



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

ΑΔΙΠ

ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ  
ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC

HQA

HELLENIC QUALITY ASSURANCE  
AND ACCREDITATION AGENCY

# Accreditation Report for the Undergraduate Study Programme of:

**Applied Informatics**

**Institution: University of Macedonia**

**Date: December 14<sup>th</sup>, 2019**

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Report of the Panel appointed by the HQA to undertake the review of the Undergraduate Study Programme of **Applied Informatics** of the **University of Macedonia** for the purposes of granting accreditation

## TABLE OF CONTENTS

<b>Part A: Background and Context of the Review</b>	<b>4</b>
I. The Accreditation Panel	4
II. Review Procedure and Documentation	5
III. Study Programme Profile	7
<b>Part B: Compliance with the Principles</b>	<b>8</b>
Principle 1: Academic Unit Policy for Quality Assurance	8
Principle 2: Design and Approval of Programmes	10
Principle 3: Student- centred Learning, Teaching and Assessment	12
Principle 4: Student Admission, Progression, Recognition and Certification	14
Principle 5: Teaching Staff	16
Principle 6: Learning Resources and Student Support	18
Principle 7: Information Management	20
Principle 8: Public Information	22
Principle 9: On-going Monitoring and Periodic Internal Review of Programmes	23
Principle 9: On-going Monitoring and Periodic Internal Review of Programmes	23
Principle 10: Regular External Evaluation of Undergraduate Programmes	24
Principle 10: Regular External Evaluation of Undergraduate Programmes	24
<b>Part C: Conclusions</b>	<b>26</b>
I. Features of Good Practice	28
II. Areas of Weakness	28
III. Recommendations for Follow-up Actions	28
IV. Summary & Overall Assessment	29

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

### **I. The Accreditation Panel**

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme of **Applied Informatics** of the **University of Macedonia** comprised the following four (4) members, drawn from the HQA Register, in accordance with the Law 4009/2011:

- 1. Prof. Christos Politis (Chair)**  
Kingston University, London, UK
- 2. Dr. Haralambos Hatzakis**  
Biotronics3D, London, UK
- 3. Prof. Evangelos Kranakis**  
Carleton University, Ottawa, Canada
- 4. Prof. Emeritus Nicolas Spyrtos**  
Universite Paris-Sud & CNRS, Paris, France

## List of Main Abbreviations used in this report:

University of Macedonia (UoM)  
Hellenic Quality Assurance and Accreditation Agency (HQA/ADIP)  
Accreditation Panel (AP)  
Quality Assurance Unit (QAU/ MODIP)  
Evaluation Groups (IEGs/OMEA)  
Key Performance Indicators (KPIs)  
Higher Educational Institutions (HEIs)  
Support Teaching Staff (EDIP)  
Specialist Technical Staff (ETEP)  
European Credit Transfer and Accumulation System (ECTS)

## II. Review Procedure and Documentation

The Accreditation Panel (AP) attended a meeting in the Hellenic Quality Assurance & Accreditation Agency (HQA) premises in Athens, on Monday 9 December 2019 at 12:00, at which staff of the HQA explained the Accreditation Procedure, and the role and tasks of the AP members (HQA orientation meeting).

The first visit to the Department of Applied Informatics of the University of Macedonia (UoM) took place on Tuesday 10 December 2019 at 09:30. The visit lasted until approximately 18.00.

At the welcome meeting, the AP met the Vice-Rector and President of the Quality Assurance Unit (MODIP) Prof. Dimitrios Kyrkilis, the Dean of the School of Information Systems and Head of the Department of Applied Informatics, Professor Alexandros Chatzigeorgiou. Initially, Professor Kyrkilis welcomed the AP on behalf of UoM and gave a broad overview of the history and current developments of the University.

Professor Chatzigeorgiou, in his Head of Department capacity, gave a presentation of the history of the Department and its continued growth, highlighting the recent establishment of two programme specialisations (Information Systems and Computer Science & Technology). Subsequently, Associate Professor Angelos Sifaleras (OMEA Member) offered an overview of the Applied Informatics study programme, its aims and objectives, staffing and student numbers, along with information regarding the programme progression and completion statistics, and the preparation of the students for the labour market.

