

Doc. 300.1.1

Date: 21/05/2019

External evaluation report

- **Higher education institution:**

University of Cyprus

- **Town:** Nicosia

- **Programme of study (Name, ECTS, duration, cycle)**

In Greek: Προπτυχιακό πρόγραμμα στην πληροφορική, 240, 4 χρόνια

In English: Undergraduate programme in Computer Science, 240, 4 years

- **Language of instruction:** Greek and English

- **Programme's status**

New programme: No

Currently operating: Yes

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 and 2016” [N. 136 (I)/2015 and N. 47(I)/2016].

A. Introduction

The EEC met in Nicosia on May 20, 2019. We were instructed on the procedures to follow by personnel from the Cyprus Agency of Quality Assurance and Accreditation in Higher Education. We then visited the University of Cyprus, the Department of Computer Science, and the Library. We met the Vice-Rector for Teaching Affairs, the Head of the CS Department, the coordinator of the CS programme, a large majority of the teaching staff, the administrative staff, several undergraduate and graduate students, and a representative of the library staff.

The Department of Computer Science is a founding member of the University of Cyprus and it is among its largest departments. It is a very competitive research department according to international standards. The undergraduate programme in Computer Science is the flagship course of the department. It is hosted in a modern building with good resources and infrastructure. It benefits from a highly selective student intake.

B. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Paolo Ciancarini	Professor	University of Bologna, Italy
Edith Elkind	Professor	University of Oxford, UK
Peter Pietzuch	Professor	Imperial College London, UK
Theodoros Theodorou	Student	Cyprus University of Technology, Cyprus

C. Guidelines on content and structure of the report

1. Study programme and study programme's design and development

(ESG 1.1, 1.2, 1.8, 1.9)

Standards

- *Policy for quality assurance of the programme of study:*
 - *has a formal status and is publicly available*
 - *supports the organisation of the quality assurance system through appropriate structures, regulations and processes*
 - *supports teaching, administrative staff and students to take on their responsibilities in quality assurance*
 - *ensures academic integrity and freedom and is vigilant against academic fraud*
 - *guards against intolerance of any kind or discrimination against the students or staff*
 - *supports the involvement of external stakeholders*
- *The programme of study:*
 - *is designed with overall programme objectives that are in line with the institutional strategy and have explicit intended learning outcomes*
 - *is designed by involving students and other stakeholders*
 - *benefits from external expertise*
 - *reflects the four purposes of higher education of the Council of Europe (preparation for sustainable employment, personal development, preparation for life as active citizens in democratic societies, the development and maintenance, through teaching, learning and research, of a broad, advanced knowledge base)*
 - *is designed so that it enables smooth student progression*
 - *defines the expected student workload in ECTS*
 - *includes well-structured placement opportunities where appropriate*
 - *is subject to a formal institutional approval process*
 - *results in a qualification that is clearly specified and communicated, and refers to the correct level of the National Qualifications Framework for Higher Education and, consequently, to the Framework for Qualifications of the European Higher Education Area*
 - *is regularly monitored in the light of the latest research in the given discipline, thus ensuring that the programme is up-to-date*
 - *is periodically reviewed so that it takes into account the changing needs of society, the students' workload, progression and completion, the effectiveness of procedures for assessment of students, student expectations, needs and satisfaction in relation to the programme*
 - *is reviewed and revised regularly involving students and other stakeholders*

- *Public information (clear, accurate, objective, up-to date and readily accessible):*
 - *about the programme of study offered*
 - *the selection criteria*
 - *the intended learning outcomes*
 - *the qualification awarded*
 - *the teaching, learning and assessment procedures*
 - *the pass rates*
 - *the learning opportunities available to the students*
 - *graduate employment information*

Findings

The degree programme under assessment is a 4-year computer science programme. It is not fully compatible with the Bologna framework because it does not offer an exit point after three years.

The degree programme is designed by the faculty members in compliance with the ACM Computer Science Curriculum, a leading international standard.

As part of the degree programme, students receive training in the advanced use of the English language, and some of the taught courses are given in English. The provided study materials are typically in English as well.

Strengths

The students in the programme benefit from a newly established internship placement programme. The skills of students are developed as part of group project work.

The department receives a large number of applications and selects the top applicants. The local IT industry regards the graduates from this programme highly, and there is a high placement rate of graduating students with the local IT industry.

State-of-the-art automated tools are used to prevent academic fraud such as plagiarism.

