



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC



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Accreditation Report

for the Postgraduate Study Programme of:

Engineering of Pervasive Computer Systems

School of Science and Technology
Institution: Hellenic Open University
Date: 10 October 2023



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 Postgraduate Study Programme of **Engineering of Pervasive
Computer Systems** of the **Hellenic Open University** 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 **Engineering of Pervasive Computer Systems** of the **Hellenic Open University** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

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

- 2. Assoc. Prof. Konstantinos Kospidas**
University of Manchester, United Kingdom

- 3. Mr. Georgios Moustakas**
Department of Mathematics, Aristotle University Thessaloniki

- 4. Prof. Dimitrios Nikolopoulos**
Virginia Tech, Virginia, USA

- 5. Prof. Emeritus Panos Papamichalis**
Southern Methodist University, Texas, USA

II. Review Procedure and Documentation

The review of the External Evaluation & Accreditation Panel (EEAP) considered the documents that were provided by the PSP prior to the online accreditation review interviews and the documents that were provided in response to specific requests by the EEAP. The EEAP visited the PSP in Engineering of Pervasive Computer Systems of the Hellenic Open University (HOU) via teleconferencing on the 25th the 27th of September 2023. During the first day, the process started via a private meeting of the EEAP members to discuss the proposal and orchestrate the tasks between them. Then, the Panel was welcomed to the virtual event by the Head of the Program and IEG and QAU representatives. After a detailed presentation regarding quality assurance procedures that are in place there was sufficient time for discussions. Then, the Panel had the opportunity to see a video about the facilities of the School and the University (not specifically to the PSP under review). A debriefing meeting took place between the Panel members for the exchange of views during the first day of discussions.

During the second day of the accreditation review process the Panel met with members of academic staff in the PSP. The next session involved a meeting with a set of pre-selected students from the Programme. The students were asked various questions about their academic life and the support they receive in their studies in general. Over the three days, the Panel was able to form a holistic view on the day-to-day operations and quality assurance practices of the programme. The students, many of them belonging to the first graduates from the programme, gave the review committee valuable perspective. Following that the Panel met with social partners and other stakeholders that are closely collaborating with the Programme. The second day of the review was closed by meeting with IEG and QAU members as well as with the Head of the Programme and the Vice-Rector. During that last session the Chair of the Panel provided some overarching observations based on the discussions of EEAP during the accreditation review.

III. Postgraduate Study Programme Profile

The PSP of Engineering of Pervasive Computing Systems is part of the School of Science and Technology at the Hellenic Open University. It was established in 2009 (Law 43/11/2009 and started operations in 2010. The programme offers courses and specialisation in design and development of software, information systems, big data, and networking applications. It carries 120 ECTS and its duration is a minimum of two years of study. The Programme consists of six Modules (two mandatory, three electives and a (mandatory) Master's Thesis. The curriculum aims at dovetailing Science of Computing with the general field of Pervasive Computing Systems. The Programme is reviewed by a committee on a yearly basis. As such the committee strives for a dynamic Programme that considers the latest developments in the field.

The programme offers courses and specialisation in pervasive and ubiquitous computing, smart devices, Internet of Things, Embedded Systems, Networking, and mobile programming. It carries 120 ECTS and its duration is a minimum of two years of study. The Programme consists of six Modules (two mandatory, three electives and a (mandatory) Master's Thesis. The curriculum aims at dovetailing Science of Computing with the general field of Pervasive Computing. The Programme is reviewed by a committee on a yearly basis. As such the committee strives for a dynamic Programme that considers the latest developments in the field. It is a completely online Programme with no physical presence of students or faculty in traditional classrooms or labs.

In 2022-2023 academic year the program was running 5 classes with 5 faculty members (full time and part time). The number of faculty assigned to the Programme is 1 full time faculty (DEP) and 10 part time faculty (SEP).

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

The PSP "Engineering of Pervasive Computer Systems" (SDY) is part of the School of Science and Technology (STET) within the Hellenic Open University (HOU). As a result, it operates under the rules and quality commitments of STET and HOU. The Quality Assurance policy of the PSP is contained in Document A02 of the documentation supplied in support of their

Accreditation Proposal (document A01). The stated objective of SDY is to offer systematic education in design and development of Pervasive and Mobile Computing Systems. The graduates of the program will be capable of analysing requirements, selecting appropriate technological solutions, designing, implementing, and managing Pervasive and Mobile Computing Systems and Internet of Things (IoT).

The Quality Assurance Policy of the PSP SDY is harmonized with the institutional Quality Assurance Policy and is adjusted to the current conditions and needs. It is also stated that the Institution is committed to apply processes that prove the sufficiency and quality of its support to the School and to the SDY; the appropriateness of the SDY organization; the qualification of the faculty and all supporting staff.

The School (STET) is also committed to working with the Director and the Teaching Staff of SDY to assure the appropriateness of the SDY organization; the establishment of learning outcomes in accordance with the European and National Qualifications Framework; the appropriateness of the teaching staff qualifications; the annual review of the Quality targets and internal evaluations for continuous improvement; the productive use of financial resources; and other such actions in support of the students, the instructional staff, and the Program in general.

The Quality Assurance Policy of SDY is approved by the School (STET) and is published on the SDY website, which is part of the central website of the University, HOU. The general information is available both in Greek and English, although, when reaching the lower levels of detail (e.g. Quality Policy itself and Quality Target 2023), the content is available only in Greek.

The Quality Targets for 2023 are shown in the Document A03 and are discussed below, in Analysis. The targets refer to the different directions of the program's activities: 1. Education; 2. Research; 3. Connection with the Public; 4. Internationalization; 5. University environment; and 6. Quality Assurance. The targets (goals) are selected using the SMART approach (Specific, Measurable, Achievable, Relevant, Timely).

The Learning Outcomes of the PSP SDY are described in the Accreditation Proposal document, under Principle 2, and are deemed by the Panel to be appropriate for level 7 education.

