

Doc. 300.1.1/2

Date: Date.

External Evaluation Report (E-learning programme of study)

- **Higher Education Institution:**
Open of Cyprus
- **Town:** Town
- **School/Faculty (if applicable):** School/Faculty
- **Department/ Sector:** Department/Sector
- **Programme of study- Name (Duration, ECTS, Cycle)**

In Greek:

Programme Name

In English:

Computer and Network Security Master
(MSc)E-Learning

- **Language(s) of instruction:** Language(s)
- **Programme's status:** Choose status
- **Concentrations (if any):**



In Greek: Concentrations
In English: Concentrations

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 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Introduction

This part includes basic information regarding the onsite visit.

Due to the Covid-19 pandemic, this External Evaluation Committee (EEC) visited the Open University of Cyprus (EUC) in , and met with faculty members, staff and students remotely and online to evaluate the Computer and Network Security (3 academic semesters, 90 ECTS, Master E-Learning) Program on May 3rd, 2022. The visit was arranged and facilitated by Natasa Kazakaiou, the Agency of Quality Assurance and Accreditation in Higher Education representative. Before the online visit, the EEC members were provided with relevant program documents and videos to review.

During the online site visit, the EEC had a series of informative and constructive discussions with teaching and administrative staff and students to learn about the EUC and the Computer and Network Security degree program under evaluation. The EEC received a number of presentations about the visions and plans for the EUC and Faculty, as well as the degree curriculum and the research environment that support the Computer and Network Security program. Among many faculty members the EEC met, they include Professor Petros Pashiardis Rector of the Open University of Cyprus, Professor Vayos Liapis OUC Vice Rector, Professor Stavros Stavrou Dean of the Faculty of Pure and Applied Sciences, Associate Professor Jahna Otterbacher Vice Dean of the Faculty of Pure and Applied Sciences, Erato Ioanna Sarri Coordinator of the Rectorate, Coordinator of the OUC, Quality Assurance Office, Dr Stavros Shiaeles Academic Coordinator of the Postgraduate Programme “Computer and Network Security”, Professor Vayos Liapis Vice Rector, Chairman of the OUC Internal Evaluation Committee, Mrs. E. Gregoriou Head of Students and Programmes of Study Support Unit, Member of the OUC Internal Evaluation Committee, Dr Stavros Shiaeles, Academic Coordinator of the Postgraduate Programme Computer and Network Security and Module coordinator, Dr Adamantini Peratikou Module Coordinator, Dr Konstantinos Limniotis Module Coordinator, Dr Ioannis Mavridis Module Coordinator, to name some of them. The EEC also met current students Dimitris G. Charalampous, Andry P. Christofi, Michalis Trokkoudes, who provided their first-hand experiences of the program. Free-flow discussions with administrative staff also gave the EEC members a valuable opportunity to appreciate the support and student services provided to students and dedication of the staff members.

In addition to the online site visit, a full description and details of the Computer and Network Security degree program in the document entitled “Application for Evaluation – Accreditation Program of Study” were made available to the EEC. The EEC acknowledged with thanks to the EUC colleagues for making samples of exam papers and student answers promptly available for review, as requested by the EEC during the discussion. Faculty and staff members provided candid and unreserved answers to all questions raised by the EEC. All in all, the EEC found that the EUC has provided comprehensive documentation and information for this evaluation process. The EEC would like to express its gratitude to the EUC colleagues for their efforts in accommodating and facilitating this evaluation of the CE program of study.

The specific findings and suggestions for further improvement from the EEC are provided in the rest of this report.



B. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Letizia Jaccheri	Professor	Norwegian University of Science and Technology
Dimitrios Pezaros	Professor	University of Glasgow
Nik Bessis	Professor	Department of Computer Science, Edge Hill University
Santi Caballé	Professor	Universitat Oberta de Catalunya
Ioannis Zapitis	Electronics and Computer Engineer	Cyprus Scientific and Technical Chamber (ETEK)
Valentinos Pariza	Student	University of Cyprus

C. Guidelines on content and structure of the report

- *The external evaluation report follows the structure of assessment areas.*
- *At the beginning of each assessment area there is a box presenting:*
 - (a) sub-areas*
 - (b) standards which are relevant to the European Standards and Guidelines (ESG)*
 - (c) 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.*
- *Under each assessment area, it is important to provide information regarding the compliance with the requirements of each sub-area. In particular, the following must be included:*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation 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, followed by or linked to the recommendations of how to improve the situation.

