evaluation & Accreditation Panel (EEAP) was formed in late August 2023 and received the accreditation support material concerning the Postgraduate Study Programmes (henceforth PSPs) in Algorithms, Logic, and Discrete Mathematics (ALMA) as well as in Secure Telecommunications and Network Systems, on Friday September 1st and the online visit to the Programmes began on the following Monday, September 4th. As a result, there was very little time to look into the support material before the beginning of the visit, and most of the analysis of the relevant information had to be made during the visit.

The quality of the support material was excellent. All documents (i.e. Student Guides, the Accreditation Proposals or the Courses Descriptions, etc.) were very well crafted and designed. Some documents with statistical treatment (for instance, Students' Evaluations) were partially incomplete as the Panel will explain later in this report. Despite this, during the visit, all the participants involved (MODIP, Teaching and Administrative staff) were very prompt to provide us with all the information asked for. All the meetings were conducted online utilising WebEx from Monday Sept. 4th to Wednesday Sept. 6th in a very friendly and cooperative spirit. The meetings during the visit were scheduled as follows:

At the welcome meeting, the EEAP met with the Directors of the two PSP, the Head of the Department, MODIP, Steering Committees/ OMEA members to discuss the compliance of the PSP to the Quality Standards for Accreditation. At the same time, the department provided us with access to a video to have a visual representation of the buildings, grounds, and library. After the end of this meeting, the EEAP members met in a separate zoom meeting to discuss and reflect on their first impressions and prepare for the next day.

The following day, Sept. 5th, at 15:00 the Panel started a sequence of online meeting that lasted until 19:30. The teleconferences started with the teaching staff members of the PSP, followed by students, graduates and ended with employers/social partners. The following day, Sept. 6th, EEAP had its last follow-up meeting with the OMEA and MODIP representatives during which additional comments and clarifications were brought up. The EEAP gave a short preliminary verbal report about their impressions and findings of the virtual visit. The EEAP thanked everyone for their participation, cooperation, and virtual hospitality.

III. Postgraduate Study Programme Profile

ALMA is the only one in Greece that offers specialization in Mathematical Logic, Discrete Mathematics and Algorithms. This PSP is co-organized by the department of Informatics and Telecommunications and the department of Mathematics, of the National and Kapodistrian University of Athens, together with the school of Electrical and Computer Engineering, and the school of Applied Mathematical and Physical Sciences, of the National Technical University of Athens. The purpose of ALMA is to equip its students with a broad and deep background in diverse topics of Theoretical Computer Science, with special emphasis on the following three research areas:

- Algorithms and Computational Complexity.
- Mathematical and Computational Logic.
- Discrete Mathematics.

The duration of the program is three (3) academic terms. It offers one core course (Algorithms), several elective-required courses, elective courses as well as seminar and study courses for 90 ECTS in total. Finally, the PSP provides a unique and high-quality environment for teaching and conducting research (labs, classrooms, library, etc.).

PART B: COMPLIANCE WITH THE PRINCIPLES

PRINCIPLE 1: QUALITY ASSURANCE POLICY AND QUALITY GOAL SETTING FOR THE POSTGRADUATE STUDY PROGRAMMES OF THE INSTITUTION AND THE ACADEMIC UNIT

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 THE POSTGRADUATE STUDY PROGRAMMES OF THE INSTITUTION AND THE ACADEMIC UNIT. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.

The quality assurance policy of the academic unit should be in line with the quality assurance policy of the Institution and must be formulated in the form of a public statement, which is implemented by all stakeholders. It focuses on the achievement of special goals related to the quality assurance of the study programmes offered by the academic unit.

Indicatively, 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 postgraduate study programme (PSP), its purpose and field of study; it will realise the programme's goals and it will determine the means and ways for attaining them; it will implement appropriate quality procedures, aiming at the programme's improvement.

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

- a) the suitability of the structure and organisation of postgraduate study programmes*
- b) the pursuit of learning outcomes and qualifications in accordance with the European and National Qualifications Framework for Higher Education - level 7*
- c) the promotion of the quality and effectiveness of teaching at the PSP*
- d) the appropriateness of the qualifications of the teaching staff for the PSP*
- e) the drafting, implementation, and review of specific annual quality goals for the improvement of the PSP*
- f) the level of demand for the graduates' qualifications in the labour market*
- g) the quality of support services, such as the administrative services, the libraries and the student welfare office for the PSP*
- h) the efficient utilisation of the financial resources of the PSP that may be drawn from tuition fees*
- i) the conduct of an annual review and audit of the quality assurance system of the PSP through the cooperation of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU)*

Documentation

- *Quality Assurance Policy of the PSP*
- *Quality goal setting of the PSP*

Study Programme Compliance

I. Findings

ALMA applies a Quality Assurance System which is in line with European Quality Standards and with the Quality Policies of the National and Kapodistrian University of Athens IQAS), an institution which has extensive and accredited experience in

this field. The implementation of this system is undertaken by the Internal Quality Unit of the Department (OMEA), which works in close cooperation with the Quality Assurance Unit of the University (MODIP).

ALMA is fortunate to have high quality faculty members that disseminate the difficult theoretical concepts to their students. From the meeting with the students it became apparent that the programme also offers high quality student support services.