II. Analysis

The Quality Assurance Policy of the PSP SDY has processes that are satisfactory in terms of what they cover, how they are approved, and how they are publicized. From the EEAP interaction with all interested parties (Instructors, Students, Administrators), it appears that the policy is taken seriously by all sides.

A key part of the process is to identify the goals using the SMART approach. This is shown in the Document A03. In reviewing the goals for 2023, some of the targets appear to be strong and reasonable, but others appear to be weaker. Some aspects are pointed out here, with the intention of improving the program.

The first target, ST 1.1, refers to the student evaluations of their courses (called Modules in HOU) at the end of the semester. This is, admittedly, a notoriously difficult problem for most Universities worldwide, where 10-20% student participation is not uncommon. Still, the 42% current participation is weak, and needs to be improved. (Note also that, according to the data provided in the document A19 for 2021-2022, two Modules, SDY51 and SDY62, had abysmal participation, 10% and 20%, respectively.) The problem is that increasing the 42% to 45%, as it is stated, falls more into the “noise” category, rather than a meaningful change, and is still unsatisfactory. What is a meaningful change? The program’s faculty should be a better judge, but, as a first step, 55% or 60% might be more of a real challenge. In the recommendations below (and, possibly, in other parts of this report) a suggestion is offered.

A similar comment applies to ST 1.3 (Improvement of the graduation rate) where going from 21% to 24% seems to be in the noise. Perhaps, a target of 30% might be more appropriate. And also the comment applies to ST 2.3 (Attracting more and better applicants), where going from 22% to 25% (percentage of applicants admitted) seems to be too small a difference.

It should be noted that the EEAP felt that the program has a very small number of DEP and a very large number of SEP, and this presents a problem. Although the dedication of the SEP members to the program appears to be unquestionable and extremely valuable, they are still members of other institutions. So, the first thing needed is a dramatic increase in DEP members (see corresponding entry in the Recommendations below). The professional development of the SEP is the responsibility of their home institutions. However, if the HOU wants to encourage SEP to participate in Conferences under the HOU banner (e.g., when advising/co-authoring a paper resulting from a Thesis work), it can extend the support for Conference attendance to the SEP members too, under specific circumstances.

Despite the comments above, the bulk of the targets/goals look quite reasonable and meaningful.

III. Conclusions

The PSP SDY has paid considerable attention to establishing a good environment for quality assurance and to using the feedback from evaluations to set goals for improvement.

One additional note of caution is that this program seems to have a relatively small number of students (a single Section for each of the Modules taught). This could jeopardize the viability of the PSP SDY. This seems to have been understood by the leadership of the program and related targets/goals have been set in the Quality Target 2023.

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

- In the English Language version of the website, make available translations to English at all levels. Alternatively, when reaching a level beyond which only Greek is available, show a banner warning the readers of the change, and then permit them to proceed, if they so wish.
- Students are not motivated to participate in evaluations because they do not see any immediate results from their feedback. One suggestion is, when a Professor-Advisor, in one of the group meetings, tries to motivate them to submit their feedback, to show the students examples from previous semesters/years, where concrete suggestions were made, and which resulted in concrete actions by the program/School/University. The example(s) can come even from other HOU programs related to Informatics.
- The university is strongly encouraged to hire more permanent faculty (DEP). The panel feels that doubling the DEP size at HUP, as a first step, would not be unreasonable. This will provide more backbone to the operation and would provide more acceptance to accrediting organisations.
- Offer support to SEP for conference attendance. Conditions can be imposed, such as publication of work resulting from a Thesis within SDY, and the HOU being credited in the affiliation of the authors.

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

The HOU's Masters in Pervasive and Mobile Computing Systems has an established and well-documented academic profile based on taught modules that cover specific knowledge areas in Information Systems and are delivered to students over periods of 5 or 10 months. Modules are taught to student groups (called "Departments" in the HOU terminology), which are supported by a lead academic advisor and a module leader who is responsible for the successful operation of the module. The program as a whole has a Director of Studies who has oversight over all modules and module leaders, and reports to the Dean of the School of Science and Technology. The program was established in 2009 and changed its name in 2018. The Master's course content and, in particular, the adopted textbooks (including books written in English) and notes have been revised substantially between 2016 and 2022.

The program provides students with skills to understand pervasive computing systems and wireless networks' design, implementation, and application use cases. The program is supported by a single (one) tenured faculty member and ten collaborating faculty from other academic and research institutes in Greece. The number of HOU tenure-track faculty supporting the program is astonishingly small and clearly insufficient for the continuous development and improvement of the program. The lack of an adequate number of tenure-track or tenured faculty based in the HOU (as opposed to collaborative faculty based on other academic and research institutions) to support the program raises major challenges in the program's operation, management, planning, and sustainability. That said, the one faculty member and the collaborative external faculty that currently support the program have strong research track records and pursue research of high quality on state-of-the-art and emerging technologies for pervasive computing. Students are engaged in research primarily in the context of the graduate thesis that they undertake but also in the context of externally funded research programs. Faculty and students in the program pursue research in many timely and important areas of pervasive computing, including but not limited to hardware design for IoT and pervasive computing systems, 5G networks and the use of Machine Learning in their design, ambient intelligence, and IoT technologies for Industry 4.0. However, the program does not offer students courses in research ethics or research tools, which would be necessary for any student engaging with research in computing systems these days, precisely because of the ubiquitous (pervasive) nature of modern computing.

The program's overall structure is focused on deepening the knowledge and skills of students in the targeted knowledge areas. There is ample opportunity for students to apply their skills through laboratory assignments, including exposure to tools such as hardware and network simulators or a graduate thesis with a research focus. There also seems to be an appropriate linkage between research and teaching in the program. However, the program does not offer research methodology and ethics courses, and student engagement with research appears informal.

