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Doc. 300.1.1

Date: Date.

External Evaluation Report

(Conventional-face-to-face programme of study)

- **Higher Education Institution: Frederick University**

- **Town: Nicosia**

- **School/Faculty (if applicable): School of Engineering**

- **Department/ Sector: Mechanical Engineering**

- **Programme of study- Name (Duration, ECTS, Cycle)**

  In Greek:

  Σχεδιασμός στην Κατασκευαστική Μηχανολογία

  In English:

  MSc in Manufacturing Engineering Design

- **Language(s) of instruction: English**

- **Programme's status:** Currently Operating

- **Concentrations (if any):**

  In Greek: Concentrations
  In English: Concentrations

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ
REPUBLIC OF CYPRUS

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the "Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws" of 2015 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Introduction

This part includes basic information regarding the onsite visit.

The external evaluation committee were supplied with the following material prior to the onsite visit:
- Application for evaluation – accreditation (Document no 200.1)
- Cover letter
- Sample of certificate
- List of compulsory and elective courses
- Course descriptions
- CV:s of teaching staff
- Infrastructure descriptions

The onsite visit was caried out as an on-line visit on the 6th of April 2022 between 10:00 and 16:00 and included the following meetings:
- meeting with the Rector - Head of the Institution and the Vice Rector of Academic Affairs
- meeting with the members of the Internal Quality Assurance Committee
- meeting with the head of the mechanical engineering department and the program coordinator
- meeting with members of the teaching staff
- meeting with graduates from the program
- meeting with members of the administrative staff
- meeting with the head of the department and the program coordinator for an exit discussion

After the online meeting all the presentations shown at the meeting were shared with the EEC together with some additional information, e.g. an SDG report.

The evaluation committee appreciates the time and effort put in by the members of the academic staff of the department in preparing this application and all associated documents provided to us as supplementary information to assist us with our evaluation task, as well as attending the online meetings. A special thank you is also directed to the graduates from the program that attended the online meeting.

B. External Evaluation Committee (EEC)

Name	Position	University
Johan Ölvander	Professor, chair	Linköping University
Amit Kohn	Professor, member	Tel Aviv University
Christopher Tuck	Professor, member	University of Nottingham
Michalis Mavros	Student member	University of Cyprus
Name	Position	University
Name	Position	University

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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.***

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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*

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- *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?*

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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.

Frederick University has a clear structure and process for their introduction, development, monitoring, evaluation and review of their programs.

An Internal Quality Committee appointed by the University senate has the overall responsibility for quality assurance, and it consists of the Vice Rector, one representative from each school, one representative from the administrative staff and two student representatives. The driving force for the quality work at Frederick university is to: identify weaknesses and employ measures for improvement, provide accountability and to promote a quality culture. This is achieved through a clear process that aligns with the standard of the The Cyprus Agency of Quality Assurance and Accreditation in Higher Education as well as European Quality Standards such as EQF and ESG.

The internal quality reporting process is achieved through a number of report templates and questionnaires. These templates include the Student Course Evaluation (IQC100), Faculty Course Evaluation (IQC101), Program Self Evaluation (IQC104), Faculty Activity Report (IQC105), Faculty Appraisal Report (IQC106) and the Department Self Evaluation Report (IQC107). The first three reports are a result from an annual program internal evaluation cycle, whereas the last three reports are the result of a process carried out at the department level. The content of the reports addresses the relevant areas such as program structure, student performance, research synergies etc. The structure of these two processes seems appropriate and constitute a driving for quality development and assurance. The committees and councils involved in writing and approving the reports seem appropriate and include proper academic bodies and personnel, starting from student engagement, via the faculty members teaching on the program, up to the department level.

Based on the supplied material, the presentations shown at the online visit and the interviews with administrative staff, the faculty members and with the students it has been found that the internal quality systems are appropriate and that the program seems to be working in a good manner. Information regarding the programme of study is clear and presented in a structured way. Students progress well in their studies, the drop-out rates are very low, and the students get appropriate jobs after graduation. However, the number of students on the program is rather low (10-15) which could be a potential problem from a quality perspective as the low number of students have both pedagogical and economic implications and that rather small fluctuations in the number of students will have great impact on the program. On the other hand, the high Faculty to student ratio is an advantage for the students.

