ΔΙΠΑΕ CYQAA

ΦΟΡΕΑΣ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΗΣ ΑΝΩΤΕΡΗΣ ΕΚΠΑΙΔΕΥΣΗΣ
THE CYPRUS AGENCY OF QUALITY ASSURANCE AND ACCREDITATION IN HIGHER EDUCATION

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External evaluation report

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ
REPUBLIC OF CYPRUS

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

This part includes basic information regarding the onsite visit.

B. External Evaluation Committee (EEC)

Name	*Position*	*University*
Benny Pinkas	Professor	Bar Ilan University
Bracha Shapira	Professor	Ben Gurion University
Iordanis Kavathatzopoulos	Professor	Uppsala University
Georgios Kambourakis	Associate Professor	University of the Aegean
Stavroula Kousparou	Student	University of Cyprus

C. Guidelines on content and structure of the report

The assessment of study programs follows the structure of assessment areas. At the beginning of each assessment area there is a box presenting standards which are relevant to the European Standards and Guidelines (ESG) and some questions that EEC may find useful. The questions aim at facilitating the understanding of each assessment area and at illustrating the range of topics covered by the standards. The questions should be deleted when drafting the report, so that each assessment area consists of the standards and the description of the way in which the standards are met.

Under each assessment area, it is important to provide information regarding the compliance with the requirements. For each assessment area, the report should include:

Findings
A short description of the situation in the higher education institution (HEI), based on elements from the self-evaluation report and on findings from the onsite visit.

Strengths
A list of strengths e.g. examples of good practices, achievements, innovative solutions etc.

Areas of improvement and recommendations

A list of problem areas to be dealt with, following by or linked to the recommendations of how to improve the situation.

In addition, for each assessment area there are quality indicators (criteria) on a scale from one (1) to ten (10). The scale used is explained below:

1 or 2: Non-compliant
3 or 4: Non-compliant
5 or 6: Partially compliant
7 or 8: Substantially compliant
9 or 10: Fully compliant

It is pointed out that, in the case of indicators (criteria) that cannot be applied due to the status of the HEI and/or of the program of study, N/A (= Not Applicable) should be noted and a detailed explanation should be provided on the HEI's corresponding policy regarding the specific quality indicator.

The report may also address other issues which the EEC finds relevant.

1. Study program and study program's design and development (*ESG 1.1, 1.2, 1.8, 1.9*)

Standards

- *Policy for quality assurance of the program 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 program of study:*
  - *is designed with overall program 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 to 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 program 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, the student expectations, needs and satisfaction in relation to the program*
  - *is reviewed and revised regularly involving students and other stakeholders*

- *Public information (clear, accurate, objective, up-to date and readily accessible):*
  - *about the program 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*

You may also consider the following questions:

- *What is the procedure for quality assurance of the program and who are involved?*
- *What is done to reduce/prevent academic fraud? How does the higher education institution address fraud cases?*
- *Who are involved in study program's design and development (launching, changing, internal evaluation) and what is taken into account (strategies, the needs of society, etc.)?*
- *Please evaluate a) whether the study program remains current and consistent with developments in society (labor market, digital technologies, etc.), and b) whether the content and objectives of the study program are in accordance with each other?*
- *How is coherence of the study program ensured, i.e., logical sequence and coherence of courses? How are substantial overlaps between courses avoided? How is it ensured that the teaching staff are aware of the content and outputs of their colleagues' work within the same study program?*
- *How does the study program support development of the learners' general competencies (including digital literacy, foreign language skills, entrepreneurship, communication and teamwork skills)?*
- *What are the scope and objectives of practical training in the study program (where appropriate)?*
- *What are the scope and objectives of the foundation courses in the study program (where appropriate)? What are the pass rates?*
- *How long does it take a student on average to graduate?*
- *How has been the feedback from students, alumni, employers, teaching staff taken into account? Provide some concrete examples.*
- *Has study program been compared to other similar study programs when designed, including internationally, and to what purpose? Explain.*
- *How is it ensured that the actual student workload is in accordance with the workload expressed by ECTS?*
- *What are the opportunities for international students to participate in the study program (courses/modules taught in a foreign language)?*
- *Is information related to the program of study publicly available?*

Findings:
The study program is designed to provide the students with a high-level introduction to the field of cyber security. The program is composed of six compulsory courses, in addition to either a thesis or three additional courses. The courses cover relevant areas, but most of them only give a high-level theoretical/survey perspective, and there is a lack of courses that give the students a hands-on experience.