The program's learning outcomes are based on the European and National Qualification Frameworks and clearly comply with the requirements of these Frameworks for Level 7 programs. The program requires 120 ECTS credits and at least two years of study. The degree of achievement of the learning outcomes is evaluated through multiple pathways. The program Director and associated faculty evaluate the students' perception of the program, the program's educational and research characteristics, the quality of the knowledge and skills acquired by the students, and the quality of the students' graduate ("Diploma") thesis work. These evaluations happen on an annual basis. The program Director and faculty also monitor the program's intake and the placement of program graduates in the

job market, although placement data collection has only started recently, and no concrete employment data is presented yet in the program's documentation. The program also seems to have a rather lower enrolment than other graduate programs in the same school, which may be happening because of the program's narrower scope than other graduate programs. The program could benefit from considerations of expanding its scope (e.g., with emerging topics such as augmented reality). However, the feedback from program graduates during the accreditation meetings was positive. There was a widely held view that the program improved graduates' employability and career development prospects.

The program is well aligned with the institutional quality assurance strategy of the HOU. It involves students actively via formal and informal feedback questionnaires that allow students to comment on the quality of the program, its learning outcomes, its course offerings and content, and its (virtual or physical) infrastructure. The program actively engages with many stakeholders in the regional and national government. However, there seems to be limited involvement of stakeholders from industry and the private sector in setting the future directions of the program and in shaping its curriculum, even though the program is well aligned with industry needs. The program also does not have an established process for enabling students to undertake practical training in the industry. This is somewhat justified because most enrolled students in the program are already employed. However, there seems to be a desire and a need for program graduates to apply their skills in their current employment settings or in their attempts to seek alternative employment. Furthermore, due to the nature of the subject of the program, which involves the design and implementation of deep technology solutions for future applications, practical training should be supported and further encouraged, perhaps in partnership with student employers.

II. Analysis

The Masters Program in Pervasive and Mobile Computing Systems has been designed based on appropriate standards and considering the relevant regulatory framework, National and European qualification standards, and the overall market and need for more people with skills in relevant technologies. The program has a well-defined market of professionals with prior degrees in relevant subjects (this appears to be defined broadly and not with a specific list of relevant subjects in the public documentation about the program). The structure of the program is clear, and so are the objectives of the program and their rationale. Appropriate procedures are in place to ensure the regular revision of the program, with mandatory involvement of faculty and feedback from students and, to some extent, external stakeholders. The program of studies (student guide) is sufficient for its purposes.

The curriculum content covers networking technologies and software, the hardware-software co-design of pervasive computing systems, mobile computing systems, and embedded computer systems. The faculty teaching in the program makes an effort to modernize these elements by exposing students to relevant current technologies, primarily through laboratory and practical assignments and through the Diploma Thesis topics offered to students. The faculty are also active researchers and encourage high-calibre work that leads to publications in some of the best journals and conferences of fields relevant to the program. The faculty thus

makes a genuine effort to link their teaching with research. The curriculum has been designed with deep consideration of the importance of pervasive and mobile computing systems in industry and in everyday life and has been informed by state-of-the-art international research and development in this field.

While the course content appears up-to-date and in line with the state-of-the-art in relevant technologies, there are concerns about the delivery of the program to students. Considering that HOU offers an asynchronous online learning experience to students, it appears that the curriculum does not use the latest and best online learning tools for the subjects that it teaches, in particular interactive and online tools that train students in programming, interactive learning models with quizzes, or other tools that engage students directly with the learning process and do not force them to rely exclusively on static content such as textbooks and lecture notes. The specific program engages students with the design and implementation, and field-testing of hardware components, and it is unclear whether students have physical access to such components (e.g., hardware kits), or if they can work with such components virtually but in a way that enables them to carry out “hands-on” work with these components. The faculty have undertaken efforts to refresh the textbooks and notes of the courses and have included relevant textbooks written in the English language in the core material offered to students. While this is a positive development and a good response to a major concern raised in prior accreditations, the learning content shared with the students is still largely static and text based. Students should be given several study sources, with different study modalities (textbooks, video lectures, and interactive laboratory sessions). State-of-the-art technologies in networking and pervasive computation should be prioritized over outdated concepts and should be presented to students in their modern versions, with an appropriate exposition of their software (and some hardware) components, their expected functionality, and their applications.

III. Conclusions

The program complies substantially with Principle 2 in terms of its design, approval, and evaluation processes. However, the program still needs significant effort to modernize its asynchronous and online learning and content delivery tools and needs stronger and further engagement of external stakeholders from industry. Some of these challenges can be better addressed if HOU appoints additional tenure-track faculty members to support the program. The demand for the program is healthy but not necessarily as high as other relevant HOU programs, potentially because of its narrow scope. Consideration should be given to expanding the program scope, which in conjunction with additional faculty and resources, could improve its future attendance and sustainability.

Panel Judgement

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

Panel Recommendations

- The program should be revised to use the best current tools for the development of the asynchronous learning material, to promote more interactive learning, and to give students opportunities to work hands-on with pervasive and mobile systems (e.g., through the use of hardware kits shipped at home).
- The program could be expanded in scope to include the emerging technologies of pervasive computing in augmenting the physical world, and the stronger convergence of pervasive computing and traditional computing technologies into new ubiquitous systems.
- The program should formulate a procedure to accurately track the placement, career development, and future prospects of its graduates.
- The program should involve more stakeholders from both the private sector in an advisory role to help inform and modernise the curriculum.
- The program should offer research ethics and research methodology topics as part of the core curriculum
- The program should offer opportunities for practical training to its students, perhaps in collaboration with the students' current employers.

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

In the program, students are required to maintain a high level of focus throughout each module. However, students are well aware of this requirement from the outset.

They also have the opportunity to develop their own ideas or address challenges they encounter in their professional work through their Master's thesis.

Additionally, students are provided with clear guidelines on what is necessary for successful completion of their chosen modules and the criteria by which they will be assessed.

At the end of every module, students have a chance to give their feedback on the teaching process and the instructor's performance in general, as well as to share any other concerns they may have. This feedback is collected and shared with the faculty for review and improvement.

Students also have the option to submit appeals or complaints should they encounter any issues or have grievances throughout the program. This ensures that their concerns are addressed promptly and fairly.

