



**ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ**  
HELLENIC REPUBLIC



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**Accreditation Report**  
**for the New Undergraduate Study Programme in**  
**operation of:**

**Computer Science**

**Institution: University of Western Macedonia**

**Date: 21 October 2022**



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



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

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

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

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

**1. Prof. Andreas G. Andreou (Chair)**

Johns Hopkins University

**2. Prof. George A. Papadopoulos**

University of Cyprus

**3. Dr Vasilis Friderikos**

King's College London

**4. George Psaltakis**

Technical University of Crete

## **II. Review Procedure and Documentation**

The External Evaluation and Accreditation Panel (EEAP) visited the Department of Informatics of the University of Western Macedonia via teleconferencing on the 17th and 18th of October 2022. During the first day, the process started via a private meeting of the EEAP members to discuss the proposal and orchestrate the tasks between them. Then, the Panel was welcomed to the virtual event by the Head of the Department Professor Dossis Michael and the Vice-Rector of the University of Western Macedonia Professor Sariannidis Nikolaos. Following that, the Panel had an e-meeting with OMEA and MODIP representatives. A debriefing meeting took place between the Panel members for the exchange of views during the first day of discussions.

During the second day of the e-visit the Panel met with members of academic staff in the Department. After a detailed presentation regarding quality assurance procedures that are in place there was sufficient time for discussions. The follow-up session involved a meeting with a set of pre-selected students from the Department. The students have been asked various questions about their academic life at the Department and in the Campus in general. Over the two days, the Panel was able to form a holistic view on the day-to-day operations in the Department.

The students, many of them belonging to the first cohort of students to graduate from the program gave the review committee valuable perspective. Then, the Panel had the opportunity to see a video about the facilities of the Department but at the same time during the session the dialogue with members of staff continued and a number of aspects were discussed. Following that the Panel met with social partners and other stakeholders that are closely collaborating with the Department. It was an opportunity to understand the importance of the Department in the local region and appreciate the contributions that it can make. The visit closed by meeting with OMEA and MODIP members as well as with the Head of Department and the Vice-Rector. During that last session the Chair of the Panel provided some overarching observations based on the discussions of EEAP during the 2-day visit.

### **III. New Undergraduate Study Programme in operation Profile**

The new undergraduate program in Informatics (Computer Science) begun in the 2019-2020 academic year with ultimate goal to provide foundational and applied knowledge in Computer Science and Informatics. The Department replaced the program in Computer Engineering that existed in the TEI of Western Macedonia since 2013. The latter Department was formed from an original Department of Informatics and Computer Technology that was founded in TEI of Western Macedonia in 2004.

The curriculum of the new program was done by a committee that was appointed by an interim faculty assembly that defined the courses and their content, distribution of courses in various categories and the adoption of practical training as a component of the program. A holistic view was adopted in the definition of the program that incorporated both the fundamental principles in Computer Science training as well as the regional societal needs for employment of the graduates. The curriculum was formed with an interdisciplinary framework covering areas of Computer Technology and Architecture, Computer Networks, Artificial Intelligence, Cloud Computing. The curriculum aims at dovetailing Science of Computing with the general field of Informatics. The curriculum is reviewed by a committee in the Department that is appointed by the Department Head. As such the curriculum committee strives for a dynamic curriculum that takes into account the latest developments in the field, input from industrial partners as well as the development of analogous programs in Universities in Greece and abroad.

The duration of studies in the new program is four academic years and 240 ETCTS for awarding the degree. Each of the 16 semesters consists of 13 weeks of teaching with exams at the end of the semester and in the additional exam period in September. A number of courses in the new undergraduate curriculum had analogous courses in the new Department (Computer Science) and during the transitional period from the previous program, the Department has put procedures in place to assure a smooth transition for the students (approximately 1500) that originated their studies in the old TEI program. This transitional period will be completed on 31/08/2024.

The Department conforms and is aligned with the National policies with respect to acceptance and enrolment in the program, all aspects of the curriculum, qualifications and award of the degree and is participating in the European ERASMUS+ program.

The Department today (October 2022) comprises of 10 professors at different ranks, 2 lecturers, 2 adjunct faculty, and 5 contract based teaching faculty. The operation of the Department is supported by two administrative staff members.

