

Response to External Evaluation Report

(Programmatic within the framework of
Departmental Evaluation)

- **Higher Education Institution:**
Cyprus University of Technology
- **Town:** Limassol
- **School/Faculty:** Engineering and Technology
 - **Department:** Mechanical Engineering and
Materials Science and Engineering

Programme

In Greek:

Διδακτορικό Μηχανολογία (3 έτη, 240 ECTS)

In English:

PhD in Mechanical Engineering (3 years, 240 ECTS)

Language of Instruction: Greek

1. Study programme and study programme's design and development

1.1. Policy for quality assurance

1.2. Design, approval, on-going monitoring and review

1.3. Public information

1.4. Information management

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>		
		BEng Mechanical Engineering	MSc Energy Systems	PhD Mechanical Engineering
1.1	Policy for quality assurance	Compliant	Compliant	Compliant
1.2	Design, approval, on-going monitoring and review	Compliant	Compliant	Compliant
1.3	Public information	Compliant	Compliant	Non-compliant
1.4	Information management	Partially compliant	Partially compliant	Partially compliant

Findings

Quality Assurance (1.1.):

There is a clear quality assurance procedure and also a process for the introduction and approval of changes in the programmes at a departmental level. These processes are less clearly structured at the program level. There is input from students, which is mostly related to problems in specific courses. There is no systematic program-level input from external stakeholders such as industry or the ETEK. General university practices apply with respect to measures on intolerance, integrity, fraud, etc.

Our reply: There is a Departmental decision (90th Dept. Assembly, 9th April 2019) regarding the issue of connecting with the external stakeholders, stated in the Departmental Strategic Plan 2018 (APPENDIX II). The issue is forwarded to the Industrial Liaison Committee for further Actions.

Design, approval, on-going monitoring and review (1.2.):

No comments made on this section but in the corresponding cell of the table below, we're found Compliant

Public information (1.3.):

No information is provided on the PhD programme as such, except for the specific on-going PhDs.

Our reply: A presentation file will be uploaded in the PhD section of the Departmental webpage in order to provide all information necessary about initiating, undertaking and completing a PhD.

Information management (1.4.):

There is a good flow of information for all three courses, considering the profile of the student population, their progress, success and drop-out rates, which is also enabled by the comparatively small number of students. What needs to be enhanced is the feedback processing of students' satisfaction with their programmes. Also, a more structured information on career paths of graduates (for example career days once a year) would be helpful.

Our reply: The feedback of students concerning their satisfaction with their PhD programmes is considered on a daily basis through the interaction of the PhD candidates with their supervisors. Similarly, all PhD supervisors are mentoring their PhD students in terms of career paths and placement opportunities that emerge after the completion of their PhD. Additional information channels about career development opportunities arise from the broad international network of the PhD supervisors in which the PhD students are exposed via their active participation in international dissemination events. Any other attempt to establish internally a robust platform of Career Days activity would require a centralized management from the University.

Strengths:

The PhD programme utilizes good laboratory infrastructure and well esteemed supervisors

Areas of improvement and recommendations:

There should be provided information on the PhD programme (Objectives, rules, duration, courses to be taken etc.) on the Department's site. Since the University has a detailed guide for PhD students, it would be useful to provide a link both to this and to the PhD regulation document. There is no established communication structure between PhD students, neither formal nor informal. Introducing a PhD student's day, where each one will present its work to the others, or a Department's evening, where PhD students and staff will get to know each other are possible ways to address this. The former is also mentioned in the University's guide for PhD students. There appears to be a lack of information on contractual obligations, and on changes that occur and are affecting retrospectively students already enrolled, from the University's administration. This should be addressed on a University's and/or Departmental level.

Our reply: The Departmental PhD guide will be uploaded in the PhD section of the Departmental webpage in order to provide all information necessary about initiating, undertaking and completing a PhD. The same file will include information on Objectives, rules, duration, courses to be taken etc. We have identified in the guide for PhD students currently provided by the University, several points that need to

be revised to better reflect the current procedures (for both Greek and English versions). These points are being communicated to the University and the revised guide will be linked to the Departmental PhD guide. Regarding the lack of communication between the PhD students, this is a normal evolution that emerges from the lack of communication between their PhD supervisors. Not much can be done before a centralized decision from the University manages to identify clusters of activity and to coordinate the grouping of the many different laboratories that are scattered within the University by establishing key directions and thematics. Hitherto the MEMSE Department is organizing regular Seminars that give the opportunity to all PhD students, PhD supervisors, academic members and external speakers to communicate their work. The negative impact of retrospective application of new PhD rules to the previously enrolled PhD students is mitigated partially on the Departmental level; that is the Department has expressed its support to the students and helped a few negatively affected students. However, the final decision for retrospective application of new PhD rules is taken at the higher levels of the University, and it primarily originates from the Academic Affairs and Student Welfare Service Office of the University. In terms of societal gathering activities, several meetings are organized every year within the Department wherein staff members are research students meet.

