

Doc. 300.1.3

Date:

Feedback report from EEC experts

- **Higher education institution:**

University of Cyprus

- **Town:** Nicosia

- **Programme of study (Name, ECTS, duration, cycle)**

In Greek: Μηχανική Μηχανολογίας και Κατασκευαστικής (4 Έτη, 240 ECTS, Πτυχίο, BSc)

In English: Mechanical and Manufacturing Engineering (4 Years, 240 ECTS, Bachelor, BSc)

- **Language of instruction:** Greek

- **Programme's status**

~~New programme:~~

Currently operating:

✓

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 and 2019” [136 (I)/2015 and 35(I)/2019].

A. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Pavlos Aleiferis	Professor	Imperial College London
Noam Eliaz	Professor	Tel Aviv University
Atanas Popov	Professor	University of Nottingham
Mr. Polycarpos Nicolaou	Member of the professional association	
Ms. Christiana Kaminaridou	Student	Cyprus University of Technology

B. Guidelines on content and structure of the report

- *The EEC based on the external evaluation report (Doc.300.1.1) and the Higher Education Institution’s response, must justify whether actions have been taken in improving the quality of the programme of study in each assessment area.*
- *Below each assessment area the EEC must circle the degree of compliance.*

1. EFFECTIVENESS OF TEACHING WORK – AVAILABLE RESOURCES

1.1 Organization of teaching work

1.1.2 The number of students in each class allows for constructive teaching and communication, and it compares positively to the current international standards and/or practices [4].

Additional comments: On one hand, the currently low number of students allows for constructive teaching and communication even on a one-to-one basis. However, the committee felt that this is not necessarily sustainable in case of plans for future expansion of student numbers.

HEI's response: No significant expansion in student numbers is expected in the future. More precisely, the planned number of students to be admitted in the Department of Mechanical and Manufacturing Engineering in the next years is 40-50 annually.

1.1.3.5. The procedures for the conduct and the format of the examinations and for student assessment [3]

Additional comments: The procedures for the conduct and format of the examinations is not part of a formal process of setting exams and moderating those on a departmental level but organized and applied individually by each Academic.

HEI's response: The formatting of the examination procedures followed in the Department of Mechanical and Manufacturing Engineering are in line with the general University of Cyprus examination rules and procedures that are consistently applied in all Departments within the University. These include among others the following:

“The University of Cyprus applies the principle of continuous assessment to each course. Specifically, the student's performance on a particular subject is assessed, at the discretion of the lecturer and with the approval of the Department, in at least two different ways. One of them must be the final written examination. The percentage of participation in the final written examination in the final score cannot exceed 60% of the final score. The allocation of the percentages for each exam, as determined by the curriculum, is independent of the grade the student achieves in each exam. The final written exam does not apply only in the case of the diploma thesis, screenwriting lessons, study or teamwork”.

In an effort to enhance quality assurance, the Department Chair will be evaluating the statistical analysis of course grades along with the existing students' evaluation reports and s/he will then be discussing the evaluation outcome with each Academic.

1.1.3.6. The effective provision of information to the students and the enhancement of their participation in the procedures for the improvement of the educational process. [3]

Additional comments: It is not clear how the students participate and contribute to the improvement of the educational process on a fundamental level to make it effective.

HEI's response: So far, the students' involvement in the improvement of the educational procedures, the undergraduate curriculum, etc. was realized *via* their representatives (4 in total) in the Departmental Council where all the decisions related to the undergraduate curriculum are taken. For further participation and involvement in the improvement of the educational process on a fundamental level thus enhancing its efficacy, the Undergraduate Studies Committee will meet at least once per year with the undergraduate students from all years and discuss possible issues that need the Department's attention in order to improve the educational process.

1.1.4. Adequate and modern learning resources, are available to the students, including the following:
1.1.4.1 facilities [2], 1.1.4.3 infrastructure [2]

Additional comments (1.1.4.1. and 1.1.4.3): Although the research labs were equipped to a high standard and this benefited final year projects, teaching labs for core engineering subjects taught in the first three years of study were not considered of adequate number and quality to ensure that the learning objectives are met. This applies particularly to labs related to fluid mechanics, thermodynamics and solid mechanics. The committee appreciates that the current spread of the Department in many different sites has been a contributing factor to this situation. We encourage the Department to strategically develop teaching labs of this type on their new campus and not focus only on moving and expanding current research labs.

