Accreditation Report
for the New Undergraduate Study Programme in Operation of:

Computer Science and Technology

Institution: University of Macedonia
Date: 19 November 2022

Report of the Panel appointed by the HAHE to undertake the review of the New Undergraduate Study Programme in operation of **Computer Science and Technology** of the **University of Macedonia** for the purposes of granting accreditation.

TABLE OF ABBREVIATIONS

Abbreviation	Description
CS	Computer Science
CS&T	Computer Science & Technology
DAI	Department of Applied Informatics
ECTS	European Credit Transfer System
EEAP	External Evaluation & Accreditation Panel
HAHE	Hellenic Authority for Higher Education
IQAS	Internal Quality Assurance System
IS	Information Systems
KPI	Key Performance Indicator
MODIP	Quality Assurance Unit / ΜΟΔΙΠ -Μονάδα Διασφάλισης Ποιότητας
NISQA	National Information System for Quality Assurance in Higher Education
OMEA	Department's Internal Evaluation Committee / OMEA
QA	Quality Assurance
UGP	Undergraduate study Program
UoM	University of Macedonia

TABLE OF CONTENTS

PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I. The External Evaluation & Accreditation Panel

The Panel responsible for the Accreditation Review of the new undergraduate study programme in operation of **Computer Science and Technology** of the **University of Macedonia** comprised the following four (4) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

1. **Professor George Karypis (Chair)**
   University of Minnesota, USA

2. **Dr Paraskevas Dalianis**
   UniSystems S.A., Quest Group, Greece

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

4. **Savvas Mataras**
   Student at the University of Patras, Greece

II.   Review Procedure and Documentation

The review of the External Evaluation & Accreditation Panel (EEAP) considered the documents that were provided by the Department prior to the onsite visit (B1–B32) and the documents that were provided in response to specific requests by the EEAP during the onsite visit. In addition, it considered the information that was obtained from the discussions with various stakeholders (University's and Department's leadership, teaching staff, administrative staff, students, employers, and social partners), and the onsite tour of the facilities (classrooms, laboratories, libraries, etc.).

The EEAP visited the Department on October 31st and November 1st. Two members of the Panel were physically present onsite, and two members participated via Zoom. During these two days, the EEAP held seven meetings (meeting with the Vice-Rector and Department Head, meeting with OMEA and MODIP representatives, meeting with teaching staff, meeting with students, meeting with employers and social partners, meeting with OMEA and MODIP representatives, and closure meeting with Vice-Rector, Department head, OMEA, and MODIP) and visited the classrooms, lecture halls, library, office for students with special needs, secretariat, and Erasmus and career office.

III. New Undergraduate Study Programme in operation Profile

The Department of Applied Informatics (DAI) is part of the School of Information Sciences at the University of Macedonia (UoM). It started operations in 1991 and later merged with the Department of Technology Management that was in Naoussa. DAI's core field of science is Computer Science (CS) with a strong focus on applications of CS in economics, finance, management, and other social sciences. Prior to 2019, it offered a single undergraduate study program (UGP) where the students had to select one of two upper division tracks. In 2019, it re-organized its undergraduate study programs to offer two separate UGPs, one in Computer Science and Technology (CS&T) and one in Information Systems (IS). These UGPs have 26 common core courses, 11 degree-specific core courses, and 48 elective courses. Students are admitted to one of these two UGPs. This accreditation report considers the undergraduate study program in Computer Science and Technology. In addition, since this is a new UGP that was created in a department that already existed, this accreditation report will not address any issues related to DAI itself.

PART B: COMPLIANCE WITH THE PRINCIPLES

Principle 1: Strategic Planning, Feasibility and Sustainability of the Academic Unit

Institutions must have developed an appropriate strategy for the establishment and operation of new academic units and the provision of new undergraduate study programmes. This strategy should be documented by specific feasibility and sustainability studies.

By decision of the institutional Senate, the Institutions should address in their strategy issues related to their academic structure in academic units and study programmes, which support the profile, the vision, the mission, and the strategic goal setting of the Institution, within a specific time frame. The strategy of the Institution should articulate the potential benefits, weaknesses, opportunities or risks from the operation of new academic units and study programmes, and plan all the necessary actions towards the achievement of their goals.

The strategy of their academic structure should be documented by specific feasibility and sustainability studies, especially for new academic units and new study programmes.

More specifically, the feasibility study of the new undergraduate study programmes should be accompanied by a four-year business plan to meet specific needs in infrastructure, services, human resources, procedures, financial resources, and management systems.

During the evaluation of the Institutions and their individual academic units in terms of meeting the criteria for the organisation of undergraduate study programmes, particular attention must be place upon:

a. The academic profile and the mission of the academic unit
The profile and mission of the department should be specified. The scientific field of the department should be included in the internationally established scientific fields of Higher Education, as they are designated by the international categorisation of scientific fields in education, by UNESCO (ISCED 2013).

b. The strategy of the Institution for its academic development
The academic development strategy for the operation of the department and the new study programme should be set out. This strategy should result from the investigation of the factors that influence the studies and the research in the scientific field, the investigation of the institutional, economic, developmental, and social parameters that apply in the external environment of the Institution, as well as the possibilities and capabilities that exist within the internal environment (as reflected in a SWOT Analysis: strengths, weaknesses, opportunities, and threats). This specific analysis should demonstrate the reason for selecting the scientific field of the new department.

c. The documentation of the feasibility of the operation of the department and the study programme
The feasibility of the operation of the new department should be justified based on:
- *the needs of the national and regional economy (economic sectors, employment, supply-demand, expected academic and professional qualifications)*
- *comparison with other national and international study programmes of the same scientific field*
- *the state-of-the-art developments*

- the existing academic map; the differentiation of the proposed department from the already existing ones needs to be analysed, in addition to the implications of the current image of the academic map in the specific scientific field.

d. The documentation of the sustainability of the new department

Mention must be made to the infrastructure, human resources, funding perspective, services, and all other available resources in terms of:

- educational and research facilities (buildings, rooms, laboratories, equipment, etc.)
- staff (existing and new, by category, specialty, rank and laboratory). A distinct five-year plan is required, documenting the commitment of the School and of the Institution for filling in the necessary faculty positions to cover at least the entire pre-defined core curriculum
- funding (funding possibility from public or non-public sources)
- services (central, departmental / student support, digital, administrative, etc.)

e. The structure of studies

The structure of the studies should be briefly presented, namely:

- **The organisation of studies:** *The courses and the categories to which they belong; the distribution of the courses into semesters; the alignment of the courses with the European Credit Transfer System (ECTS).*
- **Learning process:** *Documentation must be provided as to how the student-centred approach is ensured (modes of teaching and evaluation of students beyond the traditional methods).*
- **Learning outcomes:** *Knowledge, skills and competences acquired by graduates, as well as the professional rights awarded must be mentioned.*

f. The number of admitted students

- The proposed number of admitted students over a five-year period should be specified.
- Any similar departments in other HEIs with the possibility of student transfers from / to the proposed department should be mentioned.

g. Postgraduate studies and research

- It is necessary to indicate research priorities in the scientific field, the opportunities for interdisciplinary research, the challenges towards new knowledge, possible research collaborations, etc.
- In addition, the postgraduate and doctoral programmes offered by the academic unit, the research projects performed, and the research performance of the faculty members should be mentioned.

Relevant documentation

- *Introductory Report by the Quality Assurance Unit (QAU) addressing the above points with the necessary documentation*
- *Updated Strategic Plan of the Institution that will include its proposed academic reconstruction, in view of the planned operation of the new department(s) (incl. updated SWOT analysis at institutional level)*
- *Feasibility and sustainability studies for the establishment and operation of the new academic unit and the new study programme*
- *Four-year business plan*

Study Programme Compliance

I.   Findings

DAI's core academic profile in relation to the CS&T UGP falls squarely within the area of Computer Science, which is a well-established scientific field. However, unlike traditional CS departments, it has several faculty members working at the intersection of CS with Economics, Finance, Management, and other social sciences. DAI takes advantage of that to offer its students courses and research opportunities that are not part of the traditional CS curriculum and prepare them for successful careers in these CS+X areas. The interdisciplinary nature of DAI's is well-reflected in its mission statement that explicitly calls out the advancement and communication of knowledge with an emphasis on the development of systems and applications in the above areas.