ALMA is evaluated internally every year. The results of the assessment are analysed in terms of weaknesses and strengths, and improvement actions and measurable, achievable, and timely quality goals are proposed. However, this documentation (general guidelines of Quality Policy, internal progress report, quality goals) is not communicated and published on the ALMA website. It must be noted that, the English version of the “Quality Policy” tab on website leads to the Greek version.

II. Analysis

Regarding financial resources, it should be emphasised that ALMA has no tuition fees and is only financed by public funds. An efficient use is made of them; the vast majority are intended to improve bibliographic and research resources. The overall goal of the Programme is to equip its students with a broad and deep background in diverse topics of Theoretical Computer Science, with special emphasis on the three fundamental scientific areas of Theoretical Computer Science: Algorithms, Logic and Discrete Mathematics. In this respect, the ALMA’s learning outcomes more than meet the requirements of level 7 according to the European and National Qualifications Framework for Higher Education in terms of knowledge, skills, and abilities. First and foremost, the ALMA is a theoretical and research-oriented Programme, which presents a successful balance between the most important areas of theoretical computer science. Upon graduation from ALMA, a considerable part of students is ready to enrol in doctoral programmes.

III. Conclusions

In the opinion of the EEAP, the academic unit demonstrates a commitment towards Quality Assurance Policy implementation and towards nonstop improvement of ALMA on its published policy. The Academic Unit works to promote continuous improvement regarding objectives, expected learning outcomes, appropriateness of the qualifications of the teaching staff and the infrastructure and resources. However, EEAP has identified some technical and methodological drawbacks with the statistical processing of the collected data. Those are further explained and elaborated in Principle 9.

Panel Judgement

Principle 1: Quality assurance policy and quality goal setting for the postgraduate study programmes of the institution and the academic unit	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Undertake a more meticulous collection of data and statistics on the profile of incoming students and their study progression. It would also be positive to track the careers of graduates of the Programme more systematically.
- Encourage greater student involvement in the evaluation processes, specifically in completing the satisfaction questionnaires (cf. remarks in Principle 9).

PRINCIPLE 2: DESIGN AND APPROVAL OF POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS SHOULD DEVELOP THEIR POSTGRADUATE STUDY PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE POSTGRADUATE STUDY PROGRAMMES. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES AND THE EMPLOYMENT PROSPECTS ARE SET OUT IN THE PROGRAMME DESIGN. DURING THE IMPLEMENTATION OF THE POSTGRADUATE STUDY PROGRAMMES, THE DEGREE OF ACHIEVEMENT OF THE LEARNING OUTCOMES SHOULD BE ASSESSED. THE ABOVE DETAILS, AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.

The academic units develop their postgraduate study programmes following a well-defined procedure. The academic profile and orientation of the programme, the research character, the scientific objectives, the specific subject areas, and specialisations are described at this stage.

The structure, content and organisation of courses and teaching methods should be oriented towards deepening knowledge and acquiring the corresponding skills to apply the said knowledge (e.g. course on research methodology, participation in research projects, thesis with a research component).

The expected learning outcomes must be determined based on the European and National Qualifications Framework (EQF, NQF), and the Dublin Descriptors for level 7. During the implementation of the programme, the degree of achievement of the expected learning outcomes and the feedback of the learning process must be assessed with the appropriate tools. For each learning outcome that is designed and made public, it is necessary that its evaluation criteria are also designed and made public.

In addition, the design of PSP must consider:

- *the Institutional strategy*
- *the active involvement of students*
- *the experience of external stakeholders from the labour market*
- *the anticipated student workload according to the European Credit Transfer and Accumulation System (ECTS) for level 7*
- *the option of providing work experience to students*
- *the linking of teaching and research*
- *the relevant regulatory framework and the official procedure for the approval of the PSP by the Institution*

The procedure of approval or revision of the programmes provides for the verification of compliance with the basic requirements of the Standards by the Institution's Quality Assurance Unit (QAU).

Documentation

- *Senate decision for the establishment of the PSP*
- *PSP curriculum structure: courses, course categories, ECTS awarded, expected learning outcomes according to the EQF, internship, mobility opportunities*
- *Labour market data regarding the employment of graduates, international experience in a relevant scientific field*
- *PSP Student Guide*
- *Course and thesis outlines*
- *Teaching staff (name list including of areas of specialisation, its relation to the courses taught, employment relationship, and teaching assignment in hours as well as other teaching commitments in hours)*

Study Programme Compliance

I. Findings

ALMA is a graduate program co-organized by the department of Informatics and Telecommunications and the department of Mathematics, of the National and Kapodistrian University of Athens (NKUA), together with the school of Electrical and Computer Engineering, and the school of Applied Mathematical and Physical Sciences, of the National Technical University of Athens (NTUA). It is designed to lead to a Master's degree in the areas of Algorithms, Logic, and Discrete Mathematics. It is to be noted that NKUA and NTUA are among the top universities of the country. The students of ALMA pay no fees.

