



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Α Δ Ι Π
ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ
ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC
HQA
HELLENIC QUALITY ASSURANCE
AND ACCREDITATION AGENCY

**Accreditation Report
for the Undergraduate Study Programme
(Integrated Master) of:
Environmental Engineering
Institution: Democritus University of Thrace
Date: 30/11/2019**

ΑΡΙΣΤΕΙΔΟΥ 1 & ΕΥΡΩΠΕΙΔΟΥ, 105 59 ΑΘΗΝΑ
Τηλ.: +30 210 9220944, FAX: +30 210 9220143
Ηλ. Ταχ.: adipsecretariat@hqa.gr Ιστότοπος: <http://www.hqa.gr>

1, ARISTIDOU ST., 105 59 ATHENS, GREECE
Tel.: +30 210 9220944, Fax: +30 210 9220143
Email: adipsecretariat@hqa.gr Website: www.hqa.gr



Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο

**Επιχειρησιακό Πρόγραμμα
Ανάπτυξη Ανθρώπινου Δυναμικού,
Εκπαίδευση και Διά Βίου Μάθηση**
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης



EUROPEAN ASSOCIATION
FOR QUALITY ASSURANCE
IN HIGHER EDUCATION

Report of the Panel appointed by the HQA to undertake the review of the Undergraduate Study Programme (Integrated Master) of **Environmental Engineering** of the **Democritus University of Thrace** for the purposes of granting accreditation

TABLE OF CONTENTS

Part A: Background and Context of the Review	4
I. The Accreditation Panel	4
II. Review Procedure and Documentation.....	5
III. Study Programme Profile.....	7
Part B: Compliance with the Principles	9
Principle 1: Academic Unit Policy for Quality Assurance	9
Principle 2: Design and Approval of Programmes.....	11
Principle 3: Student- centred Learning, Teaching and Assessment.....	14
Principle 4: Student Admission, Progression, Recognition and Certification.....	17
Principle 5: Teaching Staff.....	19
Principle 6: Learning Resources and Student Support.....	22
Principle 7: Information Management	25
Principle 8: Public Information.....	27
Principle 9: On-going Monitoring and Periodic Internal Review of Programmes.....	29
Principle 9: On-going Monitoring and Periodic Internal Review of Programmes.....	30
Principle 10: Regular External Evaluation of Undergraduate Programmes.....	31
Principle 10: Regular External Evaluation of Undergraduate Programmes.....	32
Part C: Conclusions	33
I. Features of Good Practice	33
II. Areas of Weakness.....	33
III. Recommendations and follow-up actions.....	33
IV. Summary & Overall Assessment.....	35

PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I. The Accreditation Panel

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme (Integrated Master) of **Environmental Engineering** of the **Democritus University of Thrace** comprised the following four (4) members, drawn from the HQA Register, in accordance with the Law 4009/2011:

1. **Prof. Constantin Vamvakas** (Chair)
Ghent University, Ghent Belgium

2. **Dr Nicolas-George Eliades**
Frederick University, Nicosia, Cyprus

3. **Prof. Nikolaos Katopodes**
University of Michigan, Ann Arbor, USA

4. **Mrs Katerina Vini**
Technical Chamber of Greece, Greece

II. Review Procedure and Documentation

The Accreditation Panel (AP) convened on Monday, 25th November 2019, at the HQA premises. The AP was briefed by the President, the Vice President and the General Director of HQA on the Quality Assurance (QA) standards for Quality Accreditation of Undergraduate Programmes (Integrated Master) and Accreditation Guidelines. During the briefing, the panel received the final timetable for the site visit at the Department of Environmental Engineering (EnvEng) of Democritus University of Thrace (DUTH). At an earlier stage, the AP received the DUTH Proposal for Accreditation by the Internal Quality Assurance System and other relevant materials, and the External Evaluation Report (2008). Additional supporting documentation was provided by EnvEng staff during the on-site visit and presentations. Subsequently, the AP met and discussed the strategy and issues to be considered during the site visit. In the afternoon of the same day, the AP travelled to Xanthi.