The learning objectives of the program seem to be met with the courses offered within the program. However, there is a concern that learning objectives that are directed towards financing and funding (learning objectives 13, 16 and 17) as well as program objectives directed towards economical, legal and environmental aspects of design and manufacturing (learning objective h) are not met by the compulsory courses as they are described in the curricula. These kinds of objectives are just mentioned in elective courses, and hence it is not certain that all students meet these objectives.

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

The structure of the quality assurance system at the university seems thorough and on an adequate level.

There seems to be a close relation between students and their teachers, e.g. students mention that the teachers treat them as their peers.

There are very low drop-out rate among the students

Both students and faculty members seem to be very committed to 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.

The low number of students of the program is a potential weakness. The quality of the program might be hard to keep on a high level if the number of students is fluctuating considering both pedagogical and economic factors influencing both the in-class activities as well as the infrastructure, size of faculty etc. Effort should be taken to increase the number of students on the program. Another alternative is to offer courses in collaboration with other master programs.

There are learning outcomes of the program that are not met by the mandatory courses in the curricula but rely on the students to make "the right" selection among the elective courses. This is for the "non-technical" aspects of the program. Maybe these aspects are covered in the courses anyhow, but it is not clear from the course descriptions.

The interviews with the teachers and students gave the impression that teaching was indeed student centric and focusing on active learning and real-world problems. However, when reading the course descriptions, teaching methodology is mostly described as lecturing. Hence there seems to be a mismatch between how the courses are described and how they are taught.

Adding or clear publicizing of mandatory health and safety training, especially ahead of the lab work.

When reading the application, the quality assurance system was somewhat hard to grasp. However, after the online visit the system were well understood. It would have been good if some of the pictures that were presented during the online visit were also included in the application as they gave a very clear picture of how the quality assurance system works in practice.

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

Sub-area		Non-compliant/ Partially Compliant/Compliant
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 and student-centred teaching methodology

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 the method of assessment, as well as criteria for marking, are published in advance.*
- *Assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary, is linked to advice on the 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.

The situation of the Frederick University is one that is founded in its establishment as a private university. As a private university, Frederick is only able to operate through the capture of student and / or research income and it is not eligible for other methods of funding that are available to public universities. This has to some extent limited the available investment in some of the infrastructure at Frederick, but through research income the university and faculty have been able to develop good levels of equipment in good laboratory environments to support their courses.

For the MSc in Manufacturing Engineering Design, the students are supported with 9 hours or contact time in lectures per week, and additionally, outside of lectures the students are provided with a dedicated 6 hrs of contact time available (timetabled with staff) for additional support. Ad Hoc meetings are also possible through discussion with faculty.

Student involvement in research is carried out during the thesis stage, where students are able to interact with supervisors working in their field of interest and identify projects with them to carry out during their 30 credit project. Students have access to labs during the whole of the course, but they rely on their thesis project for more in-depth understanding of machines and manufacturing processes. Where specific manufacturing equipment is unavailable the dept use their collaborations in research to identify equipment and work with these collaborators and the students (e.g. at Universities of Thessaloniki and Athens). There are also collaborations with the University of Cyprus on metal implants made by additive manufacturing and an agreement with the Cyprus Government that all publicly funded equipment may be used by other university staff and students.

In terms of student assessment, the formula of 60% final examination and 40% assignment is carried out for all modules in order to give a breadth of assessment capability, on interview of the faculty, the 60% final examination may not be a written examination in the traditional sense but may take other forms (assessed poster for example). For each component, the student must achieve a pass grade of 50 points. Further discussion with the student body found that the assignments both in their grading, and workload were in line with their expectations.

Criteria for all module is applied and publicised to the student body through the use of a virtual learning environment, which also provides reading lists etc for the students.