The job market for graduates with CS-related education has been strong and is expected to remain so in the foreseeable future. This was confirmed by talking with industry leaders from Thessaloniki. Moreover, the same leaders told us that they seek out the UGP's graduates because their training, which includes CS topics that are better aligned with modern technologies and their inter-disciplinary training, allows them to onboard quickly.

DAI has 35 faculty members and 6 secretarial staff. It has 5 lecture halls (488 seats), 1 conference room, 4 computer labs, 6 research centres, 41 faculty/researcher offices, and a secretarial office. The budget for DAI's operations is part of and administered by UoM and the Department does not have its own budget. UoM provides centrally various student support services (e.g., food, housing, support for students with special needs, library, career office, study abroad) and the Department provides secretariat support for UGP-related items.

To obtain a degree, a student needs to take 37 required courses and 12 elective courses out of a pool of 35 courses, for a total of 240+5 ECTS. These courses are organised into four categories: knowledge & understanding, intellectual skills, professional and practical skills, and transversal skills. For each of the courses, the program's study guide provides detailed information related to learning outcomes, course content, and course assessment. Beyond the standard final exam, the program uses a variety of other assessment methods including midterms, homework and labs, and individual/team projects.

In terms of the number of admitted students, in its three years of operation, DAI proposed to admit 80 students/year and the Ministry of Education asked it to admit 135 students/year, which it did. The Department expects the same 80/135 proposed/admitted number for the next five years. DAI receives many transfer students (averaging 52.3 students/year in the past three years) from 11 other eligible CS departments in Greece.

DAI offers postgraduate educational and research opportunities. It provides three Master's programs (MSc in Applied Informatics, MSc in Law and Informatics, MSc in Artificial Intelligence and Data Analytics) and a Ph.D. program. DAI's research program is organised in the form of 6 research laboratories and covers topics in areas such as multimedia, security, networking, network systems, computer systems, software engineering, data engineering, computational methodologies, operations research, information systems, e-business, and accounting information systems. In terms of research performance, the research funding per faculty was €19.2K for 2018 and €28.8K for 2019; the number of publications per faculty were 3.8 for 2018, 5.0 for 2019, and 4.2 for 2020; the number of citations per faculty were 46.7 for 2018, 76.7 for 2019, and 85.3 for 2020.

II.   Analysis

A stated goal in designing the UGP's curriculum was to differentiate it from the CS-related programs in other Greek universities. When asked which other UGP are most like CS&T, it took a while before we obtained a consensus from the faculty that we interviewed. Similarly, though the Department did provide a SWOT analysis it did not provide details on how this analysis shaped the UGP (e.g., inclusion/exclusion of courses, course structure, learning process, etc). Finally, elements of the program's feasibility and sustainability studies (e.g., career market, competitive landscape) rely on anecdotes and are not supported by in-depth studies and data. These examples illustrate two recurring themes that we observed in relation to this and other principles. First, in some areas, the Department has not performed the studies required to obtain the data that will allow it to make data-driven decisions. Second, when it has the data, it is not clear how it is used to inform decision making.

The overall feedback that we received from the academic and administrative personnel, was that the centrally administered budget is working well and removes some of the burdens associated with a department managing its own budget. However, we also heard that it introduces unnecessary administrative overhead for rather small operational expenses (e.g., office supplies, tonners, etc).

The organisation of CS&T's curriculum is good and well-aligned with the latest curriculum guidelines from the relevant professional societies (ACM). However, in its required set of 37 courses, only 4 are on topics that are outside mainstream CS. Moreover, the 12 elective courses can be taken on CS topics. Consequently, a student can graduate by obtaining a mainstream CS training, eliminating the differentiation that CS&T's UGP is trying to provide. The documents that were provided included limited information about the various student-centred learning approaches used by the program; though during our tour of the facilities we visited the centre that provides services to students with special needs.

The UGP is very similar to the Information Systems (IS) UGP offered by the same department. The two UGPs share 26 out of the 37 required courses and the students take their 12 elective courses from a set of 45 courses where 22 are common to each UGP, 12 are specific to CS&T and 11 are specific to IS. Based on the electives taken, graduates of the two programs will be receiving anywhere from 53% to 77% similar training. Given that some of the electives are popular for both UGPs, the level of similarity is expected to be closer to the high side of the range (i.e., >70%), which was confirmed by DAI's faculty and the students that we talked to. In addition, the professional rights awarded to both graduates are the same and their employers do not differentiate between the graduates of the two programs (per our conversation with the industry leaders). Given the above levels of training similarity and employment equivalency, the EEAP does not see any benefits for having two-degree programs that are so similar to each other.

III.   Conclusions

The UGP builds on and streamlines the previous UGP offered by DAI whose upper division specialisation was focused on CS. The job market for DAI's graduates is strong and companies seek their graduates even before they finish their studies. DAI has established strong connections with several Greek and multi-national companies with offices in and around Thessaloniki and the greater Greece and leverages these connections to help its students further improve their employment opportunities and to inform changes in the curriculum design. The UGP tries to differentiate itself from the rest of the Greek CS-related programs by

also providing training in relevant areas in Economics, Finance, Management, and other social sciences. This differentiation is important for the future employers of its graduates. However, the UGP fails to differentiate itself from the IS UGP offered by the same department.

In terms of the material provided to support the evaluation of Principle 1, the Department did not provide detailed feasibility and sustainability studies, as it relied on the track record of the previous UGP and the fact that it has been established for over 30 years and has been successfully operating and growing since then.

Panel Judgement

Principle 1: Strategic planning, feasibility and sustainability of the academic unit	
a. The academic profile and the mission of the academic unit	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	
b. The strategy of the Institution for its academic development	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
c. The documentation of the feasibility of the operation of the department and the study programme	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
d. The documentation of the sustainability of the new department	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
e. The structure of studies	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
f. The number of admitted students	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
g. Postgraduate studies	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Principle 1: Strategic planning, feasibility and sustainability of the academic unit (overall)	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department should combine its two separate UGP – CS&T and IS – into a single UGP with potentially different upper division tracks. One way of doing that is to mostly retain the structure and curriculum of the two programs and move some of the early track-specific required courses to later years. This will eliminate the artificial division that exists between these two study tracks and provide students with more flexibility.

- The Department needs to put the processes in place for the ongoing collection of the data to support decision-making for the sustainability and differentiation of its UGP and develop traceable processes to use this data to inform ongoing UGP improvements.

- If the Department wants to ensure that the UGP provides good training in areas other than CS, it needs to structure it so that the students take more non-CS courses, e.g., by requiring that some of the electives come from non-CS topics.

- UoM needs to establish processes to eliminate the friction associated with small day-to-day operational expenses for the Department's operations.

Principle 2: Quality Assurance Policy of the Institution and the Academic Unit

The Institution should have in place an accredited Internal Quality Assurance System, and should formulate and apply a Quality Assurance Policy, which is part of its strategy, specialises in the operation of the new academic units and the new study programmes, and is accompanied by annual quality assurance goals for the continuous development and improvement of the academic units and the study programmes.

The quality assurance policy of the Institution must be formulated in the form of a published statement, which is implemented by all stakeholders. It focuses on the achievement of special annual quality goals related to the quality assurance of the new study programme offered by the academic unit. In order to implement this policy, the Institution, among others, commits itself to put into practice quality procedures that will demonstrate: the adequacy and quality of the academic unit's resources; the suitability of the structure and organisation of the curriculum; the appropriateness of the qualifications of the teaching staff; the quality of support services of the academic unit and its staffing with appropriate administrative personnel. The Institution also commits itself to conduct an annual internal evaluation of the new undergraduate programme (UGP), realised by the Internal Evaluation Group (IEG) in collaboration with the Quality Assurance Unit (QAU) of the Institution.

