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Date: 4 April 2024

External Evaluation Report (E-learning programme of study)

- **Higher Education Institution:**
University of Nicosia
- **Town:** Nicosia
- **School/Faculty (if applicable):** School of Sciences and Engineering
- **Department/ Sector:** Computer Science
- **Programme of study- Name (Duration, ECTS, Cycle)**

In Greek:

ΕΠΙΣΤΗΜΗ ΔΕΔΟΜΕΝΩΝ (1.5 ΕΤΗ, ΜΑΣΤΕΡ, ΕΞ
ΑΠΟΣΤΑΣΕΩΣ)

In English:

DATA SCIENCE (1.5 YEARS, MASTER OF SCIENCE, E-
LEARNING)

- **Language(s) of instruction:** ENGLISH
- **Programme's status:** Currently Operating
- **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.

Following an invitation by the Cyprus Agency of Quality Assurance and Accreditation in Higher Education (CYQAA), the External Evaluation Committee (EEC) had the opportunity to evaluate the MSc Programme in Data Science (E-Learning) offered by the University of Nicosia. The evaluation of the programme took place physically on site on 3 April 2024. Prior to the visit, the EEC was supplied with relevant documentation. On the day of the visit, the EEC met with the senior management team and academic faculty responsible for delivering the MSc programme, as well as with administrative and other support staff, students and graduates from this and other programmes in the same department. The EEC had the opportunity to ask questions and request further information.

The meetings and provision of all material under assessment were facilitated by Dr Lefkios Neophytou from CYQAA. The EEC wrote this report on 4 April 2024.

This report contains the findings of the visit and the resultant evaluation of the EEC. Based on the examination and evaluation of the accreditation material and the visit, the EEC concludes that some required standards are met, and others are partially met. This report elaborates on this and makes recommendations for improving the programme under evaluation.

B. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Christina Lioma	Professor	University of Copenhagen, Denmark
Konstantinos Stefanidis	Professor	Tampere University, Finland
Jordi Conesa i Caralt	Professor	Open University of Catalonia, Spain
Maria Antoniadou	Student	University of Cyprus
Name	Position	University
Name	Position	University

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)*
 - *is designed so that it enables smooth student progression*
 - *is designed so that the exams' and assignments' content corresponds to the level of the programme and the number of ECTS*
 - *defines the expected student workload in ECTS*
 - *includes well-structured placement opportunities where appropriate*
 - *is subject to a formal institutional approval process*

- *results in a qualification that is clearly specified and communicated, and refers to the correct level of the National Qualifications Framework for Higher Education and, consequently, to the Framework for Qualifications of the European Higher Education Area*
- *is regularly monitored in the light of the latest research in the given discipline, thus ensuring that the programme is up-to-date*
- *is periodically reviewed so that it takes into account the changing needs of society, the students' workload, progression and completion, the effectiveness of procedures for assessment of students, student expectations, needs and satisfaction in relation to the programme*
- *is reviewed and revised regularly involving students and other stakeholders*

1.3 Public information

Standards

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

1.4 Information management

Standards

- *Information for the effective management of the programme of study is collected, monitored and analysed:*
 - *key performance indicators*
 - *profile of the student population*
 - *student progression, success and drop-out rates*
 - *students' satisfaction with their programmes*
 - *learning resources and student support available*
 - *career paths of graduates*
- *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 programme of study focuses on data science, computer science, and mathematics. The programme's content, objectives and learning outcomes are overall in line with the current standards and expectations in the sector, and

aligned and compatible with distance learning education. The objectives of the programme of study are also aligned with the university strategy and have explicit intended learning outcomes. The programme results in a qualification that is clearly specified and communicated. The programme reflects adequately the four purposes of higher education of the Council of Europe, and is designed so that the content corresponds to the required number of ECTS.

The programme duration is 1,5 years (90 ECTS). The programme is sound and well designed following international standards. There is a balance between data science, mathematics and domain knowledge from industry. The contribution of each course to the learning outcomes of the programme is clear. The programme structure and course distribution in semesters are clearly and properly identified with a coherent list of compulsory and elective courses. The programme assumes that students have a good degree of programming and mathematics proficiency. There are no e-Learning courses or workshops allowing students with gaps in their knowledge to catch up. The master thesis is optional, which is compatible with Cypriot law and in line with the university strategy. However, this lack of focus on independent study and training in the research process does not compare positively with respect to other international programmes. The EEC was informed that only approximately 18% of the students work on a master thesis in the programme.