HEI's response: As recognized by the Committee members, the current spread of the Department in 4 different sites and the lack of adequate teaching laboratory space prevented the sufficient development of teaching labs for core engineering subjects taught in the first 3 years of study. This issue was already discussed within the Department and Committee's constructive comments put more pressure to proceed faster. The Department has put into force a strategic plan for the significant improvement of all teaching labs, but with emphasis to laboratories linked to fluid mechanics, thermodynamics and solid mechanics.

The Department already allocated internal funding of €50,000 for the 2019 calendar year for the development of teaching laboratories. In addition, a more significant level of funding (€500.000) has been allocated to the Department by the University for the same purpose in 2020. Therefore, all the suggested and other improvements of the teaching laboratories will be completed by the end of the 2020-21 academic year.

In the table appearing in **Annex I**, the "Existing" and "New" Laboratory exercises that are also included in the updated course syllabuses are provided. It is noteworthy to mention at this point that some of the "New" Laboratory exercises appearing below (highlighted in yellow) will be immediately introduced in the courses starting from the next academic semester, whereas the rest will be implemented within the next 2 years.

Particularly for labs related to fluid mechanics, thermodynamics and solid mechanics, (presented in detail in **Annex I**), the Department has already approved the introduction of a total of 60 new laboratory exercises:

- 9 for thermodynamics (MME 215 & MME 318)
- 8 for fluid dynamics (MME 216 & MME 316)
- 2 for heat transfer, MME 217
- 1 for thermal engines, MME 318
- 4 for strength of materials, MME 256 & MME 257
- 36 in all other courses

1.1.4 Adequate and modern learning resources, are available to the students, including the following: 1.1.4.5 academic mentoring [3].

Additional comments (1.1.4.5): There is no formal system of Academic mentoring in terms of personal tutors who follow the progress and development of the students from the beginning to the end of their studies. We encourage the Academics to put such a system in place because the general student welfare will benefit from.

HEI's response: Academic mentoring involving among others the following of the progress and development of the students throughout their studies already takes place through:

- Each student is assigned an Academic Advisor from day one as a student at the Department. Each faculty member has about 15 students to mentor.
- The Department has decided to hold annually a "Mentoring Day" at the beginning of each academic year. This decision will be applied from September 2019 onwards.
- Compulsory personal meeting of students with their Academic Advisor prior to course registration of mentees failing 50% or more of courses per semester.

1.1.5. A policy for regular and effective communication, between the teaching personnel and the students, is applied [2].

Additional comments: There is no formal policy in place outside of one-to-one interactions by individual initiative by Academic staff and students. (See above as well)

HEI's response: The regular communication between the teaching personnel and the students takes place during office hours set for each course on a weekly basis. The office hours are set at the beginning of the semester for each course and appear on all course syllabuses that the students get during the first lecture. The office hours are also announced in the Department's website. Additional meetings with students outside the announced office hours are regular.

1.1.7.-1.1.9. Statutory mechanisms, for the support of students and the communication with the teaching personnel, are effective [3]. Control mechanisms for student performance are effective [3]. Support mechanisms for students with problematic academic performance are effective [3].

Additional comments: No clear mechanisms were demonstrated to the committee in terms of control, support and effectiveness.

HEI's response: The control over the student's academic progress in all courses already takes place via banner web, where the Academic Advisor can find all information for his/her mentees related to their academic performance and development during their studies. Personal appointments between the academic mentor and the mentee are arranged during the semester (e.g. after the midterm examinations) to discuss on the student's progress. During these meetings, the Academic Advisor provides advice and support to his/her mentee and helps him/her to make corrective actions in cases of poor academic performance. Furthermore, the Department has decided to hold annually a "Mentoring Day" at the beginning of each academic year. This decision will be applied from September 2019 onwards.

In addition, compulsory personal appointments of mentees failing 50% or more of courses per semester with their Academic Advisor take place prior to on-line registration, after the mentees receive a personal e-mail from the Department's Secretariat.

For the 1st year undergraduate students, during the first personal meeting with their Academic Advisors, the latter provide also information on different sources of guidance and student support that are available at the University of Cyprus, including sources of specialist advice and support for students with disabilities, information on library services, information on existing possibilities for Erasmus exchange programs etc.

1.1.10. Academic mentoring processes are transparent and effective for undergraduate and postgraduate programs and are taken into consideration for the calculation of academic work load [2].

Additional Comments: Considering that such processes are not formally in place it is unclear to the committee how transparency can be applied effectively.

HEI's response: Academic mentoring for undergraduate students is not considered in the calculation of the academic load according the University of Cyprus regulations. However, with the Department's initiative, students are equally distributed among all faculty members. The same procedure is used for the number of Diploma Thesis students that each faculty member is supervising.