The quality assurance policy of the academic unit includes its commitment to implement quality procedures that will demonstrate: a) the adequacy of the structure and organisation of the curriculum, b) the pursuit of learning outcomes and qualifications in accordance with the European and National Qualifications Framework for Higher Education, c) the promotion of the quality and effectiveness of the teaching work, d) the adequacy of the qualifications of the teaching staff, e) the promotion of the quality and quantity of the research work of the members of the academic unit, f) the ways of linking teaching with research, g) the level of demand for graduates' qualifications in the labour market, h) the quality of support services, such as administration, libraries and student care, i) the implementation of an annual review and audit of the quality assurance system of the UGP through the cooperation of the Internal Evaluation Group (IEG) with the Quality Assurance Unit (QAU) of the Institution.

Relevant documentation
▪ *Revised Quality Assurance Policy of the Institution*
▪ *Quality Assurance Policy of the academic unit*
▪ *Quality target setting of the Institution and the academic unit (utilising the S.M.A.R.T. methodology)*

Study Programme Compliance

I.   Findings

UoM implements a Quality Assurance Policy which is aligned with the principles provided by HAHE. UoM has in place an accredited Internal Quality Assurance System, and formulates and applies a Quality Assurance Policy, which is part of its strategy, specialises in the operation of the new academic units and the new study programs, and is accompanied by annual quality assurance goals for the continuous development and improvement of the academic units and the study programmes.

The UGP has well defined objectives and follows best national and international practices. The programme is comprehensive and focused, with a sensible balance of fundamental and applied learning outcomes. The overall structure and content of the programme is like other established programs in Europe and North America. There is a reasonable balance of core and elective courses, with appropriate depth and coverage of current and emerging themes.

For its continuous improvement the programme benefits from feedback received from external stakeholders as well as by linking and integrating teaching staff research activities and results in the curriculum. One important source of feedback for monitoring and improving quality is student questionnaires. Unfortunately, participation from students in the questionnaires is rather low (between 20% and 30%) although higher than in many other institutions around the country.

Another important source of feedback for monitoring and improving quality comes from external stakeholders. This feedback process is well organised and formalised through an external advisory board comprising permanent teaching staff and external stakeholders.

The UGP has established a formal teaching staff advisor scheme to assist students throughout their studies, which is quite demanding in terms of student numbers (approximately 10 students per staff member).

The programme is compliant with the ECTS system. The students have opportunities to take courses abroad, thanks to the ERASMUS program and bilateral agreements between the department and universities abroad. Erasmus is managed centrally, and applications are submitted electronically with a process of mapping of modules. The students that we met pointed out that the number of ECTS does not always reflect the workload and difficulty of a course.

All course syllabi and the undergraduate course catalogue are rigorous, they are published on the UoM website and provide clear information on course structure and learning outcomes. The teaching staff set clear expectations on the courses and clarify the course assessment methods at the beginning of each academic term.

During its discussions with industrial representatives, the EEAP was satisfied to hear that the curriculum of the programme is in line with market needs. It was also stressed that the qualifications of the department's graduates were well sought after by domestic and foreign employers.

During its discussions with students, the EEAP heard that the students were extremely satisfied by the overall atmosphere in the department and the help and guidance they got from their teachers. Students indicated that teaching staff are helpful and always available when students need advice or assistance in their studies. Teaching staff appear to care for and work closely with students to help them grow and succeed.

The UGP seems to have efficient secretarial services, despite under-staffing and an ever increasing and frequently changing bureaucracy. The UGP has a modern technical infrastructure, including an office dedicated to helping students with special needs, and students have access to a well-equipped University library.

One factor impacting quality assurance is the difference between the number of students asked by the UGP and the number of students registered (a factor of over one to three). This forces the department to repeat the teaching of certain courses three times, especially at the beginning of the curriculum, due to lack of space (all available spaces, including the basketball field, have been transformed to classrooms). The lack of space in lecture rooms was repeatedly identified as an issue by the students that we met.

II. Analysis

A stated goal of the department is its continuous improvement based on feedback received from students and external stakeholders. Feedback from students is mainly through questionnaires. However, participation in the questionnaires is rather low (between 20% and 30%) although higher than in many other institutions around the country.

The feedback process from external stakeholders seems to be well organised and formalised through the external advisory board comprising teaching staff and industrialists. The industrial stakeholders met by EEAP expressed the wish that the role of the external advisory board be enhanced, and incorporation of feedback be faster (e.g., creation of new courses).

The department introduced a formal teaching staff advisor scheme to assist students throughout their studies. However, there seems to be no clearly stated procedure for the evaluation of this scheme. The UGP should aim to establish such a procedure.

A general comment here is that it is not sufficient to simply state goals. The statement of each goal should be accompanied by a procedure describing how to achieve the goal from where one currently stands and how to measure advancement toward the goal.

The lack of space in the lecture rooms was repeatedly identified as an issue by the students that we met. For an incoming class of ~350 students, and lecture rooms whose capacity is < 100 seats, it will require 4 sections per required course. The 24 required courses will result in 96 sections/term, requiring 2.74 sections/faculty to just cover those. This is far beyond the department's current teaching capacity. However, the department has little control over the number of students registered every year.

III. Conclusions

Several weak points impacting quality assurance were identified which need to be attended by the UGP (see also the recommendations below). However, the UGP is in its very early state of operation after the transition period from its pre-2019 structure, and the EEAP is convinced that, given the enthusiasm of the teaching staff, these weak points will be attended to in the very near future.

Panel Judgement

Principle 2: Quality assurance policy of the Institution and the academic unit	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department should establish an alumni network and include alumni in their external advisory board. Establishing an alumni network would help students link to professional networks nationally and internationally and contribute to the overall visibility and reputation of the department.

- The Department should develop ways to increase student participation in answering course evaluation forms. This is a recurring problem in several departments around the country and ways should be "invented" to improve participation.

Principle 3: Design, Approval and Monitoring of the Quality of the New Undergraduate Programmes

Institutions should design the new undergraduate programmes following a defined written process, which will involve the participants, information sources and the approval committees for the programme. The objectives, the expected learning outcomes, the intended professional qualifications and the ways to achieve them are set out in the programme design. The above details, as well as information on the programme's structure, are published in the Student Guide.

The Institutions develop their new undergraduate study programmes, following a well-defined procedure. The academic profile, the identity and orientation of the programme, the objectives, the subject areas, the structure and organisation, the expected learning outcomes and the intended professional qualifications according to the European and National Qualifications Framework for Higher Education are described at this stage. An important new element in the structure of the programmes is the introduction of courses for the acquisition of digital skills. The above components should be taken into consideration and constitute the subject of the programme design, which, among other things, should include: elements of the Institution's strategy, labour market data and employment prospects of graduates, smooth progression of students throughout the stages of the programme, the anticipated student workload according to the European Credit Transfer and Accumulation System (ECTS), the option of providing work experience to the students, the linking of teaching and research, the international experience in study programmes of similar disciplines, the relevant regulatory framework, and the official procedure for the approval of the programme 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 Quality Assurance Unit (QAU).

Relevant documentation

- *Senate decision for the establishment of the UGP*
- *Curriculum structure: courses, course categories (including courses for the acquisition of digital skills), ECTS awarded, expected learning outcomes according to the EQF, internship, mobility opportunities.*
- *Labour market data regarding the employment of graduates, international experience in a related scientific field.*
- *Student Guide*
- *Course outlines*
- *Teaching staff (list of areas of specialisation, its relation to the courses taught, employment relationship)*
- *QAU minutes for the internal evaluation of the new study programme and its compliance with the Standards*

Study Programme Compliance

I.   Findings

UoM is committed to actively support the Department and adapt its Quality Assurance (QA) policy considering the needs and expectations of its UGP. QA processes, such as UGP review, monitoring, QA feedback and academic attainment, reflection on teaching methods, interaction of teaching with research, are under continuous evolution. The EEAP reached a sufficient understanding of the QA policy and processes in place, based on the read-ahead documentation and the additional information requested during the onsite review.

The UGP follows international standards (such as ACM) and provides courses covering wide and diverse topics of the Computer Science and Technology area.

The UGP has 26 compulsory core courses (including the English language course), 11 specialisation compulsory core courses, and 12 out of a pool of 48 usually offered elective courses. A Senior Thesis («Πτυχιακή Εργασία») is an option, which may replace three elective courses. An optional internship was recently introduced as an elective course. The UGP requires the completion of 240 ECTS credits (each course offers 5 ECTS) plus the English language course (with 5 ECTS as well).