The Department is using the extensive modern teaching auditoria and classrooms at the University of Western Macedonia as well as a state-of-the-art library. Student support services are available at of the University of Macedonia to support student life. Complementary University infrastructure (for example networking and IT services) are available to fulfil the Department technical needs of computing and communications. Student housing is available in the local community of Kastoria and is adequate for meeting the needs of the students.

## **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 placed 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-centered 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 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**

The program is **student centric** and has a standard 240 ECTS credits over a period of 8 semesters (4 years). It is strategically positioned meet workforce development and the regional and National needs in Computer Science and Informatics. It is formed with high standard aims that are commensurate with top Computer Science/Informatics departments in Greece, Europe and the International Community. The Department aims to trailblaze the path for technological innovation in local industry and modernization of administrative practices in local and regional government (Western Macedonia).

### **II. Analysis**

The creation of the program is timely and meets the needs for technological developments in the region with regional future needs in information technologies including data analytics, data science and intelligent processing of data. The three pillars of the program (software, hardware, and computer networks) are foundational and well-conceived. Excellent background work has been done and it is documented for the planned transition of the Department from a Computer Engineering TEI at the University of Western Macedonia in Kastoria to a Computer Science / Informatics Department at the same University. The University budget is based on allocations from National funds for the permanent faculty and administrative staff with goal to expand the Department through research grants from European programs and Industry. The University is highly supportive in terms of laboratory space and resources that help in attracting external research funds. It is however not clear how the faculty members get rewarded when they have successful research proposals that bring prestige and funds to the University. The teaching is done both in English and Greek at the graduate level which is a necessity if the goal is to have a department that becomes visible in the International Community.

The procedures for quality assurance are in place (for number of publications and citations). It is also consistent with quality assurance policies at the host institution the University of Western Macedonia.

### **III. Conclusions**

The success of the new program hinges on the ability of the Department to slowly move away from the previous Computer Engineering focus and in a direction that is consistent with the strategic planning with the focus in Informatics / Computer Science. Furthermore, a competitive Department must complement core teaching with research in the key areas of Computer Science and Informatics.

## Panel Judgement

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

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

### **Panel Recommendations**

**R2.1** The sustainability of the Department needs to be assured by focusing the growth of the Department on the key areas of Computer Science / Informatics both in traditionally fundamental core areas such as algorithms but also in more applied fields such as machine intelligence, learning and optimization.

**R2.2** The “student advisor” concept is well founded. However, what is not clear is how does one address the variability in advising among the different faculty. The Head of the Department could introduce incentives for improving the advising.

**R2.3** Evaluations metrics such as number of publications must be revisited and augmented with more quantitative metrics such as for example impact factor or of the journal or paper acceptance ratio in conference as well as other metrics that are often employed in the Computers Science / Informatics community.

**R2.4** The practical training processes could be revisited with more creative approaches where the University offers “incubator space” and resources to small companies that in turn contribute some financial support to the Department budget and the faculty individual discretionary funds (please see further below).

**R2.5.** The University administration must set procedures and policies so that the overhead from grants and contracts are distributed equitable to the Department and to individual discretionary faculty budgets. An annual Department budget of six to seven thousand euros is pretty minimal and inadequate for a program that aims to grow in size.

## 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**

The Institution has in place Quality Assurance Policies that are complete and according to National and International Standards. These policies are well documented and include annual evaluations of programs, faculty and supporting staff.

#### **II. Analysis**

In units with large number of faculty the Internal Evaluation Group will have sufficient breadth to perform impartial evaluations. This becomes somewhat problematic for smaller size Institutions such as the Informatics Department / Computer Science.

### III. Conclusions

Quality assurance policies within the Institution as well as the Informatics / Computer Science Department are well documented. The implementation of these policies poses challenges due to the small size of the Department.

#### Panel Judgement

<b>Principle 2: Quality assurance policy of the Institution and the academic unit</b>	
Fully compliant	<b>X</b>
Substantially compliant	
Partially compliant	
Non-compliant	

#### Panel Recommendations

**R2.1** A process needs to be put in place to support objective and robust internal evaluations perhaps using faculty from other departments to assist in the process.