- *The EEC should state the compliance for each sub-area (Non-compliant, Partially compliant, Compliant), which must be in agreement with everything stated in the report. It is pointed out that, in the case of standards that cannot be applied due to the status of the HEI and/or of the programme of study, N/A (= Not Applicable) should be noted.*
- *The EEC should state the conclusions and final remarks regarding the programme of study as a whole.*
- **The report may also address other issues which the EEC finds relevant.**

1. Study programme and study programme's design and development (ESG 1.1, 1.2, 1.7, 1.8, 1.9)

Sub-areas

- 1.1 Policy for quality assurance
- 1.2 Design, approval, on-going monitoring and review
- 1.3 Public information
- 1.4 Information management

1.1 Policy for quality assurance

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*

1.2 Design, approval, on-going monitoring and review

Standards

- *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)

- o is designed so that it enables smooth student progression*
- o is designed so that the exams' and assignments' content corresponds to the level of the programme and the number of ECTS*
- o defines the expected student workload in ECTS*
- o includes well-structured placement opportunities where appropriate*
- o is subject to a formal institutional approval process*
- o 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*
- o is regularly monitored in the light of the latest research in the given discipline, thus ensuring that the programme is up-to-date*
- o 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*
- o is reviewed and revised regularly involving students and other stakeholders*

1.3 Public information

Standards

- *Regarding the programme of study, clear, accurate, up-to date and readily accessible information is published about:*
 - o selection criteria*
 - o intended learning outcomes*
 - o qualification awarded*
 - o teaching, learning and assessment procedures*
 - o pass rates*
 - o learning opportunities available to the students*
 - o graduate employment information*

1.4 Information management

Standards

- *Information for the effective management of the programme of study is collected, monitored and analysed:*
 - o key performance indicators*
 - o profile of the student population*

- o student progression, success and drop-out rates*
 - o students' satisfaction with their programmes*
 - o learning resources and student support available*
 - o career paths of graduates*
- *Students and staff are involved in providing and analysing information and planning follow-up activities.*

You may also consider the following questions:

- *What is the procedure for quality assurance of the programme and who is involved?*
- *Who is involved in the study programme's design and development (launching, changing, internal evaluation) and what is taken into account (strategies, the needs of society, etc.)?*
- *How/to what extent are students themselves involved in the development of the content of their studies?*
- *Please evaluate a) whether the study programme remains current and consistent with developments in society (labour market, digital technologies, etc.), and b) whether the content and objectives of the study programme are in accordance with each other?*
- *Do the content and the delivery of the programme correspond to the European Qualifications Framework (EQF)?*
- *How is coherence of the study programme ensured, i.e., logical sequence and coherence of courses? How are substantial overlaps between courses avoided? How is it ensured that the teaching staff is aware of the content and outputs of their colleagues' work within the same study programme?*
- *How does the study programme 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 the foundation courses in the study programme (where appropriate)? What are the pass rates?*
- *How long does it take a student on average to graduate? Is the graduation rate for the study programme analogous to other European programmes with similar content? What is the pass rate per course/semester?*
- ***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 programme (courses/modules taught in a foreign language)?*
- *Is information related to the programme of study publicly available?*
- *How is the HEI evaluating the success of its graduates in the labor market? What is the feedback from graduates of the study programme on their employment and/or continuation of studies?*
- *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)?*
- *What are the reasons for dropping out (voluntary withdrawal)? What has been done to reduce the number of such students?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The postgraduate programme in Computer and Network Security is part of the School of Pure and Applied Sciences.

This postgraduate programme is designed based on the European Credit Transfer System (ECTS). In its current form, which is offered since 2015-2016, the programme is equivalent to 90 ECTS credits.

The School of Pure and Applied Sciences of the has about 95 registered students supported by 24 Faculty members and about 260 adjunct faculty members. Computer and Network Security is viewed as one of the most active engines of the school, being considered one major success. The number of newcomers students has decreased from 53 in 2016 to 39 in 2021. However, based on the documents provided and interviews, we observed a decrease in drop-out rate. The dropout rate has decreased from 23% in 2016 to 6% in 2021. In general, the degree programs are dominated by local students.

A policy for quality assurance has been established and is currently exercised, including an internal evaluation committee and well-defined procedures. There is informal, constant feedback from students to faculty members, which helps maintain and improve quality. The roles of Academic Coordinator, Office of Quality Assurance, and University's Internal Quality Committee are well defined and well communicated.