The main goal of ALMA is to equip its students with a broad and deep background in diverse topics of Theoretical Computer Science, with special emphasis on the following three research areas:

- *Algorithms and Computational Complexity.*
- *Mathematical and Computational Logic.*
- *Discrete Mathematics.*

These are indeed among the main pillars of modern theoretical computer science. The programme is coordinated by the department of Informatics and Telecommunication of NKUA.

The academic profile and orientation of the programme, the scientific objectives, the structure, content and organisation of courses and their expected learning outcomes are clearly defined and published at the website of the programme.

Faculty comes mainly from NKUA and NTUA while external instructors are selected following a set of selection criteria. The Dean's office offers 1600 euros per year per faculty for attending conferences. Each member of the faculty can have one semester leave every 3 years, or one year leave every 6 years.

The procedure of approval or revision of the programmes provides for the verification of compliance with the basic requirements of the Standards by the Institution's Quality Assurance Unit.

NKUA has established a Quality Assurance Unit, MODIP, for all the entities within the university. MODIP follows the Quality Assurance Internal System, ESDP (Greek acronym), to derive assessment for the different activities it monitors. Part of that task is the periodic internal evaluation of the Study Programs, such as ALMA. MODIP examines the content of the Study Program, course load and student progress towards graduation, student satisfaction with offered services, etc.

For such assessment, there is participation of all interested parties, including students, faculty, administration, and the departmental Internal Assessment Team (OMEA). It is done annually, but the evidence shown to the Evaluation Panel was only for one such assessment, probably

because the program is fairly new, and several of the years were affected by the pandemic. Yet, there is a clear timeline of the different actions expected in the annual cycle. The results of such assessment are discussed, and actions are identified, together with the person(s) responsible for their implementation and the corresponding target dates. These annual internal assessments are published online.

One important source of feedback for monitoring and improving quality is student questionnaires. These questionnaires are filled and submitted online. They concern course content and teaching methods. The collected data are analysed to give feedback to the instructor to help them improve the teaching of the course. Participation in filling the questionnaires is very low - as in many institutions around the country (and worldwide!).

The Program has established a formal faculty advisor scheme to assist students throughout their studies, which is a very good practice. Apart from that, students indicated that faculty members are helpful and always available when students need advice or assistance in their studies. Faculty members appear to care for and work closely with students to help them grow and succeed. There is no evidence of feedback to the quality assurance process by external stakeholders.

II. Analysis

There is no doubt that the program is of excellent scientific quality and its areas of research are indeed central in theoretical computer science. However, there is no evidence of a formalized procedure for feedback to the quality assurance process coming from alumni and from external stakeholders. Both are important sources of feedback for improving quality and both can contribute to the international reputation of the program.

III. Conclusions

A high quality, dynamic program with great potential of filling real research and market needs. The program is in its very early state of operation and there is room for improvement. Despite the aforementioned weak points, the EEAP is convinced that, given the high quality of the faculty and of the programme leadership, all these weak points will be attended to in the near future, in the best possible manner.

Panel Judgement

Principle 2: Design and approval of postgraduate study programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Please provide your recommendations with regard to issues that need to be addressed, as R2.1 Although there is still a limited number of graduates, the programme should aim to establish an alumni network. Establishing such a network would help students link to professional networks nationally and internationally and benefit the overall visibility and reputation of the program.
- The Program should seek the establishment of an international Advisory Board comprising Faculty members and external stakeholders. The establishment of such a board (meeting for example annually, even informally, to give feedback to the program) should be very beneficial both to the programme and to its graduates.
- Improve the quality assurance process (a) by trying to increase student participation in course evaluations (b) by designing a procedure describing the kind of data to collect, the kind of analyses needed and the ways to present the analyses results (tables, diagrams etc.), considering all issues raised by MODIP, especially regarding KPIs and measurable objectives (see also recommendations in Principle 5).
- The financial support for travel is limited, and the faculty is willing to share that with students to attend conferences. It would be beneficial to increase this amount, and make it available for graduate/PhD students too, so that they can benefit from participation in international conferences.

PRINCIPLE 3: STUDENT-CENTRED LEARNING, TEACHING, AND ASSESSMENT

INSTITUTIONS SHOULD ENSURE THAT POSTGRADUATE STUDY PROGRAMMES PROVIDE THE NECESSARY CONDITIONS TO ENCOURAGE STUDENTS TO TAKE AN ACTIVE ROLE IN THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.

Student-centred learning and teaching plays an important role in enhancing students' motivation, their self-evaluation, and their active participation 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 by adopting 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*
- *strengthens 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 the students' complaints*
- *provides counselling and guidance for the preparation of the thesis*

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.*
- *Assessment is consistent, fairly applied to all students and conducted in accordance with the stated procedures.*
- *A formal procedure for student appeals is in place.*
- *The function of the academic advisor runs smoothly.*

Documentation

- *Sample of a fully completed questionnaire for the evaluation of the PSP by the students*
- *Regulations for dealing with students' complaints and appeals*
- *Regulation for the function of academic advisor*
- *Reference to the teaching modes and assessment methods*

Study Programme Compliance

I. Findings

The courses provided by the PSP cover multiple scientific areas of the field. Many of the courses assess student learning with multiple methods, which in turn contribute to the final assessment of student progression. However, the assessment criteria could

not be evaluated, since they become available during lectures or after enrolment to the corresponding course. Also, most courses are delivered through lectures requiring personal attendance on University grounds.