Areas of improvement and recommendations

The current undergraduate student population is predominately local, and the department struggles to attract significant student numbers from outside of Cyprus. Part of the issue is caused by the use of Greek as the main language of instruction in the programme. Our recommendation is to consider teaching a larger number of courses in the programme in English and to establish a robust process to decide which courses to shift to English. The current decisions about courses taught in English appear ad-hoc.

The department has weakness related to internationalisation, and risks being isolated at an international level. We suggest to explore the establishment of additional teaching-related links with other European institutions of higher learning (e.g. through further exchange programmes and the award of joint degree titles with other universities).

A challenge that the department faces is which programming language to teach as the first language in the programme. The department currently teaches the Java programming language, which is a popular mainstream language. While this is a popular choice with students, it favours students who have already been exposed to the language before. Other leading computer science departments first teach a high-level functional language such as Haskell or ML. The advantages of such an approach are that (a) it creates a level playing field among the student population; and (b) it encourages students to focus on algorithmic and fundamental concepts in programming, instead of being distracted by the details of a lower-level programming language. We recommend that the department should carefully consider its choice of the first programming language and select a language based on the pedagogical needs of the degree programme.

The offer of the core set of courses is in line with international standards dictated by ACM/IEEE. There is a large number of “restricted electives”, which are optional courses suggested by the department. This large optional teaching offer has not been clearly justified, and there are concerns that it cannot be sustained in the future.

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
1.1	Academic oversight of the programme design is ensured	10
1.2	The guide and / or the regulations for quality assurance provide the adequate information and data for the support and management of the programme of study for all the years of study.	10
1.3	Internal Quality Assurance processes safeguard the quality and the fulfillment of the programme’s purpose, objectives and the achievement of the learning outcomes. Particularly, the following are taken into consideration:	
1.3.1	The disclosure of the programme’s curricula to the students and their implementation by the teaching staff	10

1.3.2	The programme webpage information and material	10
1.3.3	The procedures for the fulfillment of undergraduate and postgraduate assignments / practical training	10
1.3.4	The procedures for the conduct and the format of the examinations and for student assessment	10
1.3.5	Students' participation procedures for the improvement of the programme and of the educational process	10
1.4	The purpose and objectives of the programme are consistent with the expected learning outcomes and with the mission and the strategy of the institution.	10
1.5	The following ensure the achievement of the programme's purpose, objectives and the learning outcomes:	
1.5.1	The number of courses	8
1.5.2	The programme's content	8
1.5.3	The methods of assessment	10
1.5.4	The teaching material	10
1.5.5	The equipment	10
1.5.6	The balance between theory and practice	8
1.5.7	The research orientation of the programme	10
1.5.8	The quality of students' assignments	10
1.6	The expected learning outcomes of the programme are known to the students and to the members of the teaching staff.	10
1.7	The teaching and learning process is adequate and effective for the achievement of the expected learning outcomes.	10
1.8	The content of the programme's courses reflects the latest achievements / developments in science, arts, research and technology.	10
1.9	New research results are embodied in the content of the programme of study.	10
1.10	The content of foundation courses is designed to prepare the students for the first year of their chosen undergraduate degree.	N/A
1.11	Students' command of the language of instruction is appropriate.	10

1.12	The programme of study is structured in a consistent manner and in sequence, so that concepts operating as preconditions precede the teaching of other, more complex and cognitively more demanding, concepts.	10
1.13	The learning outcomes and the content of the courses are consistent.	10
1.14	The European Credit Transfer System (ECTS) is applied and there is correspondence between credits, workload and expected learning outcomes per course and per semester.	10
1.15	The higher education qualification awarded to the students corresponds to the purpose, objectives and the learning outcomes of the programme.	10
1.16	The higher education qualification and the programme of study conform to the provisions for registration to their corresponding professional and vocational bodies for the purpose of exercising a particular profession.	N/A
1.17	The programme's management in regard to its design, its approval, its monitoring and its review, is in place.	10
1.18	The programme's collaborations with other institutions provide added value and are compared positively with corresponding collaborations of other departments / programmes of study in Europe and internationally.	10
1.19	Procedures are applied so that the programme conforms to the scientific and professional activities of the graduates.	10
1.20	The admission requirements are appropriate.	10
1.21	Sufficient information relating to the programme of study is posted publicly.	10
1.22	The teaching methodology is suitable for teaching in higher education.	10

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

The department teaches a mainstream imperative programming language (Java) as the first programming language. This raises a question if a higher-level functional programming language such as Haskell or ML would not be more appropriate to first establish key foundational concepts (e.g. recursion and abstract data types) with students, before going into the details of a mainstream object-oriented programming language.

