

Doc. 300.1.2

Higher Education Institution's Response

Date: Date.

- **Higher Education Institution:**
The Cyprus Institute
- **Town:** Nicosia
- **Programme of study
Name (Duration, ECTS, Cycle)**

In Greek:

Διδακτορικό στην Ενέργεια, Περιβάλλον και
Ατμοσφαιρικές Επιστήμες

In English:

PhD in Energy, Environment and Atmospheric
Sciences

- **Language(s) of instruction:** English
- **Programme's status:**
New programme: Yes
Currently operating: Yes



The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 to 2019” [N. 136 (I)/2015 to N. 35(I)/2019].

A. Guidelines on content and structure of the report

- *The Higher Education Institution (HEI) based on the External Evaluation Committee's (EEC's) evaluation report (Doc.300.1.1) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area.*
- *In particular, under each assessment area, the HEI must respond on, without changing the format of the report:*
 - *the findings, strengths, areas of improvement and recommendations of the EEC*
 - *the deficiencies noted under the quality indicators (criteria)*
 - *the conclusions and final remarks noted by the EEC*
- *The HEI's response must follow below the EEC's comments, which must be copied from the external evaluation report (Doc. 300.1.1).*
- *In case of annexes, those should be attached and sent on a separate document.*

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

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.

This program is a comprehensive development, enrichment and enhancement of the previous PhD programme in Energy, Environment and Atmospheric Sciences. The program is divided into three specialized tracks related to the research thrusts of the Institute: Climate and Atmospheric Sciences; Hydrology and Terrestrial Ecosystems; Sustainable Built Environment. The overall programme structure is well developed and clearly defined. The programme has clearly defined learning objectives, is based on student feedback from the currently operating programme, and benefits from the extensive expertise of external faculty members. The documentation and underlying organisation of the training programme are clear, concise and supported by a well organised team running the Graduate School of The Cyprus Institute (Cyl). Overall the programme is of high standard, underpinned by clear procedures and a strong team with a very positive attitude.

Strengths

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

- The clear structure of the training programme provides good coverage of courses across the three tracks of the programme.
- In addition to the dedicated courses provided as part of this PhD in Energy, Environment and Atmospheric Sciences programme, students will have access to elective courses from two other programmes, the PhD in Computational Sciences and PhD in Science and Technology in Archaeology and Cultural Heritage.
- The internal quality assurance and feedback process is very comprehensive and overseen by a dedicated Internal Quality Committee.
- The external faculty provides active contributions to the teaching programme and leading international experience to the overall programme.
- A new module on transferable skills has been implemented.

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.

1. **Students have to choose a smaller number of courses from a long list of offerings for each track (and across programmes). It might be helpful to outline typical streams within the track (climate modelling: consider taking options a,b,c; aerosol measurements: consider options x,y,z). However, this could also be dealt with directly by the dissertation advisory committees (but should maybe be formalised as an individual development plan for each student).**
2. **The implementation of a transferable skills module is a step in the right direction. However, with evidence suggesting that e.g. only 3% of all PhD graduates in the UK will stay long-term in research**

(at universities and industry), it should be considered to make this mandatory and to broaden the scope to be of relevance to a broad range of sectors.

3. Current student numbers made it difficult to robustly collect key performance indicators, such as statistics on the student population, progression, satisfaction, drop-out rates and career paths. As the programme grows, this area should receive sufficient attention to allow for continuous improvements.
4. Given the large number of courses, overlap as well as linkages between courses, in particular across tracks (e.g. climate change affecting hydrology as well as the built environment), should be carefully considered.
5. Given that the admissions criteria for the programme have a clear emphasis on quantitative degrees, some of the example teaching material evaluated as part of the mandatory introductory course EAS500 was on the soft side. Despite this being an introductory course, the numerate students admitted to the programme should be challenged with harder, more quantitative material throughout.