Individual skill development is encouraged through participation in individual and group assignments, which is further promoted by the large availability of elective courses. The relations of the faculty with the student board were found to be excellent, both during delivery and evaluation of the available courses. Evaluation is performed annually, as directed by MODIP.

Lastly, both a procedure for student appeals and the assignment of academic advisors were accounted for and regulated.

II. Analysis

The PSP seems to comply with the directives of student-centred learning and teaching, by promoting interaction among students and faculty, as well as developing students' individual skills. The teaching processes are also open to correction and constant improvement through regulated and systematic evaluations, as well as the excellent interaction of the faculty with the student body.

III. Conclusions

The PSP fully complies with the Principle.

Panel Judgement

Principle 3: Student-centred learning, teaching, and assessment	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None.

PRINCIPLE 4: STUDENT ADMISSION, PROGRESSION, RECOGNITION OF POSTGRADUATE STUDIES, AND CERTIFICATION.

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

All the issues from the beginning to the end of studies should be governed by the internal regulations of the academic units. Indicatively:

- *the student admission procedures and the required supporting documents*
- *student rights and obligations, and monitoring of student progression*
- *internship issues, if applicable, and granting of scholarships*
- *the procedures and terms for the drafting of assignments and the thesis*
- *the procedure of award and recognition of degrees, the duration of studies, the conditions for progression and for the assurance of the progress of students in their studies*
- *the terms and conditions for enhancing student mobility*

All the above must be made public in the context of the Student Guide.

Documentation

- *Internal regulation for the operation of the Postgraduate Study Programme*
- *Research Ethics Regulation*
- *Regulation of studies, internship, mobility, and student assignments*
- *Degree certificate template*

Study Programme Compliance

I. Findings

Full documentation regarding the PSP's services was provided and is available online. The teaching and administrative staff interact regularly with the student body and monitor its progression through the secretariat's electronic system (<https://my-uni.uoa.gr/>). Given the theoretical subject of the PSP, there is no practical training in place.

A complete and comprehensive Student Guide is available for the PSP, including instructions for the implementation of its thesis. The ECTS is applied across the curriculum and a code of Research Ethics for the PSP was also available. Despite the lack of a Thesis Handbook, the assessment criteria and methods for the PSP's thesis are available in the Student Guide and the Course Descriptions. Lastly, the Diploma Supplement is issued without request and free of charge both in Greek and English.

II. Analysis

The PSP follows the Principles guidelines for the regulation of its studies. The Student Guide contains all necessary information and assessment criteria for the PSP's thesis. However, the issue of a Thesis Handbook is highly recommended. Given the nature of the PSP, practical training is not available. Finally, the student progression is monitored through the use of the secretariat's electronic system.

III. Conclusions

The PSP fully complies with the Principle.

Panel Judgement

Principle 4: Student admission, progression, recognition of postgraduate studies and certification	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

It is highly recommended that the PSP issues a Thesis handbook, to provide clear and concise instructions for conducting its theses.

PRINCIPLE 5: TEACHING STAFF OF POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE LEVEL OF KNOWLEDGE AND SKILLS OF THEIR TEACHING STAFF, AND APPLY FAIR AND TRANSPARENT PROCESSES FOR THEIR RECRUITMENT, TRAINING AND FURTHER DEVELOPMENT.

The Institution should attend to the adequacy of the teaching staff of the academic unit teaching at the PSP, the appropriate staff-student ratio, the appropriate staff categories, the appropriate subject areas, the fair and objective recruitment process, the high research performance, the training- development, the staff development policy (including participation in mobility schemes, conferences, and educational leaves-as mandated by law).

More specifically, the academic unit should set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff for the PSP and offer them conditions of employment that recognise 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 (with respect to attendance requirements, performance, self-assessment, training, etc.); develop policies to attract highly qualified academic staff.

Documentation

- *Procedures and criteria for teaching staff recruitment*
- *Employment regulations or contracts, and obligations of the teaching staff*
- *Policy for staff support and development*
- *Individual performance of the teaching staff in scientific-research and teaching work, based on internationally recognised systems of scientific evaluation (e.g. Google Scholar, Scopus, etc.)*
- *List of teaching staff including subject areas, employment relationship, Institution of origin, Department of origin*

Study Programme Compliance

I. Findings

ALMA program is supported by four departments: Two, the Department of Informatics and Telecommunication (DIT) and the Department of Mathematics (DMath), within the National and Kapodistrian University of Athens (NKUA), and two, the School of Electrical and Computer Engineering (ECE) and the School of Applied Math and Physical Sciences, within the National Technical University of Athens (NTUA). The ALMA program is coordinated by the DIT in NKUA. NKUA and NTUA, located next to each other, are the most reputable universities in Greece, and attract the highest calibre of faculty. In addition, the hiring (or the promotion) of any faculty member is controlled by strict guidelines specified by the Ministry of Education and the rules of the institutions. The teaching needs for courses calling for expertise outside what is covered by the current faculty is satisfied by external instructors, who are also selected by a process specifying the selection criteria.