Later on Tuesday 10 December 2019 and during Wednesday 11 December 2019, the AP had meetings with the following groups:

1. Meeting with OMEA & MODIP representatives; Professor Ioannis Mavridis (President of OMEA), Professor Efthimios Tambouris (Member of Study Committee), Associate Professor Ioannis Nikolaidis (OMEA representative), Associate Professor Emmanouil Stiakakis (Member of Study Programme), Assistant Professor Ilias Sakellariou (MODIP Representative) and Associate Professor Angelos Sifaleras (Member of OMEA). The MODIP Quality Assurance team explained the Department's overall evaluation processes and the way in which it is supported and coordinated by the OMEA (Internal Evaluation Committee of Department), and answered a series of questions from the AP, providing supplementary information on a number of topics.
2. Members of the teaching staff; Professor Maria Vlachopoulou, Professor Maria Satratzemi, Professor Konstantinos Margaritis, Professor Alexandros Chatzigeorgiou, Professor Christos

Georgiadis, Professor Nikolaos Samaras, Assistant Professor Konstantinos Vergidis, Assistant Professor Sophia Petridou, Assistant Professor Georgia Koloniari, Assistant Professor Apostolos Dasilas, Assistant Professor Konstantinos Fouskas. As part of the meeting with this group, the AP had the opportunity to discuss a number of issues, including staff professional development and career advancement, teaching and research workloads, staff mobility, and funding opportunities. Additionally, there was a detailed discussion around the principles of student-centred teaching and learning, the way in which academic staff link teaching and research, and the structure and specialisations of the study programme.

3. Undergraduate students; As part of this particularly important meeting, the AP asked students about their satisfaction with the Department and the programme of study, their involvement in feedback and evaluation processes, their student identity and their perception of their study programme from an external perspective, and the opportunities afforded to them to actively participating in research activities. Overall, the students offered a very positive opinion about their relationship with the members of the teaching staff, which they consider an integral part of their overall academic success. They also expressed their general content with their overall learning and teaching experience.
4. Meeting with graduates; Christos Ziakis (Founder, imarketing.gr), Christina Volioti (Program Leader at Mediterranean College), Athanasia Moschou (Software Engineer at Intrasoft), Ioannis Fanidis (Soft. Engineer), Georgios Liapis (M.Sc. student at AUTH), Dimitrios Boukouvalas (Soft. Engineer at Intrasoft), Lefteris Chrisochoides (Soft. Developer at Veltio), Asimakis Zorbas (Full Stack Developer), Christos Timamopoulos (MSc student at IHU), Efstathia Baza (Software Consultant). This group offered a positive overview of their past experience and confirmed that their successful professional development and career opportunities benefited greatly from their time in the Department and the study of the Applied Informatics programme.
5. Employers and Social Partners; Theofilos Mylonas (Vice President, Association of Information Technology Companies of Northern Greece (SEPVE)), Apostolos Egyptiadis (President of the Hellenic Management Association (Macedonia Regional Department)), Lia Terzidou (President, Greek Computer Society – Macedonia Thrace Chapter), Diogenis Stogiannaris (Section Manager, Intracom Telecom), Theodore Chaikalis (Senior Software Engineer, Intrasoft SA), Georgios Manolis (Comquent GmbH), Nontas Ifantis (BETA CAE Systems), Ioannis Albanopoulos (Veltio). The group was positive about the Department and its students, highlighting the strong employability skills of the students.
6. Final meeting with OMEA and MODIP representatives; Professor Ioannis Mavridis (OMEA), Professor Efthimios Tambouris (OMEA), Associate Professor Ioannis Nikolaidis (OMEA), Associate Professor Emmanouil Stiakakis (OMEA), Associate Professor Angelos Sifaleras (OMEA), Professor Dimitrios Kyrkilis (Vice Rector, President of MODIP), Assistant Professor Ilias Sakellariou (MODIP member). During this meeting the AP asked for some minor additional information and provided some overall feedback, outlining the overarching findings of the accreditation visit.