The programme is based on a large variety of elective courses, which is positive because it offers freedom of choice to the students. However, this can also be a signal of fragmentation of the discipline, and limited cooperation among the teaching staff. Moreover, there are concerns that this approach is not sustainable in the future due to the aging and upcoming retirement of a substantial part (40%) of the teaching faculty.

A key opportunity that the department has is to take advantage of English language teaching in computer science. Currently the department only offers a limited number of courses in English, and the decision to offer a course in English is done in an ad-hoc fashion. To tap into a larger talent pool of prospective students beyond national applicants, we suggest that the department considers expanding the number of courses that are taught in English.

We believe that this would also raise the competitiveness of graduating students at an international level. Given the prominence of English in computer science education, this would not be a major change to the existing teaching practices. This would also help attract future faculty members from outside of Cyprus.

Provide information on:

- 1. Employability records*
 - 2. Pass rate per course/semester*
 - 3. The correspondence of exams' and assignments' content to the level of the programme and the number of ECTS*
-
1. Regarding the employability of graduating students, students who look for full time positions in Cyprus are typically able to find them within six months of graduation. Some of the graduating students choose to pursue further qualifications in Cyprus and overseas.
 2. Pass rates per courses vary from nearly 100% to 60-70%. Courses with higher failure rates are offered repeatedly across multiple terms, which gives students adequate opportunity to retake courses.
 3. The course contents show a good correspondence with the number of ECTS credits.

Please circle one of the following for:

Study programme and study programme's design and development

~~Non-compliant~~

~~Partially compliant~~

~~substantially compliant~~

Fully compliant

2. Teaching, learning and student assessment (ESG 1.3)

Standards

- *The process of teaching and learning supports students' individual and social development and respects their needs.*
- *The process of teaching and learning is flexible, considers different modes of delivery, where appropriate, uses a variety of pedagogical methods and facilitates the achievement of planned learning outcomes.*
- *Students are encouraged to take an active role in creating the learning process.*
- *The implementation of student-centered learning and teaching encourages a sense of autonomy in the learner, while ensuring adequate guidance and support from the teacher.*
- *Teaching methods, tools and material used in teaching are modern, effective, support the use of modern educational technologies and are regularly updated.*
- *Practical and theoretical studies are interconnected.*
- *The organisation and the content of practical training, if applicable, support achievement of planned learning outcomes and meet the needs of the stakeholders.*
- *Mutual respect within the learner-teacher relationship is promoted.*
- *Assessment is appropriate, transparent, objective and supports the development of the learner.*
- *The criteria for and method of assessment, as well as criteria for marking, are published in advance.*
- *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.*
- *Assessment, where possible, is carried out by more than one examiner.*

Findings

The department is committed to excellence in student teaching. The size of the programme allows for the use of interactive teaching methods and facilitates a personalised approach for the delivery of teaching outcomes.

The students receive adequate mentoring by faculty members.

The teaching staff offers a broad variety of elective courses as part of the programme.

Strengths

The model of assessment allows teaching staff to give continuous feedback to students.

The students in the department are actively involved in research activities. In many cases, diploma projects result in scientific publications in peer-reviewed venues.

Areas of improvement and recommendations

The current process for the preparation and setting of end-of-semester examination papers includes only minimal oversight. Examination papers are set by individual teaching staff without an adequate quality assurance process. We recommend that examinations papers should be checked internally by another relevant member of the teaching staff. This will help ensure comparable standards across all examination papers in the degree programme.

Some of the courses offered in the degree programme, in particular the Operating Systems (OS) course, lack a practical laboratory component. While such a laboratory component may be perceived as challenging by students, it would substantially help in teaching students how to apply the more theoretical concepts from the OS course in a more practical setting. As done successfully in other computer science departments, it is possible to balance the workload imposed by an OS laboratory exercise by assigning students to small groups.