The programme builds on the excellent distance learning framework of the University of Nicosia, as well as the university's regulations with respect to quality assurance and student feedback. There are mechanisms in place to detect plagiarism and processes to address fraud cases. The programme complies with the quality assurance policies in place at the University. The EEC found that the policy of quality assurance of the programme has a formal status, appropriate structures and regulations, and supports both staff and students in taking on their responsibilities in quality assurance. A few points about quality assurance should be improved (they are presented under "Areas of improvement and recommendations").

The programme was designed involving external stakeholders from industry and academia, and has a solid industrial involvement. The programme includes well-structured placement opportunities. Faculty members and other teaching staff involved in this programme hold a doctoral degree in a relevant subject. The courses are taught by permanent full time staff and several adjunct staff.

The EEC was informed that the employability prospects of graduates are very good, however no actual statistics were presented to the EEC, even though they were requested. It is too early to assess the dropout rate for students in the programme (the programme ran for the first time in 2020, so the historical records available are limited). According to the preliminary figures provided to the EEC, the dropout rate appears to be overall low.

Strengths

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

The programme is well-designed, relevant and timely. The programme management and teaching staff are overall of high quality. The programme builds on the existing strengths of the distance learning education at University of Nicosia.

The department has been successful in attracting some external funding (13 projects, ca. 36 million euros) and demonstrated strong links to the local market and industry. Specifically, the programme benefits from collaborations with external companies, such as Expedia and NVIDIA, in order to provide real-life activities or activities with real-world data to students. In the case of NVIDIA, students can receive a certificate from NVIDIA (without having to pay), upon completion of a workshop. In addition, workshops with external companies about the application of data science in real-life environments are offered to students. This close connection with industrial partners is a competitive advantage for the programme.

Overall, there is a culture of flexibility and a willingness to make things work among the staff on all levels (management, teaching, administration) working on this course. This is highly commendable.

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.

A brief description of the mission of quality assurance and of the composition of the quality assurance committee is publicly available on the university's website. The actual quality assurance policy is not available on the university's website. **The EEC recommends that the full policy of quality assurance is made publicly available, not only upon request, but stated openly on the university's website.** In addition, even though formally the quality assurance committee includes student members, the EEC was informed that sometimes student members are not present in meetings of the quality assurance committee. **The EEC recommends that student presence is made compulsory to all meetings of the quality assurance committee,** to ensure that students are always represented in the quality assurance process. The student member of the university quality assurance committee is currently selected by the Student Affairs Committee of the Senate, following consultation with the Student Union. The student member of the school quality assurance committee is currently selected by the Dean of the School, following self-nominations responding to a call sent by the Dean. The student member of the department quality assurance committee is currently selected by the Head of Department, following self-nominations responding to a call sent by the Head of Department. **The EEC recommends that the student members of all three quality assurance committees be selected directly and independently by the student body, without any input by any other body of the university, to increase the impartiality of the selection.** Lastly, external stakeholders are not represented in the composition of any quality assurance committees. The involvement of external stakeholders is not strong in the overall quality assurance process. **The EEC therefore recommends that the quality assurance policy supports the involvement of external stakeholders in an explicit way, for instance by their representation in the quality assurance committees.**

The course descriptions currently state the ECTS of each course. **The EEC recommends that the following information be included in each course description, so that students can readily see the expected student workload in hours (for the duration of the whole course):**

Student workload

- Number of lecture hours
- Number of preparation hours
- Number of hours spent in coursework
- Number of hours spent in exam preparation
- Number of hours spent in exam

Even though the number and topical choice of elective courses is very good, the EEC heard from the students interviewed that some of the electives that they wanted to take were not available to them, either due to low student registration numbers, or due to instructor unavailability. Students pointed out that the information about an elective course becoming unavailable was released quite late (less than a semester in advance), so they did not have enough time to re-plan their schedule. **The EEC recommends that concrete measures are taken to ensure that all electives are offered.** These measures should include encouraging student registration to the extent that this is possible, but also making sure that instructors are always available to teach the courses of the programme.