During Wednesday 10 December 2019, the AP had the opportunity to visit the main facilities of UoM, part of which are available to the Department of Applied Informatics and are used to support its students. The visit was organised by the Head of Department Professor Chatzigeorgiou. During the visit, the AP met with members of the Dept. Secretariat: Vasiliki Dimarchopoulou (Manager), Aspasia Tsakiridou, Zoe Glaveta, Triada Gesiou and Iliana Varesi; Library: Paraskeui Bozana (Section Librarian); Support Teaching Staff (EDIP); Specialist Technical Staff (ETEP); Research laboratories representatives; Student Consulting and Support Centre representative; Accessibility Office representative.

The AP is grateful to the entire team for the very helpful and informative facilities tour, and the overall positive atmosphere in which the visit was conducted. Everyone who interacted with the AP was found to be very collaborative and supportive. The AP was provided with further information every time it was requested.

### **III. Study Programme Profile**

The Department of Applied Informatics, within UoM, was established in 1990 and has since become a dynamic and sought after computer science departments in Greece. Its main academic provision focuses on a comprehensive four-year Bachelor's degree programme, which spans a wide spectrum of theoretical and applied computing subjects.

Students on the Applied Informatics study programme are subjected to a wide variety of assessment methods, which incorporate practical assignments and lab-based activities. The Department ensures the development of practical skills and an analytical and conceptual problem-solving approach for its students, designed to address the complex problems normally encountered in the competitive IT industrial and business world of Applied Informatics (by offering its two specialisations).

Apart from the undergraduate programme, the Department also awards academic qualifications at higher levels, namely Master's and Doctoral degrees. The undergraduate programme itself consists of two specialisations, which cover the breadth of computer science. Applied Informatics students are able to take courses from the management and accounting programmes which exist within UoM.

The Applied Informatics programme is designed as a four year degree and is subdivided into eight semesters. Each semester comprises thirteen teaching weeks, followed by a period of assessment. The academic calendar encompassing all the activities of the Department, is published annually by UoM.

## PART B: COMPLIANCE WITH THE PRINCIPLES

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

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

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

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

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

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

### Study Programme compliance

The Department of Applied Informatics of the University of Macedonia (UoM) implements a Quality Assurance Policy which, in principle, is in line with the Institution's Quality Policy and Quality Manual, and the Hellenic Quality Assurance (HQA) guidelines, aiming primarily at the continuous improvement of the study programme. Its Quality Policy focuses on its educational, scientific, research and administrative work, and is accessible via its website (in Greek and English) to all stakeholders. Through the Quality Policy statement, the Department is committed to the implementation of a Quality System aiming at:

- Promoting and transmitting knowledge through teaching and research on the subject of Computer Science with particular emphasis on the development of systems for applications in Finance, Administrative and other Social Sciences and,
- The training of high-level executives for the needs of the public and the private sector.

A unique feature of the Department is the separation of the curriculum and the implied activities into two specialisations. Students select each specialisation before their admission and at application level. During the current academic year 2019/20 the department accepted its first cohort of students under the new structure. As such, at the time of the visit, the department was going through a significant transitional period, with a new curriculum structure and content and potential higher than usual churn rate and new recruits amongst Faculty members. It is unclear how this rather novel dichotomy of the department and other changes will affect its Quality Policy and implementation. At the time of the accreditation visit, the faculty expected to apply a unified Quality System across both specialisations, and thus minimise any extra administrative burden.

The Department benefits from the members of the Institution's Quality Assurance Unit (QAU) to create, implement and manage its Quality Management System. AP has met members of this unit assisting the process.