The university has a structure of standard reports including: Evaluation of Modules and Tutors by OUC students who submit their feedback through a structured questionnaire; Evaluations of Adjunct Tutors by a) the Module Coordinator, and b) the Academic Coordinator of the programme; these are submitted to the School and to the Senate.

Based on these assessments, a decision is made regarding the renewal of the Adjunct Tutors' contracts for the following academic year.

The nature of the programme is compatible with distance learning delivery and the methodology provided is appropriate for the particular programme of study. The university's quality assurance is

evaluated by external and voluntary accreditations, such as EFQUEL (European Foundation for Quality in eLearning), EDEN (European Distance and E-Learning Network) and EADTU (European Association of Distance Teaching Universities). Following these accreditations, OUC guarantees quality assurance of technology enhanced learning while fostering innovation and continuous improvement in line with the principles, recommendations and best practices of the European community of e-learning.

Strengths

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

The EEC recognizes that this is one of the few Cyber Security programs offered in the Greek language through the distance learning methodology. The EEC acknowledges some good practices that include:

- well defined roles and documents templates
- staff-student close communication that enable students and staff to discuss related aspects to the programme,
- staff and module assessment and feedback questionnaire.
- the programme accepts students with a wide range of degrees as it provides all the essential information needed to understand Networks and Security.

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

The EEC recognizes some problem areas and related recommendations:

- limited evidence that students with different backgrounds can reach the same level of knowledge/accreditation
- lack of pathways for some important fields like Computer and Network Forensics and Information Security Analyst etc.
- lacks a strategy around current societal challenges

The EEC recommends a strategy for evolution and further development of the study programme based on current trends (i.e. UN goals, diversity, ethics). Specific recommendations include:

- consider increasing the coverage of Privacy Enhancing Technologies in the programme
- consider the balance in challenge and nature between courses; for example, some appear at first glance as potentially more challenging (e.g., cryptography), more vocational (e.g., forensics), etc.
- in the course descriptors, provide examples of the types of assignments required by each course
- AYD621 course (Cryptography): consider adding more conventional (i.e., non-edited) and recent text book(s) to the bibliography
- AYD521 course (Computer and Network Forensics): consider adding modern bibliography
- AYD622 course (Risk Management): consider clarifying the practical/technical focus of the course in the descriptor, and modernizing bibliography



- ΣΑΕ521 course (Research Methods): Consider whether blanket structure is appropriate for a research methods course and, if so, provide some examples of how the assessment maps to ILOs

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
1	Policy for quality assurance	Compliant
1.2	Design, approval, on-going monitoring and review	Compliant
1.3	Public information	Compliant
1.4	Information management	Compliant

2. Student – centred learning, teaching and assessment (ESG 1.3)

Sub-areas

- 2.2 Process of teaching and learning and student-centred teaching methodology
- 2.3 Practical training
- 2.4 Student assessment
- 2.5 Study guides structure, content and interactive activities

2.1 Process of teaching and learning and student-centred teaching methodology

Standards

- *The e-learning methodology is appropriate for the particular programme of study.*
- *Expected teleconferences for presentations, discussion and question-answer sessions, and guidance are set.*
- *A specific plan is developed to safeguard and assess the interaction:*
 - *among students*
 - *between students and teaching staff*
 - *between students and study guides/material of study*
- *Training, guidance and support are provided to the students focusing on interaction and the specificities of e-learning.*
- *The process of teaching and learning supports students' individual and social development.*
- *The process of teaching and learning is flexible, considers different modes of e-learning 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 e-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.*
- *Mutual respect within the learner-teacher relationship is promoted.*
- *The implementation of student-centred learning and teaching respects and attends to the diversity of students and their needs, enabling flexible learning paths.*

- *Appropriate procedures for dealing with students' complaints regarding the process of teaching and learning are set.*

2.2 Practical training

Standards

- *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.*

2.3 Student assessment

Standards

- *A complete assessment framework is designed, focusing on e-learning methodology, including clearly defined evaluation criteria for student assignments and the final examination.*
- *Assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures.*
- *Assessment is appropriate, transparent, objective and supports the development of the learner.*
- *The criteria for the 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 e-learning process.*
- *Assessment, where possible, is carried out by more than one examiner.*
- *A formal procedure for student appeals is in place.*
- *Assessors are familiar with existing testing and examination methods and receive support in developing their own skills in this field.*
- *The regulations for assessment take into account mitigating circumstances.*

2.4 Study guides structure, content and interactive activities

Standards

- *A study guide for each course, fully aligned with e-learning philosophy and methodology and the need for student interaction with the material is developed. The study guide should include, for each course week / module, the following:*