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
2.1	The actual/expected number of students in each class allows for constructive teaching and communication.	10
2.2	The actual/expected number of students in each class compares positively to the current international standards and/or practices.	10
2.3	There is an adequate policy for regular and effective communication with students.	10

2.4	The methodology implemented in each course leads to the achievement of the course's purpose and objectives and those of the individual modules.	8
2.5	Constructive formative assessment for learning and feedback are regularly provided to the students.	10
2.6	The assessment system and criteria regarding student course performance are clear, adequate, and known to the students.	10
2.7	Educational activities which encourage students' active participation in the learning process are implemented.	10
2.8	Teaching incorporates the use of modern educational technologies that are consistent with international standards, including a platform for the electronic support of learning.	10
2.9	Teaching materials (books, manuals, journals, databases, and teaching notes) meet the requirements set by the methodology of the programme's individual courses and are updated regularly.	10
2.10	It is ensured that teaching and learning are continuously enriched by research.	10
2.11	The programme promotes students' research skills and inquiry learning.	10
2.12	Students are adequately trained in the research process.	10

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

In contrast to other comparable degree programmes in computer science, the operating systems (OS) course offered by the department is not accompanied by an associated OS laboratory exercise. We believe that it would be advantageous to the long-term competitiveness of students to establish such an exercise. Other computer science departments have designed OS laboratories around teaching operating systems and managed to limit the associated workload by performing the exercise as part of group work. With appropriate teaching support, it is possible to ensure a high success rate for an OS laboratory exercise.

Please circle one of the following for:

Teaching, learning and student assessment

~~Non-compliant~~

~~Partially compliant~~

~~substantially compliant~~

Fully compliant

3. Teaching Staff (ESG 1.5)

Standards

- Fair, transparent and clear processes for the recruitment and development of the teaching staff are set up.
- Teaching staff qualifications are adequate to achieve the objectives and planned learning outcomes of the study programme, and to ensure quality and sustainability of the teaching and learning.
- The teaching staff collaborate in the fields of teaching and research within the HEI and with partners outside (practitioners in their fields, employers, and staff members at other HEIs in Cyprus or abroad).
- Recognised visiting teaching staff participates in teaching the study programme.
- The teaching staff is regularly engaged in professional and teaching-skills training and development.
- Assessment of the teaching staff takes into account the quality of their teaching, their research activity, the development of their teaching skills and their mobility.

Findings

Twenty permanent faculty members are supported by special teaching staff to deliver the undergraduate programme. All of the permanent teaching staff have substantial international experience and most of them maintain a strong and internationally visible research programme. This is reflected in the research focus of some of the teaching activities delivered in the programme.

For the recruitment of teaching staff, the department identifies priority areas based on research needs and opportunities as well as the teaching requirements.

Strengths

The faculty includes internationally renowned researchers, and most of the staff is research active. The faculty in the department carries out international research projects and benefits from strong links with other overseas institutions; this gives the students in the programme an opportunity to participate in cutting-edge research activities and collaborate with overseas researchers.

Areas of improvement and recommendations

At the moment, the program has an adequate number of faculty members to address the teaching needs of the department. However, some of the faculty members are approaching retirement, and there is a need to ensure that faculty positions are made available to replace the retiring faculty members in a timely fashion. The availability of faculty posts should be confirmed in advance to ensure that there is no drop in teaching quality.

The department rarely has visiting professors; university funding for such positions would be necessary to attract quality visitors. This would benefit both the students, who would get exposure to international expertise, and the faculty, who would be able to extend their research collaboration network.

The only form of feedback that the teaching staff receive is in the form of student evaluations. While such feedback often provides valuable information that can be used to improve teaching, recent research suggests that student evaluations may be biased (e.g. male teachers are scored more highly than female teachers even when performance is objectively identical) and are not capable of identifying the best practices. It is therefore not advisable to base promotion decisions on the scores in student questionnaires. The department should explore the possibility of teaching evaluation by peer observation. In addition, we recommend that student feedback is processed by support staff so that non-constructive or offensive comments are filtered and not passed on to the teaching staff.

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria			1 - 10
3.1	The number of full-time teaching staff, occupied exclusively at the institution, and their fields of expertise, adequately support the programme of study.		7
3.2	The members of teaching staff for each course have the relevant formal and fundamental qualifications for teaching the course, including the following:		
	3.2.1	Subject specialisation	10
	3.2.2	Research and Publications within the discipline	10
	3.2.3	Experience / training in teaching in higher education	10

3.3	The programme attracts visiting professors of recognized academic standing.	5
3.4	The specialisations of visiting professors adequately support the programme of study.	5
3.5	Special teaching staff and special scientists have the necessary qualifications, adequate work experience and specialisation to teach a limited number of courses in the programme of study.	10
3.6	In the programme of study, the ratio of the number of courses taught by full-time staff, occupied exclusively at the institution, to the number of courses taught by part-time staff, ensures the quality of the programme of study.	10
3.7	The ratio of the number of students to the total number of teaching staff supports and safeguards the programme's quality.	10
3.8	The teaching load allows for the conduct of research and contribution to society.	10
3.9	The programme's coordinator has the qualifications and experience to coordinate the programme of study.	10
3.10	The results of the teaching staff's research activity are published in international journals with the peer-reviewing system, in international conferences, conference minutes, publications etc.	10
3.11	The teaching staff is provided with adequate training opportunities in teaching methods, adult education and new technologies.	10
3.12	Feedback processes for teaching staff in regard to the evaluation of their teaching work, by the students, are satisfactory.	5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

A substantial number of faculty members will retire soon, so there is a need to build a robust pipeline for filling junior posts.