The Department has set objectives and associated measurable Key Performance Indicators (KPI), which are compatible with the objectives of the Programme and the University strategic goals. Those KPIs were established recently, and as such the Department has only performed sampling once. It is unclear at this stage the mechanism or the procedure with which those KPIs will provide input to processes related to ongoing improvement. This observation also applies to other performance related measurements (such as average graduation mark per year, percentage of students graduating in 4 years, all of which exhibit declining trends). There is no obvious feedback method for those performance related measures to potentially drive changes (if required) to the Department's operation, creating concerns for the commitment to the continuous improvement.

Although the programme of studies goes through annual review, there was no evidence presented to suggest that the Department performs annual reviews of the Quality Assurance System of the programme and its operations.

Evidence presented of a recent internal quality evaluation performed on the 19/06/19. However, the AP has not seen enough evidence to justify that a formal procedure was followed in line with the University's procedure for internal quality systems evaluations ("UoM Quality Manual", Procedure 4). Please see further commentary on Principle 9 related to the internal review processes.

Overall, the AP believes that there is an adequate high-level structure of a Quality Management System for the Department, however, a number of critical procedures (in line with the University's quality procedures and HQA's criteria for quality accreditation) are not formulated or followed and when followed are not properly documented.

### Panel judgement

<b>Principle 1: Institution policy for Quality Assurance</b>	
Fully compliant	
Substantially compliant	<b>x</b>
Partially compliant	
Non-compliant	

## Panel Recommendations

1. It may be a good idea if the department puts in practice quality procedures monitoring and controlling its operations and measuring its objectives. If implemented, those procedures should be part of a Department's Quality Manual, which is now missing. Although the Department's quality manual is not a requirement by the HQA, nevertheless the AP believes this is good operational practice.

If implemented, as a minimum the department needs to create detailed procedures and maintain documented evidence of following those procedures for:

- ✓ The periodic review of the Quality Management System for the Department.
- ✓ The evolution of its curriculum via its annual review.
- ✓ Any other process, which the Department believes is important for meeting its objectives in terms of quality, strategy and growth and not covered by the University's Quality Manual.

## Principle 2: Design and Approval of Programmes

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

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

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

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

### Study Programme compliance

The structure and content of the Applied Informatics study programme has been designed, and is periodically reviewed, according to UoM's Quality Assurance guidelines, whilst taking into consideration the Department's teaching and research priorities. From an external standpoint, the study programme adheres to international curriculum guidelines, as stipulated by various Professional Bodies [Association for Computer Machinery, Institute of Electrical and Electronics Engineers et al]. It also reflects the structure of comparable Informatics/ computer science study programmes found in other Greek universities.

The study programme consists of 240 European Credit Transfer and Accumulation System (ECTS) credits, 30 per semester and each course bears equally 5 ECTS. There are two specialisations; Information Systems and Computer Science & Technology, which commenced their operation from September 2019. In the first and second semester there are 13 common courses across the two specialisations. In academic years 2 and 3, the students should select one of the specialisations, which bears 12 courses in each of the two years. Then in year 4, all courses are optional and are split to 15 common for both specialisations, 24 for applied informatics and 10 in computer science & technology specialisation. As part of a drive to enrich the Informatics curriculum, it is also possible for Applied Informatics students to take elective courses offered by other disciplines within UoM.

The curriculum needs to be continuously upgraded so as to prevent student confusion of course prerequisites, e.g. in a couple of instances the course prerequisites were not clearly defined and students had to comprehend material that had not yet been taught or was to be taught in a course that was taught in parallel.

The aforementioned information regarding the study programme, is captured in the official Student Guide which is offered in Greek and English (on the web). The AP noted that it would be helpful to see additional information regarding the anticipated workload associated with certain courses, such as the Senior Thesis (“πτυχιακή εργασία”) which is a non-compulsory course.

The Department has a well-defined process in place to periodically evaluate and update the content of its study programme, in order to reflect the continuous advancements in the field of computer science/ Informatics. This process involves the annual review and recommendations for proposed changes/additions by the Department’s undergraduate studies committee, and the subsequent consideration of those by the Department’s general assembly. Inputs from the students to the ongoing review is achieved by the mechanism of questionnaires and their participation in the academic assembly.