Strengths:
The courses in the program introduce the students to most of the topics that are relevant for cybersecurity.

Areas of improvement and recommendations:
The study program does not give the students the practical knowledge to start working in the area. It is true that an academic program is not intended to give practical knowledge that is usually learned in professional courses about specific tools or procedures, but it is essential that the students learn the basic skills of analyzing and solving problems in the related field.

In particular, our opinion is that the following intended learning outcomes listed in the Application for Evaluation, are not met:

- Gain expertise in both theory and practice of cybersecurity
- Design and implement networked, software and distributed systems with cybersecurity in mind
- Secure both clean and corrupted systems, protecting personal data, securing simple computer networks, and safe Internet usage
- Incorporate approaches for incident analysis and response
- Incorporate approaches for risk management and best practices

In the context of cyber security, the best way to ensure that students learn about the practice and implementation, is through hands-on programming exercises. Even in theoretical courses such exercises can verify that the students understand the material. Also, this familiarizes the students with challenges that occur in the real world. Even if the students work as managers, or only oversee work that is done by external contractors and suppliers, it is essential that they understand what these suppliers are doing.

In the proposed program, programming exercises are given in the course on Ethical hacking (CS607). We strongly recommend that the students will also need to do hands-on programming exercises in the Network security course (CS603), and at least one such exercise in the cryptography course (CS602). It would be useful to add such exercises to other courses, as well.

The courses describe the basic knowledge in the areas that they cover, and in general do not cover the most up-to-date research results. This is to a large extent expected since the students need to learn the basics first. Also, most of the teaching staff is not involved in active research in the areas of cyber security. However, it is highly preferred that each course will describe in the last weeks some up-to-date advanced material.

The study program contains a thesis. The committee has examined several theses from the Information Systems masters program, and thesis topics for the cyber security program. The theses include a literature survey and a limited analysis of it. Few of the suggested topics require

any implementation work, and most of the suggested topics are too general. (See our recommendation in Section 2.)

The web information about the conventional cyber security masters program describes all general information about the program, but does not give detailed information about the courses.
In particular, with regards to the distant program, and if it is accepted that the program needs to contain substantially more programming exercises (which might be challenging to some students), then this should be presented to the students before registering to the program.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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	Quality assurance policy defines competences and procedures for the people involved.		9
1.2	Participation in quality assurance processes is ensured for:		
	1.2.1	the members of the teaching staff	10
	1.2.2	the members of the administrative staff	10
	1.2.3	the students	10
1.3	The guide and / or the regulations for quality assurance, provide detailed information and data for the support and management of the program of study.		
1.4	The quality assurance process constitutes an academic process and it is not restricted by non-academic factors.		
1.5	The organization of the educational process safeguards the quality implementation of the program's purpose, objectives and the achievement of the learning outcomes. Particularly, the following are taken into consideration:		
	1.5.1	The implementation of a specific academic calendar and its timely publication	10
	1.5.2	The disclosure of the program's curricula to the students, and their implementation by the teaching staff	5
	1.5.3	The course web-pages, updated with the relevant supplementary material	7

	1.5.4	The procedures for the fulfillment of undergraduate and postgraduate assignments / practical training	5
	1.5.5	The procedures for the conduct and the format of the examinations and for student assessment	6
	1.5.6	The effective provision of information to the students and the enhancement of their participation in the procedures for the improvement of the educational process	10
1.6	The purpose and objectives of the program of study are formulated in terms of expected learning outcomes and are consistent with the mission and the strategy of the institution.		10
1.7	The purpose and objectives of the program and the learning outcomes are utilized as a guide for the design of the program of study.		5
1.8	The following ensure the achievement of the program's purpose, objectives and the learning outcomes:		
	1.8.1	The number of courses	10
	1.8.2	The program's content	7
	1.8.3	The methods of assessment	8
	1.8.4	The teaching material	7
	1.8.5	The equipment	10
1.9	The expected learning outcomes of the program are known to the students and to the members of the teaching staff.		10
1.10	The learning process is properly designed to achieve the expected learning outcomes.		6
1.11	It is ensured that learning outcomes may be achieved within the specified timeframe.		10
1.12	The program, in addition to the courses focusing on the specific discipline, includes an adequate number of general education courses according to the European practice.		N/A
1.13	The content of the program's courses reflects the latest achievements / developments in science, arts, research and technology.		7
1.14	New research results are embodied in the content of the program of study.		7
1.15	The content of foundation courses is designed to prepare the students for the first year of their chosen undergraduate degree.		NA