There are few visiting professors, due to the lack of financial resources.

Student surveys should not be the sole means of teaching evaluation: the teaching staff should receive feedback on their teaching from peers. Student feedback should be checked for offensive, irrelevant or inappropriate comments by administrative staff.

Provide information on the following:

In every programme of study the special teaching staff should not exceed 30% of the permanent teaching staff.

Most of the courses are delivered by the permanent teaching staff and the special teaching staff does not exceed 30% of the permanent teaching staff. Most of the special teaching staff provides service teaching to other departments.

Please circle one of the following for:

Teaching Staff

~~Non-compliant~~

~~Partially-compliant~~

~~substantially compliant~~

~~Fully-compliant~~

4. Students (ESG 1.4, 1.6, 1.7)

Standards

- *Pre-defined and published regulations regarding student admission, progression, recognition and certification are in place.*
- *Access policies, admission processes and criteria are implemented consistently and in a transparent manner.*
- *Information on students, like key performance indicators, profile of the student population, student progression, success and drop-out rates, students' satisfaction with their programmes, learning resources and student support available, career paths of graduates, is collected, monitored and analysed.*
- *Fair recognition of higher education qualifications, periods of study and prior learning, including the recognition of non-formal and informal learning, are essential components for ensuring the students' progress in their studies, while promoting mobility.*
- *Students receive certification explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.*
- *Student support is provided covering the needs of a diverse student population (such as mature, part-time, employed and international students, as well as students with disabilities).*
- *A formal procedure for student appeals is in place.*
- *Students are involved in evaluating the teaching staff.*
- *Students' mobility is encouraged and supported.*

Findings

The students are admitted based on their performance in the high school leaving exams, with special provision for foreign students and student with special abilities. The admission criteria are clear and publicly available. The admitted students are predominantly local. The department collects the relevant information on the students' performance in the course and analyses it to help students succeed. The students are given an opportunity to evaluate teaching staff.

Strengths

The programme enjoys a low drop-out rate of students and a good graduation rate. The majority of students graduate in four years with almost all students graduating within six years.

Students participate in international exchange programmes.

There are provisions by the department and the university to accommodate students with special needs.

Areas of improvement and recommendations

An overwhelming majority of the students in the program are male. The department should explore new approaches to reaching out to pre-university female students to encourage them to apply to the programme. It may be helpful to establish a women-in-CS organisation to improve both the experience of female students and the image of the department as a welcoming place for female students.

The department would benefit from more robust conflict resolution procedures, so that if a student feels that they are not treated fairly, they can get impartial advice and help. Such help would also be best provisioned at the university level, e.g. by appointing an independent ombudsman.

In the interviews, the faculty members mentioned that some of the students with specific learning difficulties or other hidden disabilities do not request eligible assistance because they may not be comfortable in revealing their disability. The department should explore mechanisms that ensure that such students get the necessary help without having to discuss the nature of their disability with individual faculty members.

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
4.1	The student admission requirements for the programme of study are based on specific regulations and suitable criteria that are favourably compared to international practices.	10
4.2	The award of the higher education qualification is accompanied by the diploma supplement which is in line with European and international standards.	10
4.3	The programme's evaluation mechanism, by the students, is effective.	10
4.4	Students' participation in exchange programmes is compared favourably to similar programmes across Europe.	10
4.5	There is a student welfare service that supports students in regard to academic, personal problems and difficulties.	10
4.6	Statutory mechanisms, for the support of students and the communication with the teaching staff, are effective.	8
4.7	Mentoring of each student is provided and the number of students per each permanent teaching member is adequate.	10
4.8	Flexible options / adaptable to the personal needs or to the needs of students with special needs, are provided.	9
4.9	Students are satisfied with their learning experiences.	10
<i>Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.</i> The gender balance among the student population is far from ideal. The students would benefit from having access to an impartial mediator that could help them resolve conflicts with faculty members. More can be done to protect the privacy of students with specific learning difficulties and other disabilities.		