- o *Clearly defined objectives and expected learning outcomes of the programme, of the modules and activities in an organised and coherent manner*
 - o *Presentation of course material, and students' activities on a weekly basis, in a variety of ways and means (e.g. printed material, electronic material, teleconferencing, multimedia)*
 - o ***Weekly schedule of interactive activities and exercises (i.e. simulations, problem solving, scenarios, argumentation)***
 - o *Clear instructions for creating posts, discussion, and feedback*
 - o *Self-assessment exercises and self-correction guide*
 - o *Bibliographic references and suggestions for further study*
 - o *Number of assignments/papers and their topics, along with instructions and additional study material*
 - o *Synopsis*
- *Study guides, material and activities are appropriate for the level of the programme according to the EQF.*

You may also consider the following questions:

- *Is the nature of the programme compatible with e-learning delivery?*
- *How do the programme, the material, the facilities, and the guidelines safeguard the interaction between students, students and teaching staff, students and the material?*
- *How many students upload their work and discuss it in the platform during the semester?*
- *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?*
- *Is 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 programme? 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?*

- *Do students' assessments correspond to the European Qualifications Framework (EQF)?*
- *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)?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Organisation of teaching on the programme is based on the European Credit Transfer System (ECTS) and is equivalent to 90 ECTS credits at the Magister Scientiae (MSc) level, and has been offered since the 2015-16 Academic Year. Each taught course is allocated 10 ECTS while the MSc dissertation is allocated 30 credits. The programme aims to provide high value and flexible learning to students interested in pursuing a Master's level degree in the area of Cybersecurity.

The structure and material of the courses comprising the programme of study is governed by the Open University of Cyprus' internal Quality Assurance handbook and processes, and is overseen by the Programme Coordinator. The EEC having examined all the relevant documentation submitted as part of the application for evaluation – accreditation and has subsequently met with:

- The Dean of the School of Sciences and Applied Sciences
- The Programme Coordinator
- Teaching staff on the programme
- Students enrolled in the programme

The EEC concludes that the organisation of teaching in the programme is excellent, there is detailed and sufficient information for the programme, the contents of each course, and all curriculum details, and in alignment with the subject of Cybersecurity at the level of MSc. Most of the courses are well aligned with the demands of the relevant industry internationally.

Teaching is built on top of the Moodle platform for eLearning, where all materials, announcements, and assignments are being posted, while also supporting the electronic submission of formative and summative assessment.

The Intended Learning Outcomes (ILOs) and teaching materials cover a wide spectrum of cybersecurity topics including computer and network security, cryptography, forensics, penetration testing, and security risk management.

There is sufficient technical and laboratory infrastructure to support the practical work and assessment of the students, which are supported through the Laboratory of Cybersecurity and Telecommunications and an extensive virtualized network and systems platform that includes general purpose, open-source and bespoke software.

Each course in the programme has a strong practical element and this is considered extremely positive since it offers opportunities for student-centred learning in groups (that can meet online or

asynchronously over the eLearning platform) and through the entire class while practical activities are supervised by the course coordinator while students that and active role in the learning process.

The assessment breakdown and % weights of different components of assessment are described explicitly for each course and follow the guidelines found in the course outlines and according to the Open University of Cyprus Quality Assurance processes.

The university's learning management system supports online teaching, learning and administrative processes. This is a Moodle installation (eClass) with all the basic online services available. The platform specifically provides synchronous (through Blackboard Collaborate) and asynchronous tools to support the interaction needs of students with the lecturers, the other students and with the teaching materials. The platform also provides e-assessment procedures through quizzes with automatic feedback in order to assess students' knowledge. The provision of more complex forms of e-assessment to assess competences and skills, such as critical thinking, is also provided though was not shown the specific assessment procedures during the meetings. Each course has an adequate number of hours of synchronous communication between instructors and students through live teleconferences, which are recorded for further reuse.

Collaboration among teachers and students (and among students) is conducted through the online forums of the subject and other forums that can be created ad-hoc for facing special needs. In addition, in-class collaborative activities among students is promoted during the teleconferences, even though the design and procedure of these activities was not detailed during the remote visit.

Formative assessment of the courses is based on two submitted mid-term assignments with the provision of personalised feedback weighing 30% of the final grade while summative assessment is based on a mandatory final exam counting to 50% of the final grade. Assessment procedure during the course is completed with a number of online quiz-based and other interactive activities weighing 20% of the final grade. Optional formative (self-assessment) activities are included in the weekly study guides in order to self-assess student knowledge and skills of the course.