Paid internship (“πρακτική άσκηση”) is also offered as an elective course, linking students with potential future employers. It became evident to the AP that there is significant student interest in paid internships, however the Department needs to do more in promoting them widely. A similar realisation was made with reference to student participation to ERASMUS+ programme. Interestingly, almost all the stakeholders, and in particular the students, expressed the view that the Paid internship should be offered widely and carry a number of ECTS credits which could be used towards obtaining the degree instead of the offered courses. The AP recommends this to be done from academic year 3 onwards and to students with an appropriate minimum GPA, depending on their needs.

The Department considers the establishment of an External Advisory Committee, which is expected to contribute to the existing review and continuous evolution of the study programme. It is expected that this approach will further facilitate the contribution external stakeholders make to strengthening of the study programme. Thus far, study programme changes have been mainly driven by faculty, underpinned by the outcomes of relevant internal reviews, course evaluations by the students, and the wider developments in the computer science/ informatics field at national and international levels.

Finally, it is worth noting that the external stakeholders praised the high quality of the Department’s graduates. External stakeholders further encourage the students to attend seminars organised by the Department and also engage with similar events externally to continue boosting their skills.

### Panel judgement

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

### Panel Recommendations

1. The elective status of the Paid Internship could be reviewed by reflecting on bearing a minimum number of ECTS credits.
2. The Department is encouraged to increase its participation to external industry events, which would lead to the further enhancement of its public profile/ outreach and the profile of its students as a result of the increased interaction with the public and private sectors.
3. The establishment of an external advisory committee should be instituted soon and not later than the end of 2020 as it appears to be cherished by the students, alumni and stakeholders alike.

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

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

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

*The student-centred learning and teaching process*

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

*In addition :*

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

### Study Programme compliance

The size and number of classrooms is not sufficient to accommodate the needs of proper instruction. Moreover, students complained that at the beginning of the course the number of seats is not even sufficient to accommodate all students and as a consequence many students are standing up and are therefore discouraged from attending classes. In addition to the need of enough classrooms, the need for smaller classrooms was expressed throughout especially for the successful delivery of courses with application oriented content. Instruction varies from course to course and may also depend on the course level. Several first year courses include weekly quizzes and class examinations which, encourage the students to do active reading/studying throughout the course. More advanced

as well as application oriented material must be delivered in smaller classrooms so as to accommodate special needs of such courses.

Students expressed satisfaction that many courses gave them the necessary broad foundations to comprehend important concepts in computer science that will be valuable for a lifetime. Nevertheless, the need for more practical and application oriented instruction (especially in courses involving applications of principles of software engineering) was expressed by many students. In particular, this could involve participation in more practical projects in collaboration with the city's sprawling industrial sector (which now includes companies such as Intrasoft, Exandia, Veltio, I-Marketing, European Dynamics, just to mention a few). No doubt this would require an extension of the current number of about 60 paid internships to accommodate more students. Practical instruction at the department is organised through instructional computer labs; the ones we visited had sufficient up-to-date equipment to accommodate course requirements but the need for quicker approval of funding for the organization of new specialised labs was evident. Students complete an evaluation questionnaire of the course material by the end of the term with assessment criteria and methods published in advance. This has been viewed to be very helpful by all participating parties for the quality of delivery of instructional material. It seems that it might be helpful to add a course evaluation in the middle of the term so as to propose improvements, enhancements and remedies that could be implemented before the end of the term.

Students are participating in several activities and competitions involving companies such as Huawei and Google. Most encouraging was that past graduates of the program uniformly expressed their satisfaction with the quality of specialised knowledge and instruction they received. A need was expressed for the creation of a cooperation mechanism to encourage the continuous collaboration between local industry and the department. It was impressive that past graduates of the programme expressed their interest to actively support the department in the future development of department-industry collaboration initiatives (in fact, one such initiative is to be organised in the winter of 2020).