On Tuesday, 26th November 2019, the AP met initially with the University Vice Rector of Academic Affairs and Student Welfare and President of MODIP, Professor Zoe Gavriilidou and the Head of the Department Associate Professor Paraschos Melidis. The AP was briefed on the history and academic profile of DUTH and EnvEng. Subsequently, the Internal Evaluation Group (OMEA) together with representatives of the MODIP joined the meeting, and a Member of the OMEA presented the current state of the Department, its strengths, and areas for improvement. The AP had an extensive meeting with MODIP and OMEA, and discussed the compliance of the Environmental Engineering undergraduate/integrated MSc programme to the “Standards for Quality Accreditation for Undergraduate Programmes” set by HQA. Subsequently, the AP met teaching staff members to discuss the undergraduate study programme, professional development opportunities, mobility, faculty workload, and the teaching staff evaluation by students. Furthermore the AP held meetings with undergraduate and graduate students, alumni, and external stakeholders from the private and semi-public sectors, including participation through videoconference. Finally, the AP had a short internal debriefing meeting to reflect on the impressions of the first day and prepare for the second day of the visit.

On Wednesday morning, 27th November 2019, the AP visited the EnvEng premises and facilities. The AP toured some teaching and research laboratories (Laboratory of Atmospheric Pollution, Laboratory for Solid and Hazardous Waste Management, Laboratory of Ecological Engineering & Technology, Laboratory of Wastewater Management and Treatment Technologies, Laboratory of Energy Production Technology from Non-Conventional Sources, Laboratory of Environmental Chemistry). The EnvEng faculty members also presented a classroom and the central library of the Faculty of Engineering. Afterwards, the AP had an unplanned meeting with students of the 3rd semester without the presence of the instructor. This helped establish a broader understanding of the undergraduate programme and student life. In the following, the AP had a short debriefing meeting with the Vice Rector and MODIP and OMEA members, in order to discuss the site visit outcomes. The AP acknowledges the professional courtesy extended to the AP by the EnvEng staff during the entire visit. During the evening, the AP

travelled back to Athens. From Thursday 28th to Saturday 30th November 2019, the AP worked on the Accreditation Report.

III. Study Programme Profile

The Department of Environmental Engineering (EnvEng) was established in 1993 (P.D. 365/1993¹). First students were matriculated in the academic year 1995-1996. Since then, the Department of EnvEng grew in teaching staff and expanded in subjects, covering basic and applied research. Since 2003, EnvEng has become a self-governed Department. During the last four years, a new 5-year (10 semesters) curriculum was adopted designed to educate engineers in modern environmental engineering developments, based on the recommendations of the 2008 evaluation by the HQA. This curriculum (undergraduate programme) leads to an integrated MSc degree. Following completion of the 3rd year of studies the students elect one of the two divisions of the programme, i.e. Atmosphere, Energy and Climate Change and Water and Soil Protection Technologies – Sustainable Urban Environment. Additionally, the Department offers three specialised postgraduate degrees (MSc) and has an active doctorate program (Doctor of Environmental Engineering).

Today, the Department is comprised of twenty two (22) academics, four (4) laboratory instructional staff members, three (3) special technical laboratory staff members and three (3) administrative staff members.

During the 24 years of its existence, the Department has awarded 750 Diplomas in Environmental Engineering, 305 Master degrees (M.Sc.) and 44 Doctoral degrees (Ph.D.).

The EnvEng includes the following officially established eight (8) labs:

1. Laboratory for Solid and Hazardous Waste Management
2. Laboratory of Atmospheric Pollution
3. Laboratory of Environmental Chemistry
4. Laboratory of Business and Environmental Technology Economics
5. Laboratory of Ecological Engineering & Technology
6. Laboratory of Environmental and Energy Design of Buildings and Settlements
7. Laboratory of Energy Production Technology from Non-Conventional Sources
8. Laboratory of Wastewater Management and Treatment Technologies

The number of incoming students per year is determined by the Ministry of Education and Religious Affairs. The total number of incoming students for the current academic year was 120. The total number of undergraduate students today is 752 and the average graduation time is approximately 6 years with an average GPA 7.4.