Response of The Cyprus Institute

1. Indeed, the number of elective courses is relatively large; but this is true only for the Climate and Atmospheric Sciences (i.e. 9 courses). For the other research thrusts, this number is much more limited and PhD students will have to choose 2 Elective courses among 2-4 options.

In the program handbook, under the section 'Courses', we have added a sub-section where we suggest which of the courses will be more appropriate for the four different tracks: Climate and Atmospheric Sciences; Hydrology and Terrestrial Ecosystems; Energy and Environment; Sustainable Built Environment. The following was added:

Indicative tracks based on electives selection

A student interested in following the **Climate and Atmospheric Sciences** track could select course(s) from the following list:

ES 401 Fundamentals of Atmospheric Physics and Meteorology

ES 402 Climatology

ES 406 Atmospheric Chemistry and Biology

ES 407 Atmospheric Measurement Techniques

ES 408 Dynamic Meteorology

ES 409 Synoptic Meteorology

ES 419 Climate Change: Concepts and Perspectives

ES 416 Atmospheric Modelling

ES 418 Aerosol Physics and Chemistry

A student interested in following the **Sustainable Built Environment** track could select course(s) from the following list:

EAS 518 Energy and the Built Environment

EAS 523 Interactive Visualisation of the Built Environment

A student interested in following the **Energy and Environment** track could select course(s) from the following list:

EAS 515 Renewable Energy Sources

EAS 521 Energy Systems Analysis and Modelling

EAS 522 Energy and Environmental Policy

EAS 524 Design, Modelling and Optimization of CST Power Plants

A student interested in following the **Hydrology and Terrestrial Ecosystems** track could select course(s) from the following list:

EAS 511 Monitoring and Modelling Terrestrial Ecosystems and Hydrologic Processes

EAS 513 Terrestrial Ecosystems

ES 417 Hydrology and the Atmosphere-Water Cycle

From the perspective of the current PhD projects which are sometimes broad in topics and multi-disciplinary, it is not so obvious to provide additional guidance. Overall, the PhD student will be encouraged to discuss with his/her PhD supervisor and the EAS Doctoral Program Coordinator for further guidance in the selection of Elective Courses. It should be noted that the final decision of the selection of the electives is taken upon consultation with the Dissertation Advisory Committee.

2. Our transferable skills course will bear no ECTS based on the non-typical nature of the course and the potential difficulty in assessing the students for the specific learning objectives, as well as considering the modus operandi in other international HEI. We plan, however, to strongly encourage our students to attend the course at least once during their doctoral studies. We envision that the flexibility in terms of our transferable skills course's content will result in students attending the course more frequently.

Regarding the scope of the transferable skills course, it is flexible both in terms of content and structure and is designed to address the academic needs of the specific cohort of students each year. The syllabus of the course will be tailored according to the specific requests of both students and faculty. Professionals (including people working in relevant fields outside research and academia) and faculty from The Cyprus Institute and abroad will be teaching the course. Many courses have already been designed based on specific economic sectors (renewable energy, built environment).

These will be complemented by additional modules focused on “Innovation”, which will be directly connected to the current development of the Innovation department of the Climate and Atmospheric Research Center (CARE-C). Examples of products/services that will be presented in these modules are: low-cost atmospheric sensors, unmanned aerial vehicles in environmental sciences, impact assessment models, numerical weather forecasting etc.

3. Although we do have a small student community, we collect information on the student population, progression, satisfaction, drop-out rates and career paths and we create reports with statistics every year. Examples include the students’ feedback we receive at the end of each semester through anonymous questionnaires, the close relationship we maintain with our alumni etc. All of these are currently done manually. However, since our community is growing, we are in the process of adopting a Student Information System and thus, these reports will be automatically generated as well as the statistics. We are confident that this information and statistics will provide valuable insights for the progression and development of our programmes and will allow for continuous improvements as our student community grows.
4. The track mandatory course (EAS500) has the specific goal to create links (and avoid overlaps) between the different research tracks (climate, hydrology, built environment, renewable energy). In addition, a lot of attention has been paid during the design of the Master Courses on Climate and Atmosphere to avoid overlaps and better link topics in this track (weather, climate, atmospheric composition, etc). The same applies for the other tracks which have been designed by the same course leader. The goal is to ensure a proper articulation between the courses of a similar track.

We are being extra careful as to not allow for any gaps in the knowledge provided through the courses, however, we understand that the large number of our courses may result in overlaps and linkages in some cases. Some basic concepts of climate change may be briefly exposed in specific tracks (hydrology, built environment, renewable energy) and specifically shaped for the track (emphasis on the water cycle for the Hydrology track, for instance). This may not be considered as overlap given that a PhD student will not be following all these different tracks at the same time. Eventually, the Dissertation Advisory Committee of every student will have the responsibility of ensuring that the students will attend and benefit from complementary courses. Additionally, the long list of courses provides us with the flexibility and the opportunity to offer different electives every semester, based always on the demand of the students.

5. The purpose of the introductory mandatory course is to provide, during the first semester, an overview and shed light into the research activities carried out by the two centres linked to the EAS programme, the Climate and Atmosphere Research Centre (CARE-C) and the Energy, Environment and Water Research Centre (EEWRC). Through this course, students will have the opportunity to acquire a broad understanding of the basics of all research thrusts of the centres via seminar type lectures. We consider this to be extremely beneficial for the students providing them with the opportunity to explore the interests of other research groups and foster interdisciplinarity. Certainly,



quantitative material will be provided through the introductory course when appropriate. For instance, the assignments for EAS500 on Climate/Atmosphere that will be given to the PhD students following the Climate/Atmosphere track may be much more challenging (requiring more quantitative analysis) compared to the students following the other tracks.

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

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.

Teaching and learning in the PhD programme is delivered through a combination of taught courses and hands-on training. The programme is clearly structured but at the same time flexible to support the needs of students from different backgrounds and the needs of a wide range of PhD topics offered under the programme. The programme utilises its excellent facilities to complement the taught classes by practical exercises. The procedures for student assessment are clearly defined, appropriate, transparent and objective.

Strengths

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

- The programme delivery is very flexible, taking into account individual needs. An appropriate number of courses is on offer, which are delivered according to student needs, often in highly efficient small group lectures down to individual students.
- The institute has responded very well to the ongoing COVID-19 scenario, ramping up virtual learning activities.
- Teaching methods and tools are modern and well-integrated with the overall structure of the programme and the facilities provided.
- The integration of practical and theoretical training is exemplary, as evident by dedicated courses on atmospheric measurement techniques with a strong practical component or a dedicated course on the design and modelling of CST power plants. These courses are well supported by the excellent research facilities on site.
- Clear appeals procedures are in place.

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.

1. **The implementation of an e-learning platform is foreseen but not yet completed. If licensing costs for commercial platforms, e.g. canvas, are too high for the smaller scale of the programme it may be possible to explore free alternatives (google classroom has proven its usefulness during the COVID crisis). The current crisis provides an opportunity to prioritise these efforts.**
2. **There exists some inconsistency between the procedures relating to the Comprehensive Examination described in the handbook and the self-evaluation report and the findings of the onsite visit:**

The handbook states: “The oral exam is built around a defence of the written proposal and is held in public. Typically, the first 30 minutes include a public presentation on the PhD research proposal followed by 15 minutes of discussion open to the public.” The evaluation committee felt that for this crucial checkpoint in a PhD, the actual examination should be held in private. It was reassuring

that the onsite visit confirmed that this was the case in practice. This should be clarified in the course handbook, which is vague on the procedures stating further “The Comprehensive Examination Committee (Dissertation Advisory Committee that is de facto Comprehensive Examination Committee) defines the structure and questions for the oral exam.”

Response of The Cyprus Institute

1. After going through research, demonstrations and obtaining quotes from various e-learning platforms we have concluded that the best way forward is to continue using Microsoft Teams for our virtual classes, as we did for the previous semester. Indeed, the licensing costs are too high to implement a commercial platform for the moment. Due to the small number of our students, Microsoft Teams and the various other Microsoft applications cover our needs for e-learning. Microsoft 365 provides various free applications that in combination with Teams can cover numerous Learning Management System features i.e. from uploading different types of material to conducting examinations or using a virtual whiteboard during the live lectures. Our IT personnel trained our instructors and students on how to use Teams and they have been providing constant support to all users. As our student community grows, we will certainly invest in a more commercial platform.
2. These comments have been addressed and clarified in the programme handbook and student handbook. Please see below:

“The oral exam is built around a defense of the written proposal. Typically, this comprises (i) a first 30 minutes including a public presentation on the PhD research proposal, (ii) questions in public from (first) the Comprehensive Examination Committee members and (second) other faculty or graduate students of the Cyprus Institute who attend the presentation (around 20 minutes), and (iii) a final closed session of questions and answers with the Comprehensive Examination Committee only (of around 20 minutes). Following this, the candidate is asked to leave in order for the Committee to make a decision, which is then communicated to the candidate.”

All stages of the Comprehensive Examination occur within about 90 minutes in total.

3. Teaching Staff

(ESG 1.5)

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 teaching staff of the Cyl is a mixture of senior staff with high international esteem and younger staff with high potential. The recruitment procedures for teaching staff are fair, transparent and clear. The recruitment policy is to make no concessions on the quality of the staff. Most of the staff is recruited after having spent extended periods at internationally highly renowned education or research organizations and a number of the staff have double affiliations. The mixture between foreign nationals and Cypriot nationals is about 50:50 which ensures incorporation of research and teaching developments based on current international standards and developments. Senior staff members have ample and well-documented teaching experience, younger staff members still need to build up their teaching expertise and portfolio's. The teaching faculty covers the relevant subjects that are included in the curriculum and is actively involved in research in these areas (scientific publications). The teaching faculty has sufficient capacity to accommodate a substantial growth of the student population and at present the average teaching load is relatively low (which is a consequence of the revised curriculum of the programme). Students are instructed and supervised in the key expert areas of the teachers.

Evaluation and promotion of teaching staff take into account their teaching achievements. Student evaluations are conducted and taken into account in the evaluation of the teaching staff and for improvement of the curriculum. The teaching personnel are offered training through ERASMUS+ teaching invitations and other similar programs.

Strengths

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

- The institute is successful in attracting highly competent staff, which is partly facilitated via strategic alliances with internationally leading research and education institutions.
- Given the relatively small scale of the PhD program, the program has the opportunity to link the teaching program closely to the research program, and this is also facilitated by the teaching staff. There is excellent technical support for students and teachers for incorporating the research infrastructure into the teaching programme.
- Visiting teaching staff and part-time teaching staff and external supervisors are involved in the structural teaching and are accessible to the students.
- Cyl has implemented twin PhD programs in several cases, with shared supervision with foreign educational institutions. This is evaluated as an excellent strategy for the institute because it structurally implements a strong link to the international research and teaching community.
- The institute has been successful in shifting the education program to online lectures after the COVID 19 outbreak.

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.

- 1. It was not clear to the evaluation committee whether a structured program exists at Cyl to support the junior staff in teaching and to continuously develop teaching skills (e.g., a formal teaching qualification pathway, mentoring by more experienced teachers). Such a formal procedure would be desirable to professionalize the teaching staff.**
- 2. It was not obvious which fraction of the staff is actually teaching faculty and which qualifications are required for a staff member to participate in the teaching program. This should be clarified.**

Response of The Cyprus Institute

- Up until now, the Centre Director was responsible to support the teaching and research staff of the specific centre in forming a development plan with regards to their research and administrative duties but most importantly with their teaching skills. This was possible due to the small number of our staff.

However, due to the rapid expansion we are currently experiencing, The Cyprus Institute has proposed the introduction of a new scheme, according to which, the junior teaching staff will be assigned a member of the senior staff as a mentor for providing them with support for continuous development of teaching skills. Centre Directors will continue to be defacto additional mentors for all junior faculty associated with their centre. There will be a requirement for each mentor to visit at least one class by their mentee each year and to hold at least one meeting with their mentee every 6 months (or semester). Mentors will be writing an annual short report summarizing observations (including specifically of their class visit) and discussions. This will be shared with the relevant centre director and then, with both signing off, it will be sent to the Provost's office each year. These reports would form part of the review and promotion file for the junior faculty member.

It should be noted that we have recently concluded the recruitment of the Associate Provost at the Graduate School, who will be assisting the Provost in addressing this matter effectively.

- The Energy, Environment and Atmospheric Sciences PhD program consists of 30 faculty members and teaching personnel. More precisely, 19 are faculty members and 11 are Associate Research Scientists and Post-Doctoral Fellows. The latter provide a supporting role in teaching.

The members of teaching personnel for each course have the relevant formal and fundamental qualifications for teaching a course, as described by the CYQAA legislation:

- a) The teaching staff of each private institution, by percentage not smaller than 70%, must possess a recognizable academic degree of one level higher to the level of the programme of study it teaches. The remaining 30% may possess a degree of an equivalent level or a relevant professional qualification.



- b) The teaching staff in a post-graduate programme of study should have publications of scientific content.

4. Students

(ESG 1.4, 1.6, 1.7)

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 institute follows clear procedures for student selection, admission, supervision, progress monitoring, recognition and certification. The information on what is expected from students at the different stages is readily available and findable in relevant handbooks, which are available for individual courses, but also for the program as a whole. Processes and protocols for monitoring progression and important milestones (e.g. admission, comprehensive exam, dissertation) are available and clearly formulated. Student recognition is in line with international standards, and relevant procedures are in place.

The teaching staff is accessible to the students and due to the low student : teacher ratio the interaction between students and teachers is strong and questions/suggestions from individual students can often be implemented in the study program. Students that arrive with deficiencies in certain subjects are well supported in gaining the relevant knowledge through relevant courses and close supervision.

The administrative staff is easily accessible for the students, aware of the potential problems that students face and highly motivated to support the students.

Strengths

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

- The institute is to be commended for the clear systematic way in which all procedures and regulations are written up and made available.
- Given the still small scale of the program, students have a close link with teaching staff.
- The administrative staff is very accessible and highly motivated to support students in all aspects.
- Students have the feeling that they are really part of the institute and that they are taken care of.
- Via several mobility programs, many students can visit partner organizations.
- The working language at Cyl is exclusively English, which makes the program easily accessible for international students.

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.

1. **As student numbers increase, the institute may have the possibility to increase admission standards to reduce large differences in starting knowledge of the students.**
2. **The committee noted that students are happy to be at the Cyl and get a high quality education there, but did not feel a strong ambition that students want to move to top international research institutions as next career step. The institute could use its strong international connections to grow ambitions of the student population in this respect.**

Response of The Cyprus Institute:

1. It is significant to note that students entering our programs are selected solely on merit. We are already being highly selective, with this year's admission rate being 15%. As we grow in student numbers and as our educational portfolio expands we will be in the position to be more selective and admit more competent students. In fact, we have already seen this happening during the last couple of years. Therefore, we are sure we will be able to sharpen our admission criteria even more.
2. At the Cyprus Institute Graduate School, we have the pleasure to provide our students with various opportunities for networking, collaborations, mobility and training activities, joint doctoral degrees, participation in international conferences, symposia, COST Actions, etc. Having our PhD students embedded within international research projects (e.g. Horizon 2020) further promotes staff exchange and creates opportunities for career development through Post-doctoral fellowships. Through these activities with leading international institutions in their respective fields, we aim to boost our students' intellectual curiosity and grow their ambitions towards an international career abroad. Our alumni, in fact, have proceeded to have a career abroad. For example, one of our alumni, after completing the PhD, worked in a private company in Florida, USA. He is currently in Switzerland working at an international company. Another one of our alumni followed a more academic path after finishing his doctorate. He has been a Post-doctoral researcher at Max Planck Institute for Chemistry and he is now a Post-doctoral researcher at King Abdullah University of Science and Technology in Saudi Arabia.

Moreover, we will encourage even more the addition of external members in the Doctoral Examination Committees that should assist in increasing the visibility, connections and future prospects of our PhD students.

Nevertheless, we do agree that our PhD students should be exposed to a more competitive (research) environment (still poorly developed at a national level). We, also, agree that increasing their international exposure and profile will make them more competitive to pursue a research career also in Cyprus.

5. Resources (ESG 1.6)

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 PhD programme is organized according to competitive global standards in terms of learning resources and student support. The research experience and the academic credentials of the staff are high according to international standards. Their diverse international background contributes to the creative synthesis of a strong international innovative institute. Based on the available report, as well as the opinion of students, the premises, technical support, administration, teaching staff are adequate. The learning process is student-centred and includes flexible and accessible modes (software, textbooks, videos, recordings, labs/demos, etc). It proved capable to match unforeseen circumstances like COVID19 (remote classes during the lockdown, virtual classroom, recording & streaming, online exams, interactive participation)

The currently available infrastructure is adequate and extensive to cover the needs of the students. The ratio of staff/students is excellent, since the number of students is still below the capacity of the institute. Today, 30 students are enrolled in the evaluated programme (19 PhD+11 graduates) with a positive trend. Remarkably for the field, the gender balance is very good (almost 9:10). The capacity of the overall Cyl graduate school is 362 students in a total area of 4430 m². Students have access to the e-library of the University of Illinois, the University of Cyprus, the Cyl e-book library and a newly established Cyl physical library. Procedures are well defined. The student handbook contains all information required, such as student rights, policies & procedures, ad-hoc committees, processes, PhD requirements. The programme Handbook contains registration procedures, personnel, academic matters, the description of the PhD programme, courses, student feedback, etc.

All administrative roles in human resources, education and administration are very well covered. Additional support is provided by supervisors, Dissertation Advisory and Examination Committees, programme coordinator, and qualified administrative staff). Jointly they comprehensively address the various needs of students (international, part-time, employed). Students feel very comfortable, working as a community, cooperating with each other, and also with the programme staff.

Student mobility is supported by ERASMUS+, JDDs, collaborations (70% of students are more than 1 month abroad). Besides, students exploit Marie Skłodowska-Curie actions.

Strengths

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

- The significant research experience and the academic credentials of the academic and research staff are according to typical global standards.
- The current infrastructure proved flexible and capable to match unforeseen circumstances like COVID19.
- Mobility of students strongly supported by Marie Skłodowska-Curie, ERASMUS+, JDDs and other collaborations.

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.

- 1. A medium-term strategic plan is required (and may exist) to support the development of the programme in the light of future expansion plans, the integration of new smart tools, etc.**
- 2. The committee did not find indications of cases of overpressure or mental problems among the present student population. As student numbers increase, this may increase, and it may be useful to bring in personnel with professional education in this area.**

Response of The Cyprus Institute

1. One of our most significant strategies related to the development of the PhD and Master's programmes is the simultaneous increase of our student numbers and academic staff numbers, thus remaining loyal to our low faculty-to-student ratio.

One of our medium-term goals, directly related to a future expansion, is to enhance our student and management support. Robust management support systems linked to the Institute's operational activities will be introduced to enhance our students' experiences through high quality services. Educational ICT enablers to boost productivity will be upgraded to enable us to increase our reach and align with state-of-the-art practices in higher education provision.

Another of our medium-term goals is to improve our learning environment and student and staff welfare. We will create an inspiring and highly integrated campus environment including interaction and recreation spaces that respect equality, inclusion and diversity and establish student and staff welfare mechanisms including mentoring, coaching, counselling, mental health support and housing support.