1.1.11. The program of study applies an effective policy for the prevention and detection of plagiarism [2].

Additional Comments: There is no policy that has been formally implemented based on current University regulations to deal with potentially widespread practices of plagiarisms in coursework and written exams. This can be improved by extended use of antiplagiarism online tools to include a database of coursework submissions over a gradually increasing period of time. Similarly, introduction of standardized calculators uniformly used by everybody could assist with exam plagiarism.

HEI's response: The antiplagiarism online tool *SafeAssign* is available through Blackboard (https://help.blackboard.com/SafeAssign/Instructor/Language_Support), which is accessible to all members of UCY academic staff. Students during exams are only allowed to use “simple” calculators that are not capable of storing information.

1.1.12. The program of study provides satisfactory mechanisms for complaint management and for dispute resolution [2].

Additional comments: Such mechanism is not clear from the provided information and it is important to develop those in view of future proofing the course in case of legal disputes.

HEI's response: Activities of courses are carried out based on University of Cyprus regulations. For example, the students have access to their exams and in case of a dispute the exam is re-evaluated. Also, in case of plagiarism the students are reported to the “Disciplinary Committee for Student Issues” where the case is thoroughly investigated.

1.3 Teaching Personnel

1.3.1., 1.3.2. and 1.3.11. The number of full-time academic personnel, occupied exclusively at the institution, and their fields of expertise, adequately support the program of study [2].

The program's Coordinator has the qualifications and experience to efficiently coordinate the program of study. [3]

Additional comments: All members of Academic staff are experts in their field of research. However, the committee felt that because the fields of expertise of some of the Academics (starting from their undergraduate degrees) are not all core mechanical engineering, the program of study and individual courses have not been structured from the beginning and throughout with traditional core mechanical engineering content. For example, this was particularly evident in the fluid mechanics stream, turbomachinery, traditional power systems (including nuclear) and mechanical design assignments.

HEI's response: It is true that basic training of some faculty members is not in Mechanical Engineering. The Department has decided that future hiring will have a first degree in Mechanical Engineering in order to increase the number of faculty with traditional Mechanical Engineering training. Already, all three new hires in 2019 have a first degree in Mechanical Engineering. The existing faculty with no Mechanical Engineering training are given teaching responsibilities that provide their expertise needed by the undergraduate program. For example, typical 4-year Mechanical Engineering programs have physics courses taught by the Physics Department, however, we have these courses taught by our faculty with Physics background. In addition, our Chemistry for Engineers course is taught by our faculty with Chemistry background and our Materials course is taught by our faculty with Material Science background. This provides better quality to the students since these courses are taught by experts in the courses' areas with direct guidance from the Department.

All courses related to the Fluid Mechanics stream have been significantly revised (actual context and the associated learning objectives). This particularly applies for the courses of thermodynamics (MMK215 & MMK315) and fluid dynamics (MMK215 & MMK315). The adopted improvements in these courses now allow the introduction of classical topics such as turbomachinery and power systems in the classes of “Thermal Engines” (MMK318) and “Energy Systems” (MMK417) accordingly. A section has been added in the latter where areas of nuclear energy related to Mechanical Engineers is discussed. These changes will be applied by the next academic semester after their approval by the Undergraduate Studies Committee of the University of Cyprus. Out of the 60 new laboratory exercises, 15 will be also applied next semester. The rest of the laboratory exercises will be introduced when the related equipment will be obtained by the Department in 2020-2021. Moreover, the Fluid Mechanics stream will be also strengthened by hiring an extra faculty member who is expected to start by the beginning of 2020.

There are three courses involving design: Machine Elements MME 345, Machine Design 346 and Design and Manufacturing 347. As part of evaluation for all three courses assignments in topics ranging from technical and industrial design to design conforming to current manufacturing capabilities are given.

1.3.3. The specializations of Visiting Professors adequately support the program of study [1].

Additional comments: We were not informed of any formal appointments of Visiting Professors to support the program of study.