2. Student – centred learning, teaching and assessment

2.1 Process of teaching and learning and student-centred teaching methodology

2.2 Practical training

2.3 Student assessment

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>		
		BEng	MSc Energy Systems	PhD Mechanical Engineering
2.1	Process of teaching and learning and student-centred teaching methodology	Compliant	Compliant	Compliant
2.2	Practical training	Compliant	Partially compliant	Compliant
2.3	Student assessment	Partially compliant	Compliant	Compliant

Findings:

For taught courses, similar to the comments on the MSc Energy: The Department offers a three academic semester MSc course in Energy Systems in a thesis-based or course-based option. The structure of the course is clearly laid out in detail and includes an option to take course from another CUT department or another University on approval from the Studies Committee. A detailed description is available for each course with clear aims and learning outcomes as well as the formal assessment. An internal review found the MSc programme to be comparable to other Cypriot and European Institutions. Admission relies on candidates having achieved a score of 6.5 in a relevant undergraduate degree. Although the normal duration is 13 months in a full-time study basis, on average students take 3-4 years to graduate as several are also in full-time employment in industry whilst studying. The difficulty of combining study and professional employment duties leads to the drop-out rate of approximately 20%. An industrial training programme is again mentioned as for the BEng above; here the application lists organizing year round meetings with potential employers to explore research collaboration, vacancies. Similar financial aid/hardship funds support as for BEng above. There was no information during the online meetings nor in the application related to course feedback, criteria for marking or formal examining procedures.

See section 6

Our reply: see our reply in the corresponding section of the MSc Energy programme, and in Section 6 of the PhD programme.

Strengths:

For taught courses, similar to the comments on the MSc Energy: A wide range of interesting course options are offered taught by experts at the top of their respective fields. Formalised procedures for curriculum changes and regular updates for refreshing the courses. Links with society and industry. Good e-learning support. Can offer research theses on a wide range of topics though it was mentioned that not many students take the thesis-based option.

For thesis see section 6.

Our reply: For Thesis, see our reply in Section 6 of the PhD programme.

Areas of improvement and recommendations:

For taught courses, similar to the comments on the MSc Energy:

1. In an effort to decrease drop-out rate and length of study needed for graduating from the MSc course, the Department could consider building a stronger link with the employers of the MSc students if these lie in the Engineering sector. They could offer running 'for free' MSc research projects in the interest of the employing industry, in lieu of more time given to the student to dedicate to their MSc studies.
2. Build a cohort culture amongst students by organizing social departmental events amongst staff and students. To this same effect, the Department can organise common soft skills courses for the postgraduate students such as leadership training, communication skills, teamwork, problem solving etc.
3. Some students commented that the advanced courses were not challenging enough for those that graduated at CUT – they were unsure whether this was because they know 'how things work/what the professors they know already expect' or the courses were not challenging enough.
4. The Department is already considering offering courses in English that could increase the student numbers – this could also help with hiring more female staff and in general the Department's diversity if the newly hired academic does not need to be fluent in the Greek language.

During the PhD student interviews, it was apparent that PhD students feel isolated and distant from academic staff. They noted that the only Departmental activity that brought them together as a group was a seminar presentation event. So measures for building the cohort culture could be taken as in the MSc students above. Several were also highly critical of the recent and retrospective changes of the regulations of their study from the University, and especially those related to the compulsory teaching element which has to now be conducted without remuneration. Changes in regulations should not have been effected retrospectively for older students who had already started under different rules. The Department has expressed its support to the students and helped

a few negatively affected students; perhaps the Department could communicate to the University the problems that this change has caused in the crucial staff-student relationships.

For thesis see section 6.

Our reply: For taught courses see our reply in the corresponding section of the MSc Energy programme.