In addition to their instructional roles, teachers serve as academic advisors, offering guidance and support to students as they progress through their academic journey.

II. Analysis

The Master's program is designed to be accommodating for students who almost all of them balance their studies with full-time employment. Given the limited time available to them, the program offers an option for students to choose only one module within a year instead of the typical two. Each module adheres to a strict schedule and includes assignments with fixed deadlines. This flexibility in module selection can greatly relieve the time constraints faced by students.

Teachers play a pivotal role in guiding students through their academic journey. They publish recommended topics for students to consider for their Master's thesis. Beyond these suggestions, students have the liberty to propose their own thesis topics, drawing from their own ideas or work-related challenges. Furthermore, students can collaborate with their employing companies for their thesis, although this path involves coordination with both a company supervisor and an official teacher supervisor.

In the pursuit of successfully completing a module, students are provided with clear assessment criteria from the outset. This transparency allows students to understand the weighting of assignments and final exams, ensuring they can plan their studies effectively.

Upon completing a module, students are invited to provide feedback on various aspects, including the module itself, the teacher, and the quality of study materials. These feedback results are shared with teachers and serve as a valuable tool for improving the program. Notably, the program's attendance rate is 41.54% (according to A09 document), which, while not disheartening, leaves room for improvement and was a concern identified by the Panel.

To address concerns or issues related to the program, students have access to a dedicated form for complaints or appeals, with detailed procedures and regulations available in the program documentation (described in A10 document). Additionally, students can reach out to

module coordinators or even the headmaster if their problems remain unresolved. The online form (<https://www.eap.gr/ypovoli-paraponou/>) is accessible for all active students.

In addition to their teaching roles, program teachers serve as advisors. Regular meetings with students, conducted before each assignment, provide opportunities for discussions about student progress and offer valuable support and encouragement.

III. Conclusions

Overall, it is important to highlight that the majority of students express enthusiasm for the program and appreciate the supportiveness of their teachers. Group assignments also promote cooperative learning, allowing students to develop essential teamwork skills. This underscores the program's commitment to student-centred learning. Nevertheless, there is always room for improvement, thus the Panel points some suggestions below.

Panel Judgement

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

Panel Recommendations

- The PSP's grading system currently allocates 40% to assignments and 60% to final exams. Although faculty members mentioned that this distribution has been altered in response to previous student concerns, some interviewed students still perceive it as unfair, as assignments demand significantly more time and effort than final exams. The Panel recommends considering revisiting this ratio to ensure that students' efforts are more equitably represented in the final grade.
- The Panel strongly recommends that the head of the PSP should take a more active role in motivating students to participate more actively in surveys related to the program. Increased survey participation can provide valuable insights into the PSP's overall functionality and help draw more secure conclusions about its effectiveness, as well as address any existing concerns.
- The surveys conducted about each Module of the PSP contain a separate section on the quality of the study material. The Panel suggest that these surveys should ask the students about the ways this material are presented to the students and all the delivery methods, in general.

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

Students have a clear understanding of the software and online tools offered by the PSP, crucial for their academic journey.

Teachers closely monitor students' progress through assignment assessments, and they maintain regular online meetings and open discussions with registered students to gauge their levels effectively.

In addition, HOU actively supports student mobility by providing opportunities to participate in Erasmus+ programs.

Moreover, the Student Guide, which applies uniformly across all PSPs of HOU, ensures accessibility and comprehensibility for students. This guide provides essential information, including module ECTS values and the total ECTS required for successful PSP completion.

All necessary information, including regulations and the Code of Research Ethics concerning the Master Thesis, is accessible and explicit to all students, fostering transparency and adherence to ethical standards.

Regarding practical training, it is explicitly stated that the PSP does not offer this capability to students. This ensures that students are well-informed about the program's provisions.

Lastly, the issuance of the Diploma Supplement is automatic, simplifying administrative procedures and ensuring students receive this important document along with their degrees.

II. Analysis

Interviewed students affirmed their ability to effortlessly access information through the provided online tools and the PSP's website. Furthermore, teachers actively encourage the use of a forum for improved peer communication. Additionally, certain software applications, typically not freely available, such as Mathematica or SPSS, are accessible to all active students, enhancing their effectiveness in practice and learning.

Teachers seize the opportunity to evaluate students' progress during pre-assignment online meetings. Through discussions, teachers can identify potential weaknesses that students may have developed. Moreover, when grading assignments, teachers offer comprehensive and personalized feedback on any errors made by students, fostering a deeper understanding of the material.

The university maintains a consistent website, <https://erasmusplus.eap.gr/>, throughout HOU. This serves as a central platform to inform students about their eligibility for Erasmus+ programs. The website contains all pertinent regulations and essential program-related information, ensuring accessibility and clarity for students.

The Student Guide is standardized across all HOU programs, with the PSP included as a dedicated chapter. This comprehensive guide not only covers specific information about this particular PSP but also contains general university information and rules. Due to the Guide's clarity and comprehensibility, there is no necessity to create separate guides for each available PSP.

Students can access essential information about their Master Thesis through HOU website links: <https://www.eap.gr/annual-programs/> and <https://www.eap.gr/semi-annual-programs/>. These webpages comprehensively cover critical aspects of the Thesis, including regulations, assessment criteria, and a dedicated section on the Code of Research Ethics. However, the Panel notes that it does not clearly specify the language in which the Thesis should be written, apart from the summary.

Students do not have the opportunity for practical training, as explicitly stated in the PSP's proposal (A01 document). This limitation is justified by the fact that the majority of students are already employed. However, the same document notes that students who wish to participate in an Erasmus+ program can choose either to study, conduct academic research, or work abroad. In this context, practical training can be conducted.

In the A01 proposal document, it is clearly stated that the Diploma Supplement is automatically issued to students upon successful completion of the PSP. Additionally, the A15 document provides a template for the Diploma Supplement in both Greek and English, ensuring clarity and accessibility.

III. Conclusions

The Panel agrees that the PSP has very clear and specific regulations, which are easily accessible by every active student. Additionally, students seem to be aware in advance of those regulations.