II. Analysis

The teaching load varies between 1 and 7 hours, without counting preparation time, grading of assignments, and guidance to students. At the end of the course, the students are asked to provide an assessment regarding the course and the instructor. A statistical analysis is done on the data collected, and is given as feedback to the instructor to help them improve the teaching of the course. The plan is sensible, but see also the related critical assessment in Principle 9, regarding its implementation.

III. Conclusions

The effort of the professional development of the faculty is primarily a task at the Department, rather than the program, level. According to existing rules, the faculty can have one semester leave every 3 years, or one year leave every 6 years. This is subject to not disturbing the normal functioning of the department and the progress of the students towards graduation. The financial support for travel is limited, and the faculty is interested in sharing that with students to attend conferences. The Dean's offers 1600 euro/year for attending conferences, and this is barely sufficient for one conference. It would be beneficial to increase this amount, and make it available for graduate/PhD students too, who can benefit from participation in international conferences.

Panel Judgement

Principle 5: Teaching staff of postgraduate study programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

Increase the financial support for attending conferences, and include advanced graduate students too.

PRINCIPLE 6: LEARNING RESOURCES AND STUDENT SUPPORT

INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER THE TEACHING AND LEARNING NEEDS OF THE POSTGRADUATE STUDY PROGRAMME. 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, NETWORKS, CAREER AND SOCIAL POLICY SERVICES ETC.).

Institutions and their academic units must have sufficient resources and means, on a planned and long-term basis, to support learning and academic activity in general, so as to offer PSP students the best possible level of studies. The above means include facilities such as the necessary general and more specialised libraries and possibilities for access to electronic databases, study rooms, educational and scientific equipment, IT and communication services, support and 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 students, students with disabilities), in addition to 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 proves -on the one hand- the quantity and quality of the available facilities and services, and -on the other hand- that students are aware of all available services.

In delivering support services, the role of support and administration staff is crucial and therefore this segment of staff needs to be qualified and have opportunities to develop its competences.

Documentation

- *Detailed description of the infrastructure and services made available by the Institution to the academic unit for the PSP, to support learning and academic activity (human resources, infrastructure, services, etc.) and the corresponding firm commitment of the Institution to financially cover these infrastructure-services from state or other resources*
- *Administrative support staff of the PSP (job descriptions, qualifications and responsibilities)*
- *Informative / promotional material given to students with reference to the available services*
- *Tuition utilisation plan (if applicable)*

Study Programme Compliance

I. Findings

The PSP students share the same infrastructure and services of the Department with their undergraduate counterparts. Access to the university library, IT infrastructure, as well as classrooms for the delivery of lectures are provided to the PSP by the academic unit. Furthermore, facilities as boarding services, career counselling, student welfare, as well as sport and cultural facilities and student groups are available. However, a full inspection of the premises could not be facilitated due to the nature of the current assessment.

These services are well known to the student body. The administration of the PSP appears satisfactory. Lastly, given the fact that the PSP does not require tuition, a tuition utilisation plan is not applicable.

II. Analysis

The Department provides all the necessary facilities and services for the PSP needs. The student body is well aware of the facilities and services available. The administration staff appears adequate and ensures the smooth operation of the PSP.

III. Conclusions

The PSP fully complies with the Principle.

Panel Judgement

Principle 6: Learning resources and student support	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None.

PRINCIPLE 7: INFORMATION MANAGEMENT

INSTITUTIONS BEAR FULL RESPONSIBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF POSTGRADUATE STUDY PROGRAMMES 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.

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

The information collected 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 programmes*
- *availability of learning resources and student support*

A number of methods may be used to collect information. It is important that students and staff are involved in providing and analysing information and planning follow-up activities.

Documentation

- *Report from the National Information System for Quality Assurance in Higher Education (NISQA) at the level of the Institution, the department, and the PSP*
- *Operation of an information management system for the collection of administrative data for the implementation of the PSP (Students' Record)*
- *Other tools and procedures designed to collect data on the academic and administrative functions of the academic unit and the PSP*

Study Programme Compliance

I. Findings

Formal and systematic processes for eliciting extended data from all internal and external stakeholders may provide thorough input for periodic review of the programme and quality assurance purposes and facilitate a decision-making approach upon further actions toward program's effectiveness.

NKUA has established a Quality Assurance Unit, MODIP, for all the entities within the university. MODIP follows the Quality Assurance Internal System, to derive assessment for the different activities it monitors. Part of that task is the periodic internal evaluation of the Study Programs, such as ALMA. MODIP examines the content of the study program, course load and student progress towards graduation, student satisfaction with offered services, etc.

For such assessment, there is participation of all interested parties, including students, faculty, administration, and the departmental internal assessment team (OMEA). It is done annually, but the evidence shown to the Evaluation Panel was only for one such assessment, probably because the program is fairly new, and several of the years were affected by the pandemic. Yet, there is a clear timeline of the different actions expected in the annual cycle. The results of such assessment are discussed, and actions are identified, together with the person(s) responsible for their implementation and the corresponding target dates. These annual internal assessments are published online.

There is no evidence of an integrated information system for the collection of data, their analysis and their presentation using appropriate KPIs. Such a system would support monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students.