### Panel judgement

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

### Panel Recommendations

1. Funding should be acquired via external sources and the government to increase the number of classrooms especially in year 1 courses. Additionally, have smaller classes in later year courses and application oriented courses which combine lecture with laboratory work.
2. Enhance the student evaluation methodology by introducing student advisory evaluation half term so as to improve instruction for the rest of the term.
3. Encourage the creation of a cooperation mechanism to enhance the department's collaboration with the local industry.

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

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

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

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

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

### **Study Programme compliance**

Each year the Department provides an information / introduction day for all new students through presentations and practical information sessions in order to support a smooth transition from high school to its environment. The secretarial services of the department are organised in a largely automated way providing all the information needed for the smooth operation of student admission, progression and certification. Student progression is monitored by statistical analysis of the data in the department Information System that supports the administrative operations of UoM and the department's secretarial services. This information is analysed and processed by OMEA.

Student mobility is encouraged by the participation in the Erasmus+ initiative. The Diploma Supplement is issued for all graduates. This supplement contains detailed information on the holder of the qualification (type and level of the qualification, conditions and rules for the graduation, learning outcomes, the marks received, credits for the corresponding courses, and the ECTS system).

An internship program is in place mostly after the 6<sup>th</sup> semester having no additional ECTS credits. Paid internships (πρακτική άσκηση) are funded by industry sponsorships and state scholarships (ΕΣΠΑ) - also elaborated in principle 3. Each internship is supervised by a faculty member.

There is no thesis handbook available in this department.

## Panel judgement

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

## Panel Recommendations

1. The ECTS credit system is applied across the curriculum; however no extra credits are given through internship programmes (i.e. practical training). The department should consider this point carefully (see also the recommendations in Principles 2 and 6).
2. Create a thesis handbook.
3. An annual award selecting the best student thesis project (or maybe one in computer science & technology and another in information systems) would do much to establish and promote research as a vital component of learning.

## Principle 5: Teaching Staff

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

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

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

### Study Programme compliance

The regular undergraduate teaching load (averaging 39 hours per course per term) consists of two courses per term. Added to this is teaching for graduate students. This amount of teaching is excessive given that computer science is a rapidly changing field which requires not only more preparation so as to include the most recent developments but also coordination with practical laboratory work. Teaching staff are regularly evaluated by students with formally conducted questionnaires concerning the quality of instruction.

Mobility is encouraged and several faculty have visited universities abroad on sabbatical leaves. More collaboration between faculty and local industry should be encouraged especially when leading to 1) relevant industry funding for research collaboration, and 2) input from industry to enhance the teaching program and overall curriculum of the department. Research publications and activities of faculty are published in appropriate university web venues.

Students at the end of their studies are encouraged to conduct research with faculty. This can take two forms: either internally conducted research leading to the completion of a research project or application oriented practical work in collaboration with local industry (which is graded by an appropriate faculty committee). The recently established double specialisations of the program into Computer Science & Technology and Information Systems creates a conceptual division whose effectiveness in attracting and educating students will be tested in the forthcoming years.

## Panel judgement

<b>Principle 5: Teaching Staff</b>	
Fully compliant	<b>x</b>
Substantially compliant	
Partially compliant	
Non-compliant	

## Panel Recommendations

1. As much as possible and within the reigning legal framework try to reduce teaching of research oriented faculty. This could be accomplished with the more extensive use of teaching oriented/dedicated faculty that are dedicated to the instruction of lower level courses.
2. Two suggestions that could encourage the improvement of the quality of teaching and research would be the establishment of an annual teaching excellence award and an annual research award that would promote excellence in teaching and research.

## Principle 6: Learning Resources and Student Support

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

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

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

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

### Study Programme compliance

The department has all the necessary facilities (classrooms, laboratories, IT infrastructure) for the number of students originally requested by them. However, the Ministry assigns 50% additional students which when added to the student transfers almost doubles the resulting total number of student population.

All facilities of UoM are located in one building with great accessibility. Additionally, the use of amphitheatres external to the Department has been agreed through the appropriate university committees. There is a reasonable allocation of existing facilities, which are in walking distance from the external to the department amphitheatres and classrooms. However, there is a severe shortage of space, especially in the first year.