Given the fast technological advances in AI, the programme's curriculum should be updated regularly. The students that the EEC interviewed were not familiar with the latest advances in generative AI (e.g. ChatGPT). Given how much this type of technology has spread within society and industry, the EEC recommends that the programme covers generative AI, both theoretically (as is partially done by some of the current courses), but also with practical hands-on projects and assignments involving, for instance, prompting openly available generative models, or fine-tuning them on large scale datasets requiring GPU computational resources. In addition, upon interviewing students, the EEC observed a clear request for more practical work and practical experience, especially for the courses related to AI and ML. The EEC therefore recommends that more practical elements be introduced to the programme.

The optional nature of the thesis is a weak point of the programme. The EEC strongly recommends that the thesis becomes a compulsory component of the programme.

The programme does not provide special support in programming and mathematics for students whose proficiency is not sufficient to effectively follow the programme. The EEC recommends that careful consideration is given to the matching between the skills of the candidates to the programme and the courses offered by the programme. It is further recommended that students entering the programme with gaps in their skills should be offered courses that make it possible for them to build up their programming and mathematics skills before the start of the programme.

Upon interviewing students, the EEC further observed a lack of experience in group work. The EEC recommends emphasizing group work in the programme.

Even though the EEC was informed by the teaching staff that written formative feedback is always provided along with grades to students, the students interviewed did not always receive written feedback with their grades. This is an important point, and the EEC therefore recommends that students always receive some formative written feedback along with their grades.

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

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

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

Sub-areas

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

2.2 Practical training

2.3 Student assessment

2.4 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:*
 - *Clearly defined objectives and expected learning outcomes of the programme, of the modules and activities in an organised and coherent manner*
 - *Presentation of course material, and students' activities on a weekly basis, in a variety of ways and means (e.g. printed material, electronic material, teleconferencing, multimedia)*
 - ***Weekly schedule of interactive activities and exercises (i.e. simulations, problem solving, scenarios, argumentation)***
 - *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*
- *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.

The e-Learning methodology is appropriate for the programme of study. The pedagogical model of the university promotes the interaction of students with other students, teachers, materials, and external companies. Each course provides different mechanisms of interaction for students, both asynchronously (forums and mail) and synchronously (online sessions, instant messaging such as discord, and phone). Each course offers a minimum of 9 hours of synchronous video conferencing with a question & answering modality.

The programme includes guest lectures from industry, such as IBM, Google Brain and Apple, in relevant and timely topics. Some of these lectures are optional events, while others are integrated into the programme's courses and are compulsory to students. In the latter case, students must submit related coursework, which is graded. The programme also offers several workshops on relevant and timely topics, such as the NVIDIA workshop that allows students to get

a hands-on experience on deep learning architectures on the cloud and receive a certification upon completion. These initiatives are commendable.

The Distance Learning Unit (DLU) of the university manages the E-Learning component of the programme. The DLU employs around 25 staff and services around 6000 students at the moment. The EEC was informed that the DLU could accommodate up to 9000 students with the current infrastructure, largely because of their efficiency. The DLU handles the e-learning component of this programme with the following tools:

- Virtual learning environment (Moodle)
- Email (Microsoft Outlook)
- Videoconferencing (Webex)
- University of Nicosia websites
- University of Nicosia portal

All of the courses of the programme provide clear information about the activities to be completed by students, which of them are summative (graded), and their respective weight related to the final grade of the course. This is done by providing three documents per course: the “course outline”, which contextualizes the course; the “assessment guide”, which provides information about the weekly formative and summative activities to be conducted; and the “assessment guide”, which states the guidelines, tools, learning activities and expected learning outcomes per week. Upon examination of the programme documentation provided, the EEC did not find information about the expected feedback to be provided by teachers to students, even though this information was requested by the EEC. Upon the EEC’s request, a grading rubric was provided. The EEC found this rubric to be limited in terms of grading guidance, and therefore recommends that rubrics are designed so that they include explicit mappings between the numerical grades and their corresponding textual descriptions of student performance. The EEC also recommends that rubrics are shared with students in the activity guide of each course.