The development of a cohort culture between the PhD students is unlikely so long there is no cohort culture developed between the PhD supervisors. Each research group at the MEMSE department cultivates a team-spirit mindset in its PhD students by organizing regular group meetings and mission events to external collaborators and conferences. However, the bottom-up propagation of this mindset at the departmental level is hindered by the difficulty to establish cross linking research for establishing cross-linking research activities between the research groups of the department due to various reasons, including excessive workload of the group leaders and the small number of faculty members. This is expected to improve in the next couple of years with the 4 new faculty hires.

The negative impact of retrospective application of new PhD rules to the previously enrolled PhD students is mitigated partially on the Departmental level. However, the final decision for retrospective application of new PhD rules is taken at the higher levels of the University, and it primarily originates from the Academic Affairs and Student Welfare Service Office of the University.

For Thesis, see our reply in Section 6 of the PhD programme.

3. Teaching staff

3.1. Teaching staff recruitment and development

3.2. Teaching staff number and status

3.3. Synergies of teaching and research

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>		
		BEng Mechanical Engineering	MSc Energy Systems	PhD Mechanical Engineering
3.1	Teaching staff recruitment and development	Partially compliant	Partially compliant	Partially compliant
3.2	Teaching staff number and status	Compliant	Compliant	Compliant
3.3	Synergies of teaching and research	Compliant	Compliant	Compliant

Findings:

The academic staff has competent supervisors who are active in research and in pursuing external funding. The programme delivers highly skilled scientists to the world with great training and awareness and participation in state-of-the-art research. online meetings nor in the application related to course feedback, criteria for marking or formal examining procedures.

Strengths:

The academic staff is very well connected with the PhD candidates. The PhD candidates gave credit to the academic staff for their availability, frequent communication, and constructive approach to coordination meetings. The academic staff has strong ties with international committees and European research consortia, and they are able to bring the gained experience and knowledge into the programme.

Areas of improvement and recommendations:

It is apparent that the academic staff has a strong focus on research. However, there is no established programme for the development of their supervision and leadership skills. It is suggested to establish a semiannual meeting of the PhD supervisors for the exchange of experiences, best practices and advice between the more experienced advisors and newly recruited staff. Since all PhD advisors are also employed in the BSc and MSc programmes they will benefit from the previously suggested pedagogical course. Additional leadership courses from external stakeholders such as industrial partners or development consultants could be beneficial to sharpen the leadership and advisory skills of the PhD advisors.

Our reply: The University has recently established the Learning Development Network (<https://ldn.cut.ac.cy/>). The main objective of the Network is to enhance the educational experience of the students of the Cyprus University of Technology and to promote innovation in teaching and learning. The Network aims at: the design and implementation of seminars and workshops based on innovative teaching practices, the promotion of exchange of good teaching practices, the contribution to the design of a long-term educational policy of the University, the continuous support of academic practise, as well as the coordination and operation of new, creative learning spaces at the University. The Network is composed of three Support Groups: the Academic Group, is the Student Learning Support Group and the Educational Technology Group.

The University and the Department promotes the participation of its faculty to this network in order to develop their supervision and leadership skills. The involvement of industrial partners and development consultants as invited entities to disseminate their know-how and to educate our research staff is indeed appealing and it is currently being pursued by the Department, e.g. by involving industrial partners in its seminar series, but also through close interaction of PhD supervisors with the local industry.

4. Student admission, progression, recognition and certification

4.1. Student admission, processes and criteria

4.2. Student progression

4.3. Student recognition

4.4. Student certification

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>		
		BEng Mechanical Engineering	MSc Energy Systems	PhD Mechanical Engineering
4.1	Student admission, processes and criteria	Compliant	Compliant	Compliant
4.2	Student progression	Compliant	Compliant	Partially compliant
4.3	Student recognition	Compliant	Compliant	Compliant
4.4	Student certification	Compliant	Compliant	Compliant

Findings:

PhD Candidates are satisfied with the level of research and communication with their advisors. There are clear procedures for the candidates' admission, progression and finalization of their thesis.

Strengths:

The PhD candidates are satisfied with the study conditions and the workload balance of teaching assistance and research. They are particularly satisfied with the existing laboratories and the connection with the PhD advisors.

Areas of improvement and recommendations:

The introduction of more diverse courses in the PhD curriculum is recommended. Courses such as Introduction to Academic and Scientific Ethics, Presentation skills, Communication skill, Management of Research projects, Introduction of Research Methodologies, Writing and publishing of academic articles can be a great addition to the rather basic existing list of PhD courses.