### **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**

The undergraduate programme at the Department of Informatics at the University of Western Macedonia (Kastoria Campus) has a set of defined objectives and seems to follow nominal national and international practices. The structure of the programme provides a

well-rounded view in computer science. More specifically, the organization of the course for studying Computer Science (or Informatics as those are hereafter used in an interchanged manner) is well-defined in terms of modules per academic year and semester and how they progress from a more fundamental introductory level to more specialized modules. In total there are 50 modules on offer out of which a student should complete 44 modules successfully so that he/she will be able to graduate (there is also the option of a final-year project/Thesis, which in that case 42 modules are required together with the Thesis). The learning objectives expected outcomes for each module, and related bibliography (which is available in the library) are thoroughly outlined in the Student Handbook which unfortunately is only available in Greek. The undergraduate programme has been informally discussed and advised by a number of social partners especially the local municipalities in Kastoria where students regularly engage in internships. Students feedback procedures are in place and results are analysed within the Department.

## **II. Analysis**

The program focus in the broad area of Computer Science and is in line with European standards in terms of course module synthesis and the ECTS credit system. Student feedback seems to be healthy (20 to 30 percent participation) which is an important component in closing the loop in terms of teaching and allowing for tweaking teaching or even rethinking the modus operandi of how the module is delivered. The Erasmus programme is in place however the number of students that utilize these opportunities is very small; this is partly explained by the recent restrictions due to Covid-19. However, the number of agreements is quite high (around 12/14) and with low number of student mobility it might be more appropriate to have a few peer institutions to create a close relationship so that reference points can be created to allow propelling the scheme to new students and also being truly bilateral (incoming students). During the discussion/interviews with a selected set of students it was clear that the overall experience was very positive however some variance has been detected in terms of satisfaction in different modules. It has become evident from the discussion with the students that some more practical labs are needed for programming, which is the cornerstone in a computer science curriculum. More specifically teaching of programming should amalgamate and integrate project-based teaching, group projects (by the creation of formal groups of students and not in an ad hoc manner) and heavy use of labs. There are no graduates yet from the programme, but the Department is blessed to have a number of inspirational people on board that the Panel has met during the social partners sessions. The Department should be actively engaged in a formal manner with the set of social partners so that they can provide useful, constructive and forward-looking feedback to the Department. The student guide can be deemed as complete but there is no information regarding policies and regulation to academic integrity issues. Students should be fully aware of the array of penalties on issues related to collusion, cheating and plagiarism. In addition, there is no information in the student handbook regarding who is the module leader in each module. The student handbook should also be defined per academic year so that it can capture any changes to the programme and/or individual modules and methods of assessment. Finally, there is no clear mapping between members of staff specialization and the modules they teach.

### III. Conclusions

The programme of study focuses on core computer science and the curriculum manages to provide the students a strong grasp on the fundamental principles. Having said that, the Department should incorporate a more hands-on practice on computer science projects to enable students to immerse in building computer systems in progressively more demanding contexts; this should involve students working in groups and potentially some form of project-based learning. A strong link between teaching computer science and research should be incorporated.

#### Panel Judgement

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

#### Panel Recommendations

**R3.1** A more hands on view on programming that includes mini projects will allow for student immersive experience in complex software code and architectures as the students progress in their studies.

**R3.2** Increase the amount of group-based working (in a formal manner rather than the ad hoc creation of group working) and ideally include some form of project-based learning especially for programming; let students work together to build complex software according to well-defined specification to understand coding complexity and time management for completing the project.

**R3.3** Will be important to create a clear mapping between members of staff specialization and the modules they teach; strategically those should be organically aligned. There should also be contingency for teaching the core required courses in the case that due illness some faculty/teacher cannot fulfil their duties.

**R3.4** There is a clear gap between research activities and teaching. Currently teaching and research are being developed independently and this issue needs to be considered to align research with core teaching responsibilities.

## 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-centered 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**

The Department of Computer Science at the University of Western Macedonia in Kastoria takes a student-centred approach to education, employing a range of pedagogical approaches and offering flexible learning paths, especially in the last year of study. They use the asynchronous tele-education platform of ECLASS as the rest of Greek Higher Educational Institutions. Some courses provide an option to do group projects, but it's not heavily implemented throughout the curriculum of the degree. Those optional group projects allow students to work with one another and with the lecturers. In general, teachers are approachable and assist students with any issues that may arise during their studies, considering students as active collaborators.

The course assessment criteria are well known and publicised in the initial weeks of the course, and if a change occurs throughout the semester, students are alerted. Every semester, student surveys are conducted, and the students have seen improvements occur as a result of those

surveys, indicating that the surveys are observed and taken into consideration. The survey participation is at an average of 30%.