HEI's response: Visiting Professors have been appointed in the MME Department in the past for supporting the program of study. Examples include the following:

- Prof. Andreas Polycarpou, Texas A&M University, U.S.A.
- Dr. Alesio Alexiades, University of Birmingham, United Kingdom
- Dr. Apostolos Korlos, University of Thessaly, Greece.
- Dr. Dimosthenis Michalopoulos, University of Patras, Greece.
- Prof. Panos Charalambides, University of Maryland, Baltimore County (UMBC), U.S.A.
- Dr. Damian Rouson, P.E., Sourcery Institute

It is noteworthy to mention at this point that although Visiting Professor positions are often announced in the Department, there are difficulties in attracting candidates from abroad due to language restrictions (official language at the undergraduate level is Greek) as well as different term schedule applied at the University of Cyprus (Fall semester: beginning of September -end of December; Spring Semester: mid-January -end of May) compared to Greek and other European Universities. Based on the above, in the future the Department will be targeting in attracting Visiting Professors for the summer semester.

1.3.10. Future redundancies / retirements, expected recruitment and promotions of academic personnel safeguard the unimpeded implementation of the program of study within a five-year span [3].

Additional comments: Considering the unfortunate event of a member of Academic staff passing away unexpectedly, the Department found itself in a position that safeguarding the program in a particular area was not easy to handle. Although, for planned retirements, redundancies, sabbaticals, etc. there maybe no issue, it seems that there is no contingency plan in place that would assist supervised students by smooth transition to a new status.

HEI's response: There are several courses that can be taught by at least 2 faculty members in the Department and this has been already applied in the past on various occasions (sabbatical and unpaid leaves, election of faculty members in higher administrative bodies, unexpected illness, etc.) More precisely the following courses have been already taught by more than 1 faculty members in the Department: *Materials Science and Engineering I and II:* Ioannis Giapintzakis, Theodora Kyratsi and Theodora Krasia; *Introduction to Electromagnetism:* Ioannis Giapintzakis, Matthew Zervos; *Numerical methods:* Michalis Averkiou, Vasileios Vavourakis, Triantafyllos Stylianopoulos; *Introduction to engineering:* Andreas Kyprianou, Theodora Kyratsi. There are many other courses that could be taught by more than 1 faculty member, however, so far there was no need for that. The recruitment of new faculty members (4 Mechanical Engineers by 2020) will further assist to the realization of course and student re-allocation on occasions as those stated above.

Please circle one of the following for:

EFFECTIVENESS OF TEACHING WORK – AVAILABLE RESOURCES

Non-compliant

Partially compliant

Substantially compliant

Fully compliant

2. PROGRAM OF STUDY AND HIGHER EDUCATION QUALIFICATIONS

2.1 Purpose and Objectives and learning outcomes of the Program of Study

2.1.1., 2.1.2., 2.1.4.-2.1.7. The purpose and objectives of the program of study are formulated in terms of expected learning outcomes and are consistent with the mission and the strategy of the institution [3]. The purpose and objectives of the program and the learning outcomes are utilized as a guide for the design of the program of study [2]. The program's content, the methods of assessment, the teaching materials and the equipment, lead to the achievement of the program's purpose and objectives and ensure the expected learning outcomes [3]. The learning process is properly designed to achieve the expected learning outcomes [2]. The higher education qualification awarded to the students, corresponds to the purpose and objectives and the learning outcomes of the program [3].

Additional Comments: On the basis of the program document and the discussions that followed the committee felt that the way learning objectives and outcomes had been formulated was not consistent across all courses. It was not clear how the learning outcomes were matched against coursework assessment and written examinations. The program document needs to be streamlined and harmonized to illustrate better the coherence of the learning outcomes as a whole. The order of courses MME 155 and MME 255 does not seem right, at least according to how the learning outcomes are listed. Also, a similar problem was identified in the sequence of MME 325 and MME 327.

HEI's response: The Undergraduate Studies Committee handled this issue and the modified syllabus documentation in terms of learning objectives and outcomes reflecting the comments from the Evaluation Committee are provided in **Annex II**. More specifically the content of MME 327 has been enhanced in order to build on the material taught in MME 325. Similarly, the content of MME155 and MME255 has been modified to avoid overlap and guarantee smooth transition between the two courses.

2.2 Structure and Content of the Program of Study

2.2.1 The course curricula clearly define the expected learning outcomes, the content, the teaching and learning approaches and the method of assessing student performance [3]. 2.2.3. The program 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 [2]. 2.2.4. The higher education qualification awarded, the learning outcomes and the content of the program are consistent [4]. 2.2.6. The content of courses and modules, and the corresponding educational activities are suitable for achieving the desired learning outcomes with regards to the knowledge, skills, and abilities which should be acquired by students [3]. 2.2.7. The number and the content of the program's courses are sufficient for the achievement of learning outcomes [3].

Additional comments: There are issues of consistency and coherence in the structure of the program along the lines elaborated in the previous section.