1.16	The program 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.		8
1.17	The learning outcomes and the content of the program are consistent.		9
1.18	The European Credit Transfer System (ECTS) is applied and there is correspondence between credits, workload and expected learning outcomes per course and per semester for the student either he / she studies in a specific program or he/she is registered and studies simultaneously in additional programs of studies according to the European practice in higher education institutions.		N/A
1.19	The higher education qualification awarded to the students, corresponds to the purpose, objectives and the learning outcomes of the program.		5
1.20	The higher education qualification and the program of study, conform to the provisions of their corresponding professional and vocational bodies for the purpose of registration to these bodies.		5
1.21	Program's management with regard to its design, its approval, its monitoring and its review, is in place.		7
1.22	It is ensured that the program's management and development process is an academic process which operates without any non-academic interventions.		8
1.23	The program's collaborations with other institutions are compared positively with corresponding collaborations of other departments / programs of study in Europe and internationally.		6
1.24	Procedures are applied so that the program conforms to the scientific and professional activities of the graduates.		7
1.25	Indicators for the employability of graduates and the employability record of the department's graduates are described in the feasibility study.		NA
1.26	The graduation rate for the program of study is analogous to other programs with similar content.		NA
1.27	The program of study benefits the society.		9
1.28	Information relating to the program of study are posted publicly and include:		
	1.28.1	The provisions regarding unit credits	10
	1.28.2	The expected learning outcomes	10
	1.28.3	The methodology	10
	1.28.4	Course descriptions	7
	1.28.5	The program's structure	10

	1.28.6	The admission requirements	10
	1.28.7	The format and the procedures for student assessment	10
	1.28.8	The pass rates	NA

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

The university is very experienced with managing similar programs, and therefore the administrative aspects of preparing the program are excellent.

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.*

You may also consider the following questions:

- *How is it monitored that the teaching staff base their teaching and assessment methods on objectives and intended learning outcomes? Provide samples of examination papers (if available).*
- *How are students' different abilities, learning needs and learning opportunities taken into consideration when conducting educational activities?*
- *How is the development of students' general competencies (including digital skills) supported in educational activities?*
- *How is it ensured that innovative teaching methods, learning environments and learning aids that support learning are diverse and used in educational activities?*
- *Are the teaching staff using new technology in order to make the teaching process more effective?*
- *How is it ensured that theory and practice are interconnected in teaching and learning?*
- *How is practical training organised (finding practical training positions, guidelines for practical training, supervision, reporting, feedback, etc.)? What role does practical training have in achieving the objectives of the study program? What is student feedback on the content and arrangement of practical training?*
- *Are students actively involved in research? How is student involvement in research set up?*
- *How is supervision of student research papers (seminar papers, projects, theses, etc.) organised?*

- *What is the proportion and role of independent work by students in the learning process? How is independent work defined within a subject, how is it supervised and assessed, what are the conditions for independent work?*
- *How are the assessment methods chosen and to what extent do students get supportive feedback on their academic progress during their studies?*
- *How is the objectivity and relevance of student assessment ensured (assessment of the degree of achievement of the intended learning outcomes)?*
- *Are people outside of the HEI involved in the assessment of learning outcomes (including during the defense of theses)?*

Findings

The program includes 6 courses and some elective courses that cover the main topics in cyber security. The materials are quite basic and provide merely an introduction to cyber security. The University has 6200 students and maintains 90 programs, thus it is difficult to maintain expertise in every program of study. The structure of the courses and the assessments is quite similar for all the courses. There is a limited number of (~6) lectures given by the teacher. The materials are recorded and uploaded to the e-learning platform (Blackboard) and are available for the students in a asynchronous manner. There are basic self-assessment questions (~2) for every week of study and typically some mandatory assignments, individual or group based. There is a final exam. Typically, the assignments are 50% of the final grade and the final exam is 50%, meaning that it is required to have minimal knowledge in order to receive credit for a course.