There is an established procedure that describes the role and responsibilities of the academic tutor, and students have been divided into professors depending on their student number; this function was implemented recently but is already being used effectively. The professors treat the appeals with respect and are willing to help the students understand what they are disputing and there is an official appeals procedure in place.

## II. Analysis

Over the course of two days, we discussed with the students and instructors, as well as operational personnel, local officials, and enterprises, and we were able to gain a better understanding of how the Department operates. Outside of the main curriculum, the instructors filled potential basic knowledge deficits of the students through parallel lectures. The teachers are driven to assist students in reaching their full potential, as evidenced by the students with whom the panel spoke. The percentages of students that participated in the surveys were lower than anticipated, and while some concerns were resolved as a result of the surveys, others remained. Some programming courses take a more theoretical approach than they should for a computer science degree, due to disbelief of the student's capabilities.

## III. Conclusions

The panel believes that the Department has considered the majority of the relevant factors and has succeeded in encouraging students to take an active role and be at the centre of the learning process.

### Panel Judgement

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

## **Panel Recommendations**

**R4.1** The Department should promote and encourage student engagement in student surveys, as well as accept all constructive feedback and resolve concerns that have arisen throughout the years.

**R4.2** To increase student involvement, the student surveys might be administered during lectures or even laboratories.

**R4.3** The Department should make an effort to contact students during the semester in order to identify and resolve difficulties as they emerge.

**R4.4** Cases of distrust in student skills should be handled differently, with the goal of promoting instruction to students in a more practical rather than theoretical manner, particularly in courses that are largely practical, such as Programming, to assist students in acquiring the necessary knowledge.

**R4.5** There should be a uniform form (page or two) that summarizes the course objectives, provides a timeline for material delivery, provides faculty and teaching assistants contact information and defines the grading policy. These forms should be kept up-to-date and should be posted on the website.

## **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**

In the Department of Computer Science in University of Western Macedonia there is a welcoming event to make all the new students at the Department feel welcome and give the students a perspective on the host city Kastoria. This information is also posted on their website, a valuable resource that students can consult for advice on their first steps in the

Department. The students are monitored through an electronic platform where the faculty can identify problems in the curriculum and to track the academic progress of students.

The university has an international relations office and a professor in charge of student and teacher mobility who informed the panel about several bilateral agreements involving institutions from all across Europe. The panel also discovered that while most students were aware of the ERASMUS+ mobility program for studies and traineeships, the majority of them did not intend to take advantage of the mobility options, not even students in their final years of study. There are now three bilateral agreements listed on the Erasmus website for the Computer Science Department at the University of Western Macedonia, with two of them ending in 2021.

The European Credit Transfer and Accumulation System (ECTS) is used throughout the studies, and 240 ECTS are necessary to complete the studies since it is a four-year undergraduate program. After graduation, the Diploma Supplement is issued without request to all graduates in Greek and English from all departments at the University of Western Macedonia.

The Department has established a comprehensive set of standards for thesis completion in the study guide, however the thesis is not compulsory. The Department's Bachelor thesis is worth 12 ECTS and is implemented in the final semester of study instead of the comparable 12 ECTS courses if the student chooses to do so after consulting with the appropriate professor of his choice. The practical training lasts three months and is worth 6 ECTS. It can be completed entirely in the local government / business partners or even abroad through the Erasmus + initiative. Because practical training, like the thesis, is elective, it is not seen as an important component of the program because it may be substituted by courses, allowing students to graduate without completing training or a thesis.

## **II. Analysis**

Over the course of two days, we discussed with the students and instructors, as well as operational personnel, local officials, and enterprises, and we were able to get a better understating about internship opportunities at the current moment which in the local government are extensive. That was not the case in the industry, where there were less tight relationships, although representatives from industry were eager to form partnerships. The Department's website also included employment and internship postings, which was quite convenient. As previously stated, a thesis essay was not required, and the students were unsure if they would complete one.

The finance possibilities for the Erasmus program were not effectively explained to students, who believed that they would require substantial financial support outside of the scholarship to participate in mobility. Some students were considering completing an internship. There are courses for Erasmus students, however according to the course descriptions, they are only provided in Greek, making them an unsuitable option for students who do not speak Greek as their first language.