HEI's response: Based on the Committee's remarks concerning the consistency and coherence in the program's structure, the Undergraduate Studies Committee oversaw the modification of courses and the curriculum revised course descriptions are provided in **Annex II**. In general, the content of most courses was modified in order to avoid overlaps between courses, provide continuation among courses and built on material preceding the courses. Also, experimental exercises are added in many courses in order to augment the understanding of the theory. Two more drastic changes were made: Mechatronics II content is modified to include electric machines and their drives; a new course is added in Solid Mechanics (now have Solid Mechanics and Strength of Materials) see revised curriculum in **Annex III** - in order to provide students with more depth in their knowledge of the topics and introduce failure criteria. The addition of this new course results in the reduction of all courses in the 4th semester to 5 ECTS and the appropriate adjustment of their workload.

2.2.2 The European Credit Transfer System (ECTS) is applied and there is true correspondence between credits and workload per course and per semester for the student either he / she studies in a specific program or he/she is registered and studies simultaneously in additional programs of studies according to the European practice in higher education institutions [3].

Additional comments: It was felt both from the program document and discussions with students that there is a mismatch in the allocated 10 ECTS of the final year project and the actual workload experienced in practice by the students. It is suggested that the number of ECTS be increased to at least 15 or perhaps up to 20. The larger figure would apply in case the Department elected to proceed with substantial group projects like Formula Student, Shell 21 Eco marathon, drone competitions, etc. This would need to be balanced by removal of ECTS from elective courses.

HEI's response: Following the Committee's suggestion, the ECTS allocated for the final year project is increased to 15. This increase will be balanced by the decrease of ECTS in 4th year elective courses from 7 ECTS to 6 ECTS. Consequently, the content in 4XX technical elective courses is appropriately adjusted in terms of students' work load. Moreover, the Formula Racing Team University of Cyprus (FRTUCY) has been recently established by the Department, starting officially in September 2019 (<https://ucy.ac.cy/frtucy/>).

2.3 Quality Assurance of the Program of Study

2.3.1.,2.3.3. The arrangements regarding the program's quality assurance define clear competencies and procedures [2]. The guide and / or the regulations for quality assurance, provide detailed information and data for the support and management of the program of study [2].

Additional comments: The committee were not made aware of any clear procedures and detailed information to support quality assurance.

HEI's response: The operation of the Undergraduate Studies Committee is modified by the Department's Council in order to better handle quality assurance. The Undergraduate Studies Committee will be having a meeting with all undergraduate students at the end of the academic year in order to address their concerns related to the courses and studies in general. Based on this meeting corrective measures can be taken. Also, the Undergraduate Studies Committee will have meetings with the Teaching Assistants for identifying possible issues that need to be addressed. In addition, the Department Chair will be now collecting the statistical analysis of all courses and will be using it along the course evaluation provided by the students for possible corrective actions (see also in 2.4.1-2.4.2 for more detail).

2.3.2. Participation in the processes of the system of quality assurance of the program, is ensured for: 2.3.2.2. the members administrative personnel [3] and 2.3.2.3 the students [2].

Additional comments: The committee felt that the members of Academic staff safeguard quality by ad-hoc efforts. Considering the lack of clear formal procedures for quality assurance, it is again unclear how administrative personnel and students participate effectively in such efforts.

HEI's response: There are four elected student representatives with voting rights who attend the Departmental Council which determines the quality assurance processes. In addition, the Undergraduate Studies Committee will meet at least once per year with the undergraduate students from all years and discuss possible issues that need the Department's attention in order to improve the educational process.

The administrative personnel support the day-to-day operation of the program in order to ensure the smooth operation of the non-teaching aspects of the program. There is an annual meeting of the Chair of the Department with the administrative personnel where they discuss in detail the effectiveness of their support, their participation in all activities as well as their assessment. This is part of the evaluation process of the administrative personnel that is carried out annually by the Department. Chair.

2.3.3 The guide and / or the regulations for quality assurance, provide detailed information and data for the support and management of the program of study [2].

HEI's response: The University of Cyprus in promoting recognition of quality and excellence in teaching, has developed a policy for ensuring quality teaching at the Institution. More information can be found in the following link:

https://www.ucy.ac.cy/graduateschool/documents/Phd/ENGLISH_QualityofTeachingPolicyDocument.pdf.

2.4 Management of the Program of Study

2.4.1.-2.4.2. Effective management of the program of study with regard to its design, its approval, its monitoring and its review, is in place [3]. It is ensured that learning outcomes may be achieved within the specified timeframe [3].