The overall learning process seems to be organized. The information about the assessment is provided in the syllabi, and so are the learning outcomes, and the detailed content of the course. However, the assignments are very basic, and do not require too much learning effort from the students. The assignments conform with the low-demanding declared learning outcomes of the courses. For example, the CYS607 course on ethical hacking and penetration testing, the learning outcomes require the students to be able to describe ways to conduct hacking but not to actually be able to perform them, as could be expected. Thus, in accordance with that, the assignments don't require more than a basic technical effort from the students, Also the time load for the students that is allocated by the teachers seems to be far higher than our estimated actual.

Each syllabus includes a bibliography, but it is not always relevant to the course content, or does not reflect the latest state of the art materials. For example, the research methods course content is mainly about statistics and design of experiments, but the bibliography consists of a book on research methods in cyber security, which is not really covered in the course. As another example, the course CYS624 which teaches privacy in the era of big data is based on papers dated to 2011 (the latest) and does not discuss GDPR. A last example of this situation is the absence of a reference to the ISO/IEC 27000 family of standards in course CYS602.

As for students' support during a course and the teacher's availability, the teachers reported about their intensive communication with the students, and the students that we met reported that they receive all the support they need.

Strengths

- The teachers seem to be dedicated to their jobs and good teachers (even if they are not the best experts in their fields).

- The institution is very responsive to their students.
- The students seem very satisfied with the institution and their studies. Note that no student enrolled to the conventional Cybersecurity program was present in the corresponding meeting hour.
- The institution seems to be very organized, the syllabi are very informative and includes all the required assessment parts.

Areas of improvement and recommendations

- The assignments are not demanding enough, especially for the technical courses. They don't reflect the time load that is allocated to them and do not always meet the objective of the courses.
- The content of the courses does not reflect the state of the art in the corresponding field.
- Some courses seem to cover too many topics and this may result in poor learning outcomes.
- Some courses present considerable overlap with others.
- Course CYS622 entitled "Current trends in Cybersecurity" seems to be too general to be included in the list of elective courses.
- Course CYS624 lacks a discussion on major anonymity networks, including Tor and I2P.
- The quality of the theses is very low, they are not research theses, but rather technical projects that do not seem to qualify for 30 credit points.
- The presentation (defense) of the thesis should be done in face-to-face manner and not via the use of teleconferencing software.
- Students should be actively involved in research activities either in the context of their thesis or via their participation to research projects as assistants.
- The balance between the exam and the assignments allows students that receive illegitimate help from others to get credit for courses with minimal knowledge.
- Where possible, assessment should be carried out by more than one examiner.

Recommendations

- Update the assignments to be more demanding to include technical, practical and cognitive challenges
- Update the content of the course to reflect the state of the art in the field of interest. Cybersecurity is a constantly changing field, hence the courses should be updated on a continuous basis.
- Revise the method of defining a thesis, and apply more demands on theses towards subjects that require more than the development of simple applications or shallow surveys.
- Change the balance of the final grade by putting more emphasis on the exams.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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 number of students in each class allows for constructive teaching and communication.	
2.2	The number of students in each class compares positively to the current international standards and/or practices.	10
2.3	A policy for regular and effective communication, between the teaching staff and the students, is applied.	8
2.4	The methodology utilized in each course leads to the achievement of the course's purpose and objectives and those of the individual modules.	5
2.5	Formative assessment and feedback are provided to the students regularly.	8
2.6	The assessment system and criteria regarding student course performance, are clear, adequate, and known to the students.	8
2.7	Educational activities which encourage students' active participation in the learning process, are implemented.	7
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 program's individual courses, and are updated regularly.	6
2.10	It is ensured that teaching and learning have been enlightened by research.	3
2.11	Students, teaching and administrative staff participate in research activities and projects.	3
2.12	Students are trained in the research process.	3

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

The number of students and the teaching equipment are of very high standards.