During the COVID 19 pandemic, video was available for students when classes were not able to be ran face to face or specific students were self-isolating, importantly these video facilities are not provided asynchronously, meaning that student unable to attend virtual or in-person lectures would not be able to catch up with material.

Each of the modules forming the course provided the opportunity to learn from a variety of lecturers and academic staff, with only one module containing only a single academic teacher (MED508: Manufacturing Innovation Management). This gives ample opportunity to have multiple assignments set by different academicians, and the opportunity for marking support on the course.

ECTS label is applied to all programmes, a Diploma supplement is automatically issued, provides additional information of the programme and the students courses / grades across the programme that they have attended. Also includes information on accreditation bodies within the country etc. European and national quality standards are applied along with professional bodies and internal experience. Internal evaluation is annual. Professional bodies

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are including in the development of programmes, specifically the Scientific and Technical Chamber of Cyprus (for Engineering).

Student workload, ECTS – followed a tuning mechanism based on the workload of the students, every 3 to 4 years the courses are evaluated in line with any changes. 25hrs of work per credit of registration (90credits = 2250hrs for the MSc). Feedback is evaluated by the course reviews internally. This includes load from labs and seminars.

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

- Admissions was easy for Frederick alumni, for others there was a little more paperwork and an interview, process was clear and the criteria explained to the students either through the website or in contact with staff directly.
- Theory was backed up by laboratory activities, the experience was very useful for developing the careers of the students surveyed.
- Environment, during the students time It was one of the newest lab environments and there was new equipment and good space (2018).
- Feedback was requested by the academics, examples of how feedback has been taken into account: reduced course complexity (number of modules).
- Thesis choice was based on subject and teacher aspects, talking with the supervisor and choosing the one that had most interesting project to the students. The spread was quite fair.
- Project and assignments were relevant to life after graduation, both in practice and theoretical understanding given. Most of the students would not have received some of the practical elements without the course structure

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.

- Provide more structured access or experience of equipment not available to Frederick students directly, through visits to collaborators.
- Increase of problem centred learning into other modules than the thesis, prevents an over reliance on the thesis for a good experience, and provides more variety for the students.
- While the lab infrastructure is currently sufficient, the University administration needs to continuously examine and support the Department in upgrading facilities for this state-of-the-art field of additive manufacturing.
- Most of the students are in employment. We recommend active dialogue with the students to help balancing requirements from their jobs and studies, e.g. teaching in the afternoon.

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

Sub-area		Non-compliant/ Partially Compliant/Compliant
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 staff and students at Frederick provided an overview of the activities and their experiences, as a small department (10 faculty) there is obviously a need to understand the work load and structure of student delivery. Students and faculty expressed that a very good atmosphere is present and that the ratio of students to teaching staff was good at the current levels, though this may change given the desire to recruit more international students on to the course, bringing greater need for supervision potentially.

In terms of staff succession and strategic recruitment, the process is sensibly organised:

- Gaps that are identified are covered where possible within the university, however, if there is not the required skills or capacity, the programme coordinator makes a request to the department, and this works its way through the university.
- Timescales are over 1 year depending on the urgency.
- Faculty encourage Researchers to take teaching assignments to develop their careers and support the faculty.
- Research units are run differently, they drive their own recruitment (Fixed-term)
- 60:40 research to teaching is a goal across faculty, but there are individual adjustments, conversations with individuals are required to understand requirements. Teaching buy-out is also possible.

Staff are promoted on a criteria based system to allow them to be bench marked against other internal candidate and all requests are put to an international selection committee for comment. The promotion to academic ranks follows the processes undertaken in most leading research universities.

Visiting professors account for a large degree of teaching they are collaborators of long standing, bring external expertise into the course, they co-teach the materials. Grading systems and exams seemed fair to the students, had good resources etc. at the library and through the websites etc.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.
- Supporting visiting academics
- Collaborations with other research-intensive universities and local industry
- Clear processes for recruitment, retention and promotion
- Standardised processes for recruitment and clear levelling of job families
- Good levels of research activity in the department provides good opportunities for student centric research that is complimentary to funders and partners.
- Clear synergies of publication with taught programme contents

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.