Additional comments: Although the program of study is managed by members of Academic staff within the merit of their own individual courses, there is no higher level dedicated committee to oversee the whole program development and running throughout the Academic year. Such a committee would need to report to departmental meetings after having met on a regular 23 basis. It is suggested to form such a "Teaching Committee" that will meet at least twice per semester, preferably at the start and the end of each semester. This could act as a starting point to harmonize the syllabus documentation in terms of learning objectives and outcomes. Then, it could focus on highlighting needs in terms of teaching equipment and planning any new courses.

HEI's response: One of the main duties of the existing Undergraduate Studies Committee is to oversee the whole program development teaching and running throughout the Academic year on a systematic basis. The Undergraduate Studies Committee members have already worked on the harmonization of the course documentation in terms of learning objectives and outcomes as pointed out by the Evaluation Committee. The Undergraduate Studies Committee will continue to work on this in order to further improve the courses' effectiveness and overall undergraduate curriculum quality. In the following Table the existing and new Tasks set for the Undergraduate Studies Committee are summarized:

Table 1: Existing and new tasks set for the Undergraduate Studies Committee

Already existing tasks	New tasks (already approved by the Departmental Council)
Preparation of the course timetable per semester	Meeting (at least once per year) with the undergraduate students from all years and discuss possible issues that need the Department's attention in order to improve the educational process.
Student transfers	Internships with industry
Course ECTS units transfer	Students exchange programs
Coordination of diploma theses	Meetings with the Teaching Assistants (at the beginning of each semester)
Allocation of Teaching Assistants per course	Evaluation of Teaching Assistants

2.4.3.-2.4.8. Additional comments: No major issue was identified but it is suggested to introduce two different sections in the course evaluation forms where the students will grade the course itself and the instructor separately. In the case of practical training, note: Not relevant beyond practical training involved with workshops sessions or final year projects.

- The number of credit units for courses and the number of credits for practical training
- In which semester does practical training takes place?

- Note if practical training is taking place in a country other than the home country of the institution which awards the higher education qualification

HEI's response: The course evaluation forms introduce several sub-sections as follows: (a) Demographics (b) Section A: Course classes (c) Section B: The course overall (d) Section C: The lab/the tutorial/fieldwork (if valid) and (e) comments. The course evaluation form is provided in **Annex IV**.

Students placement will begin on an optional basis and accredited with 10 ECTS units from September 2019 onwards. The placement will be taking place during summer between the 3rd and 4th year of studies. However, the Department already encouraged student placements in Cyprus and abroad in cooperation with the Liaison Office or via personal initiatives of members of the academic personnel. A few examples appear below:

Students placement in Cyprus

- Elysee Irrigation
- Vassiliko Cement Works Public Company Ltd.
- Electricity Authority of Cyprus
- Cyprus Telecommunications Authority
- Hellenic Copper Mines
- PWC
- TELMEN
- Novatex Solutions Ltd.
- Department of Mechanical and Electrical Services

Students placement in Europe and in the U.S.A.

- Germany - Bosch, Airbus
- Netherlands – Medspray
- USA - Simulations Plus, Omeros Corporation

2.5 International Dimension of the Program of Study

2.5.1. The program's collaborations with other institutions are compared positively with corresponding collaborations of other departments / programs of study in Europe and internationally [3].

Additional comments: Although research collaborations may compare positively with other institutions, it is unclear whether any teaching collaborations are being pursued actively to a high level.

HEI's response: The Department has a specific plan to improve its teaching collaborations through targeted actions such as Erasmus+ exchange programs by offering some undergrad courses in English, undergraduate exchange visits (e.g. with Texas A&M), Erasmus+ staff mobility for teaching programs, participation of the Department's academic personnel in short Short-Cycle Training Courses (e.g. Erasmus+ Short-Cycle training course on Thermal Analysis in Material Science/SC-ThAnMA), summer short courses offered by visiting professors etc.

2.5.2. The program attracts Visiting professors of recognized academic Standing [1].

Additional comments: There has not been any formal proof of visiting professors of high international standing being attracted to the program of study.

HEI's response: Response as in 1.3.3.

2.5.4. The academic profile of the program of study is compatible with corresponding programs of study in Cyprus and internationally [3].

Additional comments: The matter has been commented on in previous sections. Also, comment on the degree the program compares positively with corresponding programs operating in Cyprus and abroad in higher education institutions of the same rank.