One important source of feedback for monitoring and improving quality is student questionnaires. These questionnaires are filled and submitted online. They concern course content and teaching methods. The collected data are analysed to give feedback to the instructor to help them improve the teaching of the course. Participation in filling the questionnaires is very low - as in many institutions around the country (and worldwide!).

Two other important sources of feedback are external stakeholders (alumni and representatives of the industry or the academia). There is no evidence that such sources are used in a formalised and systematic way.

II. Analysis

Performing dedicated regular surveys involving other stakeholders (in addition to the students), for example, alumni and the existing industrial network may enhance the incorporation of useful feedback for the continuing review and development of the program. Establishing formalized and documented processes for eliciting input from alumni and from external stakeholders may enhance academic offerings through systematic external collaboration. It could also improve the publicity of program's offering, increasing the number of potential candidate students for the programme.

III. Conclusions

The program must further elaborate on using the institutional information systems and ensure the comprehensive data management and quality assurance processes contribute to its effectiveness and success. Further KPIs need to be established, analysed, and documented for all preventive and corrective actions identified by OMEA. Additionally, it is essential to clearly outline long-term objectives and expand upon them as necessary through periodic internal quality review processes to promote continuous improvement. For example, no KPI is defined for students' low response rates to questionnaires and actions to resolve this. Such low student participation affects the data's importance and accuracy.

The PSP should consider extending and formalising external stakeholders' active participation in its quality assurance processes, including, among others, alumni. An alumni association's absence hinders valuable feedback for continuous program improvement and visibility to the industry. The program needs to enhance the information provided on its website and increase its public dissemination activities.

Panel Judgement

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

Panel Recommendations

- The program should develop a formal (independent from the Institution) procedure for collecting, processing and presenting data, aiming to ensure quality assurance practices are in place to review the programme. This procedure should be aligned with any internal or external evaluation of the programme.
- Develop a formal procedure to update, refine and review the information provided on the website and to students.
- A formal procedure should be created to systematically promote the active participation of external stakeholders, capitalizing on staff's wide network of external relations.
- The formation of an alumni association is recommended that also includes participation in periodic activities (e.g. an industrial open day), aiming to actively engage its members towards strengthening the program's visibility/promotion and quality assurance processes towards its continuous improvement.

PRINCIPLE 8: PUBLIC INFORMATION CONCERNING THE POSTGRADUATE STUDY PROGRAMMES
INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES RELATED TO THE POSTGRADUATE STUDY PROGRAMMES IN A DIRECT AND READILY ACCESSIBLE WAY. THE RELEVANT INFORMATION SHOULD BE UP-TO-DATE, OBJECTIVE AND CLEAR.

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

Therefore, Institutions and their academic units must provide information about their activities, including the PSP they offer, the intended learning outcomes, the degrees awarded, the teaching, learning and assessment procedures applied, the pass rates, and the learning opportunities available to their students. Information is also provided on the employment perspectives of PSP graduates.

Documentation

- *Dedicated segment on the website of the department for the promotion of the PSP*
- *Bilingual version of the PSP website with complete, clear and objective information*
- *Provision for website maintenance and updating*

Study Programme Compliance

I. Findings

ALMA offers a rich intellectual environment to its students. The students, the stakeholders, and the community in general are informed about these activities through the webpage of the Department. It is a well-maintained and up to date. They offer full information about all the academic aspects of the Programme, as well as the intellectual life around ALMA. It must be stressed, however, that the PSP's webpage is poor in providing information on the profile and activities of the Programme.

II. Analysis

The content of the website is broken down into several sections which cover educational, administrative, and social matters, with most key information being present. The navigation between the different parts of the site is easy; basic web usability principles are adhered to. The content appears to be updated regularly. It is understood during the interviews with the students that the teaching material is available on the signed-in part of department's website, which hosts the e-class virtual learning tool.

III. Conclusions

ALMA must improve its efforts to collect data concerning the student & graduates' body that might be interested in pursuing this MS, making its potential more widely known, and publicise its activities. The fact that the PSP's webpage is poor in exhibiting all this information cannot be assessed positively. EEAP would also like to point out that some "tabs" on the English version of the web site ("Quality Policy" & "Forms") are linked back to web pages written in

Greek. EEAP would strongly suggest to remedy these problems in order for the website to become a modern and user-friendly site to browse and consult. It is hoped that the forthcoming elaboration of the website will bring out the genuine face of the ALMA.

Panel Judgement

Principle 8: Public information concerning the postgraduate study programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Correct the links/tabs on the English version website to point to English web pages
- Collect and work out properly data about the potential students' profile
- Publicize data of graduates (academic career or employment). Such information will assist potential students make more informed decisions about the program
- Make sure that on every webpage there is a link that lead back to the programme main page

PRINCIPLE 9: ON-GOING MONITORING AND PERIODIC INTERNAL EVALUATION OF POSTGRADUATE STUDY PROGRAMMES

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

The regular monitoring, review, and revision of postgraduate study programmes aim at maintaining the level of educational provision and creating a supportive and effective learning environment for students.