Increase in international student will need to change the student experience and ensure student journey does not suffer. The low number of students on the course (10-15), means that it is relatively easy for staff to support students well. With the ambition to grow the course this will come with tensions, both in terms of student expectations but also in staff requirements for research time. The current research is impressive for a relatively small department, but how will this be affected if student numbers grow? There needs to be a plan in place to strategically grow the academic, technical and support staff along with the student numbers – this is very difficult to do in a volatile student market and will likely rely on staff sacrificing elements of their roles if student numbers meet targets, at least in the short term.

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

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

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

> **Sub-areas**
> **4.1 Student admission, processes and criteria**
> **4.2 Student progression**
> **4.3 Student recognition**
> **4.4 Student certification**

4.1 Student admission, processes and criteria

Standards

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

4.2 Student progression

Standards

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

4.3 Student recognition

Standards

- *Pre-defined and published regulations regarding student recognition are in place.*
- *Fair recognition of higher education qualifications, periods of study and prior learning, including the recognition of non-formal and informal learning, are essential components for ensuring the students' progress in their studies, while promoting mobility.*
- *Appropriate recognition procedures are in place that rely on:*
  - o *institutional practice for recognition being in line with the principles of the Lisbon Recognition Convention*
  - o *cooperation with other institutions, quality assurance agencies and the national ENIC/NARIC centre with a view to ensuring coherent recognition across the country*

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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 programme has clear regulations regarding both admissions and certifications.

First, in terms of admission, the regulations are presented in Sec. 5 of the departmental application document:

"*English is the official instruction language of the Programme. Candidates' minimum qualifications for admittance to the program are:*
a. Bachelor's Degree from an accredited University in Engineering.
b. Fluency in English.
It is likely that the number of candidates may be greater than the maximum number of students that can be admitted to the Program. In this case additional criteria for the selection of the students would be:
a. Bachelor's Degree Overall, and Upper-Class, Grade Point Average;
b. professional experience;
c. candidate's involvement in courses and activities related to sustainable energy systems, environmental issues and sustainable development;
d. knowledge and experience in the use of Information and Communication Technologies.
Eligible candidates will be selected and admitted to the Programme, after a personal interview. The interviews will be conducted by an Evaluation Committee, formed by the Program Coordinator (chair of the committee) and two members of the Programme's teaching staff."

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We note that in the departmental presentation during meeting with the Evaluation Committee on April 6th, then several additional criteria were added:

"d. Candidate's involvement in courses and activities related to design, manufacturing and product development.
e. Knowledge and experience in the use of special engineering software."

The criteria presented in the presentation appears better suited to the program than those in the application document.

Most of the students registering to the programme, up to 10 per year, have graduated from the department with a B.Sc. in Mechanical Engineering. Therefore, the requirements and evaluation for their acceptance are straightforward.

In the case of those students applying from other institutes, and based on other engineering degrees, namely not mechanical engineering, then an interview is conducted to assess their knowledge and prior experience. For their English proficiency, then recognition is required by formal tests such as the TOEFL (minimum grade 90) or IELTS (minimum grade 6.5). These language requirements are critical since all the studies are conducted in English.

Considering the small number of student uptake, predominately from their undergraduate programme, then we think that this admissions process is sufficient and adequate. The Faculty members are capable to assess in detail each applicant based also on their personal acquaintance. However, we do recommend to appoint formally the two members of the Evaluation Committee (in addition to the Program Coordinator). If the number of students in the program increases, then we recommend adding and publishing quantifiable admissions requirements to the BSc such as the minimum GPA or class percentile.

Certification from the Department and Frederick University follow the EU standards and guidelines. This approach is also important to enable transfer of credits from other accredited universities. During a meeting with the administration managers of the University, the certification and diploma supplement were described in detail with respect to the EU requirements. Following this EU accreditation and ECTS methodology ensures that the student will be able to be recognized in any Higher Education institute or engineering company in the world. Furthermore, the participation of the Department in various professional bodies (e.g. ETEK, CMEA, CYS and European bodies) also adds to the recognition of the program.