A total of 300 ECTS are needed to conclude studies. Each student must succeed in 56 courses (36 core courses, 18 division required courses and 2 foreign language courses). In the division of Atmosphere, Energy and Climate Change, 9 out of the 18 courses are elective. In the division of

¹ P.D.: Proedriko Diatagma

Water and Soil Protection Technologies – Sustainable Urban Environment, 6 out of the 18 courses are elective. A mandatory thesis (30 ECTS) is required by both divisions.

The diploma conferred by the Department Environmental Engineering of DUTH awards professional qualification in Environmental Engineering according to Government Decision (ΦΕΚ 187Α-05/11/2018).

PART B: COMPLIANCE WITH THE PRINCIPLES

Principle 1: Academic Unit Policy for Quality Assurance

INSTITUTIONS SHOULD APPLY A QUALITY ASSURANCE POLICY AS PART OF THEIR STRATEGIC MANAGEMENT. THIS POLICY SHOULD EXPAND AND BE AIMED (WITH THE COLLABORATION OF EXTERNAL STAKEHOLDERS) AT ALL INSTITUTION'S AREAS OF ACTIVITY, AND PARTICULARLY AT THE FULFILMENT OF QUALITY REQUIREMENTS OF UNDERGRADUATE PROGRAMMES. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.

The quality assurance policy of the academic unit is in line with the Institutional policy on quality, and is included in a published statement that is implemented by all stakeholders. It focuses on the achievement of special objectives related to the quality assurance of study programmes offered by the academic unit.

The quality policy statement of the academic unit includes its commitment to implement a quality policy that will promote the academic profile and orientation of the programme, its purpose and field of study; it will realise the programme's strategic goals and it will determine the means and ways for attaining them; it will implement the appropriate quality procedures, aiming at the programme's continuous improvement.

In particular, in order to carry out this policy, the academic unit commits itself to put into practice quality procedures that will demonstrate:

- a) the suitability of the structure and organization of the curriculum;*
- b) the pursuit of learning outcomes and qualifications in accordance with the European and the National Qualifications Framework for Higher Education;*
- c) the promotion of the quality and effectiveness of teaching;*
- d) the appropriateness of the qualifications of the teaching staff;*
- e) the enhancement of the quality and quantity of the research output among faculty members of the academic unit;*
- f) ways for linking teaching and research;*
- g) the level of demand for qualifications acquired by graduates, in the labour market;*
- h) the quality of support services such as the administrative services, the Library, and the student welfare office;*
- i) the conduct of an annual review and an internal audit of the quality assurance system of the undergraduate programme(s) offered, as well as the collaboration of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU);*

Study Programme compliance

The DUTH has established an appropriate Quality Assurance Unit (MODIP) that has clearly defined the review processes, the programme's continuous improvement, and Key Performance Indicators. The MODIP effectively and continuously monitors and enforces the Quality Assurance Policy that is applied in EnvEng by a committee (OMEA) consisting of three (3) EnvEng members.

The EnvEng Department has established a Curriculum Council, consisting of the entire faculty, which convenes every year in order to evaluate the programme of study.

The EnvEng Department has set specific goals for its undergraduate study programme. The OMEA is in line with MODIP for the improvement of the study programme. Relevant information is shared with involved parties and posted to the DUTH/MODIP intranet and EnvEng website.

The AP determined that the academic unit's quality assurance policy is well-structured, including also a quality policy statement in line with HQA and MODIP guidelines.

During the meeting with OMEA detailed quantitative metrics and diagrams were presented that made clear the actual progress. In addition, the submitted Accreditation Proposal was complete and in full compliance with the HQA guidelines, and explicitly presenting the improvement in the specific target areas of the 2008 External Evaluation.