The Department maintains an "Extroversion Committee", which plays a significant role, among others, in the awareness of potential external stakeholders.

Although, the Department of Applied Informatics established an Industrial Advisory Board on the 1st of January 2021, facilitating its communication and cooperation with industry in Greece and abroad to achieve the goal of developing high-level graduates that the market demands, it has not yet set up a QA formalised procedure to engage the Board in the UGP review process, as well.

II.   Analysis

Based on the discussions during interviews, as well as the material provided and/or available on the website, the Department maintains strong relationships with external stakeholders.

The encouragement of their well-defined participation in the study programme reviewing process, through an advisory role approach, might significantly contribute to the continuous evolution and appeal of the UGP.

The external stakeholders praised the high quality of the Department's graduates (old programme) and UGP's studies and expressed their willingness to contribute to any departmental effort towards enhancing and improving the programme.

The EEAP acknowledged some discrepancies among the different UGP documentation, for example, those upon the Senior Thesis and Internship course offerings.

III.   Conclusions

The Department, with the continuous support of OMEA and under the auspices of the University's MODIP, is successfully applying the well-defined institutional QA processes defined for the quality management of the UGP, its structure, its objectives and learning outcomes, and the provided professional qualifications.

Panel Judgement

Principle 3: Design, approval and monitoring of the quality of the new undergraduate programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department should keep both the Greek and English version of its website current, ensuring the availability of all information in all subsections for the UGP, including that of courses offered and the details of the study program.

- The Department should put in place formal processes via which to obtain feedback from external stakeholders in the continuous updating of its curriculum to further benefit from its strong relations with industry.

- The Department should develop processes for identifying students that are underperforming, develop mechanisms for engaging with them to help them improve.

Principle 4: Student-centred Approach in Learning, Teaching and Assessment of Students

The academic unit should ensure that the new undergraduate programmes are delivered in a way that encourages students to take an active role in creating the learning process. The assessment methods should reflect this approach.

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

Relevant documentation

- ▪ *Questionnaires for assessment by the students*
- ▪ *Regulation for dealing with students' complaints and appeals*
- ▪ *Regulation for the function of the academic advisor*
- ▪ *Reference to the planned teaching modes and assessment methods*

Study Programme Compliance

I.   Findings

In terms of flexible learning methods, the Department, despite being legally obliged to offer all classes on campus, has developed substantial supportive material in the form of recorded lectures, to accommodate the needs of students that cannot be on campus all the time.

The Department has changed the evaluation form for most of its courses to encourage students' active and continuous participation in the learning process. Most if not all courses are taught with multiple delivery modes that go beyond the standard lecture-based format to also include workshops and individual/group projects. In addition, many courses that are theoretical in nature, include graded homework that are designed to keep the students engaged throughout the term.

The students feel included in the teaching process and that faculty understand their needs and possible knowledge gaps. Furthermore, the students described several situations where their suggestions were taken into consideration and led to curriculum changes.

Course evaluations, in the form of questionnaires, are conducted each semester from the 8th until the 10th week of classes in each course. The questionnaires include both general satisfaction questions and open-ended questions for the students to make suggestions. Each

year, statistics from these evaluations are considered by OMEA and the curriculum committee as they review the curriculum.

Course assessment criteria are made available to all students at the start of each semester and are available in each course's webpage. Any changes to course material are discussed with the students in advance.

A procedure is in place to handle student complaints. The formal complaints of students are discussed in the Department's general assembly. Additionally, students are encouraged to address their complaints directly to members of the academic staff.

Furthermore, as of this year the statute of the Academic Advisor was initiated. A professor of the department is assigned to each student to guide and assist them during their studies. The students retain their academic advisor throughout their studies.

II.   Analysis

The Department's policy of requiring that the final exam of its mandatory courses to account for at least 50% of the overall grade is unnecessarily restrictive. It does not give its teaching staff and its students the flexibility to employ and request the teaching modes/assessment mechanisms that better suit their courses and the desired learning outcomes. For example, several students mentioned that they would have better learned the course material if they were able to undertake much larger projects in lieu of some percentage of the weight of the final exam. Providing this type of flexibility is important for helping students learn better and keep them engaged in the program.

The procedure of student questionnaires has some blind spots that should be re-examined. Since the students evaluate through a different questionnaire each instructor per course the actual participation percentages in the process per course cannot be inferred by adding the number of questionnaires per instructor per course because the same students could be participating in all the evaluations of a specific course for each instructor. The same problem exists in the total numbers of questionnaires and related percentages for the whole program. These relatively small numbers in participation could be inflated, depending on the number of instructors per course.

Course evaluations by the students are an essential part of the program. Unfortunately, the completion rate of course evaluations is low, despite efforts by the Department to increase it (e.g., by administering them in class towards the end of the term). In addition, there is no formal procedure for integrating the students' feedback through the questionnaires into the courses and the undergraduate program.

The Department's initiative to put in place a formal procedure by which students can communicate their complaints is good and shows that the Department wants to hear from its students. However, the students are not aware of its existence and the Department needs to better publicise its existence and purpose. Furthermore, in talking with some of the teaching staff, they presented this procedure as a general mechanism for getting student feedback about the program and the Department. However, the purpose of the "Student Complaint" process is for the students to express their complaints.

The establishment of Academic advisors is a good way for helping students understand their degree programs and navigate through the various science/research topics and career opportunities. In addition, the advisors can monitor the students' progression throughout the

program and provide better informed guidance. This role can help both incoming students as well as senior students that try to decide between the various elective courses and sub-areas of studies. A concern with the newly created role of the Academic advisor is that of the additional workload that it creates for the teaching staff. On average, 10 incoming students are assigned to each faculty member, which can add up to a significant time commitment over the 4+ years of study. The Department needs to monitor the additional workload and take any mitigation actions if it becomes problematic.

III. Conclusions

The Department has gone to great lengths to address the students' needs. Teaching practices are adapted to student needs while assessment uses a multitude of approaches, including group projects, homework problems, and exams. The students feel included in the learning process. The institution of the academic advisor is a great step towards assuring that the students have the proper guidance in their academic interests.

Panel Judgement

Principle 4: Student-centred approach in learning, teaching and assessment of students	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- Establishing procedures for formal student input in the course material or using the already established student questionnaire. It would show the students the importance of their education and put them in the very centre of the learning process.

- The Department should consider removing the requirement that at least 50% of a course's grade is determined by the final exam. This will provide more flexibility to both instructors and students to further improve the learning outcomes.

- A formal procedure needs to be established for student feedback about the undergraduate program. Neither the course evaluation forms filled-out by the students nor the student complaints procedure can serve that role. The program-wide feedback can be evaluated and used by the curriculum committee and the Department.

Principle 5: Student Admission, Progression, Recognition of Academic Qualifications and Award of Degrees and Certificates of Competence of the New Study Programmes

Academic units should develop and apply published regulations addressing all aspects and phases of studies of the programme (admission, progression, recognition and degree award).

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

✓ *the registration procedure of the admitted students and the necessary documents - according to the law - and the support of the newly admitted students*

✓ *student rights and obligations, and monitoring of student progression*

✓ *internship issues, granting of scholarships*

✓ *the procedures and terms for writing the thesis (diploma or degree)*

✓ *the procedure of award and recognition of degrees, the duration of studies, the conditions for progression and assurance of the progress of students in their studies*

as well as

✓ *the terms and conditions for enhancing student mobility*

Appropriate recognition procedures rely on relevant academic practice for recognition of credits among various European academic departments and Institutions in line with the principles of the Lisbon Convention on the Recognition of Qualifications concerning Higher Education in the European Region. Graduation represents the culmination of the students' study period. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes, and the context, level, content and status of the studies that were pursued and successfully completed (Diploma Supplement).

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

Relevant documentation

▪ *Internal regulation for the operation of the new study programme*
▪ *Regulation of studies, internship, mobility and student assignments*
▪ *Printed Diploma Supplement*
Certificate from the President of the academic unit that the diploma supplement is awarded to all graduates without exception together with the degree or the certificate of completion of studies

Study Programme Compliance

I. Findings

Concerning student admission, the Department complies with the national criteria for admission to university level education. The Department informs newly admitted students each year about the necessary documents required for registration to the undergraduate program.