Strengths

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

The EEC believes that continuously evaluating the quality assurance of distance learning by non-mandatory external accreditation organisations, such as EFQEL, EDEN and EADTU, is a good practice.

The EEC considers the Open University's distance learning model to be in line with the specific profile of full and part-time online students who have professional duties and need to learn effectively and in a timely fashion. The EEC would like to note that students benefit from a very good student-teacher ratio (1/30 max) and student feedback is very positive.

The provision of personalized feedback in the submitted assignments and during the teleconference sessions are considered best practices. In addition, the EEC recognizes the many

benefits of collaboration among students promoted by in-class collaborative activities and discussions. Finally, the weekly study guides, which allow the students to determine the work to be done every week, is also considered a best practice. Even if not shown during the meetings, gamification strategies are used to increase the student levels of motivation and engagement with the e-assessment process. The EEC urges the university to keep up these strong elements of their distance learning model while reinforcing them when possible.

During the remote site visit, the EEC held interviews with students on the course who have praised the level of challenge, and learning outcomes of the course, as well as the student-centred activities that gave them hand-on experience of the technologies and software used in cybersecurity analysis and assessment practices today.

Areas of improvement and recommendations

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

From the documentation provided and the information gathered during the remote visit, it was not clear if assessment based on rubrics and peer-review were provided. In addition, more sophisticated forms of e-assessment based on intelligent tutoring systems and conversational pedagogical agents are also encouraged to support immediate and automatic feedback to students and self-evaluate their progress.

While the EEC emphasises the benefits of any form of interaction and collaboration, the online synchronous teleconferences and real-time collaboration among students might be hard to scale if in the next years the program is expanded internationally and attended by many students across different time zones. It was not clear how the university would support this type of collaboration from the coordination perspective while recommending the constant adaptation of their distance learning model to support this situation through increasing the asynchronous online interaction and collaboration.

Finally, the EEC wants to point out that onsite final exams may not be in line with the learning style of online students, and project-based learning based on teamwork and formative continuous assessment through written assignments during the course could be reinforced instead, if allowed by the governing and/or legal framework.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
2	Process of teaching and learning and student-centred teaching methodology	Compliant

2.2	Practical training	Compliant
2.3	Student assessment	Compliant
2.4	Study guides structure, content and interactive activities	Compliant

3. Teaching staff (ESG 1.5)

Sub-areas

- 3.1 Teaching staff recruitment and development
- ~~3.2~~ Teaching staff number and status
- 3.3 Synergies of teaching and research

3.1 Teaching staff recruitment and development

Standards

- *Institutions ensure the competence of their teaching staff.*
- *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 is regularly engaged in professional and teaching-skills training and development.*
- *Training, guidance and support are provided to the teaching staff focusing on interaction and the specificities of e-learning.*
- *Promotion of the teaching staff takes into account the quality of their teaching, their research activity, the development of their teaching skills and their mobility.*

- *Innovation in teaching methods and the use of new technologies is encouraged.*
- *Conditions of employment that recognise the importance of teaching are followed.*
- *Recognised visiting teaching staff participates in teaching the study programme.*

3.2-Teaching staff number and status

Standards

- *The number of the teaching staff is adequate to support the programme of study.*
- *The teaching staff status (rank, full/part time) is appropriate to offer a quality programme of study.*
- *Visiting staff number does not exceed the number of the permanent staff.*

3.3 Synergies of teaching and research

Standards

- *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).*
- *Scholarly activity to strengthen the link between education and research is encouraged.*
- *The teaching staff publications are within the discipline.*
- *Teaching staff studies and publications are closely related to the programme's courses.*
- *The allocation of teaching hours compared to the time for research activity is appropriate.*

You may also consider the following questions:

- *Is the teaching staff qualified to teach in the e-learning programme of study?*
- *How are the 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)?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The EEC considered the submitted documentation and met with staff to understand the clarity and fairness of the approach on how the Open University of Cyprus recruits, appoints, inducts and supports academic staff in delivering high quality teaching, research and student experience.

Across the University, there are currently 24 permanent faculty staff and around 260 non-tenured adjunct staff whose their contracts are subject to renewal on a yearly basis. With specific reference to the programme under evaluation, there is a programme director and an adjunct staff per each module. All programme staff are having a PhD and one of them is female.