Panel judgement

Principle 1: Institution Policy for Quality Assurance	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The AP acknowledges the quality assurance procedures by EnvEng, and recommends continuing efforts to ensure student participation and involvement in OMEA.
- The AP recommends more detailed annual progress reports by the OMEA, enriched with quantitative measures and figures showing the current profile in all aspects relevant to the undergraduate study programme.
- The AP proposes that the course evaluation questionnaires be reinforced by skilfully selected questions that better reveal the opinion of the responder by advanced techniques of the opinion survey.

Principle 2: Design and Approval of Programmes

INSTITUTIONS SHOULD DEVELOP THEIR UNDERGRADUATE PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE PROGRAMME. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES, THE INTENDED PROFESSIONAL QUALIFICATIONS AND THE WAYS TO ACHIEVE THEM ARE SET OUT IN THE PROGRAMME DESIGN. THE ABOVE DETAILS AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.

Academic units develop their programmes following a well-defined procedure. The academic profile and orientation of the programme, the objectives, the subject areas, the structure and organisation, the expected learning outcomes and the intended professional qualifications according to the National Qualifications Framework for Higher Education are described at this stage. The approval or revision process for programmes includes a check of compliance with the basic requirements described in the Standards, on behalf of the Institution's Quality Assurance Unit (QAU).

Furthermore, the programme design should take into consideration the following:

- *the Institutional strategy*
- *the active participation of students*
- *the experience of external stakeholders from the labour market*
- *the smooth progression of students throughout the stages of the programme*
- *the anticipated student workload according to the European Credit Transfer and Accumulation System*
- *the option to provide work experience to the students*
- *the linking of teaching and research*
- *the relevant regulatory framework and the official procedure for the approval of the programme by the Institution.*

Study Programme compliance

The AP views positively the fact that the five-year programme leading to an integrated MSc degree offers a significant advantage to the graduates in both the labour market and academia.

The students seem satisfied by the reduction of the number of courses from 72 to 54, however, it is evident they still do not have adequate time to study the subject matter of each course in depth.

The teaching staff links research with teaching in the undergraduate programme, mainly through the undergraduate thesis and the internship, but also by using examples of their research in courses. It is noteworthy that several undergraduate theses are presented in

scientific congresses. The AP positively views that most undergraduate thesis topics represent research projects with data collection and analysis and not just literature reviews.

The EnvEng undergraduate study programme curriculum is generally well-articulated and comprehensive, and the student workload is compliant with the European Credit Transfer and Accumulation System (ECTS).

The Department responded to the 2008 External Evaluation by reducing the number of courses offered, however, final results are expected when more graduates complete the new programme of studies.

Students expressed the need for additional hands-on laboratory training since many laboratory courses are based mainly on demonstrations. Of course, this is mostly due to the big number of students and the lack of funds for consumables and equipment maintenance. Furthermore, the AP acknowledges the importance of the internship and mandatory thesis for the laboratory training of students.

The alumni and stakeholders that participated in the interview expressed a very positive opinion of the programmes' graduates, and the technical skills they possess.

Panel judgement

Principle 2: Design and Approval of Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

The Accreditation Panel agrees that this Programme leads to a Level 7 Qualification according to the National & European Qualifications Network (Integrated Master)	YES	NO*
	X	

**In case of negative judgement, please justify*

Panel Recommendations

- The AP suggests additional hands-on laboratory training of students should be pursued.
- A better-structured procedure for an annual revision of the study programme should be established, also involving stakeholders, external experts, graduates and students.

- The sample of diplomas thesis (Διπλωματική Εργασία) examined was found to be of very good quality. The AP recommends continuous monitoring of the quality and enforcement of the guidelines of the Department (Κανονισμός Διπλωματικής Εργασίας).