There is no framework for a highly recommended external stay of the PhD candidate to an academic or research institution abroad. Such external stay of minimum 3 months is essential for the proper development of the PhD candidate to a competent researcher.

One option to finance such stays would be to utilize respective Marie Curie programmes.

Our reply: Currently PhD students can request permission from the Departmental Graduate Studies Committee to select courses outside of the list of courses currently offered by the Department's MSc programmes. We expect to be able to increase our offerings as more faculty is expected to join the Department in the next couple of years and new MSc programs are being considered to be offered by the Department (e.g. a new joint MSc programme on Robotics is being considered with the Department of Electrical Engineering). A number of soft-skills seminars is being regularly offered by the University's Learning Development Network (<https://ldn.cut.ac.cy/>).

The concept of PhD student visits as visiting graduate students has been used in the past by faculty members of the Department in an ad-hoc fashion, utilizing the connections of the PhD supervisor with institutions abroad. This is being encouraged by the Department but depends primarily on the PhD supervisor and less on the PhD student. The recent development of the EUt+ offers a natural framework (and funding) for extended stays of our PhD students to member Universities and will be promoted and utilized by the Department.

5. Learning resources and student support

5.1. Teaching and Learning resources

5.2. Physical resources

5.3. Human support resources

5.4. Student support

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

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>		
		BEng	MSc, MEng	PhD
		Mechanical Engineering	Systems Engineering	Mechanical Engineering
5.1	Teaching and Learning resources	Compliant	Compliant	Compliant
5.2	Physical resources	Compliant	Compliant	Compliant
5.3	Human support resources	Compliant	Compliant	Compliant
5.4	Student support	Partially compliant	Partially compliant	Partially compliant

Findings:

Same as for BEng: The Department runs a well-organised BEng course with the use of an e-learning platform (Moodle) to support student learning. The Department is relatively newly built and the teaching rooms are all modern and well equipped. There is a range of Laboratories to support practical skills (Metallurgy workshop, Physics Laboratories and Engineering measurements). There are very good library services and staff are dedicated, working long shifts to help students. The two libraries provide study spaces though there is always demand for more working spaces by students who prefer to work there rather than municipal libraries. Electronic library services are also provided to support student and staff needs. There are several computer rooms for teaching and computer rooms for students' use at the two Libraries. There is ICT support for managing all systems running in the University and an Estate Management Services team. All resources are fit for purpose. Though there are tutors/mentors assigned to students formally, it is not clear whether the students actually benefit from this system in terms of getting access to pastoral support and building mentoring relationships with the academic staff. There is a single, very committed, administrator in the whole Department. There are support structures available for students with special needs and learning difficulties.

see also section 6

Our reply: For comments similar to BEng see our reply in the corresponding section of the for BEng programme. See also our reply in Section 6 of the PhD programme.

Strengths:

Same as for BEng: The Department's staff work hard to reach their ambitious goals of providing a good learning environment for their students. The university is relatively young and benefits from modern infrastructure; it is situated in a coastal town of a high standard of living. There are support structures in place mostly at University level. Tutoring hours are included in the course outlines and also posted on Moodle. Students make good use of these and tutors are willing to arrange extra meetings outside the original timetable. Students can use the Learning Centre by the Student Development Centre.

see also section 6

Our reply: For comments similar to BEng see our reply in the corresponding section of the for BEng programme. See also our reply in Section 6 of the PhD programme.

Areas of improvement and recommendations:

Same as for BEng: Though pastoral support structures are in place at university level, it was not clear that the students knew about these and how to access them. Perhaps the Department could think of ways to strengthen communication about these services as well as consider whether such support can be complemented at the Departmental level to further strengthen the relationship between students and staff. In addition, the Department can form a working group with an aim to assess and evaluate how well their students are currently accessing the support they need (e.g. through devising an anonymous questionnaire for students to fill in).

Our reply: For comments similar to BEng see our reply in the corresponding section of the for BEng programme.

6. Additional for doctoral programmes

6.1. Selection criteria and requirements

6.2. Proposal and dissertation

6.3. Supervision and committees

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

Sub-areas		<i>Non-compliant/ Partially Compliant/Compliant</i>
6.1	Selection criteria and requirements	Compliant
6.2	Proposal and dissertation	Compliant
6.3	Supervision and committees	Compliant

Findings:

Overall the PhD Program in Mechanical Engineering is well organized with well-established procedures for selection, admission and evaluation of candidates.