Panel Judgement

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

Panel Recommendations

One minor suggestion the Panel wants to make is about the Master Thesis' language. It is obvious that many Theses end up being published as papers, so these papers are written in English. However, it should be written clearly in the regulations whether the Thesis needs to be in Greek, in English or the student is flexible to do as he/she wishes.

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

To cover the teaching load of the Programme, there are 2 full time and 10 part time faculty members. The teaching staff are assessed by MODIP on an annual basis by analysing the student's course evaluation forms. In addition, PSP-level information is sent to OMEA, and the course- level information is sent to the teaching staff. Information about teaching effectiveness is considered during the promotion process. In addition, teaching staff whose course evaluations are at the low-end of the scale are asked to improve. The part time faculty are hired for a period of three years with the possibility of renewal of the appointment for another three years. There are clear and transparent processes for the recruitment of the part time faculty members. This procedure leads to the hiring of high-quality faculty.

II. Analysis

The research output of the faculty, as measured by the number of publications, and the impact/significance of these publications, as measured by the number of citations is satisfactory. The full time faculty have been appointed and promoted through the ranks

following the established Greek legal framework. Due to the extreme shortage of full-time faculty member the opportunities for mobility are fairly limited.

III. Conclusions

Faculty are evaluated in all areas of their work using the process determined by the institution's Quality Assurance Committee (ΜΟΔΙΠ) through its internal quality assurance system and though the process determined by the Committee on Internal Evaluation (ΟΜΕΑ). The Programme provides a working environment where its faculty can balance their time between teaching, research, and service. It monitors the teaching effectiveness of its academic staff and intervenes to address issues.

Panel Judgement

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

Panel Recommendations

- The Programme desperately needs more full-time faculty members. The only one full time faculty member happens to be the Head of the PSP. During the faculty meeting he could not participate to ensure impartiality of the process. As a result, the EEAP could not verify important aspects of the PSP such as mobility, sabbatical, etc.
- The Programme needs to develop a systematic plan to integrate the School's research with teaching and learning and provide its students research and publication opportunities, beyond that of the thesis project. This is important as it allows students to learn about the latest developments in their field of study and provides them with the experience and resume to pursue graduate studies.
- The School or the PSP might also consider rewarding teaching and/or research excellence, after establishing clear and transparent relevant criteria. This could be in the form of an 'Excellence in Teaching/Research/Service award'.

PRINICPLE 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 academic unit provides several services to the PSP via their web pages and online platform system. This online access allows the students to access the electronic university library (MITOS, APOTHESES etc.) and e-classrooms where the lectures are delivered. Most of the software that is used for the PSP seems to be open-access software. This was identified from the interviews with the stakeholders during the review process. The provided videos of the HOU (Hellenic Open University) indicate some physical facilities. However, these labs and other physical infrastructure services are unavailable to this PSP. There are support services for the students, but those are ad hoc and driven informally by the supporting academics. However, these supporting services are based on the student.

The administration of the PSP seemed to be satisfactory, and the contact details are provided. The PSP has included regulations that ensure the uninterrupted availability of staff

for the administration of the PSP. A catalogue with the names of the secretariat staff tasked with the duties of the PSP was also provided.

Lastly, the PSP requires tuition for its duration; a plan of its utilisation is included in the PSP Study Guide. HOU also provides a healthy number of scholarships, which is a welcome service in the assistance of low-income students.

II. Analysis

The PSP provides all the necessary facilities and services for the PSP needs. However, in comparison to the other Hellenic Universities, which have physical infrastructure and running expenses that are associated with those, the HOU seems to have no such expenses but instead should have had the software infrastructure and utilities/tools, that are more specialised for the PSP and provide an improving quality on the PSP. Furthermore, they could have had small hardware packages that they could mail to the students to do their labs and provide details on how to return those to the HOU. There are ways to ensure continuous quality improvements on the HOU PSP. However, there seems to be no formal interaction with other academics (perhaps externals from outside Greece), and no advisory board seems to exist. Another observation of EEAP is the lack of interactive extracurricular activities and events that link the students with alumni and industry. This seems to isolate the students from social activities organised by the HOU.

The availability of a scholarship by the University is a welcome service in assistance of low-income students.

III. Conclusions

The PSP provides adequate infrastructure and support to the students for their successful completion. However, there seems not to be an effective quality assurance mechanism in place to generate key questions on how to differentiate their learning approaches. Such a mechanism should address challenges associated with improving student services and deploying state-of-the-art teaching methods and tools. An IEG should be formed with the aim of identifying approaches/technologies for more interactive learning methods and the inclusion of “hands-on” experience.

Panel Judgement

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

Panel Recommendations

- The formation of an IEG at PSP level to provide a systematic review of the programme learning activities, tools and methods used to ensure the continuous development of the PSP and ensure quality assurance practices are used to make decisions.
- The PSP Faculty could organise a formal presentation or a series of newsletters to inform newly admitted students of the available facilities and services of the University and plans for improving their learning experiences.
- Investigate methods to improve students' "hands-on" experience and provide more software infrastructure.

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

The HOU has established a set of QA principles for collecting data regarding students, teaching staff, course structure, annual monitoring, periodic assessments, etc., and operates centralised information systems, providing effective academic services and tools to its Programmes for their administrative and QA purposes.

The PSP Steering Committee and academic lead for each course seem to work in close cooperation with QAU and the School. They have available effective centralised tools and collect, organise, manage, and analyse information towards the continuous improvement of PSP.

EEAP found the QAU of the HOU was very effective and well-organised in providing any relevant documentation required as evidence during the accreditation review process. However, the MEQs (module evaluation questionnaires) were found to be similar to those of the other universities that deliver the courses in situ. These questionnaires do not adequately

capture the evaluation of the delivery methods, the programme's interactive learning capabilities and learning methods.

II. Analysis

Data collected from various sources provides a holistic -although limited- view of PSP's performance and student experience. 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 QA purposes and facilitate a decision-making approach upon further actions toward PSP's effectiveness.