Principle 3: Student- centred Learning, Teaching and Assessment

INSTITUTIONS SHOULD ENSURE THAT THE UNDERGRADUATE PROGRAMMES ARE DELIVERED IN A WAY THAT ENCOURAGES STUDENTS TO TAKE AN ACTIVE ROLE IN CREATING THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.

Student-centred learning and teaching plays an important role in stimulating students' motivation, self-reflection and engagement in the learning process. The above entail continuous consideration of the programme's delivery and the assessment of the related outcomes.

The student-centred learning and teaching process

- *respects and attends to the diversity of students and their needs, enabling flexible learning paths;*
- *considers and uses different modes of delivery, where appropriate;*
- *flexibly uses a variety of pedagogical methods;*
- *regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement;*
- *regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys;*
- *reinforces the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff;*
- *promotes mutual respect in the student - teacher relationship;*
- *applies appropriate procedures for dealing with students' complaints.*

In addition :

- *the academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field;*
- *the assessment criteria and methods are published in advance;*
- *the 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;*
- *student assessment is conducted by more than one examiner, where possible;*
- *the regulations for assessment take into account mitigating circumstances;*
- *assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures;*
- *a formal procedure for student appeals is in place.*

Study Programme compliance

The AP has determined that the student-centred learning and teaching process has the following deficiencies:

- respects only partially the diversity of students and their needs;
- flexible use of a pedagogical methods is limited by the lack of infrastructure facilities;
- the existing system of addressing student's complaints does not seem one in which students can address their complaints in person and in confidentiality. The university seems to be in need of a unit (an office, a service) which does not comprise of academic staff, but rather, from personnel specialized in dealing with such confidential counselling issues (i.e. academic psychologist, counselor);
- students are not always given feedback relevant to the results of their examinations, thus they do not have any means of improving their learning process;
- there is no evidence that a formal procedure for student appeals is in place.

The AP acknowledges that the foregoing deficiencies cannot be fully addressed by the EnvEng Department alone, and should be addressed by DUTH in general.

The student-centred character of EnvEng's undergraduate programme is mostly expressed through student hands-on involvement in the mandatory internship and undergraduate thesis, both of which have a strong laboratory/experimental component.

The AP could not identify attempts to include different modes of instruction effectiveness, but the students expressed their satisfaction with teaching quality. Attendance of lectures is at relatively satisfactory levels, but should be promoted further, possibly by implementing alternative methods of instruction, e.g. flip the classroom and including field trips.

The syllabi (course frameworks) describe correctly and in detail the contents as well as the assessment criteria methods.

Course material is generally available to students via an e-class platform. The AP recommends that this practice be enhanced and monitored for compliance.

Student participation in course evaluations has been improving. The Department and teaching staff make considerable efforts to promote engagement, but there is room for improvement, e.g. by evaluating experiences from other Departments and using any suitable approach to convince students of the importance of the involvement in course evaluations.

The Department has increased the number of appointed Academic Advisors from two (2) to twenty-two (22) in an effort to improve student success. Thus, all Faculty Members have an assignment as Academic Advisors to the Students. The AP applauds this effort and believes it will produce better results.

Panel judgement

Principle 3: Student- centred Learning, Teaching and Assessment	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Options for cross-division course selection should be exploited further by increasing the percentage of elective courses in the curriculum.
- Introduction (without increasing the total amount of courses) of a laboratory course in which the students obtain hands-on experience in a variety of areas, equipment and protocols.
- Introduction (without increasing the total amount of courses) of a first-year design course in which the students are given the opportunity to develop environmental engineering skills.
- The EnvEng Department should find ways to promote further student participation in course evaluations, also taking advantage of relevant experiences in other Departments.
- An attempt should be made to further increase student attendance.
- Access to course material by students via e-class should be encouraged further.

Principle 4: Student Admission, Progression, Recognition and Certification

INSTITUTIONS SHOULD DEVELOP AND APPLY PUBLISHED REGULATIONS COVERING ALL ASPECTS AND PHASES OF STUDIES (ADMISSION, PROGRESSION, RECOGNITION AND CERTIFICATION).