Please circle one of the following for:

Students

~~Non-compliant~~

~~Partially compliant~~

~~substantially compliant~~

Fully compliant

5. Resources (ESG 1.6)

Standards

- *Adequate and readily accessible resources (teaching and learning environments, teaching materials, teaching aids and equipment, financial, physical and human support resources*) are provided to students and support the achievement of objectives in the study programme.*
 - * *Physical resources: premises, libraries, study facilities, IT infrastructure, etc.*
 - Human support resources: tutors/mentors, counsellors, other advisers, qualified administrative staff*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose and students are informed about the services available to them.*
- *Teaching staff is involved in the management of financial resources regarding the programme of study.*

Findings

The students are provided with the necessary resources for their studies, which includes library access, laboratory spaces, study facilities and human support resources.

The teaching staff uses adequate teaching facilities, such as teaching rooms and lecture theatres, to support the learning outcomes of the degree programme.

Teaching materials are updated regularly and reflect the current best practices. Teaching materials are made available to students through electronic means and the library.

Strengths

The students have access to a modern and well-equipped library building. The library includes state-of-the-art facilities with study places and a large collection of technical materials such as subscriptions to relevant computer science journals.

The computer laboratories have suitable equipment to support student learning and practical laboratory work. The software offering is comprehensive and well-maintained by the IT support staff in the department.

Areas of improvement and recommendations

The laboratory facilities that are offered are of critical importance to the degree programme. While the currently available facilities are appropriate to support the teaching in the programme, the department and the university must ensure that the facilities are sufficiently resourced and supported in the future. In addition, laboratory facilities should explore the use of public cloud computing resources to complement on-premise hardware purchases. The department must also ensure that appropriate software offerings are available to students for their work.

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
5.1	Adequate and modern learning resources are available to the students.	10
5.2	The library includes the latest books and material that support the programme.	10
5.3	The library loan system facilitates students' studies.	10
5.4	The laboratories adequately support the programme.	9
5.5	Student welfare services are of high quality.	10
5.6	Statutory administrative mechanisms for monitoring and supporting students are sufficient.	10
5.7	Suitable books and reputable journals support the programme of study.	10
5.8	An internal communication platform supports the programme of study.	10
5.9	The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc.) are quantitatively and qualitatively adequate.	8
5.10	Teaching materials (books, manuals, scientific journals, databases) are adequate and accessible to students.	10
5.11	Teaching materials (books, manuals, scientific journals, databases) are updated regularly with the most recent publications.	10

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

There should be a clear plan to support laboratory facilities with future investment in order to refresh the software and hardware lifecycles. In addition, we recommend that the department should consider the adoption of public cloud resources (e.g. for programming assignments that require GPU resources) when this becomes more cost-effective than relying on local hardware maintained by the department or the university. The use of public cloud resources will also expose students to the use of such technologies, which has become an important skill to be mastered as part of an up-to-date computer science programme.

Please circle one of the following for:

Resources

~~Non-compliant~~

~~Partially-compliant~~

~~substantially-compliant~~

Fully compliant

6. Additional for distance learning programmes (ALL ESG)

Standards

- ***The distance learning methodology is appropriate for the particular programme of study.***
- *A pedagogical planning unit for distance learning, which is responsible for the support of the distance learning unit and addresses the requirements for study materials, interactive activities and formative assessment in accordance to international standards, is established.*
- *Feedback processes for students in relation to written assignments are set.*
- *A specific plan is developed to ensure student interactions with each other, with the teaching staff, and the study material.*
- *Teacher training programmes focusing on interaction and the specificities of distance learning are offered.*
- *A complete assessment framework is designed, focusing on distance learning methodology, including clearly defined evaluation criteria for student assignments and the final examination.*
- *Expected teleconferences for presentations, discussion and question-answer sessions, and guidance are set.*

- *A study guide for each course, fully aligned with distance learning methodology and the need for student interaction with the material is developed. The study guide should include, for each course week / module, the following:*
 - *Clearly defined objectives and expected learning outcomes of the programme, of the modules and activities in an organised and coherent manner*
 - *Presentation of course material, on a weekly basis, in a variety of ways and means (e.g. printed material, electronic material, teleconferencing, multimedia)*
 - *Weekly outline of set activities and exercises and clear instructions for creating posts, discussion, and feedback*
 - *Self-assessment exercises and self-correction guide*
 - *Bibliographic references and suggestions for further study*
 - *Number of assignments/papers and their topics, along with instructions and additional study material*
 - *Synopsis*