The recruitment and selection procedure is been described in the documents in a robust manner and it seems fair and clear. It has been observed that there is a gender imbalance and while it is typical for STEM subjects it is recommended for an EDI (Equality, Diversity, Inclusion) strategy to be developed as part of a growth strategy. Non-permanent staff are not offered neither a probation or mentoring opportunity, while permanent staff during the employment period have to undergo an annual performance evaluation review and all staff (both permanent and non-permanent) are having a discussion with the programme director about their course delivery requirements. There are clear criteria for different teaching ranks (professor, associate professor etc) and clear guidelines for progression and promotion. These opportunities are available for permanent staff only.

The university has a Distance Learning (DL) unit, which provides technical training and support (i.e eClass and other eLearning tools) in distance learning to the teaching staff of the different University's Faculties. Faculty members can participate in training programs to increase their skills to conduct quality online teaching. However, the effectiveness of these training programs in the form of professional development and certification relevant to distance learning were not shown during the meeting with the teaching staff. Despite that the University has some central procedures to support staff induction and staff development, these are not provided in a systematic way. For example, there is no mentoring or a training activity menu such as GDPR, diversity, UN initiatives (sustainable development goals) etc. The EEC felt that for an international university of this scale there should be a relevant menu for staff development.

The CVs of existing staff demonstrate very good evidence of appointed academic staff having prior and relevant teaching and research experience in higher education institutions and are members of professional organisations. In fact, one of the requirements for an adjunct staff to join the university is to have 5 years of prior teaching experience in higher education. While the requirement demonstrates evidence of appointing established staff, this could be also perceived as a barrier for appointing early career academics. Research expertise and publication records are

relevant and consistent to the programme of study. Adjunct staff do not receive support for research neither financial or time allocation.

The high number of yearly appointed adjunct staff is typical for a type of university like the Open University world wide however, it can become a barrier for developing consistency across the team and effectively compromise student experience and programme development.

There is a student survey which gathers student feedback and it is used as part of staff self-assessment only. There are teaching and observation peer review procedures.

Strengths

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

- Staff have very good profiles and they are experts in the courses they teach
- The university has a distance learning unit offering staff with relevant technical training and support

Areas of improvement and recommendations

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

- Staff training and support could be extended to include a menu of staff development opportunities; these should incorporate the Sustainable Development Goals of the UN's Agenda 2030 in the training programs to faculty staff, including diversity and ethical perspectives, in order to redesign the teaching materials accordingly with the aim to empower students with emerging competencies and skills (climate action, well being, gender equality, etc) to take action for a more sustainable world
- University to introduce an EDI strategy promoting a widening participation approach and effectively to help with the integration of under-represented communities to its staff and student population
- Student aggregated feedback following the course evaluation survey could be used in the programme development



Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
3	Teaching staff recruitment and development	Partially Compliant
3.2	Teaching staff number and status	Compliant
3.3	Synergies of teaching and research	Compliant

4. Student admission, progression, recognition and certification (ESG 1.4)

Sub-areas

- 4.1 Student admission, processes and criteria
- 4.2 Student progression
- 4.3 Student recognition
- 4.4 Student certification

4.1 Student admission, processes and criteria

Standards

- *Pre-defined and published regulations regarding student admission are in place.*
- *Access policies, admission processes and criteria are implemented consistently and in a transparent manner.*

4.2 Student progression

Standards

- *Pre-defined and published regulations regarding student progression are in place.*
- *Processes and tools to collect, monitor and act on information on student progression, are in place.*

4.3 Student recognition

Standards

- *Pre-defined and published regulations regarding student recognition are in place.*
- *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.*
- *Appropriate recognition procedures are in place that rely on:*

- o *institutional practice for recognition being in line with the principles of the Lisbon Recognition Convention*
- o *cooperation with other institutions, quality assurance agencies and the national ENIC/NARIC centre with a view to ensuring coherent recognition across the country*

4.4 Student certification

Standards

- *Pre-defined and published regulations regarding student certification are in place.*
- *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.*

You may also consider the following questions:

- *Are the admission requirements for the study programme appropriate? How is the students' prior preparation/education assessed (including the level of international students, for example)?*
- *How is the procedure of recognition for prior learning and work experience ensured, including recognition of study results acquired at foreign higher education institutions?*
- *Is the certification of the HEI accompanied by a diploma supplement, which is in line with European and international standards?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

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The committee has observed that although the number of students in the program is relatively small, it is supported adequately, and has available all necessary facilities.

There are predefined regulations governing student admission and progression in the programme, and these are publicised in advance on the programme's webpages. Each class observes minimum and maximum student enrolment thresholds of the Open University of Cyprus Quality Assurance handbook and, in case there are more than 25 students enrolments in a course, duplicate classes take place so that the Staff Student Ratio in each course is kept consistent to not compromise the excellent standards in student experience.