Regarding student progress, the criteria to pass successfully a course is clear, which is 50% for each assessment component: assignments and exam. This method is applied exactly the same for each course. Since the program is very structured, the consequences of failing a course is not clear to us, namely a delay by a year or in effect dropping out of the program.

Strengths
A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.
- The variety of resources for student support is adequate and able to cover different kind of special students' needs before, during and after their studies based on four pillars.
- The interconnection with the industry provides access to special and more rare lab equipment. In addition, it provides opportunities to the students for internships and part-time jobs during their studies or full-time jobs after their graduation.
- Each student has his/her own academic advisor and for faculty members, it is mandatory to provide a significant amount of time as office hours for the students.

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- High Faculty to student ratio enables individual assessment of applicants to ensure suitability for the program as well as assessing student progress.
- Following the EU accreditation system.
- Good score requirements for English proficiency.
- Cooperation and joint programs of studies with other Universities, such as Erasmus+
- Transparency of information on departmental and University web site.

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.

- Should the student uptake increase, then adding quantifiable admissions requirements: minimum GPA or class percentile.
- Appoint formally the two members of the evaluation committee.
- For external students, also ask for a recommendation letter.
- Highlight the application timeline and appeals procedure. Clarify the situation of the student should s/he fail a course.
- Re-examine the acceptance criteria with respect to the departmental presentation.
- Conduct open days, especially geared towards potential students from outside of the University and Cyprus to enable them to meet the Faculty members and alumni.
- Present the consequences of failing a course to the students.

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

Sub-area		*Non-compliant/* *Partially Compliant/Compliant*
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?*

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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 resources seem to be on a quite satisfactory level. The teaching, learning and physical resources are adequate to cover the specific objectives of the program. Student-centred learning and flexible modes of learning and teaching are ensured by the different methods of introducing the knowledge to the students. Those methods are based on assignments, lab demonstrations, lectures, on site visits, real life problems, thesis projects and exploitation of Information and Communication Technologies (ICT) in Education through different types of platforms serving various purposes.

Adequacy of physical resources is ensured by the suitable laboratories, equipment, and library material, either printed or electronic, that are utilized to serve the needs of the program. Laboratories include a variety of machinery, equipment and software which cover different areas of Mechanical Engineering and Manufacturing. It should be noted that the collaboration with some of the industry companies broadens the access to special and more rare equipment. Library provides 100,000 volumes with 15,000 of them specialising in Engineering and Computing. It also provides access to thousands of academic journals of international databases and about 90,000 eBooks in various fields. Although a small number of students are expected to enter the program of study, the different resources are enough in the case of changing circumstances. Laboratories and classrooms are spacious enough to cover the needs in case of an increased number of students in the program.

Human resources and student support also seem to be on a satisfactory level. There are several service offices and mechanisms that serve a variety of students' needs before, during and after their studies, which are based on four pillars. Those are: personal development and support, academic support, financial assistance and career guidance and assistance for students and graduates.

For personal development and support the related office is the support and counselling office which consists of a registered social worker and a psychologist. The office is responsible for providing the appropriate support for students with difficulties or disabilities that might refer to mental health problems, long-term health conditions or disabilities like dyslexia, visual or hearing loss or mobility issues. The office is responsible to make the appropriate special learning accommodations. Adjustments may be made for students that are working either part-time or full-time during their studies, so as to be able to attend their lectures and minimize the impact on their academic performance. Lectures for the current program are carried out mostly at afternoon hours to avoid any conflicts with the students' working hours. Furthermore, students may extend their duration of studies to up to 6 semesters for part-time attendance.