Institutions and academic units need to put in place both processes and tools to collect, manage and act on information regarding student progression.

Procedures concerning the award and recognition of higher education degrees, the duration of studies, rules ensuring students progression, terms and conditions for student mobility should be based on the institutional study regulations. Appropriate recognition procedures rely on institutional practice for recognition of credits among various European academic Departments and Institutions, in line with the principles of the Lisbon Recognition Convention.

Graduation represents the culmination of the students' study period. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed (Diploma Supplement).

Study Programme compliance

The undergraduate students are admitted to the Department via the National Exams system, and the number of admissions has been traditionally greater than the one requested by the Department. In the current year, 120 students were admitted which is far from the desired number.

The Department has been implementing an orientation process and advising week in the beginning of each academic year. The orientation process includes introducing first-year students to the administrative and teaching staff, and familiarizing them with the registration process, the program of study, the computer lab and the library.

The cornerstone of student and staff mobility opportunities is the Erasmus programme. The process is facilitated by the Erasmus Committee, which is responsible for initiating bilateral agreements with possible guest institutions, advising students and maintaining the Department's website regarding the Erasmus programme. The Committee has signed a few bilateral agreements; however the number of students participating in the program remains low.

There is an active programme for industry internship. Students are encouraged to complete a two-month internship, in wastewater treatment companies, government agencies and design/consulting companies. Students value the training obtained during internship as a first step towards their undergraduate thesis, but also towards the job market perspective.

The AP met with several representatives of the host companies/agencies who seemed satisfied with the quality and commitment of the participating students. However, they indicated that a two-month period is not enough for a satisfactory training.

A mandatory undergraduate thesis is required for graduation, and its requirements are clearly stated and made known to students in due time.

The European Credit Transfer System is applied in all courses and students dully receive the Diploma Supplement (DS) upon graduation.

Panel judgement

Principle 4: Student Admission, Progression, Recognition and Certification	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Based on the existing facilities and the student-faculty ratio, the number of admitted students must be sustainably reduced. The AP strongly recommends that the HQA communicates this to the relevant authorities.
- The Department should make a considerable effort to increase the number of students participating in the Erasmus programme.

Principle 5: Teaching Staff

INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE QUALIFICATIONS AND COMPETENCE OF THE TEACHING STAFF. THEY SHOULD APPLY FAIR AND TRANSPARENT PROCESSES FOR THE RECRUITMENT AND DEVELOPMENT OF THE TEACHING STAFF.

The Institutions and their academic units have a major responsibility as to the standard of their teaching staff providing them with a supportive environment that promotes the advancement of their scientific work. In particular, the academic unit should:

- *set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff and offer them conditions of employment that recognize the importance of teaching and research;*
- *offer opportunities and promote the professional development of the teaching staff;*
- *encourage scholarly activity to strengthen the link between education and research;*
- *encourage innovation in teaching methods and the use of new technologies;*
- *promote the increase of the volume and quality of the research output within the academic unit;*
- *follow quality assurance processes for all staff members (with respect to attendance requirements, performance, self-assessment, training etc.);*
- *develop policies to attract highly qualified academic staff.*

Study Programme compliance

During the AP visit the following observations were made:

- The AP was not given sufficient information regarding the processes for the recruitment of properly qualified staff and the methods for recognition for excellence and teaching research;
- the AP was not presented with any evidence regarding encouragement for innovation in teaching methods and the use of new technologies;
- the AP did not identify the existence of effective measures for motivating those teaching staff members who fail to meet the expectations of the Department; the existing legislation needs to be amended so as to address this issue;
- the AP was not given any information regarding policies to attract highly qualified teaching staff.

The EnvEng Department teaching faculty makes good use of the existing professional development opportunities despite the high student-faculty ratio. Nevertheless, the EnvEng Department should increase its efforts towards reducing this ratio. However, in the coming three years five members of the teaching staff will be retired; therefore some appropriate initiatives should be taken as soon as possible in order to ascertain the continuity of the Department's teaching quality.