A wide range of support services are available on-line to all students (information concerning courses, Erasmus mobility, availability of internship programs). Additionally, students with special needs are supported by the University Accessibility Office and the Student Support Office. Students are well informed about the available services at the department, through the information day at the beginning of their studies, the department's website, the secretariat announcements and the social media managed by the department.

A well equipped (and rather spacious) library is available to students and remains open late in the evening.

During the meeting with the students no major complaints were formulated concerning daily life in the UoM campus. Moreover, the students were generally satisfied with the quality of teaching.

### Panel judgement

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

### Panel Recommendations

1. The students who met with the AP stressed the shortage of space. The department should make additional efforts to either increase its educational capacity or negotiate with the Ministry and/or other implicated authorities for a more realistic target for student admission.
2. Both students and industrialists expressed the need to increase the number of internships and even make internships mandatory - at least in the final year of studies. The department is encouraged to study this point carefully. One possibility is to leave internships optional while introducing: (a) minimal mark for students to be eligible for internship and (b) awarding a number of ECTS to students that successfully finish their internship.

## Principle 7: Information Management

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

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

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

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

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

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

### Study Programme compliance

MODIP of the UoM is responsible for overseeing the continuous improvement of its academic provision and research outputs, as well as the efficient operation of its academic services, in accordance with international practices and the guidelines stipulated by HQA. In order to record, manage and evaluate the above activities, MODIP has developed an information collection system, (qa.uom.gr) in accordance with the standards of the HQA. The System, which was launched in 2015, captures data related to student, logistics, personal data (academic, administrative), research activity, financial data and other related data for overall operation of the Department.

The information system managing these data (together with the ADIP system) seems to provide a wealth of information that in the long term can be of benefit to the department in setting goals and measuring their success or failure, especially given the very recent restructuring. The AP believes that the department needs to establish long term procedures for analysing the data and reflecting on the outcomes with an approach that monitors the implementation of long term strategies and goals.

The completion rate of student surveys is rather low but in line with other Greek institutions. There is some contact with alumni but no clear data and statistics were provided to us to show that there is monitoring of data regarding employability of graduates.

### Panel judgement

<b>Principle 7: Information Management</b>	
Fully compliant	<b>x</b>
Substantially compliant	
Partially compliant	
Non-compliant	

### Panel Recommendations

None.

## Principle 8: Public Information

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

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

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

### Study Programme compliance

The website of the Department provides ample information on all aspects of interest to prospective and current students, graduates, other stakeholders and the public. The department's quality assurance policy is available online. There is planning for the academic publications, research projects and awards to be made available on a web repository.

The Department participates in a number of events related to the subject of computer science and information systems. This is an excellent idea as it gives the opportunity for students to present their ideas to professionals as well as to the general public.

### Panel judgement

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

### Panel Recommendations

1. Additional effort should be made to attract high school students through outreach activities in high schools presenting the undergraduate studies programme e.g. half day presentations by department's academics presenting the study content and career opportunities.

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

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

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

*The above comprise the evaluation of:*

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

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

### Study Programme compliance

The University's Quality Manual defines procedures for the on-going monitoring of departments (procedure 5) and the internal review of programmes (procedure 4). Furthermore, it provides templates to be used, which were found to be adequate and very good for purpose.

The department provided documented evidence that the internal review and the on-going monitoring of activities is conducted annually. The AP performed sampling of the latest internal review (conducted 19/06/19 for the year 17/18), which was submitted and approved by MODIP. The outcome of the self-assessment was recorded and submitted to the QAU/MODIP and shared with the Faculty.

The AP noted that the procedures dictated by the University's Quality Manual were followed fully. Although, there should be two separate procedures, there were conducted together with some confusion related to the scope of each. The process followed has a number of shortcomings:

- Appropriate inputs related to performance indicators such as KPIs and other statistical data were not taken into consideration.
- The process provided mainly a mechanism to report quantitative data, and it does not result in clear action plans which can be followed.