As far as academic support, each student has his/her own academic advisor when registering to the University. Support can be provided by the coordinator of the program too, gaining the advantage from the small number of students expected to apply for the program. It is important to note that the faculty members are offering six hours per week as office hours for the students. Furthermore, in situations where students fail to achieve a cumulative grade point average (CGPA) over six (6), they are placed under academic probation to improve their academic performance. Peer tutors, which are other university students employed by the university, are providing their services to students who need help. Student advocate is a mechanism that ensures that the students' complaints are taken into consideration and investigated. Another mechanism providing the ability to students to submit any complaints or ways of improvement is the questionnaire of Student Course Evaluation every semester.

Financial assistance is provided by Frederick University based on a variety of socioeconomic criteria. Some of them are the overall financial income of the family, health issues in the family, single parent families, number of dependents in the family, parents becoming unemployed, or residence located above 50 km from the university. There is also a quite significant reduction in tuition fees for women (50%) due to the lack of females in the domain of Mechanical

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Engineering. Economic support is also provided through scholarships (part time or full time) depending on the academic performance and whether the students are athletes or excel in Arts etc.

In terms of career guidance and assistance, the careers office provides the appropriate counselling to the students in order to help them find a part-time or an internship job during their studies, or a full-time job after their graduation, to improve their employability skills or even help them with their applications for postgraduate studies. Important role for all these possible opportunities plays the University's interconnection with the industry in Cyprus. The mobility of the students is enhanced by the chance to participate in the European Funded Program Erasmus either for studies or for work.

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

- The variety of resources for student support is adequate and able to cover different kind of special students' needs before, during and after their studies based on four pillars.
- The interconnection with the industry provides access to special and more rare lab equipment. In addition, it provides opportunities to the students for internships and part-time jobs during their studies or full-time jobs after their graduation.
- Each student has his/her own academic advisor and faculty members provide a significant amount of time as office hours for the students.
- Academic probation is a quite impressive service provided to students to improve their academic performance.
- 'Peer tutors' is a really helpful mechanism that provides help to students with low academic performance and on the other hand provides economical help to other students providing those services during their studies.
- Student feedback and opinion are taken into account for the program and services improvement.

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 different methods of teaching are not clearly specified in the courses' descriptions as was at the onsite visit. The teaching methods should be clarified on the courses' syllabuses.
- It should be included on financial criteria the students from refugees' families due to the Cypriot problem. It is still a major problem in Cyprus and in many domains where economic privileges are provided based on different criteria, the refugees are considered as one of them. It could be also a reason to attract students that choose the public universities instead of the private ones.

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

Sub-area		Non-compliant/ Partially Compliant/Compliant
5.1	Teaching and Learning resources	Compliant
5.2	Physical resources	Compliant
5.3	Human support resources	Compliant
5.4	Student support	Compliant

D. Conclusions and final remarks

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

The evaluation committee was impressed by the programme, which is timely and required. Thought and care was put into the planning, considering both the general requirements for mechanical engineering for manufacturing design, and the specific requirements of the Cypriot society and economy.

Since the topic is state-of-the-art, requiring advanced equipment, it is important that the University continuously monitor the programme, and invest in the infrastructure so as to keep the department competitive.

We recommend implementing a standard Health and Safety process ahead of lab work, e.g. exams, inspections etc. We also recommend that students have access to lab guides and instrumentation manuals ahead of the lab work.

The teaching methodology on the program are student centric and it also focuses on real world problems. The course descriptions however mostly describe teaching as lecture based, hence these could be updated to better reflect the actual methods of teaching. Also some of the learning outcomes of the program are not met by the mandatory courses, which needs to be considered. The university might also consider sharing teaching resources/courses between departments and other master programs to handle situations with low or volatile student numbers.

Regarding the student's admission and progression, we also recommend revisiting the acceptance criteria with respect to the departmental presentation, and to clarify the consequences of failing a course to the students. Finally, there is need for finding ways to attract international students.

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E. Signatures of the EEC

Name	Signature
Johan Ölvander	
Amit Kohn	
Christopher Tuck	
Michalis Mavros	
Click to enter Name	
Click to enter Name	

Date: 2022-04-13