Strengths

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

The EEC was informed that student engagement is overall high on the distance learning setup of the programme. For instance, approximately 42% of students complete the optional online survey on course feedback. This is commendable.

The DLU offers an induction course to the e-learning process for students, and also to new teaching staff. In addition, the DLU accommodates students with special needs on a case-by-case basis, for instance by providing subtitles to videos. The EEC was informed that the DLU has accommodated more than 100 students with special needs so far. This is a strong achievement.

The DLU offers faculty training on several areas, one of them being on the use of Moodle, Webex, Interactive & Collaborative Software, Video Production and Multimedia. In addition, the DLU offers personalised training and consultation services to staff in the form of instructional design consultation (by the eLearning Pedagogical Support Unit) and one-to-one software training by the Technology Enhanced Learning Centre (TELC). These are examples of very good practices.

The provision of the three documents per course (outline, activity guide and study guide) is also considered a good practice, since it allows students to be aware of what to expect for each course and help them to better organize their schedules to be able to succeed in their learning activities.

All the above initiatives are highly commendable.

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.

Even though student group work is supported by the distance learning infrastructure of the programme, none of the students that the EEC interviewed had worked in groups in this programme. This should be amended. Group work is a key contributor to creating a sense of community among students, in particular in a distance learning setup. **The EEC recommends that group work is actively included in the programme's courses.**

The EEC praises the DLU for the range of staff training options that they provide. The EEC found that it is mostly permanent staff, and less so adjunct staff, who make use of this training. **The EEC recommends that all staff interacting with students, permanent and adjunct, be trained on distance learning.**

Even though subtitling functionalities are available, not all of the programme's video content is subtitled. **The EEC recommends that all video content be subtitled,** to improve the student-teacher experience and reduce misunderstandings, ambiguity and other similar factors that may lower student engagement.

The ECC was not able to establish if all courses have rubrics. **The EEC recommends that teaching staff make rubrics for all courses and share them with students.** This will enable students to reflect on how they are evaluated and what is expected from them. Since composing a rubric is not a trivial task, **the ECC recommends that this may be an element to be included in the Certificate Program for Faculty and in the DL Faculty Handbook.**

Lastly, in most of the cases, the estimated workload for students is provided per sections/weeks in the study guides, but not for other course activities. **The EEC recommends that the student workload specification is amended to include all course activities.**

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
2.1	Process of teaching and learning and student-centred teaching methodology	Compliant
2.2	Practical training	Compliant
2.3	Student assessment	Partially 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 department employs 16 full time and 10 adjunct teaching staff. There is a different employment process for full time versus adjunct staff, but interviews and transparent evaluation by in-house experts is common to both processes. There is no external evaluator involvement in the hiring process for new staff. Teaching staff promotion regulations and processes are in place, and they are clear. Conditions of employment that recognise the importance of teaching are followed, and the assessment and promotion of teaching staff is well thought of.

All teaching staff have a PhD and competence in the English language. Overall, the qualifications of the staff meet the requirements of the programme. There appears to be enough staff to teach the programme's courses. However, as noted in Section 1, the EEC was informed that some elective courses had been canceled due to instructor unavailability, despite the fact that the overall number of teaching staff is adequate. **The EEC strongly recommends that measures are taken to minimize instructor shortage that leads to canceling courses.**

All teaching staff are offered two series of workshops related to education and pedagogy, called "Teaching Certificate Program for Faculty" provided by the e-Learning Pedagogical Support Unit of the university. One of these series is focused on e-Learning aspects. The workshops aim to equip teaching staff with the digital, technical, and pedagogical competencies necessary for teaching in distance learning, as per the pedagogic model of the university.

The teaching staff includes experienced scientists in the data science domain with qualifications that meet the objectives of the programme, and collaborations with both industry and academia. Teaching performance is assessed via questionnaires completed by the students. Staff development discussions take place once per year, for assessing overall performance. The teaching team includes both genders, senior and young members at different ranks. However, there is gender imbalance among the teaching staff (we elaborate on this point later in this section).