Each year, the Department organises an orientation ceremony for the incoming class that provides information about the facilities available to them (institution or departmental wide) and their responsibilities. The students feel that the faculty is very approachable and whatever information they lack the faculty provides it eagerly.

Information related to student progression is available in the annual internal assessment report, which among others, includes data about the size of the incoming class, the number of graduating students, their length of studies, and their graduating GPA. In addition, there is an institution-wide system which collects data per course (grades statistics for the last 5 years and other information) and per faculty member.

For the first-year students, the Department provides additional optional lectures to help those that have some fundamental knowledge gaps or students that can benefit from further tutoring.

Student mobility is encouraged by participation in the Erasmus program. Various information is provided by the department or institution wide to the students regarding the options they have for mobility and the requirements to qualify. The Department's website contains a link to the Erasmus+ program that contains all necessary information. Professors and administrative staff expressed particular interest in participating in the skill enhancement mobility programs and collaborating with foreign universities.

The UGP is based on the European system of transfer and accumulation of academic credits (ECTS), as well as on the corresponding Greek legislation. Each course carries the same number of ECTS, and the student needs to complete a total of 240+5 ECTS to graduate. This +5 in the overall ECTS points is owed to AIC106, which is an English course which is a required course in the first semester. That course brings the total of ECTS points in that semester to 35 which is over the limit of 30 for the semester.

Students can complete an optional thesis project that counts for 3 elective courses during the last semester of their studies. The Department has defined a set of quality requirements for the implementation of the thesis. Students have the option to complete their thesis project in a corporate environment, which produces great results as mentioned by the faculty and by the employers.

Based on the information provided by the Department, a Diploma Supplement will be issued without request for all graduates in Greek and in English. This supplement contains detailed information for the qualification, the marks received, credits for the corresponding courses and the ECTS-based rating system.

Students have the option to do an internship (practical training) with a company. Last year a total of 31 students did an internship and around 100 students did so in the past three years. To further encourage students to pursue internships, the UGP was recently changed to treat the internship as an elective course. To increase the number of internship opportunities for its students, the Department has developed a network with different local and national companies. The good relationship of the Department and its academic staff with companies and social partners was confirmed in EEAP's meeting with their representatives. The industrial partners are extremely satisfied with the training of the Department's students, and they tend to hire most of the students that intern with them (over 90%). The students are not restricted to the already established internship agreements and are free to do internships in companies of their choice.

II.   Analysis

The information given during the orientation ceremony as well as the introduction of the Academic advisor has helped students adapt to university life. Although the Department has been visiting the local high schools to inform prospective students about its degree program, incoming students have little to no knowledge prior to entering the Department. The Department's teaching staff help fill this information gap. After meeting with the students, the EEAP feels reassured that the most necessary information about the department and what facilities are available from the institution, are covered during orientation. An extra effort could be made to inform students about their rights and obligations (i.e., what is the mandatory workload per semester, what an ECTS is, what is the student legal counsellor etc).

The Department does not have any formal processes for monitoring of student progression. The Department does not analyse the student progression data to assess the outcomes of its undergraduate program to identify students that are at risk and/or understand how effective its curriculum is to groups of students with different characteristics. The Academic advisor could facilitate the purpose of student monitoring but has no obligation to according to the University's regulations.

During the meeting with the EEAP students that participated in the Erasmus program stated that there is a difficulty in the acknowledgement of the courses that they participated successfully in the foreign programs. The member of the faculty that has been assigned for the Erasmus program should organise a formal procedure for that purpose. Furthermore, a suggestion that was given by the students concerning this issue was to follow what other departments abroad are doing, which is that of having the option of the students to take some open elective courses outside the department and use these open electives for the Erasmus courses.

After meeting with students, the EEAP assessed that the distribution of ECTS should be re-examined. There are indications that some courses (especially some mandatory courses) or even generally some semesters, require considerably more time than other courses/semesters. Assigning the same number of ECTS to each course and the same number of courses per semester does not reflect this unequal workload.

III.   Conclusions

The Department follows the relevant laws pertaining to the registration procedure of the admitted students and provides information and guidance concerning the necessary documents, rights, and obligations of the newly admitted students.

Panel Judgement

Principle 5: Student admission, progression, recognition of academic qualifications, and award of degrees and certificates of competence of the new study programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department needs to develop processes for better tracking and understanding individual and group-wise student performance and develop mechanisms that can help students that are at risk do better.

- The Department needs to establish a process to make it easier for students' foreign taken Erasmus courses to count towards the graduating ECTS points.

- The Department's policy of assigning the same number of ECTS points to each course does not always reflect the difficulty and associated workload of the course. The Department needs to re-evaluate this policy, especially for the mandatory courses.

- The Department should establish annual awards recognizing its top-performing students. These awards can motivate students to strive for excellence and create a long-lasting virtuous cycle. In establishing these awards, the Department can leverage its network of industrial partners to raise some funds and/or prizes.

Principle 6: Ensuring the Competence and High Quality of the Teaching Staff of the New Undergraduate Study Programmes

Institutions should assure themselves of the competence, the level of knowledge and skills of the teaching staff of the academic units, 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, the appropriate staff-student ratio, the suitable categories of staff, the appropriate subject areas and specialisations, 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 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 members (with respect to attendance requirements, performance, self-assessment, training, etc.); develop policies to attract highly qualified academic staff.

Relevant documentation

- *Procedures and criteria for teaching staff recruitment*
- *Regulations or employment contracts, and obligations of the teaching staff*
- *Policy for staff recruitment, support and development*
- *Performance of the teaching staff in scientific-research and teaching work, also based on internationally recognised systems of scientific evaluation (e.g., Google Scholar, Scopus, etc.)*

Study Programme Compliance

I. Findings

To recruit its teaching staff, the Department follows the processes described in the relevant legislation, which cover aspects related to position announcement; candidate/outcome tracking, documentation, and publication; evaluation; and election. The evaluation criteria include both research and teaching excellence, where teaching is assessed by having the candidate give a lecture during the interview process.

The working environment of the faculty is good. The Department provides sufficient office space along with technical infrastructure and support that allows them to pursue their teaching and research activities. The teaching load for each faculty is 6 hours/week (with small variations), which provides them time to focus on research. In accordance with the relevant legislation, the Department's faculty can take sabbatical leaves to pursue their further professional and scientific development (a six-month leave every three years, or a one year leave every six years). The faculty take advantage of this and on average, three faculty are on sabbatical leave every term.

At the institutional level, the UoM has various mechanisms to promote and support research excellence, including research awards associated with publications at highly ranked publication venues and seed funding to help in the development of proposals for external funding. The faculty are encouraged to participate in European research programs (e.g., Horizon 2020, Erasmus+) and several of them do. In addition, to promote excellence in teaching, UoM has recently created a faculty teaching award.

The teaching staff use different teaching methods in their courses and have access to state-of-the-art infrastructure (e.g., smart boards) in their classrooms. Furthermore, the Department with the University has recently created a teaching & learning centre whose mission is to research and promote new teaching methods and use of technology to improve teaching. The goal is to create a culture where the faculty collaborate to develop new teaching methods and use them in their classrooms.

In its two most recent faculty openings, the Department received 80 applications, and we were told that many of them were from well-qualified applicants. This indicates that the Department has a good reputation in attracting highly qualified academic staff.

The teaching staff are assessed by MODIP on an annual basis by analysing the student's course evaluation forms. In addition, department-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.

II. Analysis

To cover the teaching load for the two UGPs offered by the Department, it has 35 teaching staff. Since the Department does not differentiate between its teaching staff and the two UGPs (e.g., the Department does not divide its teaching staff between the two programs), the EEAP cannot precisely gauge the staff-student ratio. In addition, the Department did not provide the ranges of staff-student ratios that they consider appropriate for them to be able to provide high-quality education.