HEI's response: We believe that we provide great education to our students who are well prepared for either employment and/or graduate studies. Indications of the quality of our program and graduates are of the high employability of our graduates reaching 85%, of which 89% in Mechanical Engineering related jobs. It is noteworthy to mention that our graduates are employed abroad by Bosch, Rolls Royce, General Electric Health Care, UK, etc. Moreover, our graduates with a BSc continued graduate studies at internationally recognized universities like: University of California Berkeley, ETH Zurich, Imperial College, National Technical University of Athens, Delft, UCL, University of Nottingham, EPFL, Kingston, Sheffield, Warwick etc. In terms of admissions, our Department is 4th in the selection of high school students among all public university departments in Cyprus and 1st among engineering departments at University of Cyprus. Finally, the external evaluation of our Department by an international committee in 2011 ranked our Department among the best 25% Mechanical Engineering Department in the USA and UK.

2.6 Connection with the labor market and the society

2.6.1.-2.6.3. The procedures applied, so that the program conforms to the scientific and professional activities of the graduates, are adequate and effective [3].

Additional comments: Although indicators for the employability of graduates appear satisfactory, there is room for improvement in terms of effective support procedures to be applied formally. Similarly, benefits to the society can be strengthened by industrial involvement in terms of advice and feedback.

HEI's response: Starting next year the UCY career office will offer CV writing clinic and interview simulation specifically designed for the needs of our students. The University organizes annually a career fair where local companies are invited and our students have a chance to talk to companies' representatives and identify employment opportunities.

Please circle one of the following for:

PROGRAM OF STUDY AND HIGHER EDUCATION QUALIFICATIONS

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Partially compliant

Substantially compliant

Fully compliant

4. ADMINISTRATION SERVICES, STUDENT WELFARE AND SUPPORT OF TEACHING WORK

4.1 Administrative Mechanisms

4.1.1.-4.1.3. Statutory administrative mechanisms for monitoring and supporting students are sufficient [3]. The efficiency of these mechanisms is assessed on the basis of specific criteria [3].

Additional comments: Although, mechanisms are in place for Academic and personal matters, there is no clear evidence of how these are applied formally and efficiently, neither their associating criteria.

HEI's response: The Department provides all necessary support services to our students through the secretariat of the Department. The efficiency of this support is assessed by the Chair who takes corrective actions to improve these services.

4.2 Infrastructure / Support

4.2.3.,4.2.4. The facilities are adequate in number and size [2]. The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc.) are quantitatively and qualitatively adequate [2].

Additional comments: While the research labs are well equipped, the teaching labs suffer from low level investment in terms of equipment and strategically defined priorities for experiments to support the curriculum.

HEI's response: As above (see 1.1.4)

4.3 Financial Resources

4.3.1. The management and allocation of the financial resources of the program of study, allow for the development of the program and of the academic / teaching personnel [3].

Additional comments: There could have been better allocation of financial resources to develop the program in terms of practical lab exercises in purposely designed teaching labs.

HEI's response: Part of the financial resources provided in the past by the University of Cyprus, have been used in developing the program and the teaching personnel. This was achieved by hiring new personnel and through technical training of technicians and laboratory teaching staff. The financial resources from the University of Cyprus will increase in the next 2 years and a significant part of this money will be allocated for the development of our teaching personnel and laboratories.

Please circle one of the following for:

ADMINISTRATION SERVICES, STUDENT WELFARE AND SUPPORT OF TEACHING WORK

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Substantially compliant

Fully compliant

FINAL REMARKS – SUGGESTIONS

Please note your final remarks and suggestions for the program of study and/or regarding particular aspects of the program.

In addition to suggestions made earlier on this report, the following need to be considered as well:

Personal homepages should be constructed for all faculty.

HEI's response: Following the Committee's comment the personal homepages of all MME faculty members have been constructed with the same template and displaying similar information (<http://www.ucy.ac.cy/mme/en/staff/academic>).

Teaching sharing between departments is encouraged.

HEI's response: Our students take courses from the Department of Mathematics and Statistics and the Language Center during the 1st and 2nd year of their studies as well as free electives. In return, our Department offers one course (MME 145-Computer Aided Drafting) for the students of the Center of Entrepreneurship at the University of Cyprus and another one (MME 156) as a free elective to all University students.

The students felt that their maths courses should be more aligned with engineering mathematics that would be applied to their engineering courses later on, rather than be abstract or purely theoretical.