### III. Conclusions

The Panel concludes that the Department of Computer Science has made significant efforts to introduce thesis, practical training, and Erasmus mobility programs, but it requires a more direct and organised approach to promoting students' participation in internships, mobilities, and thesis in order to make their students more qualified in the job market.

#### Panel Judgement

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

#### Panel Recommendations

**R5.1** Implementation of blended intensive programs for short-term Erasmus mobility between partner institutions in order to get students interested in mobility and studying in a foreign country without committing to a full semester of studies.

**R5.2** Improved outreach and promotion of Erasmus+ financing for mobility and internships, as well as assisting students in choosing mobility as an additional path to their degree.

**R5.3** Making the Bachelor Thesis mandatory and encouraging practical work.

**R5.4** Updating the current bilateral agreements on the university website to match the ones mentioned in the conversation we had with the Erasmus representative for the Department.

**R5.5** Initiating additional collaborations amongst enterprises, particularly those offering remote roles, in order to rejuvenate Kastoria's industries.

## **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**

The teaching staff is recruited via the established procedures by the Ministry of Education which follow a specific protocol as it is defined by the relevant laws. The same procedures guarantee the transparency of the process.

The Department and the University encourages the professional development of the teaching staff by means of financially supporting their participation to conferences and providing awards to the best papers published by the staff every year.

The obligations of the teaching staff comprise teaching with a workload of around 4-6 courses per academic year which are equivalent to 40 hours of overall teaching load (lectures, preparation, student support) per week, supervision of students (there is a rate here of around 50 students per member of teaching staff), participation in committees and other administrative duties, as well as research activities.

The faculty is currently 10 members strong. The Department employs also a number of teaching staff that teach courses that cannot currently be taught by regular academic staff.

There is evidence that the teaching staff are regularly evaluated by students by means of questionnaires, which are filled and returned by around 30% of the students, a percentage that is considered realistic and adequate in forming a picture. Interviews with students provided evidence that the quality of teaching is overall satisfactory, although the students expressed reservations as to the usefulness of the methodology applied in some courses.

## II. Analysis

As expected, there is a variety of expertise covered by the teaching staff. However, not all members are in mainstream Computer Science and there is often a lack of sufficient research and funding activities. Specifically, only 7 of the 10 members are in the broader area of Computer Science or Computer Engineering with about half of those covering areas closer to the latter rather than the former, and only 2 of those members demonstrate sufficient involvement in both research and funding activities. Overall, 3 members of the teaching staff show low research productivity.

The expertise covered by the existing faculty does not include fundamental areas of Computer Science such as Theoretical Computer Science, Software Engineering, Computer Architectures, Intelligent Systems, etc. The Department is aware of these deficiencies and intends to request the strengthening of the faculty with an additional 5 members that will cover some of the missing expertise.

As a consequence of the current situation, the linking of teaching with research is rather limited and it is evident that the research performed by some of the accredited Laboratories cannot currently involve undergraduate students.

Furthermore, the overall teaching workload is inappropriate as it effectively leaves no room for undertaking research. Under the circumstances, it is questionable as to whether the Department can support staff mobility (e.g., taking advantage of the mechanism of sabbatical leaves or Erasmus+ staff exchanges).

There is no evidence of significant external funding, which would provide the Department and its faculty with the means to pursue more competitive research and attract

## III. Conclusions

The faculty should be strengthened with additional regular teaching staff, who will have expertise in mainstream Computer Science. The overall teaching workload must be reduced. More encouragement and incentive should be given to the staff, both to pursue more active research as well as attract external funding.

### Panel Judgement

<b>Principle 6: Ensuring the competence and high quality of the teaching staff of the new undergraduate study programmes</b>	
Fully compliant	
Substantially compliant	
Partially compliant	<b>X</b>
Non-compliant	

## **Panel Recommendations**

**R6.1** Hire more academic personnel in mainstream areas of Computer Science/Informatics

**R6.2** Reduce the overall teaching workload for the regular tenured/tenured track faculty.

**R6.3** Give more incentives for pursuing competitive research by means, e.g., of encouraging mobility, say, by taking sabbatical leaves or being involved in the Erasmus+ staff exchanges.