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 mixed. Looking at the 2020 statistics (the most recent year for which the EEAP was provided information), 6 faculty had 0 publications, 5 faculty had 1 publication, 7 faculty had 2 publications, and only 14 faculty had 4 or more publications. In terms of citations, 10 faculty accounted for ~72% of the total citations received by the 34 faculty (2084 out 2900). A similar skewed distribution exists in the prior years as well. The Panel understands that the publication/citation rates for the different areas of research conducted by the Department's faculty is not the same; however, the distribution skewness cannot be accounted for by such differences.

Even though most of the faculty are engaging in research, we did not find any systematic way by which the research is integrated in teaching and learning. This is currently happening in an ad-hoc fashion either by the individual faculty or the individual research laboratories and involves activities like inviting the graduate students to present their work in the lectures and aligning the thesis project that some students choose to pursue with the work being done in the research laboratories. From the students that we talked with, only a small fraction (<10%) had any research experience, and those that did were in the last year of their studies. On the

positive side, around 40% of the faculty that we met told us that they have co-written at least one paper with undergraduate students in the past three years.

III.   Conclusions

The Department follows the relevant legislation and applies transparent processes for the recruitment and development of its academic staff. In its recent openings, it has been successful in hiring competent and high-quality faculty. It 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 6: Ensuring the competence and high quality of the teaching staff of the new undergraduate study programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department needs to address the imbalances in the volume and quality of the research output of its faculty by developing mechanisms to help its faculty increase their research output and quality. Given that the teaching load is nearly balanced across the faculty, such gaps in research productivity, if persisted, tend to lead to departmental friction.

- The Department needs to develop a systematic plan to integrate the department'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.

Principle 7: Learning Resources and Student Support of the New Undergraduate Programmes

Institutions should have adequate funding to meet the needs for the operation of the academic unit and the new study programme as well as the means to cover all their teaching and learning needs. They should -on the one hand- provide satisfactory infrastructure and services for learning and student support and -on the other hand- facilitate direct access to them by establishing internal rules to this end (e.g., lecture rooms, laboratories, libraries, networks, boarding, career and social policy services, etc.).

Institutions and their academic units must have sufficient resources, on a planned and long-term basis, to support learning and academic activity in general, in order to offer students the best possible level of studies. The above means include facilities such as, the necessary general and specific libraries and possibilities for access to electronic databases, study rooms, educational and scientific equipment, information 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. Students should be informed about 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.

Relevant documentation

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

Study Programme Compliance

I.   Findings

The Department has five classrooms with 488 total seats and 4 laboratories with 109 total seats. To accommodate the 350+ students that it admits each year and because it does not have large classrooms, it offers multiple sections for the mandatory courses in the first two years of studies (3 sections for all the first-year courses and 2 sections for the second-year courses). The students are allocated to the different sections alphabetically. The same approach is used in the compulsory laboratories that some courses have. This problem does not persist in the latter years of the program because student attendance drops. Despite these measures, several of the students identified crowded classrooms to be an issue and that on several occasions they had to sit on the staircase/floor because all seats were taken. The instructional laboratories are adequately equipped to handle the necessary instructional needs.

UoM has rationally distributed the existing facilities, although some of the facilities are jointly used by other Departments and, by extension, their use has, as aforementioned, scheduling difficulties.

Student support services are widely available to the students. There is an adequate range of support services available to the students including, boarding, dormitories, career counselling, student welfare office, student advisor, and sport/cultural facilities. Some of these services are offered by the Department's secretariat whereas others are offered centrally by the University.

II.   Analysis

The facilities available to the Department are not sufficient to accommodate the needs of its students. Even though the Department provides multiple sections for its courses, the resulting teaching capacity does not match the number of admitted students. Moreover, the Department's teaching capacity for the required courses in the 2nd and 3rd years of studies assumes that 50% to 70% of its students have stopped attending classes, which becomes a self-fulfilling outcome. The lack of large classrooms becomes an issue during final exams, an issue that was raised by several students.

There are limited communal spaces and study areas–the only large study area is in the University's library.

The students are not very familiar, or even aware, with some of the services available to them (i.e., student legal counsellor). The EEAP noticed that the various pieces of information are split between the Department's own website and that of the UoM. This can be confusing to the students searching for information.

In addition, there is not any formal difference in the allocation of the department's learning resources, in facilitating the needs of all students (e.g., whether they are full-time or part-time, employed, residing out of town). The Department could make an extra effort in incorporating part-time students into the program by extending the online material provided (either in the form of lecture notes or suggested readings to better understand some parts of the material) to the students. The EEAP recognizes that lecture attendance can't be substituted but this would go a long way in providing the means to those students to complete their studies and showing to them that their needs are taken into consideration by the department.

III.   Conclusions

The Department has made steps to support its students and, more importantly, make all services available and well-known and to accommodate many of its incoming students given its existing facilities. However, one important issue to be addressed is the insufficient facilities the department has when compared with the number of incoming students. An issue that the department needs to redouble its efforts in solving. Given the limitations the department has in funding to solve that issue, the sectioning of the students as described needs to be increased to accommodate everyone. Lastly the department should look to centralise the form in which the information provided to students is delivered.

Panel Judgement

Principle 7: Learning resources and student support of the new undergraduate programmes	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department should not operate under the assumption that most of its students are not going to attend its courses and should work with the institution to secure the necessary resources to meet its instructional and assessment requirements.

- The Department should restructure its orientation ceremony to include additional information and more specifically where to find extended information concerning all their rights and obligations as students.

- The Department should create common areas where students could study and work on group projects.

Principle 8: Collection, Analysis and Use of Information for the Organisation and Operation of New Undergraduate Programmes

The Institutions and their academic units bear full responsibility for collecting, analysing and using information, aimed at the efficient management of undergraduate programmes of study and related activities, in an integrated, effective and easily accessible way.

Effective procedures for collecting and analysing information on the operation of Institutions, academic units and study programmes feed data into the internal quality assurance system. The following data is of interest: key performance indicators for the student body profile, student progression, success and drop-out rates, student satisfaction with the programme, availability of learning resources and student support. The completion of the fields of National Information System for Quality Assurance in Higher Education (NISQA) should be correct and complete with the exception of the fields that concern graduates in which a null value is registered.

Relevant documentation

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

Study Programme Compliance

I.   Findings

UoM maintains a centralised information system to manage the QA process, including the collection of all results and data from the student satisfaction and course evaluation surveys. Course evaluation surveys are conducted anonymously at the end of each semester for all courses and teaching staff, with the use of paper evaluation forms, but student participation rates are very low. There is an ad hoc process for analysing and acting upon the evaluation results; however, the post processing and thorough examination and understanding of the results is rather limited, probably due to the poor student participation.

MODIP and OMEA are mainly responsible for the operation of the QA associated systems. Information and data on faculty performance analysis, administrative support, funding, etc. is also under regular monitoring.

Although the UGP is still in transition and it has only been in place for three years, the Department appears to be under a smooth transition. To that end, it is expected that the Department will be able to identify and document sufficient key performance indicators (KPIs), such as career paths, student retention/ progression, completion rates, etc. in the forthcoming years.

II.   Analysis

Sufficient information is provided for the needs of the National Information System for Quality Assurance in Higher Education (NISQA) based on the data available. However, there is not yet separate information for the two different Department's new UGPs, since due to the structure of the new programmes, there is no clear distinction among the courses offered and the

students of the different programmes attending them (some courses are offered to students in the two different new UGPs and the old one).

Following the collection of the student satisfaction and course evaluation surveys in the central Institutional System, the results are forwarded to each teaching staff for the courses they taught, to analyse them and take further actions towards the evolution of their courses. An ad-hoc internal process for analysing them and acting based on the evaluation is also in place, but the Department has no formal process to have an overview of the evaluation of all results at UGP level, identifying potential best practices, areas of weaknesses in terms of the different UGPs, and the potential UGPs improvements, which might take place.

The Department maintains sufficient processes for the analysis and evaluation of data related to the availability and accessibility of resources (equipment, social services, IT facilities etc.), as these are defined at Institutional level.

III. Conclusions

The Department performs analysis of the collected course evaluation forms at teachers' level only, and has not yet documented processes to identify potential areas of improvement based on other levels, such as at courses (when there are more than one teaching staff in one course), curriculum semester or year of studies, UGP's, etc.