The above comprise the evaluation of:

- a) the content of the programme in the light of the latest research in the given discipline, thus ensuring that the PSP is up to date*
- b) the changing needs of society*
- c) the students' workload, progression and completion of the postgraduate studies*
- d) the effectiveness of the procedures for the assessment of students*
- e) the students' expectations, needs and satisfaction in relation to the programme*
- f) the learning environment, support services, and their fitness for purpose for the PSP in question*

Postgraduate study 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.

Documentation

- *Procedure for the re-evaluation, redefinition and updating of the PSP curriculum*
- *Procedure for mitigating weaknesses and upgrading the structure of the PSP and the learning process*
- *Feedback processes concerning the strategy and quality goal setting of the PSP and relevant decision-making processes (students, external stakeholders)*
- *Results of the annual internal evaluation of the PSP by the Quality Assurance Unit (QAU), and the relevant minutes*

Study Programme Compliance

I. Findings

NKUA (National and Kapodistrian University of Athens) has established a Quality Assurance Unit, MODIP (Greek acronym), for all the entities within the university. MODIP follows the Internal Evaluation Group (IEG), to derive assessment for the different activities it monitors. Part of that task is the periodic internal evaluation of the Study Programs, such as ALMA. MODIP examines the content of the Study Program, course load and student progress towards graduation, student satisfaction with offered services, etc.

For such assessment, there is participation of all interested parties, including students, faculty, administration, and the departmental Internal Assessment Team (OMEA). It is done annually, but the evidence shown to the Evaluation Panel was only for one such assessment, probably

because the program is fairly new, and several of the years were affected by the pandemic. Yet, there is a clear timeline of the different actions expected in the annual cycle.

The results of such assessment are discussed, and actions are identified, together with the person(s) responsible for their implementation and the corresponding target dates. These annual internal assessments are published online.

Unfortunately, when examining the data presented to the Evaluation Panel, several weaknesses were identified, and they are discussed below.

II. Analysis

First, regarding data collection, the (electronic) participation of the students in such evaluations is very inadequate, less than 20% of the class, by some anecdotal information. So, there is a clear need to improve the student response rate. It is hypothesised that if the instructor distributed paper questionnaires at the end of a class towards the end of the semester, and required for the students to devote the last 15 minutes of the class filling them out, and then collecting them on the spot, the response would improve. This has the significant drawback that the data must be entered later into the computer by hand (although, it is possible to have a system where forms filled out can be scanned into the computer). If there is a need for manual entry, low-cost student labour from Undergraduate students could also be considered.

Second, there is a more disturbing lack of methodology of processing and presenting the data analysed by MODIP/OMEA. As an example, there was a file among those given to the Panel, containing student assessment data from 12 courses offered in Spring Semester 2022. The results are disheartening both for the student responsiveness and for the people doing and presenting the analysis. Please note the following:

- There were 6 courses with 0 feedback from students, 5 courses with 1 feedback, and 1 course with 3 feedbacks.
- No information is given on the overall size of the classes, so no percentage participation can be determined (except for the 0 participation, of course).
- Then, the people doing the analysis took the 8 responses (from different courses and different instructors) and grouped them together (all the questionnaires had the same set of questions).
- The results were then shown as bar graphs of 8 samples. Obviously, these bar graphs, coming from 6 different courses with at least 6 different instructors, are meaningless, and of no use to any instructor.
- This shows that besides motivating the students to respond, the people doing the analysis also need to be trained on what statistics to derive. Courses with one or two evaluations only, can be declared as not providing sufficient data to develop statistics.
- The suggested targets for correcting the weaknesses (welcoming new students, Academic Advisor, seminar on writing Master's Thesis), although good by themselves, do not seem to have any relevance to the data, even if the data had come from a single course.

Third, the Panel was given a file with title Υλικό Τεκμηρίωσης (Evidence), which, apparently, contains the results from a questionnaire sent (probably, at the beginning of 2023) to all the graduates of the ALMA program, since its inception. The questions and the answers are quite interesting and informative by themselves. The comments here are only on the methodology to present the basis statistics (some of them implied, as it is shown below).

III. Conclusions

For meaningful comparisons, the students and the graduates should be grouped by cohort, depending on the year of admission. So, here are some considerations on that data:

- For each admission year, the number of admitted students in that cohort should be given (this was not included in the data).
- For each admission year/ cohort, the number of responses (shown in parenthesis after the year) were as follows: 2016 (4), 2017 (4), 2018 (1), 2019 (1), 2020 (1).
- This total of 11 responses (9 men, 2 women) were lumped together, making it difficult to identify trends over the years.
- Year of graduation (with no connection to the year of admission): 2019 (5), 2020 (1), 2021 (3), 2022 (2).
- Duration of studies: 2 yrs (4), 3 yrs (5), 4 yrs (1), 5 yrs (0), 6 yrs (1). (Which also shows that the 3-semester duration of the program is not a reality).
- This statistical information (presented here with numbers, but which could also be depicted by bar graphs) would have been helpful to the Panel to get a sense of the direction of the program. It could also be useful to the Study Program Committee to evaluate trends and weaknesses.

Note that this input from the program graduates does not need to be done annually. It can be done, e.g., two years and five years after the nominal time of graduation (i.e., 4 years and 7 years after the formation of the cohort – after that, their career is influenced more by other factors, rather than the program).