Despite the fact that a large number of instruments exist in the Department, they remain in the storage room waiting for some improvement in building infrastructure.

Specialised pedagogic training and use of technology is required to establish innovative and effective teaching methods for larger classes. These techniques and mobile technology can be utilized to deliver teaching material, examine and encourage student participation, and observe student attendance in lectures. In this framework, dedicated pedagogical training and technology workshops are required to facilitate, enhance and promote student participation and learning. Annual teaching awards for excellence and innovation in teaching, and recognition of faculty efforts, are necessary to ensure the success of the programme.

Students were mostly satisfied with the teaching staff teaching competence, open-minded approach, mentoring capabilities, cooperation and social interactions.

The EnvEng Department has a history of established projects for teaching staff collaboration with other universities, research laboratories and the local industry and stakeholders. This is an excellent practice that should be further cultivated, promoted and celebrated during award events.

The AP finds that the EnvEng Department absolutely needs technical staff (lab assistants) taking into consideration that its absence forces the teaching staff to spend less time for teaching and research.

The teaching load of the faculty members seems appropriate on the average; however, there exists a non-uniform distribution among various sub-disciplines.

Panel judgement

Principle 5: Teaching Staff	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The AP recommends that the DUTH should establish a Teaching and Support Centre that will provide faculty with specialised seminars or short courses on academic pedagogics, on the use of novel teaching methods and technologies, and address issues related to students with special needs.
- Undergraduate courses could also be enriched by external/guest seminars that can cover current issues.
- The EnvEng Department should have more flexibility in hiring temporary teaching personnel suitable for specialised courses.

- Efforts should be made to attract private donations for student and staff awards and scholarships and towards the organization of award events.
- The AP feels that the Department should strongly encourage the participation in the sabbatical program for the professional advancement of the teaching staff.
- The AP strongly requests from the appropriate authorities to give the possibilities to the Department for recruiting technical staff.

Principle 6: Learning Resources and Student Support

INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER TEACHING AND LEARNING NEEDS. THEY SHOULD –ON THE ONE HAND- PROVIDE SATISFACTORY INFRASTRUCTURE AND SERVICES FOR LEARNING AND STUDENT SUPPORT AND–ON THE OTHER HAND- FACILITATE DIRECT ACCESS TO THEM BY ESTABLISHING INTERNAL RULES TO THIS END (E.G. LECTURE ROOMS, LABORATORIES, LIBRARIES, NETWORKS, BOARDING, CAREER AND SOCIAL POLICY SERVICES ETC.).

Institutions and their academic units must have sufficient funding and means to support learning and academic activity in general, so that they can offer to students the best possible level of studies. The above means could include facilities such as libraries, study rooms, educational and scientific equipment, information and communications services, support or counselling services.

When allocating the available resources, the needs of all students must be taken into consideration (e.g. whether they are full-time or part-time students, employed or international students, students with disabilities) and the shift towards student-centred learning and the adoption of flexible modes of learning and teaching. Support activities and facilities may be organised in various ways, depending on the institutional context. However, the internal quality assurance ensures that all resources are appropriate, adequate, and accessible, and that students are informed about the services available to them.

In delivering support services the role of support and administrative staff is crucial and therefore they need to be qualified and have opportunities to develop their competences.

Study Programme compliance

The Department shares the library facilities of the *School of Engineering*, which are located in its premises near the Environmental Engineering building. The students expressed satisfaction with the library functions. The premises have been recently renovated. There are more than 80.000 books and technical/scientific journals. The library has a spacious study room, but it is not accessible to students with disabilities.

The AP was informed that there exists a student dormitory which is free to low-income students. There is also a restaurant for the students, and meals are free to all students. Finally there is free public transport between campus buildings to all students.