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 program, 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 participate in teaching the study program.*
- *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.*

You may also consider the following questions:

- *How are (novice) members of the teaching staff supported with regard to the development of their teaching skills? How is feedback given to members of the teaching staff regarding their teaching results and teaching skills?*
- *How is the teaching performance assessed? How does their teaching performance affect their remuneration, evaluation and/or selection?*
- *Is teaching connected with research?*
- *Does the HEI involve visiting teaching staff from other HEIs in Cyprus and abroad?*
- *What is the number, workload, qualifications and status of the teaching staff (rank, full/part timers)?*
- *Is student evaluation conducted on the teaching staff? If yes, have the results of student feedback been analysed and taken into account, and how (e.g., when planning in-service training for the teaching staff)?*

Current state and deficiencies

Five out of seven members of the teaching staff are special scientists (1) or special teaching personnel (4). So, in total, 5 of 7 do not hold a permanent position in the hosting institution.

The coordinator of the proposed program is at the Lecture rank with rather limited experience in the field. It is expected that such a position is allocated to permanent experienced personnel who is at the rank of full professor or associate professor.

With reference to their CVs, most of the teaching staff is not very much security-oriented. They mostly publish in journals/conferences that lie outside the field of information security and privacy enhancing technologies. Also, the research profile of the teaching staff is rather weak, i.e., only two of them have more than 250 citations (264) as reported by Google scholar, and almost all of them do not present a strong research record, namely publishing frequently in prestigious international journals and/or conference proceedings.

The EEC found some discrepancies between what is reported in the 3rd column of Table 3 ("discipline/specialization") of the proposal and the specialization of each of them as given in their personal page, and their scientific profile in general.

The number of 12 teaching hours per week per each member of the teaching staff is rather high. This may result in poor results in conducting equally important tasks including scientific research and the writing/participation of/in research projects. In the latter cases, a member of the teaching staff may be allowed to teach 3 to 6 hours less, but the way the missing hours are compensated by the department and the university in general is not defined.

According to the curriculum of each lesson and the meeting with the teaching staff, a limited number of lectures per course is delivered by industry specialists. However, there is no evidence or reference of inviting recognized visiting professors in the field of cybersecurity to deliver lectures, seminars, etc. The ECC also underlines the absence of summer schools organized by the department in the field of cybersecurity and privacy enhancing technologies.

Suggestions

- The department should consider ways of reducing the teaching workload of the teaching staff and focus on strengthening and easing the research activities of the teaching personnel, e.g., by granting awards and additional funding for doing research of high quality.

- The department should recruit permanent high-ranked personnel, i.e., at least one more associate professor and 2 assistant professors who have a solid academic background and are actively working on the area of cybersecurity.

- The curriculum of each course should include lectures delivered by experts in the field of interest. Also, the department should consider the possibility of organizing summer schools and workshops in the area of cybersecurity and privacy enhancing technologies.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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 program of study.		5
3.2	The members of teaching staff for each course have the relevant formal and fundamental qualifications for teaching the course, as described by the legislation, including the following:		5
	3.2.1	Subject specialization, preferably with a doctorate, in the discipline	5
	3.2.2	Publications within the discipline	4
3.3	The program attracts visiting professors of recognized academic standing.		4
3.4	The specializations of visiting professors adequately support the program of study.		4
3.5	Special teaching staff and special scientists have the necessary qualifications, adequate work experience and specialization to teach a limited number of courses in the program of study.		4
3.6	In every program of study the special teaching staff does not exceed 30% of the permanent teaching staff.		4
3.7	In the program 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 program of study.		5
3.8	The ratio of the number of students to the total number of teaching staff supports and safeguards of the program's quality.		N/A
3.9	The teaching load allows the conduct of research and contribution to society.		5
3.10	Future redundancies / retirements, expected recruitment and promotions of teaching staff safeguard the unimpeded implementation of the program of study within a five-year span.		N/A
3.11	The program's coordinator has the qualifications and experience to coordinate the program of study.		5
3.12	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.		5

3.13	The teaching staff are provided with training opportunities in teaching methods, adult education and new technologies.	5
3.14	Feedback processes for teaching staff with regards to the evaluation of their teaching work, by the students, are satisfactory.	N/A

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

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 programs, learning resources and student support available, career paths of graduates, is collected, monitored and analyzed.*
- *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.*

You may also consider the following questions:

- *What are the admission requirements for the study program? How is the students' prior preparation/education assessed (including the level of international students, for example)?*
- *What are the objectives for the students' academic progress, counselling, mobility, etc., as set by the HEI? How have these objectives been achieved within the given study program? What indicators are used to assess the fulfilment or degree of achievement of these objectives?*
- *What are the reasons for dropping out (voluntary withdrawal)? What has been done to reduce the number of such students?*
- *How is student learning within the standard period of study supported (student counselling, flexibility of the study program, etc.)?*
- *How are students' special needs considered (different capabilities, different levels of academic preparation, special needs due to physical disabilities, etc.)? How/to what extent can students themselves design the content of their studies? What are students' options within the study program and outside of it?*
- *How is the HEI evaluating the success of its graduates in the labor market? What is the feedback from graduates of the study program on their employment and/or continuation of studies?*
- *How is student mobility been supported?*
- *Evaluate student feedback on support services. Based on student feedback, which support services (including information flow, counselling) need further development?*

- *How is the procedure of recognition for prior learning and work experience ensured, including recognition of study results acquired at foreign higher education institutions?*

Findings

The students are accepted to the program if they have a CS or relevant degree from any accredited program from anywhere in the world. Also, as reported by the administrative and teaching staff, students from other disciplines may be accepted after taking some fundamental courses. It was not clear what fundamentals are required and what other disciplines are at all considered. The administrative staff declared that the students do not pay extra fees for the fundamentals courses. As reported, the dropout rate is very low, which is very untypical to Computer Science degrees. The reasons for that can come from the good support that the students receive or/and from the not very demanding program. We believe that both reasons apply here.

The program outcome does not fully comply with the declared learning outcome (as discussed in part 1). The students should receive a correct description of the actual outcome of the program.

The students seem to be very satisfied from the communication with the teaching staff, the support they receive, and from the teaching evaluation procedure. They reported that teachers that are found to be incapable by the students are fired. The extent of considering student's desires is even a bit exaggerated to the level that they affect the program of study and professional decisions. For example, the teaching staff describe a case where a fundamental course was cancelled being not popular among the students.,

It is noted that the institution just transformed its teaching evaluation procedure to an automatic process for better efficiency.

The students receive an M.Sc degree in cyber security from the School of Sciences with supplements that comply with the EU regulations.

The institution reported of very high employability of their graduates in the market, however, since this is a new distant learning program, and the relevant conventional program does not yet have graduates, it is impossible to assess the level of employability of the graduates.

Strengths

- Good communication between the students and the teaching staff
- Good support for students
- Good teaching evaluation procedure

Areas of improvement and recommendations

- Unclear and not sufficiently regulated admission process.
- Unmet learning outcome and objectives of the program
- The program is not demanding enough

Recommendation**s**

- Clarify the criteria for acceptance to the program
- Adjust the declared learning outcome to the actual content of the courses.

- Higher the requirements, do not consider all students requests about courses

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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 of the program of study, are based on specific regulations and suitable criteria.	8
4.2	The award of the higher education qualification is accompanied by the diploma supplement which is in line with the European and international standards.	10
4.3	The program' s evaluation mechanism, by the students, is effective.	8
4.4	Students participation in exchange programs is compared favorably to similar programs across Europe.	N/A
4.5	There is a student welfare service that supports students with regards to academic, personal problems and difficulties.	8
4.6	Statutory mechanisms, for the support of students and the communication with the teaching staff, are effective.	9
4.7	Control mechanisms for student performance are effective.	6
4.8	Flexible options / adaptable to the personal needs or to the needs of students with special needs, are provided.	?
Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.		

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 program.*
  ** Physical resources: premises, libraries, study facilities, IT infrastructure, etc.*
  Human support resources: tutors/mentors, counselors, 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 program of study.*

You may also consider the following questions:

- *Evaluate the supply of teaching materials and equipment (including teaching labs, expendable materials, etc.), the condition of classrooms, adequacy of financial resources to conduct the study program and achieve its objectives. What needs to be supplemented/improved?*
- *What is the feedback from the teaching staff on the availability of teaching materials, classrooms, etc.?*
- *Are the resources in accordance with actual (changing) needs and contemporary requirements? How is the effectiveness of using resources ensured?*
- *What are the resource-related trends and future risks (risks arising from changing numbers of students, obsolescence of teaching equipment, etc.)? How are these trends taken into account and how are the risks mitigated?*