The above weaknesses should be action items for the University MODIP, or the departmental OMEA, but it appears to the Panel that the impact on the program is mitigated by the fact that the program has a relatively small number of students at this point, and the faculty can keep a closer interaction with them.

Panel Judgement

Principle 9: On-going monitoring and periodic internal evaluation of postgraduate study programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

Experiment with student feedback forms on paper, collected in class. This may require manual entry of the data in the computer (to develop statistics), but student workers (assuming they will cost less) can be employed for that. Record also the written comments of the students – they are the most valuable feedback for the instructor. To motivate the students to submit evaluations in the current semester, the instructor can show slides during the class with statistics and comments from a previous semester’s evaluations.

*Train the people doing the data analysis to do it correctly. Explain to them that statistics are meaningful per course and per instructor only. Courses with only one or two submitted evaluations can be declared as not providing sufficient data to develop statistics.

*Do an analysis of the longer-term trends by cohort (i.e., the group admitted in a single year).

PRINCIPLE 10: REGULAR EXTERNAL EVALUATION OF POSTGRADUATE STUDY PROGRAMMES

THE POSTGRADUATE STUDY PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY PANELS 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 PSP accreditation process which is realised as an external evaluation procedure, and implemented by panels of independent experts. HAHE grants accreditation of programmes, based on the Reports delivered by the panels of external experts, with a specific term of validity, following to which, revision is required. The quality accreditation of the PSP acts as a means for the determination of the degree of compliance of the programme to the Standards, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees. Both academic units and Institutions must consistently consider the conclusions and the recommendations submitted by the panels of experts for the continuous improvement of the programme.

Documentation

- *Progress report of the PSP in question, on the results from the utilisation of possible recommendations included in the External Evaluation Report of the Institution, and in the IQAS Accreditation Report, with relation to the postgraduate study programmes*

Study Programme Compliance

I. Findings

The evaluation by the External Evaluation and Accreditation Panel (EEAP) is intended to assist in the HAHE decision on the accreditation of the program. The ALMA Program appears to have a concrete plan to review the EEAP comments and plan any corrective actions, if necessary.

II. Analysis

The Evaluation Panel feels that the plan of action is comprehensive and well-thought out. Since this is the first time ALMA goes through the accreditation process, the results of following the plan of action will be evaluated in subsequent accreditation reviews.

III. Conclusions

The program Leadership is encouraged to consider the suggestions presenting in Principle 9, to make the work of the EEAP easier, and to bring out the strengths of the program. It is understood that an accreditation by HAHE will have a 5-year duration.

Panel Judgement

Principle 10: Regular external evaluation of postgraduate study programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None.

PART C: CONCLUSIONS

I. Features of Good Practice

- High quality faculty with deep involvement in research and with a rich gamut of academic faculty
- Programme has overcome a number of obstacles in offering an inter-departmental & inter-institutional programme that works harmoniously and to the benefit of students
- It is offered free of tuition which make it accessible to low income students, which also means that the programme is “brain search oriented”!
- The Quality Assurance Policy document is well structured and complete
- Students are exposed to their faculty research in their classroom
- Cultivation of productive enthusiasm among students
- Good infrastructure (teaching classes, seminar rooms, labs, library, etc)
- The Program has established a formal faculty advisor scheme to assist students throughout their studies, which is a very good practice.

II. Areas of Weakness

- The (electronic) participation of the students in such evaluations is very inadequate, less than 20% of the class
- Lack of methodology of processing and presenting the data analysed by MODIP/OMEA and omissions in collecting data about students’ progress, employability, etc.
- As students pointed out courses on the main web page do not have short descriptions but only the professor’s name.

III. Recommendations for Follow-up Actions

- Undertake a more meticulous collection of data and statistics on the profile of incoming students and their study progression. It would also be positive to track the careers of graduates of the Programme more systematically.
- Encourage greater student involvement in the evaluation processes, specifically in completing the satisfaction questionnaires (cf. remarks in Principle 9).
- It is highly recommended that the PSP issues a Thesis handbook, to provide clear and concise instructions for conducting its theses.
- Increase the financial support for attending conferences, and include advanced graduate students too.
- Correct the links/tabs on the English version website to point to English web pages.

- Collect and work out properly data about the potential students' profile.
- Publicise data of graduates (academic career or employment). Such information will assist potential students make more informed decisions about the program.
- Experiment with student feedback forms on paper, collected in class. This may require manual entry of the data in the computer (to develop statistics), but student workers (assuming they will cost less) can be employed for that. Record also the written comments of the students – they are the most valuable feedback for the instructor. To motivate the students to submit evaluations in the current semester, the instructor can show slides during the class with statistics and comments from a previous semester's evaluations.
- Train the people doing the data analysis to do it correctly. Explain to them that statistics are meaningful per course and per instructor only. Courses with only one or two submitted evaluations can be declared as not providing sufficient data to develop statistics.
- Do an analysis of the longer-term trends by cohort (i.e., the group admitted in a single year).

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **3, 4, 5, 6, and 10.**

The Principles where substantial compliance has been achieved are: **1, 2, 7, 8, and 9.**

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. Dr. Sotiris Skevoulis (Chair)**
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- 2. Mr. George Kolipetris**
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