Findings

Strengths

Areas of improvement and recommendations

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria			1 - 10
6.1	The pedagogical planning unit for distance learning supports the distance learning unit and addresses the requirements for study materials, interactive activities and formative assessment.		
6.2	The institution safeguards the interaction:		
	6.2.1	Among students	
	6.2.2	Between students and teaching staff	
	6.2.3	Between students and study guides/material of study	

6.3	The process and the conditions for the recruitment of teaching staff ensure that candidates have the necessary skills and experience for distance learning education.	
6.4	Training, guidance and support are provided to the teaching staff through appropriate procedures.	
6.5	Student performance monitoring mechanisms are satisfactory.	
6.6	Adequate mentoring by the teaching staff is provided to students through established procedures.	
6.7	The unimpeded distance learning communication between the teaching staff and the students is ensured.	
6.8	Assessment consistency is ensured.	
6.9	Teaching materials (books, manuals, scientific journals, databases) comply with the requirements provided by the distance learning education methodology and are updated regularly.	
6.10	The programme of study has the appropriate and adequate infrastructure for the support of distance learning.	
6.11	The supporting infrastructures are easily accessible.	
6.12	Students are informed and trained with regards to the available educational infrastructure.	
6.13	Procedures for systematic control and improvement of the supportive services are set.	
6.14	Infrastructure for distance education is comparable to corresponding university infrastructure in the European Union and internationally.	
6.15	Electronic library services are provided according to international practice in order to support the needs of the students and the teaching staff.	
6.16	The students and the teaching staff have access to the necessary electronic sources of information, relevant to the programme, the level, and the method of teaching.	
6.17	Students' weekly assignments are appropriate for the level of the programme.	
6.18	Feedback on students' assignments is regular through concrete and published procedures.	
6.19	The quality of students' final exams is ensured and evidenced.	

6.20

The teaching e-learning material has been sufficiently enriched with electronic sources, updated research publications and other electronic learning resources that support students' work and learning.

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

Please circle one of the following for:

Additional for distance learning programmes

Non-compliant

Partially compliant

Substantially compliant

Fully compliant

7. Additional for doctoral programmes (ALL ESG)

Standards

- *Specific criteria that the potential students need to meet for admission in the programme, as well as how the selection procedures are made, are defined.*
- *The following requirements of the doctoral degree programme are analysed and published:*
 - *the stages of completion*
 - *the minimum and maximum time of completing the programme*
 - *the examinations*
 - *the procedures for supporting and accepting the student's proposal*
 - *the criteria for obtaining the Ph.D. degree*
- *Specific and clear guidelines for the writing of the proposal and the dissertation are set regarding:*
 - *the chapters that are contained*
 - *the system used for the presentation of each chapter, sub-chapters and bibliography*
 - *the minimum word limit*
 - *the binding, the cover page and the prologue pages, including the pages supporting the authenticity, originality and importance of the dissertation, as well as the reference to the committee for the final evaluation*
- *There is a plagiarism check system. Information is provided on the detection of plagiarism and the consequences in case of such misconduct.*
- *The composition, the procedure and the criteria for the formation of the advisory committee (to whom the doctoral student submits the research proposal) are determined.*
- *The composition, the procedure and the criteria for the formation of the examining committee (to whom the doctoral student defends his/her dissertation), are determined.*
- *The duties of the supervisor-chairperson and the other members of the advisory committee towards the student are determined and include:*
 - *regular meetings*
 - *reports per semester and feedback from supervisors*
 - *support for writing research papers*
 - *participation in conferences*

- *The number of doctoral students that each chairperson supervises at the same time are determined.*
- *The process of submitting the dissertation to the university library is set.*

Findings

Strengths

Areas of improvement and recommendations

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
7.1	The provision of quality doctoral studies is ensured through doctoral studies regulations, which are publicly available.	
7.2	The structure and the content of a doctoral programme of study ensure the quality provision of doctoral studies.	
7.3	The doctoral studies' supervisors have the necessary academic qualifications and experience for the supervision of the specific dissertations.	
7.4	The number of doctoral students, under the supervision of a member of the teaching staff, enables continuous and effective feedback to the students and it complies with the European and international standards.	
7.5	The research interests of academic advisors and supervisors adequately cover the thematic areas of research conducted by the doctoral students of the programme.	
7.6	Research equipment, laboratories, workshops and existing bibliographic material support the programme of study.	
7.7	The quality of the doctoral theses of the programme in this field is in line with international standards.	
7.8	Doctoral candidates have publications in scientific journals and/ or participate in international conferences.	