Findings
The program under evaluation is a distant learning program, thus the physical facilities at the institution are not relevant besides the distant learning platform that is described in section 6. In addition, access to materials of the library is granted through open access via VPN and the library is taking part of the national project that unites all high academic institutions in Cyprus into one non-profit organization that has an agreement with a great number of major publishers to provide access to students to relevant academic resources.
As for the labs, physical labs are of course not mandatory, the teaching staff reported that they use virtual machines for technical practice which seems rather adequate for the program at hand.
Strengths
NA

Areas of improvement and recommendations
NA

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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, including the following:	

	5.1.1	facilities	10
	5.1.2	library	10
	5.1.3	infrastructure	8
	5.1.4	student welfare	N/A
	5.1.5	academic mentoring	9
5.2	Statutory administrative mechanisms for monitoring and supporting students are sufficient.		8
5.3	Suitable books and reputable journals support the program of study.		10
5.4	An internal communication platform supports the program of study.		10
5.5	The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc) are quantitatively and qualitatively adequate.		8
5.6	Teaching materials (books, manuals, scientific journals, databases) are adequate and accessible to students.		10
5.7	Teaching materials (books, manuals, scientific journals, databases) are updated regularly with the most recent publications.		10

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

Given that the program to be evaluated is a distant program there is not much to say about the facilities besides the platform that is used for the distant learning itself. The library is part of the national non-profit organization in Cyprus that unites all libraries in the universities and the students have access to all required materials.

6. Additional for distance learning programs *(ALL ESG)*

Standards

- ***The distance learning methodology is appropriate for the particular program 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.*

- *Specific plan is developed to ensure student interaction with each other, with the teaching staff, and the study material.*
- *Teacher training programs 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, 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 program, 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*

You may also consider the following questions:

- *Is the nature of the program compatible with the distance learning delivery?*
- *How do the program, the material, the facilities, and the guidelines safeguard the interaction between students, students and teaching staff, students and material?*
- *How many students upload their work and discuss it in the platform during the semester?*
- *Are the academics qualified to teach in the distance learning program?*

EUC is an established university with several years of experience in providing distance education. In order to grow as a small university in a very small country, EUC has to expand internationally. A way to achieve this is by offering courses that satisfy the need of education in Cybersecurity for students anywhere in the world.

The proposed course of Cybersecurity can rely on EUC's previous experience on Distance Learning courses. The needed technical infrastructure is already there as well as the teaching staff that has the skills to teach in distance learning courses. A special Distance Learning Unit is there to prepare and support teachers and students as well as to coordinate technical procedures and equipment. A conventional course on Cybersecurity is given so there are experienced teachers available in this special subject.

The philosophy of the proposed distance learning course on Cybersecurity is of a more traditional kind based on the cooperation mainly between individual student and teacher and not between students, except in the cases of group-work. A stronger cooperation model would imply the introduction of peer-reviewing of individual assignments and thesis.

The focus of Distance Learning Unit and the courses and support it provides seems to be more focused on technical infrastructure issues and on course procedures in distance learning rather on the pedagogical challenges of this kind of education.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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.	9
6.2	The institution safeguards the interaction between students, students and teaching staff, students and study guides/material of study.	7
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.	N/A
6.4	Training, guidance and support are provided to the teaching staff, through appropriate procedures.	5
6.5	Student performance monitoring mechanisms are satisfactory.	?
6.6	Adequate mentoring by the teaching staff, is provided to students, through established procedures.	9
6.7	The unimpeded distance learning communication between the teaching staff and the students, is ensured.	5
6.8	Assessment consistency is ensured.	7
6.9	Teaching materials (books, manuals, scientific journals, databases) comply with the requirements provided by the distance learning education methodology and are updated regularly.	9

6.10	The program of study has the appropriate and adequate infrastructure for the support of distance learning.	8
6.11	The supporting infrastructures are easily accessible.	9
6.12	Students are informed and trained with regards to the available educational infrastructure.	6
6.13	Procedures for systematic control and improvement of the supportive services are set.	6
6.14	Infrastructure for distance education is comparable to university infrastructure in the European Union and internationally.	9
6.15	Electronic library services are provided according to international practice in order to support the needs of the students and the teaching staff.	9
6.16	The students and the teaching staff have access to the necessary electronic sources of information, relevant to the program, the level, and the method of teaching.	9

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

6.2 Yes, but not between students.

6.3 There is no special procedure or requirements. Existing personnel teaches at the distance learning version of the conventional course.