Although the Department is still in transition and the new programme has only been in place for three years, EEAP is confident that it will be able to extend its pool of key performance indicators (KPIs), with new ones, such as career paths, student retention/progression, completion rates, and so on, in the forthcoming years.

Panel Judgement

Principle 8: Collection, analysis and use of information for the organisation and operation of new undergraduate programmes	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department, which is expecting its first UGP graduates at the end of this academic year, is encouraged to set up and apply well-defined processes, which may be communicated to their graduating students in advance, to maintain sufficient data and statistics regarding employability of graduates and UGP effectiveness. It might also consider and clearly define and document the regular support of an Alumni body for UGP reviewing purposes, as well.

- The Department may further enhance the analysis of data from student and staff surveys towards UGP's continuous improvement and further raise their contribution to the UGP's quality assurance.

Principle 9: Public Information Concerning the New Undergraduate Programmes

Institutions and academic units should publish information about their teaching and academic activities in a direct and readily accessible way. The relevant information should be up-to-date, clear and objective.

> *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 new undergraduate programmes they offer, the intended learning outcomes, the degrees awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students. Information is also provided, to the extent possible, on graduate employment perspectives.*

Relevant documentation

- *Dedicated segment on the website of the department for the promotion of the new study programme*
- *Bilingual version of the website of the academic unit with complete, clear and objective information*
- *Provision for website maintenance and updating*

Study Programme Compliance

I.   Findings

The department supports a number of activities related to public information such as presentations by the academic staff at the premises of external stakeholders; organisation of short professional courses in collaboration with external stakeholders; annual presentations of the department, the programs offered and the possibilities of employment to high school students; organisation of scientific conferences and meetings; participation in local events; and a number of other outreach activities.

The website of the department is well designed, and the information items it provides are adequate to the needs for public information. All information of practical nature is available online (accommodation, public transport, electronic forms, etc.), as well as information regarding the various facilities offered by the University in general and by the degree program such as library, labs, course outlines by semester, marking of exams, student mobility (Erasmus), etc. Also published on the website is the policy for quality assurance.

However, the students are not very familiar, or even aware, with some of the services available to them (i.e., student legal counsellor).

II.   Analysis

The department is very active in the local industry, as well as in the local community at large, and maintains a well-designed website giving detailed information on all its activities online. However, some of the information dates to the pre-covid years (2019-2020) and should be updated. Also, in some cases, there are discrepancies between the Greek and the English version of the Department's website. For example, under the item "φοιτητικά θέματα" in the address https://www.uom.gr/dai/foithtika-themata all links are operable in the Greek version, whereas only one of the links is operable in the corresponding English version. Moreover, the

EEAP noticed that the various pieces of information are split between the Department's own website and that of the UoM. This can be confusing to the students searching for information.

III. Conclusions

The UGP's website is well designed giving all information needed online. However, as the website is the "shop window" of the department, particular effort is needed to keep its information content up-to-date and synchronised between the two versions (English and Greek) and to minimise the split of information pieces between the Department's own website and that of the UoM.

Panel Judgement

Principle 9: Public information concerning the new undergraduate programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department should keep the information of the website up-to-date and synchronised between the two versions (Greek and English). As this is an important task it is recommended that it be assigned to a member of the faculty whose responsibility will be to decide at what points in time to update the content in both the Greek and English version of the website.

- The department should try to minimise the split of information pieces between the Department's own website and that of the UoM.

Principle 10: Periodic Internal Review of the New Study Programmes

Institutions and academic units should have in place an internal quality assurance system, for the audit and annual internal review of their new programmes, so as to achieve the objectives set for them, through monitoring and amendments, with a view to continuous improvement. Any actions taken in the above context, should be communicated to all parties concerned.

Regular monitoring, review and revision of the new 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: the content of the programme in the light of the latest research in the given discipline, thus ensuring that the programme is up to date; the changing needs of society; the students' workload, progression and completion; the effectiveness of the procedures for the assessment of students; the students' expectations, needs and satisfaction in relation to the programme; the learning environment, support services, and their fitness for purpose for the programme. Programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the programme is adapted to ensure that it is up-to-date.

Relevant documentation

- *Procedure for the re-evaluation, redefinition and updating of the curriculum*
- *Procedure for mitigating weaknesses and upgrading the structure of the UGP and the learning process*
- *Feedback processes on strategy implementation and quality targeting of the new UGP and relevant decision-making processes (students, external stakeholders)*
- *Results of the annual internal evaluation of the study programme by the QAU and the relevant minutes*

Study Programme Compliance

I. Findings

The Department's curriculum committee is responsible for leading the annual curriculum evaluation process for the CS&T (and IS) programs and recommends changes to be discussed by and approved by the entire faculty body. In their evaluation, they consider recent developments and advances in the scientific field, information from the teaching staff, changes in the physical instructional infrastructure, and feedback from external stakeholders via the recently formed industry advisory board. From our conversations with members of the industry advisory board and other external stakeholders we heard that the Department is receptive to their recommendations and have added a new machine learning course and updated their web-programming course. Beyond the end-of-term course evaluation forms, the Department does not have any processes for collecting direct student feedback regarding its curriculum to better incorporate their experiences and feedback in the curriculum updating process.

II. Analysis

The Department's processes and mechanisms for collecting information from its students about curriculum-related issues are limited. It relies exclusively on information gleaned from course evaluation forms, whose completion rate is small and has been decreasing (1894, 3084, 4818 filled forms in years 2021, 2020, and 2019, respectively). At the start of this academic

year, the Department created a process by which the students can file complaints about various issues that can be addressed by the department. Though some of the complaints may be curriculum-related, a dedicated process is required to collect high-quality feedback about the curriculum. This became obvious to the EEAP after talking with students and asking them to provide us feedback about the curriculum and its organisation. During that meeting, the students highlighted several strengths of the curriculum but also identified several areas of improvement. Having a process to collect this feedback on an ongoing basis is essential for the curriculum's continuous improvement.

The Department does not perform any additional analysis of the end-of-term course evaluation forms filled out by the students. Analysing the course evaluations along dimensions related to course level, class size, required/elective, attendance, etc, can provide additional insights and help to identify what works and what does not work with the curriculum.

III. Conclusions

The Department's annual process of evaluating and revising its undergraduate curriculum is good, considers the relevant factors, and incorporates feedback from its various stakeholders. Evidence of its commitment to continuous improvement is the introduction of several new courses and course updates since its creation in 2019.

Panel Judgement

Principle 10: Periodic internal review of the new study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department needs to establish a formal process by which to solicit feedback about the curriculum (content, organisation, execution, etc) of its undergraduate degree program from its UGP's students. This should happen at least once a year and the feedback incorporated into the curriculum committee's annual UGP review. The Department should consider appropriate mechanisms by which to obtain that feedback that are designed to broaden participation, foster a collegiate atmosphere, and create an environment of shared ownership.

- Analysing the results of students' evaluations along different dimensions can help better monitor how students' progress through the program, identify broad trends, and help flag issues that can inform mitigating curriculum changes. The Department, e.g., via its curriculum committee, should develop a practice of performing such analysis to inform decision making.

Principle 11: Regular External Evaluation and Accreditation of the New Undergraduate Programmes

The new undergraduate study programmes should regularly undergo evaluation by panels of external experts set by HAHE, aiming at accreditation. The results of the external evaluation and accreditation are used for the continuous improvement of the Institutions, academic units and study programmes. The term of validity of the accreditation is determined by HAHE.

> *HAHE is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure and implemented by a panel of independent experts. HAVE grants accreditation of programmes, based on the Reports submitted by the panels, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the 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.*

Relevant documentation

▪ *Progress report on the results from the utilisation of the recommendations of the external evaluation of the Institution and of the IQAS Accreditation Report.*

Study Programme Compliance

I.   Findings

All members of the staff seemed to be aware of the importance of the external review of the UGP and its contribution to the improvement of the degree programme. All stakeholders actively engaged in the external review, provided valuable input, and appeared eager to get involved in the follow-up actions.