Strengths

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

All permanent teaching staff receive compulsory didactics training over 12 weeks (x 2-3 hour sessions) in the form of Professional Development Seminars on Teaching and Learning Theory and Practice, offered by the e-Learning Pedagogical Support Unit of the university. In addition, permanent teaching staff are offered a series of optional training options on research training (Research Skills Development Programme, training on Research Publishing, Grant Writing, Ethics in research), technical training on distance learning tools (both seminars and personalized one-to-one consultations), and training on topics of health and safety, GDPR, faculty welfare, diversity equity and inclusion, and so on. The above initiatives have a specific focus on interaction and the specificities of e-learning, and support the nature of this programme. As a result, teaching staff appear to be engaged in the use of distance learning tools. The above initiatives are examples of good practice and are commendable.

Several members of the teaching staff have established collaborations with both industry and academia internationally, therefore strengthening the outward looking nature of the programme. This is a strength of this programme.

The university offers opportunities for internal seed funding. One of the junior faculty members involved in this programme is a successful recipient of this opportunity, and is also among the most research active members of staff involved in the programme. The university also offers opportunities for sabbatical leave. These are good practices.

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 didactic training is compulsory only for full time permanent staff. The EEC observed that even though adjunct teaching staff is encouraged to make use of the teacher training initiatives of the university, adjunct staff often choose not to. This creates the risk of allowing teaching staff to interact with students without any guarantee that they have received didactic training and without clear pedagogical guidance. **The EEC recommends that all teaching staff interacting with students receive compulsory pedagogical training.**

The synergy between teaching and research should be strengthened. The EEC observed an imbalance in the research engagement of the teaching staff; quite a few of them were not research active. The overall research output of the teaching staff is not high, in terms of publications or externally funded research projects. Furthermore, the distribution of the research activity among the teaching staff is skewed, with several members of staff having no research publication and no involvement in externally funded research in the last 12 months. Upon interviewing the teaching staff, the EEC observed that the teaching to research ratio applied in practice does not reflect the formal guidelines of the university. For some teaching staff, the EEC observed that the teaching load appeared to leave little available time for research. The EEC further observed that different members of staff had different ways of measuring their teaching versus research time, all of them vague. This discrepancy between the written regulations of the university and the day to day practice should be amended. **The EEC recommends that appropriate structures are put in place to ensure that all teaching staff use the same, clear unit for measuring their teaching versus research time on a day to day basis, not only on paper.** The teaching to research ratio of the teaching staff workload should be clearly measured and monitored to ensure a healthy proportion of both components.

Overall, there appears to be a culture that teaching is compulsory, but research is optional. **The EEC recommends that the university takes concrete measures to increase the research engagement of the teaching staff, and following**

this to boost the link between research and teaching in the programme. Currently, this link is not adequate. This is further exacerbated by the fact that students can complete this programme without completing a thesis at the end. The EEC was informed that approximately 18% of the students choose to complete a thesis with the programme. **The EEC therefore recommends that the thesis becomes compulsory, not only for the student gains that this brings, but also as a way to encourage all teaching staff to supervise topics closer to research.**

There is a gender imbalance among the teaching staff. Most staff is male. The EEC was informed that gender balance is not taken into account in the composition of internal committees, especially when assessing applicants to open positions at the university. The EEC was also informed that gender balance was not considered when assessing the pools of applicants to the respective positions. Overall the EEC did not observe any strategy or initiatives to reduce gender imbalance among staff. **The EEC recommends that a careful long term gender balance strategy is designed, communicated to all staff members, and implemented in practice.**

The EEC was informed that junior staff members have a mentor, but that this is not written down as a policy, but rather a practice they have adopted. **The EEC recognizes that this is indeed an excellent practice and recommends that it becomes part of the university's formal regulations.**

The teaching team includes many adjunct professors. Specifically, the teaching team for the whole department includes 16 full time faculty members and 10 adjunct professors, which is almost 40%. Having a high number of adjunct staff can be problematic on several levels, such as their engagement to long term strategy and vision, their contribution to managerial and administrative duties outside teaching, their contribution to strengthening the link between research and teaching, and disruptions in the continuity of course design and pedagogical vision across the years. **The EEC recommends that efforts are made to lower the number of adjunct staff.**