6.4 Focused on technical and procedural aspects, not on the special pedagogical demands of distance learning.

6.5 ?

6.7 Not satisfactory communication, probably not fast enough, although the technology is up-to-date.

6.8 Standard ways of evaluating exams, multiple choice exams support assessment consistency. Regarding assignments there is a difficulty in ranking students' performance, but no suggestion or procedure is provided to support teacher in this.

6.10 Yes, but with some problems, see 6.7

6.12 Not trained, but support is provided by teachers and experts.

6.13 Yes, but mainly regarding the technical and procedure parts of the education not the pedagogical ones.

7. Additional for doctoral programs *(ALL ESG)*

Standards

- *Specific criteria that the potential students need to meet for admission in the program as well as how the selection procedures are made, are defined.*
- *The following requirements of the doctoral degree program are analysed and published:*
  - *the stages of completion*
  - *the minimum and maximum time of completing the program*
  - *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 defences 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.*

You may also consider the following questions:

- *How is the scientific quality of the PhD-thesis ensured?*
- *Is there a link between the doctoral programs of study and the society? What is the value of the obtained degree outside the academia and in the labour market?*

Findings
A short description of the situation in the higher education institution (HEI), based on elements from the self-evaluation report and on findings from the onsite visit.

Strengths
A list of strengths e.g. examples of good practices, achievements, innovative solutions etc.

Areas of improvement and recommendations
A list of problem areas to be dealt with, following by or linked to the recommendations of how to improve the situation.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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 program 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 provided 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 program.	
7.6	Research equipment, laboratories, workshops and existing bibliographic material support the program of study.	
7.7	The quality of the doctoral theses of the program 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 answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

N/A

8. Additional for joint programs *(ALL ESG)*

Standards

- *The joint program 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 program is offered jointly, involving all cooperating universities in the design, delivery and further development of the program.*
- *The terms and conditions of the joint program are laid down in a cooperation agreement. The agreement in particular covers the following issues:*
  - *Denomination of the degree(s) awarded in the program*
  - *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 exists*
- *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 program.*
- *Study counselling and mobility plans are efficient and take into account the needs of different kinds of students.*

You may also consider the following questions:

- *Does the joint study program conform to the requirements of a study program offered at the specific level?*
- *Is there a system that assures the quality of joint provision and guarantees that the aims of the program are met?*

- *Do the mechanisms for ensuring the quality of the joint study program take into consideration the European Standards and Guidelines (ESG)? Are they adopted by all the universities involved?*
- *Is the division of responsibilities in ensuring quality, clearly defined among the partner universities?*
- *Is relevant information about the program, e.g. admission requirements and procedures, course catalogue, examination and assessment procedures, well documented and published by taking into account the specific needs of students?*
- *What is the added value of the program of study?*
- *Is there a sustainable funding strategy among the partner universities? Explain.*

Findings
A short description of the situation in the higher education institution (HEI), based on elements from the self-evaluation report and on findings from the onsite visit.

Strengths
A list of strengths e.g. examples of good practices, achievements, innovative solutions etc.

Areas of improvement and recommendations
A list of problem areas to be dealt with, following by or linked to the recommendations of how to improve the situation.

Note what is applicable for each quality indicator/criterion

1 or 2: Non-compliant

3 or 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 program promotes the fulfilment of the mission and achievement of the goals of the partner universities.	
8.2	The joint study program 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 program conforms to the requirements and directions of national and international legislation.	
8.5	The joint study program is based on the needs of the target group and the labor 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 program, 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 program.	

Justify the answer you have provided for numerical scores 1 to 4 and 9 or 10, and note any additional comments you may have on each indicator/criterion.

N/A

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 program of study under review may be achieved.

We provided early in the document many recommendations, about the program, the staff, and distant learning, that we will not reiterate here.

We recommend that the program is revised according to the comments provided by the committee.

E. Signatures of the EEC

Name	*Signature*
Benny Pinkas	
Bracha Shapira	
Iordanis Kavathatzopoulos	
Georgios Kambourakis	
Stavroula Kousparou	

Date: …4/4/2019…….