The IQAS of UoM took place in the period 18-20/6/2019 and was completed by the attribution of accreditation by HAHE as "Fully Compliant" (published on 13 July 2021). UoM established a list of follow-up actions to implement the recommendations of the EEAP.

The degree programme is performing well in implementing some of the follow-up actions at departmental level involvement of external stakeholders; transforming questionnaires evaluating individual courses in electronic form; communicating the results to all stakeholders; and improving the active participation of all stakeholders in the quality assurance process. In some other follow-up actions, the department is doing less well, in particular, stating goals accompanied by clearly defined procedures describing how to monitor the relevant KPIs so as to achieve the goals; developing a fully functional website in English; and developing and publishing action plans in accordance with the outcomes of the evaluation.

II.   Analysis

The UGP is performing well in implementing some of the follow-up actions and less well in others. It is worth noting however that, in addition to the burden of coping with the creation of the degree program, it was facing several difficulties of its own to achieve smooth operation within the Institution.

A particular problem that the UGP has been facing since its beginnings in 2019 was that of the transition from its pre-2019 structure to its new one without impacting the quality of studies. The UGP has put in place a detailed procedure to implement the transition from its pre-2019 structure as smoothly as possible. The approach followed is quite sensible and consists of two main actions: (1) create a correspondence between courses offered by the UGP and courses offered by the pre-2019 structure and (2) allow students registered before 2019 to continue their studies in the new degree program and graduate normally from the program.

III.   Conclusions

Even though, during the transition period the UGP was facing several difficulties to achieve smooth operation within the Institution, the UGP has performed very well in setting up its own structure and at the same time preparing and implementing the transition.

Panel Judgement

Principle 11: Regular external evaluation and accreditation of the new undergraduate programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- When stating each goal, it is important to accompany it by clearly defined procedures describing how to monitor the relevant KPIs to achieve the goal.

- Develop and publish action plans in accordance with the outcomes of the evaluation.

Principle 12: Monitoring the Transition from Previous Undergraduate Study Programmes to the New Ones

Institutions and academic units apply procedures for the transition from previously existing undergraduate study programmes to new ones, in order to ensure compliance with the requirements of the Standards.

Applies in cases where the department implements, in addition to the new UGPs, any pre-existing UGPs from departments of former Technological Educational Institutions (TEI) or from departments that were merged / renamed / abolished.

Institutions should implement procedures for the transition from former UGPs to new ones, in order to ensure their compliance with the requirements of the Standards. More specifically, the institution and the academic unit must have a) the necessary learning resources, b) appropriate teaching staff, c) structured curriculum (courses, ECTS, learning outcomes), d) study regulations, award of diploma and diploma supplement, and e) system of data collection and use, with particular reference to the data of the graduates of the pre-existing UGP. In this context, the Institutions and the academic units prepare a plan for the foreseen transition period of the existing UGP until its completion, the costs caused to the Institution by its operation as well as possible measures and proposals for its smooth delivery and termination. This planning includes data on the transition and subsequent progression of students in the respective new UGP of the academic unit, as well as the specific graduation forecast for students enrolled under the previous status.

Relevant documentation

- *The planning of the Institution for the foreseen transition period, the operating costs and the specific measures or proposals for the smooth implementation and completion of the programme*
- *The study regulations, template for the degree and the diploma supplement*
- *Name list of teaching staff, status, subject and the course they teach / examine*
- *Report of Quality Assurance Unit (QAU) on the progress of the transition and the degree of completion of the programme. In the case of UGP of a former Technological Educational Institution (TEI), the report must include a specific reference to how the internship was implemented*

Study Programme Compliance

I.   Findings

The Department has developed a simple and effective administration system for students during the transition period. Since the establishment of the new UGP in 2019, a clear mapping between the courses of the old and the new UGPs is in place and updated each year. It has succeeded in ensuring the smooth transition of the over one thousand students coming from the old UGP towards the completion of their studies, in parallel, with the smooth operation and evolution of the new UGP. Based on the discussions during the meeting the whole process and the closure of the previous programme runs without any problems and/or concerns.

II.   Analysis

The previously offered degree programme runs smoothly and the graduation of the remaining students enrolled in that programme, evolves without any problems. All students from the old programme have clear guidelines to complete their studies with the courses currently offered.

The transition is clearly documented in the department's website and communicated efficiently to students.

III.   Conclusions

The Department implements and provides a clear transformation map to ensure the smooth graduation of students enrolled in the previous programme, which has been terminated.

Panel Judgement

Principle 12: Monitoring the transition from previous undergraduate study programmes to the new ones	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

The EEAP has no recommendations for this principle.

PART C: CONCLUSIONS

I. Features of Good Practice

- Responsive to the needs of the market. The external stakeholders were enthusiastic about their collaboration with the department and this collaboration benefits all partners, namely the department, the students, and the external stakeholders.

- Modern UGP that is based on international guidelines and responsive to the latest developments in its fields. Ethos of continuous improvement.

- Faculty committed to helping their students learn and succeed. This is attested by the presence of a procedure to handle student complaints as well as by the introduction of an academic advisor for each student.

- The Department performed very well in setting up its own structure and at the same time preparing and implementing the transition from its old structure. During the transition period the UGP paid particular care so that the students already registered could continue their studies following equivalent courses in the new structure.

II. Areas of Weakness

- In 2019, the Department updated the curriculum of its undergraduate studies and created the two UGPs of CS&T and IS that share 24 core courses in the first two years and many electives in subsequent years. Students are admitted to one of the two programs, and they cannot switch between them (unless they re-apply). The students see little benefit in having the Department's undergraduate studies be structured as separate UGPs. It is hard and confusing for them to differentiate and decide between them at application time. Moreover, the inability to switch between them once they better understand the underlying discipline is unnecessarily restrictive.

- The physical infrastructure is not adequate to meet the needs of the students. The available lecture and laboratory capacity is not sufficient to accommodate the number of admitted students each year. Though the Department is trying to address this by offering multiple sections of its courses, their offering frequency is not sufficient to meet the needs for all its students. Moreover, the number of sections for its required courses assumes that nearly 50% of the incoming students have stopped attending classes by their second year. Such an assumption becomes a self-fulfilling prophecy and sends the wrong message to the students. Lack of enough lecture room capacity was a recurring problem identified by the students.

- The Department's processes and mechanisms for collecting information from its students about curriculum-related issues are limited, relying exclusively on information provided in course evaluation forms that have a very small response rate. A dedicated process is required to collect high-quality feedback from the students about the UGP's curriculum that goes beyond the information that can be obtained from a single course. In parallel, the Department does not have any processes to monitor students' progression during their studies and intervene to help the students.

- The Department's goals are primarily statements of intent and are not specific, measurable, and time bound. In addition, the Department does to clearly explain how its

goals are derived from the Department's mission/vision statements and how they contribute to achieving it. A general comment here is that it is not sufficient to simply state goals. The statement of each goal is not accompanied by a procedure describing how to achieve the goal from where it currently stands and how to monitor appropriate KPIs to measure advancement toward the goal. In addition, the Department does not have a culture of benchmarking and comparing itself against its peers in Greece and abroad to identify gaps, opportunities, and areas of best practice.

III. Recommendations for Follow-up Actions

- The Department should combine its two separate UGP – CS&T and IS – into a single UGP with potentially different upper division tracks. This will eliminate the artificial division that exists between these two study tracks and provide students with more flexibility.

- The number of students that are admitted to the program needs to be reduced to align with the available resources. Alternatively, the resources need to increase to meet the Department's teaching requirements.

- The Department needs to establish processes and mechanisms to increase students' feedback in the structure and operation of its undergraduate program of studies.

- The Department needs to establish processes and mechanisms to improve retention and timely graduation rates (e.g., by tracking students' performance throughout their studies and intervening when necessary).

IV.   Summary & Overall Assessment

The Principles where full compliance has been achieved are: **2, 9, 10, 11, and 12.**

The Principles where substantial compliance has been achieved are: **1, 3, 4, 5, 6, 7, and 8.**

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

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**

1. **Professor George Karypis (Chair)**
   University of Minnesota, USA

2. **Dr Paraskevas Dalianis**
    UniSystems S.A., Quest Group, Greece

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

4. **Savvas Mataras**
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