Students are accepted only through accredited degree routes in the programme, while progression within the programme is governed by prerequisites for each course and the final MSc dissertation.

The award of the higher education qualification is accompanied by the Diploma Supplement which is in line with the European and international standards.

The recognition and transfer of credit units from previous studies is regulated by the Open University of Cyprus' Studies Internal Regulations which ensure that the majority of credit units is awarded by the institution which awards the higher education qualification, and facilitate student mobility.

Strengths

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

Students completing the program receive recognition through the accreditation process by national and international bodies, including the Technical Chamber of Cyprus (ETEK), which is the engineering regulatory body in Cyprus. The committee has observed a high level of satisfaction among students, regarding the program and the support they receive.

The university's eClass platform based on Moodle provides a wide range of learning analytics tools for monitoring student progression and performance based on collecting information from the student with lower grades, poor participation or with undelivered activities. However, it was not clear the extent the instructors use this information to support their students on a daily basis.

Student feedback is collected at course end and is also actively sought on an on-going basis throughout course delivery. However, student participation is about 50% and the effectiveness of this information in terms of specific measures for improvement taken by the university was not shown.

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Areas of improvement and recommendations

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

The department may consider developing an action plan leading to an increasing number of students, something that would be beneficial in many ways, especially the long-term sustainability of this program.

The evaluation committee recommends periodic review of the program by taking into consideration feedback from academic staff, students, external local industry experts and professional bodies.



The EEC invites the Faculty of Pure and Applied Science to liaise with the Programme Director and consider the two weaknesses identified in the programme's self-evaluation SWOT analysis:

- The lack of strands (pathways) in course e.g., Computer and Network Forensics, Pentester, Information Security Analyst etc.
- The lack of providing professional certifications within the completion of specific modules of course

Also, to consider the model of assessment in order to:

- Ensure that students are not over-assessed, i.e., whether weekly assignments alongside practical assessed coursework and final exams are appropriate load for 10 ECTS credit courses
- Reflect on the blanket model of assessment across courses (and programmes at the OUC) and whether this is appropriate for achieving the ILOs of individual courses in the programme, especially courses like Research Methods

More sophisticated forms of learning analytics mechanisms based on AI and specifically Machine Learning are encouraged to be used to monitor and predict student performance and dropout in order to be able to provide timely corrective measures. This is strongly recommended in case of university's expansion plans through increasing the academic portfolio and/or the number of online students.

As a measure to address staff development and mentoring, the committee recommends periodic meetings and/or workshops in which scientific themes as well as pedagogical ones are discussed. External scientific personnels (from Cyprus and/or Europe) should be invited to these meetings as a source of inspiration for teachers and graduate students.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
4	Student admission, processes and criteria	Compliant
4.2	Student progression	Compliant
4.3	Student recognition	Compliant
4.4	Student certification	Compliant

5. Learning resources and student support (ESG 1.6)

Sub-areas

- 5.1 Teaching and Learning resources
- 5.2 Physical resources
- 5.3 Human support resources
- 5.4 Student support

5.1 Teaching and Learning resources

Standards

- *Weekly interactive activities per each course are set.*
- *The e-learning material and activities take advantage of the capabilities offered by the virtual and audio-visual environment and the following are applied:*
 - *Simulations in virtual environments*
 - *Problem solving scenarios*
 - *Interactive learning and formative assessment games*
 - *Interactive weekly activities with image, sound and unlimited possibilities for reality reconstruction and further processing based on hypotheses*
 - *They have the ability to transfer students to real-life situations, make decisions, and study the consequences of their decisions*
 - *They help in building skills both in experiences and attitudes like in real life and also in experiencing - not just memorizing knowledge*
- *A pedagogical planning unit for e-learning, which is responsible for the support of the e-learning unit and addresses the requirements for study materials, interactive activities and formative assessment in accordance to international standards, is established.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose.*
- *Student-centred learning and flexible modes of e-learning and teaching, are taken into account when allocating, planning and providing the learning resources.*

5.2 Physical resources

Standards

- *Physical resources, i.e. premises, libraries, study facilities, IT infrastructure, are adequate to support the study programme.*
- *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.*

5.3 Human support resources

Standards

- *Human support resources, i.e. tutors/mentors, counsellors, other advisers, qualified administrative staff, are adequate to support the study programme.*
- *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.*