The EEC observed that not all members of the teaching staff are aware of the practices and processes that the university follows or has in place, such as, for instance, basic processes on handling student requests for a re-evaluation of their grade. Similarly, several D&I actions exist (typically organized in the form of seminars), but the EEC observed that not all staff are fully aware of them. These actions should be known to all and part of their daily practice. **The EEC recommends that all teaching staff (both permanent and adjunct) are uptodate with basic day to day procedures and D&I initiatives, and that these are implemented by all.**

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
3.1	Teaching staff recruitment and development	Compliant
3.2	Teaching staff number and status	Compliant
3.3	Synergies of teaching and research	Partially 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:*
 - *institutional practice for recognition being in line with the principles of the Lisbon Recognition Convention*
 - *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.

According to human support resources, the university provides necessary assistance to students through different units: the DL unit, the Student Success Centre, the Centre for Research and Counselling Services, the Student Affairs Department, and by an academic counsellor. All these units provide support to students in all their special needs, such as psychological, academical or professional, and interactions with the university, such as enrollment, daily activities, special needs, etc. The ECC has not found a clear and explicit policy about how new employees (and adjunct professors) are assisted, in case of psychological support or special needs.

Student mobility is encouraged and supported by the university through the ERASMUS office, and also in the forms of bilateral exchange programmes, such as the one with the University of Arkansas in the USA.

The student admission process reveals a well-structured and transparent system. The process is clearly defined, with explicit regulations in place. The criteria includes a minimum high school grade requirement and the necessity of a knowledge certificate of the English language certificate. Consistency is evident in the process, corroborated by both the documentation and as observed during interviewing the administrative staff.

The student progression system within the programme is structured to facilitate continuous assessment and feedback. Assignments are a primary tool for assessment, with academics expected to provide written feedback through Moodle. While the consistency of written feedback may vary, the overall responsiveness of the faculty, including their availability to address student queries and provide guidance outside of scheduled class hours, has been positively received by the students. Attendance monitoring is systematically implemented, with instructors utilizing a specific Moodle interface to log attendance for each session. Regulations and guidelines for study processes are documented and accessible to faculty members.

Overall, adequate and clear regulations regarding student progression, recognition and certification are in place. In addition, feedback mechanisms exist for the students to provide input on the quality of the programme. Students are also encouraged to participate in the university procedures, through their involvement in committee work (as discussed in Section 1).

Strengths

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

The ECC finds that the university provides strong overall support and services to students. In addition, the pedagogical model takes into consideration students with different realities (part-time or full time), and the DL Unit is proactive in proposing compensation measures to adapt the programme material, the learning experiences and overall assessment structures to students with special needs. KESY also provides help in the form of welfare mechanisms and other psychological support to students that have special needs or personal difficulties. These initiatives are commendable.

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.

While all the faculty members that the committee met stated that they always provide grades accompanied by written feedback to all forms of hand-ins and exams, the committee found out from the students interviewed that this was mostly but not always the case. **The EEC recommends that the practice of providing grades and written feedback is strongly enforced by all.**

The EEC was informed that a marking rubric is in place, but it is not clear if it is available to students. **The EEC recommends that the marking rubric should be publicly available to all students.** In addition, **the EEC recommends that information about who designed the marking rubric and what is the process of revising it should be clearly stated in the Quality Assurance policy.**

For industry-based projects, the EEC recommends that students receive in advance information about potential intellectual property issues pertaining to the work they complete while working on an industrial project. This information should be communicated to all students prior the commencement of their project work, not upon request by students.

A programming background is necessary for participating in the Data Science program. For this reason, **the EEC recommends that extra courses should be offered to students with gaps in their programming skills,** in order to allow them to catch up and follow the programme without struggling.

The university has made great progress in incorporating learning analytics to detect students on-risk and act accordingly. **The EEC recommends automating these systems,** in order to provide relevant and timely information to coordinators and teachers, therefore enabling them to address possible dropouts or particular needs of students on time. In addition, **the EEC recommends that the DL Faculty Handbook and pedagogical model are updated to include guidelines about learning analytics, including a clear definition of dropout, and strategies to include analytics to promote the engagement and reduce dropout of students.**

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

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

4.4	Student certification	Compliant
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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.