Further efficiency measurements using quantitative and qualitative indicators through KPIs, should be identified, providing valuable and reliable information to support higher-level decision-making (e.g. the vision of the programme, the learning methods, the provision for mental support and other student advisory services).

Regular data collection from students at the end of each teaching semester allows for periodic evaluations and identification of trends for improvement. Nevertheless, persistently low response rates in CEQ raise concerns about QA data adequacy and effective decision-making, specifically when outputs and leading actions (in response to MEQ's findings) are not communicated to the students and other stakeholders. Also, those are not systematically documented.

Performing dedicated regular surveys involving other stakeholders (in addition to the students), such as alumni (graduates) and the existing industrial network, may enhance the incorporation of useful feedback for the continuing review and development of the PSP.

The EEAP acknowledges that the PSP is trying to collect feedback from various external stakeholders (including the staff's extended network of regional and national social partners and industry partners). However, it appears that this has been done so far with an ad-hoc and uncoordinated approach. Establishing a body (i.e., IEG for the PSP) along with formalised and documented processes for eliciting input from external stakeholders may enhance academic offerings through systematic external collaboration. It could also improve the publicity of PSP's offering, increasing the number of potential candidate students for the Programme.

The PSP must benefit from all external stakeholders' cooperative spirit and willingness to contribute to the PSP's continuous improvement, which became obvious to EEAP during the review meetings.

III. Conclusions

The PSP 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 QAU. Additionally, it is essential to clearly outline the long-term objectives of the PSP (on delivery approaches and the inclusion of interactive learning methods) 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 MEQs and actions to resolve this. Such low student participation in MEQ affects the importance/accuracy of the data. Perhaps different MEQs

should be formulated for the distance learning courses and provide feedback to the students indicating/communicating (to them) their role in the QA and continuous improvement of the PSP.

The PSP should consider extending and formalising external stakeholders' active participation in its QA processes, including alumni. An alumni association's absence hinders valuable feedback for continuous program improvement and visibility to the industry. The PSP 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

- Additional KPIs, such as (but not only) those associated with students' participation in MEQ, should be adopted, expanding the breadth of periodic quality goals reviewed towards PSP continuous improvement.
- The PSP should develop a formal (independent from the Institution) procedure for collecting, processing and presenting data from MEQ, refining MEQ's structure, and ensuring QA practices are in place to review the PSP. This procedure should be aligned with any Internal/External evaluations of the PSP.
- 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, capitalising on staff's wide network of external relations in PSP QA processes.
- The formation of an Alumni membership that also includes participation in periodic activities (e.g. an industrial open day with physical participation to enhance student learning experience), aiming to actively engage its members towards strengthening the PSP's visibility/promotion and QA 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

Online resources are accessible for finding public information about the University and the Programme. It offers immediate and easily available information about its academic and educational activities on its website. However, since the website serves as the Program's "shop window," more care must be taken to ensure that the information on it is current and consistent between the two editions (English and Greek).

There doesn't seem to be any publicly (or even privately) accessible data on the graduates' employment rate. Likewise, it doesn't seem as though there is any information about the job prospects for the grads. Alumni who met with the EEAP provided an insight into the diverse career paths taken by people. The program's alumni seem very excited about their involvement.

II. Analysis

The EEAP explored the publicly available information at the website as well as sample material from coursework made available by the MODIP to the panel members online. The EEAP expresses its satisfaction and gratitude for MODIP's willingness to offer such detailed presentation.

The panel examined the Program's website as well as the School's e-class platform, and it was determined that the data is accessible and current. The EEAP also noted the following as needing improvement:

- Some professor's CVs are not accessible online.
- Quality Policy and Quality Targets materials are available on the website; however status assessments are not there. Links to these documents on the website's English edition also point to Greek-language documents. The English translation of everything else on the website's Greek version is accurate.

- Information on research projects and/or outputs is absent from the website. It would greatly aid in drawing in more students.
- The website lacks the Internal Evaluation Reports.

III. Conclusions

The Panel concludes that the Programme has a satisfactory standard regarding the public information but we strongly suggest to seriously consider the recommendations below.

Panel Judgement

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

Panel Recommendations

- Translate the documents in Greek (Quality Policy & Targets) to English
- Update and include the CVs for all teaching staff including SEP
- Include the results of the Internal Evaluation Reports for students and visitors to view. That ensures transparency and it is a strong indicator of the progress the PSP makes as it moves forward.

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

The faculty teaching in the Masters are responsible for ensuring that the program is in line with the latest research in their relevant disciplines (wireless computing, pervasive computing, embedded systems). All tenured and collaborative faculty teaching in the program are active researchers with strong track records and all seem well abreast of the latest research developments in their own fields. While the course learning tools could be improved beyond the mandatory textbook and notes, and in terms of providing more interactive content and more hands-on experience (see Principle 2), the program as a whole succeeds in engaging many students in research activity, publications, and exposure to the latest technologies via practical assignments, laboratories, and graduate thesis work.

The program has responded well to societal and market needs, with a sustained -albeit lower than other relevant programs- intake, high graduation rates, and interest from faculty of a high calibre to teach in the program. The program monitors annually its overall response to societal and industry needs by engaging with graduates and external stakeholders. The program also benefits from the strong reputation of HOU as a University that supports and advocates for lifelong learning, and the wider societal acceptance of the value of remote learning in recent years.

The program benefits from admitting students who are already at a mature stage of their careers and can manage well the program's workload and requirements. The program exhibits high graduation rates, and graduates appear to be broadly satisfied with their overall learning experience, and applying the skills that they acquired in the program in their workspace. Student evaluations of the program's course content are overall on a positive trajectory, although there are still areas of concern in some courses, particularly around course content modernization and course delivery tools. These are properly investigated by the program faculty.