5.4 Student support

Standards

- *Student support is provided covering the needs of a diverse student population, such as mature, part-time, employed and international students and students with special needs.*
- *Students are informed about the services available to them.*
- *Student-centred learning and flexible modes of learning and teaching, are taken into account when allocating, planning and providing student support.*
- *Students' mobility within and across higher education systems is encouraged and supported.*

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 programme 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?*
- *Evaluate student feedback on support services. Based on student feedback, which support services (including information flow, counselling) need further development?*
- *How is student learning within the standard period of study supported (student counselling, flexibility of the study programme, etc.)?*
- *How students' special needs are considered (different capabilities, different levels of academic preparation, special needs due to physical disabilities, etc.)?*
- *How is student mobility being supported?*

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Students are offered high quality and readily accessible teaching and learning electronic resources. These include both subject and non-subject specific resources and specifically, these include eClass, virtual classrooms and virtual labs. Subject specific and technical resources are open source based and are made available to students freely. Students are informed about these synchronous and asynchronous resources which are scalable and fit for purpose. Students are also offered online and hybrid group tutorials but final exams (apart from during the covid-19 period) are always performed with student's physical presence. The digital library offers a plethora of printed textbooks and online subscription services including the IEEE and ACM. In recognition of the quality of these services, the university has received the Cyprus Educational Leaders award, year on year from 2019-2021.

There is evidence of human support, including student advisors, counselling office, alumni office and industry liaison office. These do offer support and advise for recruitment, internships, scholarships, awards, student exchange, psychological support, student complaints, and so on. Support is available via eClass, office hours, email, telephone and virtual communication. Students have commented positively about the quality and availability of these support mechanisms.

The university provides weekly study guides, which allow the students to determine the work to be done every week, though the sample of study guide provided to the EEC was found with limited information.

The university's DL unit is responsible for providing pedagogical support for creating and evaluating online courses. The DL unit addresses the requirements for study materials, interactive

activities, and formative and summative assessment in accordance with international standards. Even if not shown during the meetings, the DL unit also provides a Faculty Handbook with guidelines for the development and delivery of distance learning that establishes the main characteristics a distance learning course should have. It should be a good reference that guarantees the quality and homogeneity of the distance learning courses throughout the University's Faculties.

Strengths

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

The EEC agrees that the strengths are:

- state-of-the-art, open source-based resources including eClass, virtual classrooms and virtual labs.
- The DL unit is considered a best practice, due to its potential structure, resources, and services devoted to enhanced distance learning. The EEC believes that it can be a powerful support for guaranteeing and maintaining the quality of the teaching provided while offering a solid base to faculty members seeking to enhance their distance learning expertise.

Areas of improvement and recommendations

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

The programme courses have a syllabus plus a weekly study guide each that includes relevant information such as, objectives, contents, purpose expected results, interactive activities, and primary and complementary bibliographic references. However, the study guide should include additional information to effectively help students plan their study time ahead and throughout the course; such additional information may include a summary, detailed learning methodology and outcomes, self-assessment exercises, and recommended study time.

While the online courses include a good variety of learning materials (e-books, articles, videos, etc.) which are good for distance learning, it is recommended that the recorded teleconferences and video lectures to be more usable and accessible for students by making them shorter, include the teacher in all the videos to provide non-verbal communication, and add subtitles for increasing accessibility.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
5	Teaching and Learning resources	Partially Compliant
5.2	Physical resources	Compliant



5.3	Human support resources	Compliant
5.4	Student support	Compliant

D. Conclusions and final remarks

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, with emphasis on the correspondence with the EQF.

The programme under evaluation is to be approved. The main strengths of the program are that those who developed the courses are those who teach the courses; the students are happy; the size of the class (35 students per class) allows constant and personal feedback. The program has great potential as there is high demand for experts in all areas of cyber security from industry.

The committee suggests that a strategy for growth is developed along these axes:

- growth in the number of students. The department may consider developing an action plan leading to an increasing number of students, something that would be beneficial in many ways, especially the long-term sustainability of this programme.
- growth with respect to topics like ethics, climate change, gender inclusion. The department offers a wide range of courses, however low student intake can restrict the number of available electives.
- growth as development of the teachers
- concerning the e-learning support, the committee has made suggestions on how to improve it by adding information in the single modules and by enhancing the video framework and by adding facilities like learning analytics and personalization

E. Signatures of the EEC

Name	Signature
Letizia Jaccheri	
Dimitrios Pezaros	
Nik Bessis	
Santi Caballé	
Ioannis Zapitis	
Valentinos Pariza	

Date: 16.05.2022