The university has established structures and processes to support faculty members and Distance Learning academic programs in the pedagogical and technological aspects of distance learning environments. Units relevant to this are the ePSU Unit, and the Distance Learning Unit. Courses are provided to teaching staff, enabling them to acquire the digital, technical, and pedagogical competencies necessary to succeed in teaching in distance learning. In addition, the university has created documentation specifying its pedagogical model, guidelines and examples, in order to support the lecturers to design, implement and conduct their courses.

The university promotes a learning model, widely known as student-centered learning, that promotes flexibility and learning experiences suited for distance learning.

The e-learning material and activities are interactive and useful according to student comments. The materials are multimodal, and include videos of interactive sessions (according to the 9 hours of question & answering sessions), which are automatically subtitled. Materials are adapted to students with special needs when necessary. There are some examples of automatically graded activities that allow student assessment and feedback automatically, but they are not very common. In addition, it does not seem that gamification activities are provided extensively in the courses of the programme.

Upon inspection of the physical and technological resources, the ECC finds that the environment provided by the university is suitable for supporting the study programme. The classrooms and laboratories seem well dimensioned and sized, the technological infrastructure is sufficient, and the library provides the resources of interest in a suitable format for all kinds of students, both physically and virtually. Appropriate tools exist for supporting teaching and learning, including Moodle, Webex, Office 365, a ticketing system, Proctorio and Planet E-stream. Since this is a distance learning programme, the learning resources are continuously available to students.

Strengths

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

The DL and ePSU units are considered good practices due to their efficient structure, competences, digitalization, and integration with other relevant stakeholders for dealing with different issues. The ECC finds that these are a powerful asset to promote, assess and improve the student learning experience, and to improve the teachers competencies in delivering high quality and personalised teaching.

The Distance Learning Faculty Handbook and the pedagogical model documents, plus the Teaching Certificate Program for Faculty are considered good practices. They state the general strategy, goals, and policies to be followed in the teaching and learning activities and they provide real examples to help lecturers when preparing materials or conducting teaching.

The processes to detect and provide the necessary assistance to students with special needs is also considered a good practice and is commendable.

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.

As an improvement that would greatly benefit students, **the EEC recommends that course instructors always provide written feedback to students,** as this facilitates their understanding of the material and aids in their academic growth.

Even though the documents and courses provided by the ePSU and DL units are considered good practices, it seems that they have not reached all the faculty. In particular, the ECC has observed that these courses have not been completed by some of the new adjunct faculty, who were also unaware of the DL Faculty handbook and some regulations. As per the EEC's recommendations in previous sections, **it is important that all the faculty who teach in the programme have completed these courses and are aware of the aforementioned documents.** If not, there is no guarantee that the pedagogical model is followed everywhere.

There is no information in the DL Faculty handbook about what is considered as good formative feedback and how to provide it. Since giving useful formative feedback is hard, **the ECC believes it would be beneficial to add this information in the faculty handbook.**

The ECC noticed that some of the materials in video format are not subtitled. **The EEC recommends that all video material is subtitled.**

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
5.1	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 EEC reviewed and examined the materials provided by the University of Nicosia pertaining to its Master's Degree Programme in Data Science. The one-day site visit was held on 3 April 2024.

The EEC was presented with detailed information about the degree programme. During the site visit, the EEC met university, school and department leadership peers and met professors, teachers and administrators. It also met students of the program.

Based on the examination and evaluation of the accreditation materials and the physical site visit, the EEC concludes that some of the required standards are met fully, and some of the required standards are met partially. The EEC has made a list of recommendations targeted to improving the required standards and raising the level of the programme internationally. These recommendations are marked in bold and highlighted throughout this document.



E. Signatures of the EEC

<i>Name</i>	<i>Signature</i>
Christina Lioma	
Konstantinos Stefanidis	
Jordi Conesa i Caralt	
Maria Antoniadou	
Click to enter Name	
Click to enter Name	

Date: 4 April 2024