**R6.4** Encourage attracting external funding by means of setting up research accounts for the academic staff.

## 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 of Informatics is located at the outskirts of the city of Kastoria. The Department has one amphitheatre, 4 classrooms, 7 labs that can be used for teaching and 3 labs which relate to research activities. The University has a very active Library that students of the Department can utilize. The library has state of art facilities. There are no dormitories/housing for the students at the moment (however, there are some plans for doing so in the near future). Therefore, students for the time being and in the foreseeable future need to privately rent rooms/flats in the city of Kastoria. In addition, there are no sporting facilities within the campus available for the students. The Department has a strong IEEE students branch, which is very active, organized and engaged with a number of IEEE activities.

## II. Analysis

In overall, the current facilities at the Department are well maintained and sufficient for providing a supporting and engaging learning environment to the students. Based on the presentation that took place during the visit it was evident that the library can be considered as a key strength of the University and is led by people who have a clear vision and want a Library that is open to wider community and interact with other stakeholders in the city of Kastoria. Furthermore, based on the information collected during the two days discussions it has become evident to the Panel that the admin staff are professional and able to act promptly upon a plethora of different requests from students and provide an adequate overall support to both students as well as to academic staff. Student experience is very positive in terms of the offered support and overall learning experience in the Department.

## III. Conclusions

Overall, student support in the Department runs effectively and efficiently. Maintaining a high-quality overall student experience is at the heart of the philosophy within the Department. Learning resources are sufficient, however lab spaces and required computer upgrades need to be at the epicentre of the future strategy of the Department as student number and research activities increase.

### Panel Judgement

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

### Panel Recommendations

**R7.1** As the first cohort of students will graduate within 2023 the Department needs to establish a solid plan for alumni engagement opportunities so that students can become aware of success stories and career opportunities.

**R7.2** A commitment from the University to resolve remaining accommodation and student housing and potentially the establishment of opportunities for supporting financially weak students.

**R7.3** A detailed lab spaces growth plan to accommodate future expansion in both teaching and research activities as the number of taught (and research) students increase together with an increased number of members of staff as outlined in the strategy planning of the Department.

**R7.4** Students with mentoring from faculty should think about creating an ACM (Association of Computing Machinery) chapter. Most Informatics/Computer Science Department have such student chapters.

## **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**

The Department 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 provided by Hellenic Authority for Higher Education. An internal evaluation and assessment are conducted annually, consisting of student questionnaires, relevant information provided by the teaching staff and via the electronic platform e-Secretary. The Internal Evaluation Committee works in collaboration with MODIP to analyse and communicate the information obtained from the gathered data. The Quality Assurance goals of the University of Western Macedonia are based on its strategic plan and aim to provide specific and measurable KPIs for all its main activities. Efficiency measurements include quantitative and qualitative indicators which provide valuable and reliable information, and the collection of datasets encompassing the number and categories of indicators per quality objective, and their analysis and reporting for the purpose of supporting higher level decision-making.

The University of Western Macedonia provides an efficient IT infrastructure which ensures the collection of all relevant data. The overall process that the University employs, ensures that the anonymity and confidentiality is secured for the required data of all the above.

### **II. Analysis**

The overall quality assurance process is well established and follows the prescribed good practices as those are sent by HAHE. External stakeholders have knowledge of the activities of the Department and the quality of its students.

Students seem to be overall satisfied with the offered courses and the learning outcomes as well as with the acquired knowledge by the program in total. There were some concerns about the lack of practical material in courses such as Object-Oriented Programming and Software Engineering. Also, it is unclear the extent to which undergraduate students are involved in the Departmental Laboratories research activities.

### III. Conclusions

There is an overall well-established and efficient mechanism for quality assurance, in terms of selecting and processing information as well as acting upon it.

#### Panel Judgement

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

#### Panel Recommendations

**R8.1** Increase the percentage of students returning filled questionnaires

**R8.2** As the program of study gradually reaches the final year, care must be taken for the Department to offer easy ways for the final year students to reach the industry sector and find employment.

**R8.3** Once the first group of final year students has graduated, care must be taken to establish an alumni society, keep contact with the graduates and involve them in subsequent quality assurance exercises.

**R8.4** Establish more formal processes for involving Advisory Board members, including but not limited to external ones like industrial market or government players/partners and alumni in order to maintain the program innovation and align with the market requirements

## **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 public information about the University and the Department is fully available online, including the new study program structure, assessment criteria, degrees conferred, and a thorough view of the teaching staff's CVs and, when applicable, Google Scholar profiles. The program's course outlines are available on the Department's website in the study guide, as well as any practical information such as public transportation, accommodation, and so on. The MODIP quality assurance is up to date and available on the Department's website. Every piece of information appears to be clear, easily accessible, and up to date.

