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External Evaluation Report (Programmatic)

- **Higher Education Institution:**
The Cyprus Institute
- **Town:** Nicosia
- **Faculty:** The Cyprus Institute Graduate School
- **Department:** The Cyprus Institute Graduate School
- **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. Introduction

This part includes basic information regarding the onsite visit.

Due to the ongoing COVID-19 situation, the onsite visit organized by CYQAA was organized virtually. Elements of the virtual visit included:

- Introduction of the members of the External Evaluation Committee
- Meeting with the Rector - Head of the Institution and the Vice Rector of Academic Affairs
- Meeting with the Head of the relevant department and the programme's Coordinator
- Meeting with members of the teaching staff on each course for all the years of study
- Meeting with students and their representatives
- Meeting with members of the administrative staff
- Virtual visit to the premises of the institution facilitated by videos and pictures

The committee appreciated the excellent preparation of the virtual visit given the challenging circumstances.



B. External Evaluation Committee (EEC)

| <i>Name</i> | <i>Position</i> | <i>University</i> |
|-------------------------------|---|---|
| Philip Stier | Professor of Atmospheric Physics | Department of Physics University of Oxford |
| Thomas Röckmann | Professor of Atmospheric Physics and Chemistry | Utrecht University |
| Theocharis Tsoutsos | Professor of Renewable and Sustainable Energy Sources | Technical University of Crete |
| Michalis Charalambides | Student Representative | Cyprus University of Technology |

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.

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.

- 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).
- 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.
- 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.
- 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.
- 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.



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 | Compliant |
| 1.4 | Information management | 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

2.1 Process of teaching and learning

Standards

- *The process of teaching and learning supports students' individual and social development.*
- *The process of teaching and learning is flexible, considers different modes of delivery, where appropriate, uses a variety of pedagogical methods and facilitates the achievement of planned learning outcomes.*
- *Students are encouraged to take an active role in creating the learning process.*
- *The implementation of student-centered learning and teaching encourages a sense of autonomy in the learner, while ensuring adequate guidance and support from the teacher.*
- *Teaching methods, tools and material used in teaching are modern, effective, support the use of modern educational technologies and are regularly updated.*
- *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

- *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 and method of assessment, as well as criteria for marking, are published in advance.*
- *Assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary, is linked to advice on the learning process.*
- *Assessment, where possible, is carried out by more than one examiner.*
- *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.*

You may also consider the following questions:

- *How is it monitored that the teaching staff base their teaching and assessment methods on objectives and intended learning outcomes? Provide samples of examination papers (if available).*
- *How are students' different abilities, learning needs and learning opportunities taken into consideration when conducting educational activities?*
- *How is the development of students' general competencies (including digital skills) supported in educational activities?*
- *How is it ensured that innovative teaching methods, learning environments and learning aids that support learning are diverse and used in educational activities?*
- *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.

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.

- 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.
- 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.”



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 | 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.*
- *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:

- *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 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.

- 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) to support the junior staff in teaching and to continuously develop teaching skills. Such a formal procedure would be desirable to professionalize the teaching staff.
- 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.

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 | 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

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.

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.

- As student numbers increase, the institute may have the possibility to increase admission standards to reduce large differences in starting knowledge of the students.
- 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.

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 |

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

- *Adequate and readily accessible teaching and learning resources (teaching and learning environments, materials, aids and equipment) are provided to students and support the achievement of objectives in the study programme.*
- *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 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 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.

- 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.
- 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.

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 | Compliant |
| 5.2 | Physical resources | Compliant |
| 5.3 | Human support resources | Compliant |
| 5.4 | Student support | Compliant |

6. Additional for doctoral programmes

Sub-areas

6.1 Selection criteria and requirements

6.2 Proposal and dissertation

6.3 Supervision and committees

6.1 Selection criteria and requirements

Standards

- *Specific criteria that the potential students need to meet for admission in the programme, as well as how the selection procedures are made, are defined.*
- *The following requirements of the doctoral degree programme are analysed and published:*
 - *the stages of completion*
 - *the minimum and maximum time of completing the programme*
 - *the examinations*
 - *the procedures for supporting and accepting the student's proposal*
 - *the criteria for obtaining the Ph.D. degree*

6.2 Proposal and dissertation

Standards

- *Specific and clear guidelines for the writing of the proposal and the dissertation are set regarding:*
 - *the chapters that are contained*
 - *the system used for the presentation of each chapter, sub-chapters and bibliography*
 - *the minimum word limit*
 - *the binding, the cover page and the prologue pages, including the pages supporting the authenticity, originality and importance of the dissertation, as well as the reference to the committee for the final evaluation*
- *There is a plagiarism check system. Information is provided on the detection of plagiarism and the consequences in case of such misconduct.*
- *The process of submitting the dissertation to the university library is set.*

6.3 Supervision and committees

Standards

- *The composition, the procedure and the criteria for the formation of the advisory committee (to whom the doctoral student submits the research proposal) are determined.*
- *The composition, the procedure and the criteria for the formation of the examining committee (to whom the doctoral student defends his/her dissertation), are determined.*
- *The duties of the supervisor-chairperson and the other members of the advisory committee towards the student are determined and include:*
 - *regular meetings*
 - *reports per semester and feedback from supervisors*
 - *support for writing research papers*

- *participation in conferences*
- *The number of doctoral students that each chairperson supervises at the same time are determined.*

You may also consider the following questions:

- *How is the scientific quality of the PhD thesis ensured?*
- *Is there a link between the doctoral programmes of study and the society? What is the value of the obtained degree outside academia and in the labour market?*
- *Can you please provide us with some dissertation samples?*

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.

Sharpen selection criteria

- 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.
- The implementation of plagiarism detection software is foreseen but not yet completed, which should be prioritised.

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

| Sub-area | | <i>Non-compliant/ Partially Compliant/Compliant</i> |
|----------|-------------------------------------|---|
| 7.1 | Selection criteria and requirements | Compliant |
| 7.2 | Proposal and dissertation | Compliant |
| 7.3 | Supervision and committees | 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.

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.

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.

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.

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.

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.

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.

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.



E. Signatures of the EEC

| <i>Name</i> | <i>Signature</i> |
|------------------------|------------------|
| Philip Stier | |
| Thomas Röckmann | |
| Theocharis Tsoutsos | |
| Michalis Charalambides | |

Date: 30/09/2020