## Panel judgement

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

## Panel Recommendations

1. The Department should follow the guidelines of the University's Quality Manual in procedures 4 and 5 and perform its on-going monitoring and internal review of programmes activities in line with them. The inputs, steps performed and action plans related to improvement opportunities must be clearly articulated and followed.

## Principle 10: Regular External Evaluation of Undergraduate Programmes

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

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

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

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

### Study Programme compliance

The members of the staff were aware of the importance of the external review performed in 2013 and its potential contribution to improving the programme. As a matter of fact, they instituted extensive corrective and preventive action (CAPA).

The department is taking steps to create a collaborative environment between interested faculty and local industry. This may require the creation of an external advisory committee so as to search for new potential links and consolidate existing links.

We had two relevant meetings during our visit one with graduates currently working in local industry and another with representatives from the industry. In both instances the atmosphere was very positive and this reaction towards the department's programme as well the willingness to help create university-industry collaborations was notable.

### Panel judgement

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

### Panel Recommendations

1. To enrich the programme, it might be helpful for the department to create adjunct faculty positions that could participate in delivering courses and/or lectures as well as for co-supervising students and thesis at all levels of university training.

## **PART C: CONCLUSIONS**

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

- There is strong evidence of a deep mutual respect between staff and students. Staff are very generous with their time, supporting the students with both academic and pastoral matters.
- The Applied Informatics study programme features strong academic content. It is of comparable quality to local and international programmes. It is designed to engage and challenge students, and to equip them with good employability skills.
- The Department and its staff are committed to supporting their students and to the principles of student-centred learning and teaching.
- The Department has paid careful attention to the outcomes of the last evaluation and to its credit it appears to have implemented 90% of the recommendations it received at the time.
- There is strong research culture in the Department, which is seen as an integral part of the identity of the study programme.
- The leadership team of the Department is proactive, inclusive, responsive, and caring.

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

- It may be a good idea if the department puts in practice quality procedures monitoring and controlling its operations and measuring its objectives. If implemented, those procedures should be part of a Department's Quality Manual, which is now missing.
- The establishment of an external advisory committee should be instituted soon and not later than the end of 2020 as it appears to be cherished by the students, alumni and stakeholders alike.
- The ECTS credit system is applied across the curriculum; however no extra credits are given through internship programmes (i.e. πρακτική άσκηση). The department should consider this point carefully.

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

- The students who met with the AP stressed the shortage of space. The department should make additional efforts to either increase its educational capacity or negotiate with the Ministry and/or other implicated authorities for a more realistic target for student admission.
- The Department should follow the guidelines of the University's Quality Manual in procedures 4 and 5 and perform its on-going monitoring and internal review of programmes activities in line with them.
- Both students and industrialists expressed the need to increase the number of internships and even make internships mandatory - at least in the final year of studies. The department is encouraged to study this point carefully. One possibility is to leave internships optional while introducing: (a) minimal mark for students to be eligible for internship and (b) awarding a number of ECTS to students that successfully finish their internship.

- The Department is encouraged to create a thesis handbook.
- The Department is encouraged to establish an external advisory committee.

#### IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are:

Principle 4: Student Admission, Progression, Recognition and Certification

Principle 5: Teaching Staff

Principle 6: Learning Resources and Student Support

Principle 7: Information Management Principle

Principle 8: Public Information

Principle 10: Regular External Evaluation of Undergraduate Programmes

The Principles where substantial compliance has been achieved are:

Principle 1: Academic Unit Policy for Quality Assurance

Principle 2: Design and Approval of Programs

Principle 3: Student – centred Learning, Teaching and Assessment

Principle 9: On-going monitoring and Periodic Internal Review of Programmes

The Principles where partial compliance has been achieved are:

None

The Principles where failure of compliance was identified are:

None

Overall Judgement	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

**The members of the Accreditation Panel for the Undergraduate Study Programme of Applied Informatics of the University of Macedonia**

**Name and Surname**

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