#### **II. Analysis**

The panel confirmed that the information is widely available and up to date after reviewing the Department's website (<https://cs.uowm.gr/>) as well as the Department's eclass platform (<https://eclass.uowm.gr/modules/auth/opencourses.php?fc=77>). The CV of the Professor Ioannis Sinatkas is not available in English, only in Greek. For the lecturer Michael Stampoultzis its not available at all in the English version of the website. Not everything on the English version of the website has been translated from Greek, and some of the pages are still under construction (Such as Research Projects). Data on Research Outputs is only available till 2015. Even on the English website, the announcement headline is in Greek. The complaint forms, as well as the study guide, are accurately translated into English. The most recent Internal Evaluation Report dates from 2020-2021, although the evaluation reports are not in English but only in Greek. The page for welcoming new tutors is not available. All announcements for practical work are available online, but only in Greek. In general, there is a lack of an English version of the website and publicly available information.

### III. Conclusions

The Panel concludes that the Department of Computer Science has a high standard regarding the public information about the Department and the new undergraduate curriculum in Greek and has put some effort on the English version. The latter i.e., English website, needs further work so that it is on par with the Greek version.

#### Panel Judgement

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

#### Panel Recommendations

**R9.1** Update the website for the English version to match the same quality as the Greek version

**R9.2** Update and include the CVs for the two teaching staff missing in the English version

**R9.3** Update the website footer in the English version to be translated in English instead of remaining the same throughout the English and Greek version.

## 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 program contains the basic courses expected from a typical Computer Science Department. Its contents are monitored and updated if needed, and the updated program appears on the Department's website. The main input for eventual updates comes from faculty members and from students. The program has a good balance between obligatory courses and electives. However, the mechanism of prerequisites is not applied, which is a weakness, and it creates some confusion among students.

Student input is provided mainly through questionnaires, filled annually and then analysed. The questions concern mainly student expectations from the teachers and the courses they teach, the style of teaching, the course contents, the learning environment and the course workload. Student participation in completing questionnaires is at the level of 30% which is acceptable but can be improved.

The students met by the Panel were, in general, satisfied with the quality of education they receive although they pointed out some areas in which the curriculum and the learning

environment could be further improved, notably in the courses of Object-Oriented Programming and Software Engineering where students wished to have coding assignments and projects.

## II. Analysis

Apart from faculty and students another source of input for monitoring the Department's program are the industrial and governmental stakeholders. However, input here seems to be obtained based mainly on personal relations that faculty members maintain with these stakeholders. While this is a good first step there needs to be a more formal coordination mechanism, such as an Advisory Board so that useful input is provided by these stakeholders and later on by alumni on a regular basis and program changes are motivated also by changing needs in industry and society. This Advisory Board must have a limited tenure.

## III. Conclusions

Overall, the Department has an effective procedure in internally auditing for quality the undergraduate program. A number of improvements, however, can be applied to further enhance the effectiveness of the procedures in place.

### Panel Judgement

<b>Principle 10: Periodic internal review of the new study programmes</b>	
Fully compliant	
Substantially compliant	<b>X</b>
Partially compliant	
Non-compliant	

### Panel Recommendations

**R10.1** Enhance the practical aspect of courses on Object-Oriented Programming and Software Engineering

**R10.2** Introduce prerequisites in the courses, where necessary so that there is a logical and consistent plan for studies.

**R10.3** Appoint and activate an External Advisory Board of External Stakeholders (and later on also including alumni)

**R10.4** Develop effective means to increase the student participation in completing questionnaires that pertain to the program so that to ensure statistically more robust results.

**R10.5** The Department Head should conduct an in person “exit interview” with students (one on one or in small groups) so that he/she gets first-hand knowledge of student concerns and suggestion for program improvement.

## **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. HAHE 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**

The Department of Informatics has only been recently established (2019) and the first cohort of graduates will be in 2023. To this end, the program of study has not been considered in any other formal external accreditation process. Therefore, there is no previous report available to the Panel and the comments/discussion in the sequel are based on the numerous discussions the Panel had during the 2 days visit and the detailed documentation that has been compiled by the Department.