7.9	The institution has mechanisms and funds to support writing and attending conferences of doctoral candidates.	
7.10	The candidates demonstrate skills in designing and in conducting productive self-directed research.	
7.11	Candidates are aware of the ethical implications of their research and of their responsibilities as scientists.	
7.12	Suitable procedures of monitoring and periodic assessment of students' research progress are set.	
7.13	There is a clear policy on authorship and intellectual property.	
Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.		

Please circle one of the following for:

Additional for doctoral programmes

Non-compliant

Partially compliant

Substantially compliant

Fully compliant

8. Additional for joint programmes (ALL ESG)

Standards

- The joint programme is offered in accordance with legal frameworks of the relevant national higher education systems.
- The partner universities apply joint internal quality assurance processes.
- The joint programme is offered jointly, involving all cooperating universities in the design, delivery and further development of the programme.
- The terms and conditions of the joint programme are laid down in a cooperation agreement. The agreement in particular covers the following issues:
 - Denomination of the degree(s) awarded in the programme
 - Coordination and responsibilities of the partners involved regarding management and financial organisation, including funding, sharing of costs and income, resources for mobility of staff and students
 - Admission and selection procedures for students
 - Mobility of students and teaching staff
 - Examination regulations, student assessment methods, recognition of credits and degree awarding procedures
 - Handling of different semester periods, if existent

- *Aims and learning outcomes are clearly stated, including a joint syllabus, language policy, as well as an account of the intended added value of the programme.*
- *Study counselling and mobility plans are efficient and take into account the needs of different kinds of students.*

Findings

Strengths

Areas of improvement and recommendations

Mark from 1 to 10 the degree of compliance of each quality indicator/criterion

1 – 4: Non-compliant

5 or 6: Partially compliant

7 or 8: Substantially compliant

9 or 10: Fully compliant

Quality indicators/criteria		1 - 10
8.1	The joint study programme promotes the fulfilment of the mission and achievement of the goals of the partner universities.	
8.2	The joint study programme has been developed by all the partner universities, which are also involved in its further development.	
8.3	The partner universities have defined the responsibility of the parties in the common agreement.	
8.4	The joint study programme conforms to the requirements and directions of national and international legislation.	
8.5	The joint study programme is based on the needs of the target group and of the labour market.	
8.6	Students are provided with advisory and support systems concerning learning and teaching at the partner universities.	
8.7	The cooperation contract sets out the procedure for resolving disputes concerning the execution of the joint study programme, which ensures the protection of the rights of students and teaching staff.	
8.8	The partner universities have agreed on how to seek feedback from students regarding the organisation and process of their study.	

8.9	The partner universities ensure the economic sustainability of the joint study programme.		
8.10	The degree awarded is justified by:		
	8.10.1	The learning outcomes	
	8.10.2	The collaboration between/among the institutions delivering the programme	
8.11	The jointness of the programme development is effective.		
8.12	The students' mobility between/among the collaborative institutions provide students with rewarding experiences that facilitate employability in Europe.		
Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.			

Please circle one of the following for:

Additional for joint programmes

Non-compliant *Partially compliant* *Substantially compliant* *Fully compliant*

D. Conclusions and final remarks

Summary of the findings, strengths, areas of improvement and recommendations for each assessment area. Please provide constructive conclusions and final remarks which may form the basis upon which improvements of the quality of the programme of study under review may be achieved.

Overall, this is a strong programme with a good reputation among the potential students and employers. It is highly selective and benefits from teaching staff with international experience and an active research program and great facilities. The core program is in line with international standards and there is a large number of elective courses; the students acquire experience of group work and individual research.

The department and university at large need to ensure that teaching excellence can be sustained in the long run by appointing new teaching staff in a timely fashion, as many of the current faculty members are due to retire in coming years. A related issue is that the department does not have adequate funding to host visiting professors to complement the existing teaching and research activities. Further effort is needed to improve the gender balance within the student body and to make the department more internationally visible; to address the latter issue, the department could substantially extend its course offerings in English, so as to make the department more attractive to non-Greek-speaking staff and students.

E. Signatures of the EEC

<i>Name</i>	<i>Signature</i>
Paolo Ciancarini	
Edith Elkind	
Peter Pietsuch	
Theodoros Theodorou	

Date: