

Doc. 300.1.1

Date: January 22, 2020

External Evaluation Report (Programmatic)

- **Higher Education Institution:**
University of Central Lancashire, Cyprus
- **Town:** Larnaka
- **School/Faculty (if applicable):** School of Science
- **Department/ Sector:** Mathematics and Statistics
- **Programme of study- Name (Duration, ECTS, Cycle)**

In Greek:

Τμήμα Μαθηματικών και Στατιστικής

In English:

BSc in Mathematics and Statistics (4 years, 240 ECTS)

- **Language(s) of instruction:** English
- **Programme's status**
New programme: Yes
Currently operating: No

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.

The on-site visit on 21/1/2020 offered the opportunity to meet and discuss the program with the senior administration of the University and the School, the teaching staff, representatives of students and the local administrative staff. The visit also included a tour of the premises and the facilities for teaching and learning.

The schedule for the visit:

8:30 Briefing of EEC

10:00 – 10:30

- A meeting with the Head of the Institution and the Head or/and members of the Internal Evaluation Committee.

10:30 – 11:30

- A meeting with the Head of the relevant department and the programme's Coordinator.

11:30 - 11:40

- Coffee break

11:40 – 12:40

- Methodology and equipment used in teaching and learning (i.e. software, hardware, materials, online platforms, teaching material, evaluation methods, projects, samples of written examinations / thesis)
- SWOT analysis and degree of compliance with the CYQAA standards

12:40 – 13:30

- Discussion on the content of each course

13:30 – 14:30

- Working lunch of the EEC, with the CYQAA Officer only

14:30 – 15:20

- A meeting only with students or/and their representatives.

15:20 – 16:10

- A meeting only with members of the teaching staff on each course for all the years of study.

16:10 – 16:20

- Coffee break

16:20 – 16:50

- A meeting with members of the administrative staff.

16:50 – 17:30

- On site visit to the premises of the institution (i.e. library, computer labs, research facilities)

The committee was provided with required documentation and copies of all presentations made during the visit.

B. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Jan S Hesthaven	Professor	EPFL, Switzerland
Juha Kinnunen	Professor	Aalto University, Finland
Emma McCoy	Professor	Imperial College London, UK
Michael Pingos	PhD-candidate	CUT, Cyprus
Name	Position	University
Name	Position	University

C. Guidelines on content and structure of the report

- *The external evaluation report follows the structure of assessment areas.*
- *At the beginning of each assessment area there is a box presenting:*
 - (a) *standards which are relevant to the European Standards and Guidelines (ESG)*
 - (b) *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 there are quality indicators (criteria) to be scored by the EEC on a scale from one (1) to five (5), based on the degree of compliance for the above mentioned quality indicators (criteria). The scale used is explained below:*
 - 1 or 2: *Non-compliant*
 - 3: *Partially compliant*
 - 4 or 5: *Compliant*
- *The EEC must justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.*
- *It is pointed out that, in the case of indicators (criteria) that cannot be applied due to the status of the HEI and/or of the programme of study, N/A (= Not Applicable) should be noted and a detailed explanation should be provided on the HEI's corresponding policy regarding the specific quality indicator.*
- *In addition, for each assessment area it is important to provide information regarding the compliance with the requirements. 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 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, 1.8, 1.9)

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*

- *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*
 - *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*

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

You may also consider the following questions:

- *What is the procedure for quality assurance of the programme and who is involved?*
- *What is done to reduce/prevent academic fraud? How does the higher education institution address fraud cases?*
- *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.)?*
- *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 practical training in the study programme (where appropriate)?*
- *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?*
- *How has the feedback from students, alumni, employers, teaching staff been taken into account? Provide some concrete examples.*
- *Has the study programme been compared to other similar study programmes when designed, including internationally, and to what purpose? Explain.*
- *Is the graduation rate for the study programme analogous to other European programmes with similar content?*
- *How is it ensured that the actual student workload is in accordance with the workload expressed by ECTS?*
- *What is the pass rate per course/semester?*
- *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?*

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
1.	Study programme and study programme's design and development	
1.1	Academic oversight of the programme design is ensured.	5
1.2	The guide and / or the regulations for quality assurance provide the adequate information and data for the support and management of the programme of study for all the years of study.	5
1.3	Internal Quality Assurance processes safeguard the quality and the fulfillment of the programme's purpose, objectives and the achievement of the learning outcomes. Particularly, the following are taken into consideration:	
1.3.1	The disclosure of the programme's curricula to the students and their implementation by the teaching staff	5
1.3.2	The programme webpage information and material	5
1.3.3	The procedures for the fulfillment of undergraduate and postgraduate assignments / practical training	5
1.3.4	The procedures for the conduct and the format of the examinations and for student assessment	5
1.3.5	Students' participation procedures for the improvement of the programme and of the educational process	5
1.4	The knowledge (theoretical and/or factual) gained is of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF).	5
1.5	The skills (cognitive and practical) obtained are of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF).	5
1.6	The responsibility and autonomy (the ability of the learner to apply knowledge and skills autonomously and with responsibility) are of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF).	5

1.7	The purpose and objectives of the programme are consistent with the expected learning outcomes and with the mission and the strategy of the institution.	5
1.8	The following ensure the achievement of the programme's purpose, objectives and the learning outcomes:	
1.8.1	The number of courses	4
1.8.2	The programme's content	5
1.8.3	The methods of assessment	5
1.8.4	The teaching material	5
1.8.5	The equipment	5
1.8.6	The balance between theory and practice	5
1.8.7	The research orientation of the programme	3
1.8.8	The quality of students' assignments	5
1.9	The expected learning outcomes of the programme are known to the students and to the members of the teaching staff.	5
1.10	The teaching and learning process is adequate and effective for the achievement of the expected learning outcomes.	5
1.11	The content of the programme's courses reflects the latest achievements / developments in science, arts, research and technology.	3
1.12	New research results are embodied in the content of the programme of study.	3
1.13	The content of foundation courses is designed to prepare the students for the first year of their chosen undergraduate degree.	5
1.14	Students' command of the language of instruction is appropriate.	5
1.15	The programme of study is structured in a consistent manner and in sequence, so that concepts operating as preconditions precede the teaching of other, more complex and cognitively more demanding, concepts.	5
1.16	The learning outcomes and the content of the courses are consistent.	5
1.17	The European Credit Transfer System (ECTS) is applied and there is correspondence between credits, workload and expected learning outcomes per course and per semester.	5
1.18	The higher education qualification awarded to the students corresponds to the purpose, objectives and the learning outcomes of the programme.	5

1.19	The higher education qualification and the programme of study conform to the provisions for registration to their corresponding professional and vocational bodies for the purpose of exercising a particular profession.	5
1.20	The programme's management in regard to its design, its approval, its monitoring and its review, is in place.	5
1.21	The programme's collaborations with other institutions provide added value and are compared positively with corresponding collaborations of other departments / programmes of study in Europe and internationally.	5
1.22	Procedures are applied so that the programme conforms to the scientific and professional activities of the graduates.	5
1.23	The admission requirements are appropriate.	5
1.24	Sufficient information relating to the programme of study is posted publicly.	5
1.25	The teaching methodology is suitable for teaching in higher education.	5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

1.8.1: Courses that are central to the program are all in place. However, the range of elective courses in later years of the program is limited and does not include classes outside the program, e.g. in computer science or business.

1.8.7/1.11/1.12: While there is a strong research foundation in statistics, the research activities in pure and applied mathematics are narrow due to the limited number of teaching staff in these areas. This makes the uniform incorporation of recent research results into the curriculum challenging.

Provide information on:

1. Employability records

The statistics are limited. However, the two graduates from the Mathematics program have both secured excellent positions after graduation.

2. Pass rate per course/semester

The personalized education leads to a very low failure rate. However, the numbers are too small to make any conclusive assessment of this.

3. The correspondence of exams' and assignments' content to the level of the programme and the number of ECTS

No concerns

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.

Processes for quality assurance, feedback and student involvement are excellent.

Communication with students and the information provided to students is clear. The consistent use of a digital learning environment helps to ensure a robust interaction between students and teaching staff.

The direct connection between research and research expertise in some parts of the program curriculum is less clear and challenging due to the very small number of full time staff with adequate research background in pure and applied mathematics.

Strengths

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

- The general organization, quality assurance, student communication and involvement is excellent.
- Program leadership is committed to the process and has a strong and well developed vision for the program.
- Program is student centered in all its aspects.
- Sharing and implementation of good practices from the UK campus.

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 limited breadth of research and research experience of the teaching staff in certain areas of the program presents a problem for a research based education. While the expertise in Statistics is sufficient, the current staff composition is too narrow for a more general program in Mathematics and Statistics. For such a program, the hiring of full time staff with a more diverse background in Mathematics is required.
- Students should have the opportunity to benefit from classes in closely related topics during their later years of study, e.g. classes in computer science, analytics, or business.
- The reliance on a very small number of individuals for certain key parts of the program is risky and introduces single point of failures. This is a particular concern for the areas in pure and applied mathematics, some of which are core elements of the program.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Study programme and study programme's design and development	Compliant

2. Teaching, learning and student assessment

(ESG 1.3)

Standards

- *The process of teaching and learning supports students' individual and social development and respects their needs.*
- *The process of teaching and learning is flexible, considers different modes of delivery, where appropriate, uses a variety of pedagogical methods and facilitates the achievement of planned learning outcomes.*
- *Students are encouraged to take an active role in creating the learning process.*
- *The implementation of student-centered learning and teaching encourages a sense of autonomy in the learner, while ensuring adequate guidance and support from the teacher.*
- *Teaching methods, tools and material used in teaching are modern, effective, support the use of modern educational technologies and are regularly updated.*
- *Practical and theoretical studies are interconnected.*
- *The organisation and the content of practical training, if applicable, support achievement of planned learning outcomes and meet the needs of the stakeholders.*
- *Mutual respect within the learner-teacher relationship is promoted.*
- *Assessment is appropriate, transparent, objective and supports the development of the learner.*
- *The criteria for and method of assessment, as well as criteria for marking, are published in advance.*
- *Assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary, is linked to advice on the learning process.*
- *Assessment, where possible, is carried out by more than one examiner.*

You may also consider the following questions:

- *How is it monitored that the teaching staff base their teaching and assessment methods on objectives and intended learning outcomes? Provide samples of examination papers (if available).*
- *How are students' different abilities, learning needs and learning opportunities taken into consideration when conducting educational activities?*
- *How is the development of students' general competencies (including digital skills) supported in educational activities?*
- *How is it ensured that innovative teaching methods, learning environments and learning aids that support learning are diverse and used in educational activities?*
- *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)?*
- *What is the proportion and role of independent work by students in the learning process? How is independent work defined within a subject, how is it supervised and assessed, what are the conditions for independent work?*
- *How are the assessment methods chosen and to what extent do students get supportive feedback on their academic progress during their studies?*
- *How is the objectivity and relevance of student assessment ensured (assessment of the degree of achievement of the intended learning outcomes)?*
- *Are people outside of the HEI involved in the assessment of learning outcomes (including during the defense of theses)?*

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
2.	Teaching, learning and student assessment	
2.1	The actual/expected number of students in each class allows for constructive teaching and communication.	5
2.2	The actual/expected number of students in each class compares positively to the current international standards and/or practices.	5
2.3	There is an adequate policy for regular and effective communication with students.	5
2.4	The methodology implemented in each course leads to the achievement of the course's purpose and objectives and those of the individual modules.	5

2.5	Constructive formative assessment for learning and feedback are regularly provided to the students.	5
2.6	The assessment system and criteria regarding student course performance are clear, adequate, and known to the students.	5
2.7	Educational activities which encourage students' active participation in the learning process are implemented.	5
2.8	Teaching incorporates the use of modern educational technologies that are consistent with international standards, including a platform for the electronic support of learning.	5
2.9	Teaching materials (books, manuals, journals, databases, and teaching notes) meet the requirements set by the methodology of the programme's individual courses and are updated regularly.	5
2.10	It is ensured that teaching and learning are continuously enriched by research.	2
2.11	The programme promotes students' research skills and inquiry learning.	4
2.12	Students are adequately trained in the research process.	5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

2.10: The limited coverage of research expertise across pure and applied mathematics makes it very difficult to achieve this goal with the current teaching staff. The situation is different in Statistics where the breadth and depth of expertise is substantial.

2.11: While the students acquire research skills and are exposed to inquiry learning throughout the program, the limited opportunities to be involved in actual ongoing research activities is a limitation.

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 overall impression is that the planning and organization of teaching activities and the execution of the program in general is done with great care and well implemented.

While there are many opportunities for the students to acquire some research skills, the opportunities to be involved in actual research projects with the teaching staff is limited, in particular in areas of pure and applied mathematics.

Strengths

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

- The assessment procedures are well documented and directly linked to learning outcomes.
- Very clear marking schemes, tracking of students and student progress is well implemented in a clear student centered environment.

- Small classes offer excellent opportunities for individual attention, student centered learning and attention to students with special needs and/or abilities.

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 closer relation between teaching and research activities is required in some areas of pure and applied mathematics while this presents a lesser challenge in areas related to statistics.
- There is a need to ensure that students have opportunities to work with teaching staff on active research projects.
- Targeted hiring is needed to ensure sufficient breadth and depth across key parts of the curriculum.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Teaching, learning and student assessment	Compliant

3. Teaching Staff

(ESG 1.5)

Standards

- *Fair, transparent and clear processes for the recruitment and development of the teaching staff are set up.*
- *Teaching staff qualifications are adequate to achieve the objectives and planned learning outcomes of the study programme, and to ensure quality and sustainability of the teaching and learning.*
- *The teaching staff collaborate in the fields of teaching and research within the HEI and with partners outside (practitioners in their fields, employers, and staff members at other HEIs in Cyprus or abroad).*
- *Recognised visiting teaching staff participates in teaching the study programme.*
- *The teaching staff is regularly engaged in professional and teaching-skills training and development.*
- *Assessment of the teaching staff takes into account the quality of their teaching, their research activity, the development of their teaching skills and their mobility.*

You may also consider the following questions:

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

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
- 3: Partially compliant
- 4 or 5: Compliant

Quality indicators/criteria		1 - 5
3.	Teaching Staff	
3.1	The number of full-time teaching staff, occupied exclusively at the institution, and their fields of expertise, adequately support the programme of study.	2
3.2	The members of teaching staff for each course have the relevant formal and fundamental qualifications for teaching the course, including the following:	
3.2.1	Subject specialisation	3
3.2.2	Research and publications within the discipline	3
3.2.3	Experience / training in teaching in higher education	5
3.3	The programme attracts visiting professors of recognized academic standing.	4
3.4	The specialisations of visiting professors adequately support the programme of study.	4
3.5	Special teaching staff and special scientists have the necessary qualifications, adequate work experience and specialisation to teach a limited number of courses in the programme of study.	5
3.6	In the programme of study, the ratio of the number of courses taught by full-time staff, occupied exclusively at the institution, to the number of courses taught by part-time staff, ensures the quality of the programme of study.	2
3.7	The ratio of the number of students to the total number of teaching staff supports and safeguards the programme's quality.	5
3.8	The teaching load allows for the conduct of research and contribution to society.	5
3.9	The programme's coordinator has the qualifications and experience to coordinate the programme of study.	5
3.10	The results of the teaching staff's research activity are published in international journals with the peer-reviewing system, in international conferences, conference minutes, publications etc.	4
3.11	The teaching staff is provided with adequate training opportunities in teaching methods, adult education and new technologies.	5
3.12	Feedback processes for teaching staff in regard to the evaluation of their teaching work, by the students, are satisfactory.	5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

3.1: There are effectively only two full time members of staff with relevant research training contributing to the mathematics and statistics core elements of the program. Whilst the statistics courses are supported by a large number of part time staff, there are substantial gaps in the provision for pure and applied mathematics.

3.2.1/3.2.2: Some areas of the program are well covered, other specializations require hiring of additional full time staff to fully support a research based program delivery.

3.3/3.4: This is a new programme and collaborations are developing. There is an ambition to attract visiting professors.

3.6: The inadequate number of full time staff with relevant research training does not allow significant elements of the program to be covered by full time staff.

3.10: The research profiles of the staff are developing. Part time staff have less time to dedicate to research.

Provide information on the following:

In every programme of study the special teaching staff should not exceed 30% of the permanent teaching staff.

Currently there are eight full time staff associated with the program, not necessarily mathematicians or statisticians, and six part time staff. This does not fulfil the requirement of a maximum of 30% of part time 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.

There are good teaching development opportunities available for teaching staff. All staff apply for FHEA (UK) which is an ambitious and laudable target. The teaching staff are young and enthusiastic and benefit from an excellent working environment.

Whilst the university is supportive of research activities, the research profiles of the staff are still developing.

There is a strong statistics research profile due to the large number of statistics staff. However, there are weaknesses in the breadth and depth of pure and applied research activity, which impacts the ability to deliver a fully coherent mathematics and statistics program.

The program benefits from an excellent coordinator, who has a clear vision for the delivery of the program. The workload is generally split 40% teaching, 40% research, and 20% administration.

Staff are actively involved in outreach and work with societal impact, including international mathematics competitions, science festival and recruitment fairs.

Strengths

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

- Good training opportunities for staff in teaching pedagogy.
- On-going support of teaching activities is well structured.
- Recognition of the need to develop both teaching and research activities for staff.
- Some part time staff have excellent external experiences, e.g. industrial relations, which contribute to the quality of the program.
- Teaching staff have access to a small amount of research funding and exchange programs via Erasmus and UCLan (UK).

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 program is highly reliant on two full time members of staff. This is a significant risk to the sustained and robust delivery of the program. There is an urgent need to recruit additional full time staff to ensure the delivery of the program, in particular in areas of pure and applied mathematics.
- The importance of maintaining and building the research profiles of the staff needs to be emphasized to ensure that the teaching is research informed.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Teaching Staff	Partially Compliant

4. Students

(ESG 1.4, 1.6, 1.7)

Standards

- *Pre-defined and published regulations regarding student admission, progression, recognition and certification are in place.*
- *Access policies, admission processes and criteria are implemented consistently and in a transparent manner.*
- *Information on students, like key performance indicators, profile of the student population, student progression, success and drop-out rates, students' satisfaction with their programmes, learning resources and student support available, career paths of graduates, is collected, monitored and analysed.*
- *Fair recognition of higher education qualifications, periods of study and prior learning, including the recognition of non-formal and informal learning, are essential components for ensuring the students' progress in their studies, while promoting mobility.*
- *Students receive certification explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.*
- *Student support is provided covering the needs of a diverse student population (such as mature, part-time, employed and international students, as well as students with disabilities).*
- *A formal procedure for student appeals is in place.*
- *Students are involved in evaluating the teaching staff.*
- *Students' mobility is encouraged and supported.*

You may also consider the following questions:

- *What are the admission requirements for the study programme? How is the students' prior preparation/education assessed (including the level of international students, for example)?*
- *What are the objectives for the students' academic progress, counselling, mobility, etc., as set by the HEI? How have these objectives been achieved within the given study programme? What indicators are used to assess the fulfilment or degree of achievement of these objectives?*
- *What are the reasons for dropping out (voluntary withdrawal)? What has been done to reduce the number of such students?*
- *How is student learning within the standard period of study supported (student counselling, flexibility of the study programme, etc.)?*
- *How students' special needs are considered (different capabilities, different levels of academic preparation, special needs due to physical disabilities, etc.)? How/to what extent can students themselves design the content of their studies? What are students' options within the study programme and outside of it?*

- *How is the HEI evaluating the success of its graduates in the labor market? What is the feedback from graduates of the study programme on their employment and/or continuation of studies?*
- *How is student mobility being supported?*
- *Evaluate student feedback on support services. Based on student feedback, which support services (including information flow, counselling) need further development?*
- *How is the procedure of recognition for prior learning and work experience ensured, including recognition of study results acquired at foreign higher education institutions?*

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
4.	Students	
4.1	The student admission requirements for the programme of study are based on specific regulations and suitable criteria that are favourably compared to international practices.	4
4.2	The award of the higher education qualification is accompanied by the diploma supplement which is in line with European and international standards.	5
4.3	The programme's evaluation mechanism, by the students, is effective.	5
4.4	Students' participation in exchange programmes is compared favourably to similar programmes across Europe.	4
4.5	There is a student welfare service that supports students in regard to academic, personal problems and difficulties.	5
4.6	Statutory mechanisms, for the support of students and the communication with the teaching staff, are effective.	5
4.7	Mentoring of each student is provided and the number of students per each permanent teaching member is adequate.	5
4.8	Flexible options / adaptable to the personal needs or to the needs of students with special needs, are provided.	5

4.9 Students are satisfied with their learning experiences.

5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

4.1: The admissions criteria are clear but there is some less transparent flexibility based on individual profiles. This also pertains to financial aid.

4.4: There are some opportunities for participation in exchange programs, but the extent to which this is used is not clear.

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.

There are effective mechanisms in place for teacher evaluation, feedback, and actions taken.

Student support and welfare provision is well developed and effective.

The relationships between staff and students are excellent, with a strong sense of community.

The student centered model pervades the operation of the institution, with a strong emphasis on an individualized approach to support.

Strengths

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

- Strong focus on individualized support, including for students with special needs.
- Strong sense of community.
- Good use of a digital learning environment to communicate effectively with students.
- High level of student satisfaction.
- Extensive student input into all aspects of the program.

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.

- Clear marketing strategy will be required to recruit a sufficient number of well qualified students.
- The ongoing development of exchange programs should be emphasized to ensure their sustainability.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Students	Compliant

5. Resources

(ESG 1.6)

Standards

- *Adequate and readily accessible resources (teaching and learning environments, teaching materials, teaching aids and equipment, financial, physical and human support resources*) are provided to students and support the achievement of objectives in the study programme.*
* *Physical resources: premises, libraries, study facilities, IT infrastructure, etc.*
Human support resources: tutors/mentors, counsellors, other advisers, qualified administrative staff
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose and students are informed about the services available to them.*
- *Teaching staff is involved in the management of financial resources regarding the programme of study.*

You may also consider the following questions:

- *Evaluate the supply of teaching materials and equipment (including teaching labs, expendable materials, etc.), the condition of classrooms, adequacy of financial resources to conduct the study 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?*

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
5.	Resources	
5.1	Adequate and modern learning resources are available to the students.	5
5.2	The library includes the latest books and material that support the programme.	3
5.3	The library loan system facilitates students' studies.	5
5.4	The laboratories adequately support the programme.	5
5.5	Student welfare services are of high quality.	5
5.6	Statutory administrative mechanisms for monitoring and supporting students are sufficient.	5
5.7	Suitable books and reputable journals support the programme of study.	5
5.8	An internal communication platform supports the programme of study.	5
5.9	The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc.) are quantitatively and qualitatively adequate.	5
5.10	Teaching materials (books, manuals, scientific journals, databases) are adequate and accessible to students.	5
5.11	Teaching materials (books, manuals, scientific journals, databases) are updated regularly with the most recent publications.	5

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

5.2: The library is small and is building its stock.

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 buildings and facilities are relatively new and well maintained.

The lecture theatres and teaching rooms are modern and well equipped.

There are excellent administrative mechanisms in place to monitor and support students.

Strengths

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

- Strong administrative and infrastructure support.
- The overall project management of the administrative processes is excellent.
- There are good digital mechanisms for internal communications.
- Issues raised by students are dealt with in a timely and effective manner.

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.

- An ongoing evaluation of the library needs is required.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Resources	Compliant

6. Additional for distance learning programmes

(ALL ESG)

Standards

- **The distance learning methodology is appropriate for the particular programme of study.**
- *A pedagogical planning unit for distance learning, which is responsible for the support of the distance learning unit and addresses the requirements for study materials, interactive activities and formative assessment in accordance to international standards, is established.*
- *Feedback processes for students in relation to written assignments are set.*
- *A specific plan is developed to ensure student interactions with each other, with the teaching staff, and the study material.*
- *Teacher training programmes focusing on interaction and the specificities of distance learning are offered.*
- *A complete assessment framework is designed, focusing on distance learning methodology, including clearly defined evaluation criteria for student assignments and the final examination.*
- *Expected teleconferences for presentations, discussion and question-answer sessions, and guidance are set.*
- *A study guide for each course, fully aligned with distance learning methodology and the need for student interaction with the material is developed. The study guide should include, for each course week / module, the following:*
 - *Clearly defined objectives and expected learning outcomes of the programme, of the modules and activities in an organised and coherent manner*
 - *Presentation of course material, on a weekly basis, in a variety of ways and means (e.g. printed material, electronic material, teleconferencing, multimedia)*
 - *Weekly outline of set activities and exercises and clear instructions for creating posts, discussion, and feedback*
 - *Self-assessment exercises and self-correction guide*
 - *Bibliographic references and suggestions for further study*
 - *Number of assignments/papers and their topics, along with instructions and additional study material*
 - *Synopsis*

You may also consider the following questions:

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

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
6. Additional for distance learning programmes		
6.1	The pedagogical planning unit for distance learning supports the distance learning unit and addresses the requirements for study materials, interactive activities and formative assessment.	Choose mark
6.2	The teaching e-learning material takes advantage of the capabilities offered by the virtual and audio-visual environment (simulations/ virtual environments, problem solving scenarios, interactive learning and formative assessment games).	Choose mark
6.3	The expected learning outcomes and distance learning processes aim to develop higher cognitive and research skills, as well as specialised knowledge, according to the European Qualifications Framework (EQF).	Choose mark
6.4	The distance-learning programme of study supports the development of students' research and cognitive skills.	Choose mark
6.5	The institution safeguards and assesses the interaction:	
6.5.1	Among students	Choose mark
6.5.2	Between students and teaching staff	Choose mark
6.5.3	Between students and study guides/material of study	Choose mark
6.6	The process and the conditions for the recruitment of teaching staff ensure that candidates have the necessary skills and experience for distance learning education.	Choose mark
6.7	Research background and experience of the teaching staff is adequate.	Choose mark
6.8	Training, guidance and support are provided to the teaching staff through appropriate procedures.	Choose mark

6.9	Student performance monitoring mechanisms are satisfactory.	Choose mark
6.10	Adequate mentoring by the teaching staff is provided to students through established procedures.	Choose mark
6.11	The unimpeded distance learning communication between the teaching staff and the students is ensured.	Choose mark
6.12	Assessment consistency is ensured.	Choose mark
6.13	Teaching materials (books, manuals, scientific journals, databases) comply with the requirements provided by the distance learning education methodology and are updated regularly.	Choose mark
6.14	The programme of study has the appropriate and adequate infrastructure for the support of distance learning.	Choose mark
6.15	The supporting infrastructures are easily accessible.	Choose mark
6.16	Students are informed and trained with regards to the available educational infrastructure.	Choose mark
6.17	Procedures for systematic control and improvement of the supportive services are set.	Choose mark
6.18	Infrastructure for distance education is comparable to corresponding university infrastructure in the European Union and internationally.	Choose mark
6.19	Electronic library services are provided according to international practice in order to support the needs of the students and the teaching staff.	Choose mark
6.20	The students and the teaching staff have access to the necessary electronic sources of information, relevant to the programme, the level, and the method of teaching.	Choose mark
6.21	Students' weekly assignments are appropriate for the level of the programme.	Choose mark
6.22	Feedback on students' assignments is regular through concrete and published procedures.	Choose mark
6.23	The quality of students' final exams is ensured and evidenced.	Choose mark
6.24	The teaching e-learning material has been sufficiently enriched with electronic sources, updated research publications and other electronic learning resources that support students' work and learning.	Choose mark

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

Click or tap here to enter text.

Provide information on the following:

1. Assessment of the interaction (among students, between students and teaching staff, between students and study guides/material of study)

Click or tap here to enter text.

2. Student-centered teaching and learning

Click or tap here to enter text.

3. Training, guidance and support provided to the teaching staff

Click or tap here to enter text.

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.

Click or tap here to enter text.

Strengths

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

Click or tap here to enter text.

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.

Click or tap here to enter text.

Please select what is appropriate for the following assessment area:

Assessment Area	Non-compliant/ Partially Compliant/Compliant
Additional for distance learning programmes	Choose answer

7. Additional for doctoral programmes

(ALL ESG)

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

You may also consider the following questions:

- *How is the scientific quality of the PhD thesis ensured?*
- *Is there a link between the doctoral 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?*

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
7.	Additional for doctoral programmes	
7.1	The provision of quality doctoral studies is ensured through doctoral studies regulations, which are publicly available.	Choose mark
7.2	The structure and the content of a doctoral programme of study ensure the quality provision of doctoral studies.	Choose mark
7.3	The doctoral studies' supervisors have the necessary academic qualifications and experience for the supervision of the specific dissertations.	Choose mark
7.4	The number of doctoral students, under the supervision of a member of the teaching staff, enables continuous and effective feedback to the students and it complies with the European and international standards.	Choose mark
7.5	The research interests of academic advisors and supervisors adequately cover the thematic areas of research conducted by the doctoral students of the programme.	Choose mark
7.6	Research equipment, laboratories, workshops and existing bibliographic material support the programme of study.	Choose mark
7.7	The quality of the doctoral theses of the programme in this field is in line with international standards.	Choose mark
7.8	Doctoral candidates have publications in scientific journals and/ or participate in international conferences.	Choose mark
7.9	The institution has mechanisms and funds to support writing and attending conferences of doctoral candidates.	Choose mark
7.10	The candidates demonstrate skills in designing and in conducting productive self-directed research.	Choose mark
7.11	Candidates are aware of the ethical implications of their research and of their responsibilities as scientists.	Choose mark
7.12	Suitable procedures of monitoring and periodic assessment of students' research progress are set.	Choose mark

7.13

There is a clear policy on authorship and intellectual property.

Choose
mark

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

Click or tap here to enter text.

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.

Click or tap here to enter text.

Strengths

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

Click or tap here to enter text.

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.

Click or tap here to enter text.

Please select what is appropriate for the following assessment area:

Assessment Area	Non-compliant/ Partially Compliant/Compliant
Additional for doctoral programmes	Choose answer

8. Additional for joint programmes

(ALL ESG)

Standards

- *The joint programme is offered in accordance with legal frameworks of the relevant national higher education systems.*
- *The partner universities apply joint internal quality assurance processes.*
- *The joint programme is offered jointly, involving all cooperating universities in the design, delivery and further development of the programme.*
- *The terms and conditions of the joint programme are laid down in a cooperation agreement. The agreement in particular covers the following issues:*
 - *Denomination of the degree(s) awarded in the programme*
 - *Coordination and responsibilities of the partners involved regarding management and financial organisation, including funding, sharing of costs and income, resources for mobility of staff and students*
 - *Admission and selection procedures for students*
 - *Mobility of students and teaching staff*
 - *Examination regulations, student assessment methods, recognition of credits and degree awarding procedures*
 - *Handling of different semester periods, if existent*
- *Aims and learning outcomes are clearly stated, including a joint syllabus, language policy, as well as an account of the intended added value of the programme.*
- *Study counselling and mobility plans are efficient and take into account the needs of different kinds of students.*

You may also consider the following questions:

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

Mark from 1 to 5 the degree of compliance for each quality indicator/criterion

- 1 or 2: Non-compliant
3: Partially compliant
4 or 5: Compliant

Quality indicators/criteria		1 - 5
8. Additional for joint programmes		
8.1	The joint study programme promotes the fulfilment of the mission and achievement of the goals of the partner universities.	Choose mark
8.2	The joint study programme has been developed by all the partner universities, which are also involved in its further development.	Choose mark
8.3	The partner universities have defined the responsibility of the parties in the common agreement.	Choose mark
8.4	The joint study programme conforms to the requirements and directions of national and international legislation.	Choose mark
8.5	The joint study programme is based on the needs of the target group and of the labour market.	Choose mark
8.6	Students are provided with advisory and support systems concerning learning and teaching at the partner universities.	Choose mark
8.7	The cooperation contract sets out the procedure for resolving disputes concerning the execution of the joint study programme, which ensures the protection of the rights of students and teaching staff.	Choose mark
8.8	The partner universities have agreed on how to seek feedback from students regarding the organisation and process of their study.	Choose mark
8.9	The partner universities ensure the economic sustainability of the joint study programme.	Choose mark
8.10	The degree awarded is justified by:	
8.10.1	The learning outcomes	Choose mark
8.10.2	The collaboration between/among the institutions delivering the programme	Choose mark
8.11	The jointness of the programme development is effective.	Choose mark

8.12

The students' mobility between/among the collaborative institutions provide students with rewarding experiences that facilitate employability in Europe.

Choose
mark

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

Click or tap here to enter text.

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.

Click or tap here to enter text.

Strengths

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

Click or tap here to enter text.

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.

Click or tap here to enter text.

Please select what is appropriate for the following assessment area:

Assessment Area	<i>Non-compliant/ Partially Compliant/Compliant</i>
Additional for joint programmes	Choose answer

D. Conclusions and final remarks

Please provide constructive conclusions and final remarks which may form the basis upon which improvements of the quality of the programme of study under review may be achieved, with emphasis on the correspondence with the EQF.

The evaluation committee was impressed by the strong emphasis on student centered learning and the support offered to the individual student in all aspects of learning and general welfare. The students and staff all express a strong sense of community and shared interest in the program and the institution. The leadership has a strong and well developed vision for the planned program and has already implemented many of its key elements.

Courses are delivered with the full integration of digital learning environments and the use of various innovative modes of instruction, and a high level of student involvement and modes of active feedback. There are excellent processes in place for continuous monitoring of student progress and detailed steps for intervention to assist students. There is a strong emphasis on full transparency in all areas of relevance to the student and the learning environment.

The connections to industry are strong, offering modes of feedback to the program leaders to ensure the continuous development of the program, and by providing opportunities for student internships.

The new program will possibly face challenges in recruitment of a sufficient number of well qualified students entering the program. However, the use of English as the language of instruction and the doubly awarded degree are attractive features that should appeal to a broader group of students, including international students. Nevertheless, a substantial marketing and recruitment effort will be needed to ensure a robust program.

The current full time staff comprise only two members with a research relevant background in mathematics and statistics. This presents substantial challenges for the plans to offer a research based program more broadly defined in mathematics and statistics. It also introduces a highly volatile situation in which the success of the program relies on a very small number of permanent staff.

To mitigate this situation, there is an urgent need to hire full time staff with relevant expertise. The situation appears to be particularly concerning in areas of pure and applied mathematics which, in addition to the very small number of permanent staff, is less well supplemented by the expertise of the part time staff or full time staff from other programs.

The research profiles of young staff need continuous support and development to help ensure the integration of research into teaching, which is currently a weakness in parts of the planned program.

E. Signatures of the EEC

<i>Name</i>	<i>Signature</i>
Jan S Hesthaven	
Juha Kinnunen	
Emma McCoy	
Michael Pingos	
Click to enter Name	
Click to enter Name	

Date: 23/1/2020