HEI's response: The students' comments concerning the mathematics courses offered by the Department of Mathematics and Statistics have already been discussed with the students' representatives at the Departmental council and they have been taken into account. More precisely, there are ongoing discussions with faculty members of the Department of Mathematics and Statistics in order to better satisfy this request.

Although the experimental methods and statistical analysis course is commendable, there is a need for technical report writing tutorial/course.

HEI's response: Tutorials on Technical report writing have been included in the course MME 105-Experimental and Statistical Analysis. Moreover, tutorials on Technical Report Writing will be conducted for the Diploma Thesis students.

We encourage course delivery by more than one Academic member of staff.

HEI's response: Delivering courses by more than one Academic member of the staff could be applicable in some cases for example Mechatronics II, Experimental and Statistical analysis and Computer-Aided drafting. In addition, several courses can be taught by different faculty members on a rotation basis (see also response in 1.3.10).

We encourage adding a course, such as a non-examinable course "Horizons in Mechanical Engineering" in the first year, which will consist of popular science presentations given by relevant sectors in order to expose the students to practical aspects of the profession.

HEI's response: A seminar series entitled "*Horizons in Mechanical Engineering*" has been included in the course MME 106-Introduction to Engineering. (5x2 hours in total). This seminar series will include presentations from professional mechanical engineers that work in various sectors of the Cypriot economy. The students have the opportunity to discuss on various issues at the end of each presentation.

Statistical analysis of student grades needs to be strengthened by inclusion of distributions.

HEI's response: Statistical analysis of the students' grades including distributions will be carried out for all courses of the undergraduate curriculum and the outcome will be used by Chair of the MME Department as additional information to the course evaluations provided by the students. These two pieces of information are complementary and will provide direction to the instructor for improving the course.

C. Conclusions and final remarks

The EEC must provide constructive conclusions and final remarks.

Summary of compliance ratings:

1. Substantially compliant
2. Substantially compliant
4. Substantially compliant

The evaluation committee would like to thank the Department for their efforts in responding extensively to all points raised by the report and their sincere willingness to improve their procedures. It was also good to see that the University has planned to release financial resources and invest into new facilities, better teaching labs and the recruitment of new members of Academic staff to cover core Mechanical Engineering subjects.

The main reasoning behind “Substantially compliant” ratings instead of “Fully compliant” is that although the Department have suggested certain ways to address most of our points, they are yet to fully implement and test these, as well as provide clear procedures on how to safeguard these efficiently in the short and long term. Therefore, they cannot be rated as “Fully compliant” when not knowing at this stage the exact implementation and, more importantly, the outcome and any further needs for optimization as part of a continuous quality assurance effort. In essence, any certification and accreditation at this stage should come with some type of disclaimer remark for direct compliance, *i.e.* it should be subject to successful implementation of the proposed solutions. The evaluation committee are not sure of the exact conditions that need to be included to make sure that the Department actually implement what they commit to do but we want to believe that the Agency will have some procedures in place to safeguard this change.

As examples of individual points, *i.e.* not reiterating exhaustively all points of the original report and response document for the sake of brevity here at this stage, the committee would also like to highlight the following key topics:

Concerns that still remain are about the moderation of exam papers in terms of preparation and marking, the frequent and methodical involvement of students in the processes of the Department (studies committee meeting with students “at least once per year” may not be good enough), the issue of constantly and efficiently safeguarding against plagiarism in written work and exams, the Department’s not understanding entirely the comment to increase the number of Academics involved in the supervision of PhD students by also extending the range of thematic areas of research, the Department’s not understanding correctly the purpose of a teaching committee, *etc.* To clarify, a teaching committee should not be dealing with just analysing grades or looking into admin matters and practicalities of courses. A teaching committee should meet up to discuss mostly strategic teaching and learning matters across thematic areas, develop ideas for new courses to be introduced and others to be replaced, ideas for new learning methods, ideas for more inclusive learning, new methods of assessing learning outcomes, *etc.*, *i.e.* operating as part of an active and continuous process for optimisation of the whole syllabus from Bachelor’s to Master’s through to PhD, for quality assurance of learning, for modernisation of topics to follow the needs of the industry and society in Cyprus and worldwide, *etc.* Ideally the teaching committee should be focused on themes (thermofluids, dynamics, solid mechanics) and be reporting to the studies committee.

D. Signatures of the EEC

<i>Name</i>	<i>Signature</i>
Prof. Pavlos Aleiferis	
Prof. Atanas Popov	
Prof. Noam Eliaz	
Mr. Polycarpos Nicolaou	
Ms. Christiana Kaminaridou	

Date: July 13, 2019