There is a University regulation on PhD studies, that foresees (a) minimum and maximum duration (6 to 16 plus possibly another 2 semesters), (b) the members and the role of the advisory and the examining committee, (c) monitoring and reporting, (d) procedures for the format of the examinations, (e) issues of plagiarism and misconduct, etc.

It is important that the PhD thesis can also be written in English (or as a matter of fact in any other international language), which in theory enables also non-Greek speaking students to enrol.

The students appear to be very well supported by the members of Academic staff and work in modern research labs. The number of students allows for personal advisory and constructive teaching and communication primarily on a one-to-one basis. Nevertheless, the Department would benefit from more formalized procedures and processes during the supervision of doctoral students. It was felt from discussions, that a more structured and formal communication form between the University and/or the Department and the PhD students considering the operational procedures and the rules of involvement in research and teaching activities would be helpful.

The members of academic staff are very enthusiastic and have put in a great amount of work into research supervision and the design, implementation and delivery of the teaching courses. Also, the students are given the opportunity to develop themselves apart from their research work, by getting involved in teaching activities, like tutoring and marking coursework assignments.

It was felt from discussions that some thematic areas are favorably represented, whilst others are very little represented if at all. This is apparently also reflected in the involvement of some academic staff members.

Our reply: The Departmental PhD guide will be uploaded in the PhD section of the Departmental webpage in order to provide all information necessary about initiating, undertaking and completing a PhD. The same file will include information on Objectives, rules, duration, courses to be taken etc. We have identified in the guide for PhD students currently provided by the University, several points that need to be revised to better reflect the current procedures (for both Greek and English versions). These points are being communicated to the University and the revised guide will be linked to the Departmental PhD guide. The negative impact of retrospective application of new PhD rules to the previously enrolled PhD students is mitigated partially on the Departmental level; that is the Department has expressed its support to the students and helped a few negatively affected students. However, the final decision for retrospective application of new PhD rules is taken at the higher levels of the University, and it primarily originates from the Academic Affairs and Student Welfare Service Office of the University. Each one of the academic staff members is expected to participate actively in the attractions of external research funding and in the dissemination of their research findings in peer-reviewed academic journals. All thematic areas available at the department are proportionally represented in respect to the successful participation of the academic staff members in these activities.

Strengths:

Well organized course, with clear and concise rules of admission, supervision and assessment of PhDs.
Enthusiastic staff, committed to their work, senior scientists that are well esteemed in the international community and participate in interesting research projects, mainly applied research ones.
Good laboratory infrastructure, good links to the international research community.

Areas of improvement and recommendations:

There is a need for more structured and formalized information and communication activities and procedures.

Our reply: The Departmental PhD guide will be uploaded in the PhD section of the Departmental webpage in order to provide all information necessary about initiating, undertaking and completing a PhD. The same file will include information on Objectives, rules, duration, courses to be taken etc. We have identified in the guide for PhD students currently provided by the University, several points that need to be revised to better reflect the current procedures (for both Greek and English versions). These points are being communicated to the University and the revised guide will be linked to the Departmental PhD guide.

Conclusions and final remarks

Overall, the Bachelor, Masters of Science and PhD programmes offered by the Department are well structured, achieve their educational goals and deliver valuable input to society.

The academic and teaching staff is of high quality and is highly motivated; the infrastructure is at a very good level and adequate for the educational and research activities.

As mentioned in detail in the report, some procedures can be run in a more formal and structured way. This applies in particular for the communication between the University and/or the Department and the PhD students. In addition to suggestions made earlier on this report, the following can be considered as well:

- The perspective of establishing the European University of Technology is very important as it will enable a true internationalisation of the courses and the attraction of more, non-Greek speaking students and staff.
- The syllabus of the MSc programme could be more streamlined.
- We encourage course delivery by more than one Academic member of staff.
- Analysis of students' assessment can be utilized in a more effective way, to improve both the syllabi and the perception of the courses by the students.
- To the benefit of students from diverse backgrounds, it is suggested to include some introductory courses in fundamentals, especially mathematics.
- Similarly, some courses (which can also be short courses) on soft skills can be included.

Our reply:

Thank you for your recommendations. The Department has taken note, and has already - or is in the process of - addressing each and every one of the identified issues as discussed in the corresponding Programme response file.