2. Although we might not have personnel specializing in mental problems etc., the Graduate School personnel has attended various mental health seminars and workshops and they are always on the lookout for more training opportunities in this area. The personnel at the Graduate School have created a close relationship with the students and many times they trust them with their problems and seek encouragement from them. If a more serious case is identified, they will guide the student to seek professional help. However, in the future and as the student numbers increase, we will seriously consider the committee's advice to hire a person with professional education in this area.

6. Additional for doctoral programmes (ALL ESG)

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 selection requirements are typical for PhD candidate students; they should have: (i) an MSc from an accredited institution with a relevant and strong academic record (i.e. Physics, Chemistry, Mathematics, Environmental Sciences a& Engineering); (ii) proficiency in the English Language; (iii) strong computational skills.

The average time of completion 4 years (3-4 years research, plus completion time and publication requirements) is reasonable although on the upper end of European standards. Students are evaluated at the end of each semester and examined on both their academic progress as well as their research progress; all students must obtain a pass mark ($\geq 5.0/10.0$) The research component is supervised and assessed by the Supervisor each semester (grade out of 10.0). At the beginning of the 2nd year, all students must pass a Comprehensive (written) Examination on their ability to implement scientific research. Students require 180 ECTS (160 ECTS from research and 20 ECTS from taught; it includes a mandatory course, two elective courses and one on transferable skills. The overall procedures are adequate.

Applicants are encouraged to contact supervisors during admissions to evaluate the capacity and interest of potential supervisors. Suitable candidates are invited for interview as decided by the evaluators. The Academic Committee makes the final decision, also on the award of scholarships. Students select a faculty member during the first month of their studies which must be approved by the Programme Coordinator and the Academic Committee.

At least two scientific publications, of which one is either published or accepted for publication and the other one is submitted for publication are required before submission of the thesis.

The Advisory Committee is responsible for support, advice and review of graduate students progress. It is composed of the Academic supervisor (chair) and at least two relevant faculty members. Doctoral Examination Committees consist of five members (typically the Dissertation Advisory Committee with other experts and at least one external examiner) and are approved and appointed by the Academic Committee of the Cyl. The Committee supports, advises and reviews students' progress and offers annual progress reports.

Potential failure procedure are foreseen and well defined. The Academic Committee may terminate a student's degree due to failure (i) to make satisfactory academic progress; (ii) to complete the academic program; (iii) of a mandatory course twice.

Strengths

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

- Mentoring is starting very early since applicants are encouraged to contact potential supervisors during admissions.
- All thesis procedures are clearly defined in the student's handbook.
- The roles of the Advisory and Examination Committees are well defined.

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.

1. **Sharpen selection criteria**
2. **The committee notes that the requirement of one accepted and one submitted paper is a comparatively low bar for a cumulative thesis format by international standards – but also that many strong programmes operate without any requirements in terms of paper submissions. It is recommended to review the current requirements and consider benchmarking against comparable programmes.**
3. **The implementation of plagiarism detection software is foreseen but not yet completed, which should be prioritised.**

Response of The Cyprus Institute

1. As we have mentioned in **Section 4 (Students)**, a future increase in the numbers of students and an expansion of our educational portfolio will certainly lead us to being more selective with our admissions.
2. The decision to set the aforementioned (one accepted and one submitted paper with the PhD student as **main contributor**) as our minimum publication requirement was based on a number of factors, the most important of which are:
 - a) the time and effort needed for PhD students to conduct their research and write their doctoral theses
 - b) the time required for an article to be published

It should be noted, however, that the majority of our students do publish more articles by the end of their studies whereas others publish more articles based on their PhD thesis soon after their graduation.

We are certainly considering carefully the recommendation of the evaluation committee. However, after making an investigation, compared to European and International standards, the Cyl PhD publication requirements is at the heavy end. Specifically, compared to our partner institutions with which we offer joint/dual degrees, we are the only institution that requires both the submission of a written thesis and of two papers. Our partners do not have any publication requirements or if they do then this is replacing the requirement of a thesis.