#### **II. Analysis**

For the current modus operandi of the Department, it is clear that the local departmental committee (OMEA) is working closely with MODIP and there is an open communication channel between them to enable key quality assurance policies to embed into the fabric and day to day operation of the Department. The Department can be deemed as a small one and therefore the overall expectation is that policies and best practices should be propagated to all members of staff in an efficient manner; also, their implementation will be easier to steer, track and oversee. During the 2-day visit it was evident to the Panel that all members of staff had a full awareness of the accreditation process, and they were more than willing to step up and provide further clarification in any emerging matter under discussion.

### III. Conclusions

As we have already alluded above this is the first evaluation of the Department by an external committee. The Department did manage to sufficiently progress in a number of frontiers and the Panel strongly believe that comments herein and the way that they will be endorsed by the Department and the departmental overall strategy that will be shaped going forward will be the basis for the next evaluation of the Department.

#### Panel Judgement

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

#### Panel Recommendations

None.

## 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

Learning Resources: They are good and there is Institutional commitment to further improve and become commensurate with the needs of a Computer Science curriculum.

Appropriate Teaching Staff: To full-fill the needs of the new program and to assure a smooth transition from the previous TEI, the regular tenured/tenure track faculty complemented by faculty on contract.

Structured Curriculum: The curriculum is well structured, and it is modelled after Computer Science and Informatics curricula in Greece, Cyprus, Europe and United States.

Study Regulations: They are well documented but perhaps not as well or prominently featured on the

System of Data Collection and Use: In place there is a sufficient system for data collection that is employed.

## II. Analysis

The current Computer Science Department was indeed formed with founding faculty from the previous Computer Engineering Department of a former TEI. Currently the Department meets the teaching requirements, albeit with a somewhat high teaching load by regular and adjunct faculty. While the typical 4 + 4 hours per week per semester is a reasonable load for faculty. The review committee is concerned about the coverage of the fundamental Computer Science courses in the curriculum (Algorithms, Data Structures, Advanced Coding for example C++).

Practical training and internships were an important component of the previous TEI program. The current program has provisions for such internships mostly associated with local and region government offices and to some extent with local industry. This transition is in progress and based on our conversations with the stakeholders, a great enthusiasm exists in both government and industry for the prospects of further engaging students in internships that would eventually lead to their recruitment upon graduation.

Study regulations and Department procedures are well documented, but it is not entirely clear that students and staff are fully aware

## III. Conclusions

The transition from the previous TEI Computer Engineering program to the new Computer Science program is in progress with substantial steps done both in the structure, human resources and transition/graduation of students that were enrolled in the previous program and currently are in their final year.

### Panel Judgement

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

### Panel Recommendations

Appropriate Teaching Staff: The review committee believes that the program needs to grow in faculty with at least one tenured faculty per year and is fully supportive of that endeavour. Furthermore, the committee believes that such growth must give priorities to the core

Computer Science areas such as algorithms, operating systems, security, and data science. As is, and not unexpected, the program has a strong Computer Engineering feel with a number of faculty in Applied Mathematics (numerical analysis). **To remain competitive, it needs to evolve and grow in a true Computer Science and Informatics direction.**

Study Regulations: The Department needs to make an effort to display prominently on the website and through the course syllabi a code of ethics and acceptable student collaboration in homework and projects.

## **PART C: CONCLUSIONS**

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

Department of Informatics (Computer Science) is an exciting program for the students with good support from stakeholders (local government and industry). The academic facilities (classrooms, laboratories and library) are excellent and well supported. The University is in a beautiful setting with ample resources for student housing. The latter features together with a strong academic program will make it attractive to students beyond the regional communities.

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

Being in its infancy, the Department is facing “growing pains” that have to do with its small size, and the need to establish larger faculty numbers with research and teaching expertise in the traditionally core Informatics / Computer Science field.

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

For the program to remain competitive it needs the support to recruit tenured/tenure track faculty with the rate of at least one per year with the goal of an evolution and growth in a true Department of Informatics (Computer Science) direction.

#### IV. Summary & Overall Assessment

The Principles where **full compliance** has been achieved are: **1, 2, 4, 7, 8, 9, and 11.**

The Principles where **substantial compliance** has been achieved are: **3, 5, 10, and 12.**

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

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

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

## The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

**1. Prof. Andreas G. Andreou (Chair)**  
Johns Hopkins University

**2. Prof. George A. Papadopoulos**  
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