The program has a standard procedure for the assessment of students, with a blend of exams (60%) and practical assignments (40%). The program faculty has advocated for a higher weight of practical assignments due to the nature of the field of study. Further flexibility in defining alternative assessment modes and weights appears to be necessary though. The practical and applied nature of a Masters program in Pervasive and Mobile Computing Systems calls for more hands-on experience and less traditional exam-based testing.

Student satisfaction with the program has had mixed results in the past but appears to improve. The students still seek more and better interaction with faculty and higher quality in the online learning material. The students had also some major concerns about a specific course. These seem to be addressed promptly. The program monitors closely student feedback and responses to it.

HOU programs are unique in that they provide a solely online learning environment, largely based on asynchronous learning but with frequent synchronous interaction between faculty and students to support the learning process. The Masters program in Pervasive and Mobile Computing Systems builds on the many years of experience with online and asynchronous learning in the HOU. The necessary infrastructure and support structures for online learning are in place, although the program appears to be in need of refreshment and modernization of the online learning tools it uses, and further support for providing students with hands-on experience. The program has sufficient processes and mechanisms to carry out a systematic review and modernization of its learning material and tools.

II. Analysis

The program has established annual evaluation processes, in line with the institutional quality assurance policies. The outcomes of this assessment are properly tracked and shared with the

institution and with program faculty. It would be beneficial if the institution reflects on the outcomes of the assessment and the improvements introduced in the program and also in the material that is shared with students, so that incoming, current, and past students can observe and appreciate progress in the program. Similarly, this material can be shared with external stakeholders, who can provide their own constructive feedback on the evolution of the program.

The overall annual evaluation process established in the program is standardized, streamlined, and highly transparent. The faculty has regular and frequent opportunities to discuss and decide on program interventions that respond to the annual evaluation process and specifically to student comments and concerns. The faculty also discuss and evaluate frequently the quality of the taught content and the student perceptions of it. The program as a whole seems to have a comprehensive and well-established set of mechanisms to implement self-assessment and act on any recommendations. A major concern about the program is that it is supported by a single faculty member of the HOU.

III. Conclusions

The program broadly meets the criteria of this principle. It has comprehensive, timely, streamlined, and transparent self-assessment and self-improvement processes in place.

Panel Judgement

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

Panel Recommendations

- The program would benefit from further flexibility in defining the weights of the different assessment components and could put more emphasis (more than 40%) on practical and laboratory-based assessment, considering the nature of the subject field, which is highly practical and applied.
- The outcomes of the self-assessment and continuous improvement efforts of the program could be shared with current, past, and future students, as well as with all external stakeholders for further feedback, but also for disseminating and advertising the evolution of the program over the years.

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. This is the first time that the PSP “Engineering of Pervasive Computing Systems” (SDY) goes through an external review for the purpose of accreditation. Still, all the teaching staff seem to be aware of the importance of such evaluations, and they were eager to provide any help needed.

The connection and interaction with external stakeholders and social partners is somewhat vague and fluid. Although there exists willingness to help, there is no formal mechanism to do so. It was stated during the meetings that the initial steps have been taken to create an external advisory board at the Institution’s level. This effort is encouraged by this panel (see Recommendations below).

II. Analysis

Although this is the first external evaluation of the PSP SDY for accreditation, there have been two external evaluations before at higher levels: One in 2016 for the Institution (HOU), and one in 2020 for the Internal System for Quality assurance (ESDP). There were recommendations there for a different level or organization, but, where appropriate, they were addressed by SDY too, as shown in the corresponding Progress Report. (It is interesting that the disparity of numbers between DEP and SEP has been long identified, and some steps have been taken, but there is still a lot more to be done.)

Occasionally, during the EEAP’s review, there were pieces of information not included in the original material. The Institution’s Quality Assurance Unit (MODIP) was very fast and effective

in understanding even vaguely stated requests and providing all the material actually needed. Their responsiveness is recognized and appreciated.

However, for future consideration, this points to a need to be sensitive to the material that will help the EEAP fulfil their assignment. The main questions addressed by the EEAP is to identify the evidence that prove (or disprove) what the program under review claims. Examples of such questions are included in the Mapping Grid document for the 10 Principles. A recommendation below addresses this need. It has been noticed that, often, the introductory slide presentations on the PSP under review contain a significant amount of such information. This leads to the impression that the material is available, but the authors of the supporting documentation have not realized the importance of giving such material to the Panel even before the interviews start.

III. Conclusions

This is the first time that the PSP SDY goes through external evaluation for accreditation, but it still has kept an eye on higher level accreditation (like for the Institution) as it applies to them. This gives confidence that they will be taking actions to address any weak points, or submit requests to higher authorities, if the problem is beyond their authority.

Panel Judgement

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

Panel Recommendations

- The PSP SDY and the School (STET) are encouraged to pursue the creation of an external advisory board at the appropriate level, to give regular feedback during the year.
- It is recommended that, in the Accreditation Proposal and the accompanying support material, the PSP under review provide hard data (such as statistics derived from evaluations, student registrations, or other relevant data in MODIP's possession) that can answer questions such as those shown on the Mapping Grid of the 10 Principles. It can also include pointers to documents describing the step-by-step processes of handling situations such as complaints, appeals to grading, handling of health issues, or requests for extensions in completing a Module.

PART C: CONCLUSIONS

I. Features of Good Practice

- Small sections that permit close interaction between the Professor-Advisor and the students.
- Very good quality of Adjunct Faculty.
- Project-based learning that permits students to take the initiative.
- Periodic group meetings of the class (but, still, in distance format) to discuss questions and resolve issues.
- Except for the regular online meetings, students have also the ability to share their concerns or make an official complaint
- In general, students are excited about the PSP, which the Panel recognize its importance
- Students have the liberty to propose their own thesis topics, even in cooperation with the company they work for
- The regulations of the PSP and the HOU, in general, are clear and easily accessible
- Students find easily whatever they search for

II. Areas of Weakness

- Great disparity in the numbers of regular faculty versus adjuncts.
- Lack of sense of community between the students due to the distance learning format.
- No availability of hands-on hardware labs.
- The attendance in the online surveys conducted is below 50%
- The ratio of assignments and final exams contribution in the final grade may be unfair and not reflect students' efforts and time

III. Recommendations for Follow-up Actions

- In the English Language version of the website, make available translations to English at all levels. Alternatively, when reaching a level beyond which only Greek is available, show a banner warning the readers of the change, and then permit them to proceed, if they so wish.
- Students are not motivated to participate in evaluations because they do not see any immediate results from their feedback. One suggestion is, when a Professor-Advisor, in one of the group meetings, tries to motivate them to submit their feedback, to show the students examples from previous semesters/years, where concrete suggestions were made, and which resulted in concrete actions by the program/School/University. The example(s) can come even from other HOU programs related to Informatics.