3. We are in the process of becoming members of a Consortium of Cypriot Libraries where a number of public and private universities participate. This Consortium operates with an annual fee and provides its members reduced prices and access to journals, databases and various other software used in Higher Education. One of the latter is Turnitin, the widely used plagiarism tool. By the end of this year, we will adopt and implement Turnitin.

B. Conclusions and final remarks

This program is a comprehensive enhancement of the PhD programme in Energy, Environment and Atmospheric Sciences that is currently operating successfully. Overall the committee was very impressed by the improvements made, delivering an exciting broadened programme of a high standard, underpinned by clearly formulated and communicated procedures and supported by a strong and enthusiastic team. The committee concluded that the programme is fully compliant with the stated criteria.

In addition to the detailed recommendations provided in the individual sections, the following recommendations may contribute further improve the quality of the programme:

In terms of the overall programme structure, it was felt that some of the cross-cutting themes across tracks could receive more explicit attention. This would at the same time also increase the coherence of the cohort across tracks. For example, links between climate, hydrology and the built environment are plenty and obvious and could be reflected in teaching as well as cross track project work.

(Addressed in Section 1)

Relating to student-centred learning, teaching and assessment, it is recommended to clarify procedures related to the Comprehensive Examination, separating a potentially public talk from a private examination.

(Addressed in Section 2)

In terms of teaching staff recruitment and development, the introduction of a structured programme (e.g. mentoring, shadowing, qualifications) to support junior teaching staff is recommended, as is to clarify which qualifications are required to participate in the teaching programme.

(Addressed in Section 3)

Related to student admission, progression, recognition and certification, it was felt that as the programme develops in terms of numbers and recognition, it should be considered to raise the overall ambition. It might be prudent to introduce minimum standards for admission and to make strong efforts internationally and beyond the region to attract the highest calibre of students. This can build on the existing links to leading international institutions but could be broadened, as these institutions are also in direct competition for the best students. ***Potential mechanism could involve a programme to open up the outstanding research facilities to visiting students or to consider a funded visiting studentship or summer internship programmes.*** Similarly, it was felt that the overall ambition of the current student body appears somewhat limited and that students should be encouraged and actively mentored to broaden their experience through secure positions at top international research centres for post-doctoral work, even if they were to consider to return back to Cyprus in the long-term.

(Addressed in Section 4; see below for additional comments)

With regards to opening up our research facilities to visiting students and creating summer internship programmes, we would like to point out that the Graduate School already offers these opportunities to both students from abroad but also students from Cyprus studying in other HEI. We have established various inter-institutional agreements for visiting students. Visiting students can be registered for study and/or for a research project up to 30 ECTS per academic semester. As mentioned, we have a summer internship programme, where many of our interns receive a stipend while working on a specific research topic proposed by our researchers and staff or by the intern. It is important to mention that we are also offering remote internships that have attracted many international students. Our summer internship program is used as vehicle to identify young talents and indeed some of our interns went on to study for one of the programs offered at the Cyl Graduate School. Both visiting students and interns have the opportunity to use our state-of-the-art facilities.

In terms of learning resources and student support, it was felt that although the current system appears to function very well, as the number of students to support increases, it may be useful to bring in personnel with professional education in welfare and mental health issues – or to provide dedicated training to the student-facing staff.

(Addressed in Section 5)

And related to the procedures of the doctoral programme, the committee supports the foreseen implementation of plagiarism detection software, which should be prioritised to secure standards and reputation of the growing programme.

(Addressed in Section 6)

In summary, the committee was impressed by this overall comprehensive and well-organised proposal for a PhD programme in Energy, Environment and Atmospheric Sciences and recommends accreditation without reservation.

C. Higher Education Institution academic representatives

<i>Name</i>	<i>Position</i>	<i>Signature</i>
Prof. Sturt Manning	Associate Provost	
Prof. Jean Sciare	Program Coordinator	
Dr Chrysanthia Leontiou	Head of the Office of Graduate Studies	
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Date: 26/11/2020