- The university is strongly encouraged to hire more permanent faculty (DEP). The panel feels that doubling the DEP size at HUP, as a first step, would not be unreasonable. This will provide more backbone to the operation and would provide more acceptance to accrediting organisations.
- Offer support to SEP for conference attendance. Conditions can be imposed, such as publication of work resulting from a Thesis within SDY, and the HOU being credited in the affiliation of the authors.
- The program should be revised to use the best current tools for the development of the asynchronous learning material, to promote more interactive learning, and give students opportunities to work hands-on with pervasive and mobile systems (e.g., through the use of hardware kits shipped at home).
- The program could be expanded in scope to include the emerging technologies of pervasive computing in augmenting the physical world, and the stronger convergence of pervasive computing and traditional computing technologies into new ubiquitous systems.
- The program should formulate a procedure to accurately track the placement, career development and future prospects of its graduates.
- The program should involve more extensively stakeholders from both the private sector in an advisory role to help inform and modernise the curriculum.
- The program should offer research ethics and research methodology topics as part of the core curriculum
- The program should offer opportunities for practical training to its students, perhaps in collaboration with the students' current employers.
- The PSP's grading system currently allocates 40% to assignments and 60% to final exams. Although faculty members mentioned that this distribution has been altered in response to previous student concerns, some interviewed students still perceive it as unfair, as assignments demand significantly more time and effort than final exams. The Panel recommends considering revisiting this ratio to ensure that students' efforts are more equitably represented in the final grade.
- The Panel strongly recommends that the head of the PSP should take a more active role in motivating students to participate more actively in surveys related to the program. Increased survey participation can provide valuable insights into the PSP's overall functionality and help draw more secure conclusions about its effectiveness, as well as address any existing concerns.
- The surveys conducted about each Module of the PSP contain a separate section on the quality of the study material. The Panel suggest that these surveys should ask the students about the ways this material are presented to the students and all the delivery methods, in general.
- One minor suggestion the Panel wants to make is about the Master Thesis' language. It is obvious that many Theses end up being published as papers, so these papers are

written in English. However, it should be written clearly in the regulations whether the Thesis needs to be in Greek, in English or the student is flexible to do as he/she wishes.

- The Programme desperately needs more full-time faculty members. The only one full time faculty member happens to be the Head of the PSP. During the faculty meeting he could not participate to ensure impartiality of the process. As a result, the EEAP could not verify important aspects of the PSP such as mobility, sabbatical, etc.
- The Programme needs to develop a systematic plan to integrate the School's research with teaching and learning and provide its students research and publication opportunities, beyond that of the thesis project. This is important as it allows students to learn about the latest developments in their field of study and provides them with the experience and resume to pursue graduate studies.
- The School or the PSP might also consider rewarding teaching and/or research excellence, after establishing clear and transparent relevant criteria. This could be in the form of an 'Excellence in Teaching/Research/Service award'.
- The formation of an IEG at PSP level to provide a systematic review of the programme learning activities, tools and methods used to ensure the continuous development of the PSP and ensure quality assurance practices are used to make decisions.
- The PSP Faculty could organise a formal presentation or a series of newsletters to inform newly admitted students of the available facilities and services of the University and plans for improving their learning experiences.
- Investigate methods to improve students' "hands-on" experience and provide more software infrastructure.
- Additional KPIs, such as (but not only) those associated with students' participation in MEQ, should be adopted, expanding the breadth of periodic quality goals reviewed towards PSP continuous improvement.
- The PSP should develop a formal (independent from the Institution) procedure for collecting, processing and presenting data from MEQ, refining MEQ's structure, and ensuring QA practices are in place to review the PSP. This procedure should be aligned with any Internal/External evaluations of the PSP.
- 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, capitalising on staff's wide network of external relations in PSP QA processes.
- The formation of an Alumni membership that also includes participation in periodic activities (e.g. an industrial open day with physical participation to enhance student learning experience), aiming to actively engage its members towards strengthening the PSP's visibility/promotion and QA processes towards its continuous improvement.
- Translate the documents in Greek (Quality Policy & Targets) to English
- Update and include the CVs for all teaching staff including SEP

- Include the results of the Internal Evaluation Reports for students and visitors to view. That ensures transparency and it is a strong indicator of the progress the PSP makes as it moves forward.
- The program would benefit from further flexibility in defining the weights of the different assessment components and could put more emphasis (more than 40%) on practical and laboratory-based assessment, considering the nature of the subject field, which is highly practical and applied.
- The outcomes of the self-assessment and continuous improvement efforts of the program could be shared with current, past, and future students, as well as with all external stakeholders for further feedback, but also for disseminating and advertising the evolution of the program over the years.
- The PSP SDY and the School (STET) are encouraged to pursue the creation of an external advisory board at the appropriate level, to give regular feedback during the year.
- It is recommended that, in the Accreditation Proposal and the accompanying support material, the PSP under review provide hard data (such as statistics derived from evaluations, student registrations, or other relevant data in MODIP's possession) that can answer questions such as those shown on the Mapping Grid of the 10 Principles. It can also include pointers to documents describing the step-by-step processes of handling situations such as complaints, appeals to grading, handling of health issues, or requests for extensions in completing a Module.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **3, 4, 9, and 10.**

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

The Principles where partial compliance has been achieved are: **5 and 6.**

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

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

The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

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