The AP visited the two campuses of the faculty of engineering (in the city of Xanthi and the area of Kimmeria). In the Kimmeria campus the AP had the opportunity to visit several laboratories of the Department. Some of the laboratories have modern and advanced scientific equipment that are used mainly for research although most of the housing facilities are in disrepair. There is no monitoring security system for fire and hazardous substances.

There is limited space for the students, as most of the laboratories house numerous experimental stations that are used for research. In addition there is number of obsolete

equipment stored in the same space, further limiting space availability. Urgent repair is required to the electrical and ventilation units of the laboratories to prevent potential accidents and ensure the safety of the students and staff.

The AP was informed by the teaching staff that new buildings and spaces are foreseen for the relocation of the Department’s laboratories. A renovation of the existing teaching places is also foreseen hopefully by the end of the next year.

The undergraduate teaching laboratories for general/analytical chemistry have a limited number of stations which makes difficult the rotation of student groups. This forces the teaching staff to repeat the same lab exercises many times, which in combination with the low number of technical assistants makes the proper training of students impossible.

In the Xanthi campus, the AP observed a picture of abandonment outside and inside of the buildings albeit with signs of artistic and political genius. The students complained openly about the lack of heating and cooling in the classrooms, broken windows and furniture, and absence of any modern instructional equipment. The AP visited one classroom during a lecture break and discussed academic and practical issues with the students. The condition of the classroom lighting, acoustics and seating was not conducive to student learning. It is no surprise after all that the attendance of lectures is low.

Panel judgement

Principle 6: Learning Resources and Student Support	
Fully compliant	
Substantially compliant	
Partially compliant	X
Non-compliant	

Panel Recommendations

- The Department should make efforts to secure more laboratory space so that students can be trained hands-on, not just by demonstration.
- Central administration should continue to seek ways to increase the capacity of dormitories to accommodate more students.
- Updated laboratory equipment and run-down lab spaces should be uplifted and made suitable for work with additional personnel.
- The teaching staff should make an effort to upgrade the classroom environment even in the absence of significant funding. For example, use of visual aids to replace aging blackboards in the classrooms or the installation of a sound system without investing in the old infrastructure.

- The AP strongly recommends the enforcement of safety regulations for laboratory use by students and staff, e.g. safety glasses, gloves, emergency shower systems and adequate ventilation.

Principle 7: Information Management

INSTITUTIONS BEAR FULL RESPONSIBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF UNDERGRADUATE PROGRAMMES OF STUDY AND RELATED ACTIVITIES, IN AN INTEGRATED, EFFECTIVE AND EASILY ACCESSIBLE WAY.

Institutions are expected to establish and operate an information system for the management and monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students as well as to the academic community.

Reliable data is essential for accurate information and for decision making, as well as for identifying areas of smooth operation and areas for improvement. Effective procedures for collecting and analysing information on study programmes and other activities feed data into the internal system of quality assurance.

The information gathered depends, to some extent, on the type and mission of the Institution. The following are of interest:

- *key performance indicators*
- *student population profile*
- *student progression, success and drop-out rates*
- *student satisfaction with their programme(s)*
- *availability of learning resources and student support*
- *career paths of graduates*

A number of methods may be used for collecting information. It is important that students and staff are involved in providing and analyzing information and planning follow-up activities.

Study Programme compliance

The AP believes that EnvEng has established an effective information system for collecting and managing data on students and their progress, teaching staff and research projects.

Student satisfaction with the programme of study is monitored mainly through the course assessment questionnaires, where participation is active at an increasing rate. In addition the Department maintains contact with alumni and stakeholders to monitor the effectiveness of undergraduate education.

Overall, the data included in the annual progress reports and the websites of OMEA and MODIP show an effective evaluation of information relevant to the programme of study and are properly used in a way to allow for relevant interpretations and comparisons.

In addition, the EnvEng Department monitors sufficiently the career paths of graduates.

Panel judgement

Principle 7: Information Management	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The AP recommends that the available information on student profiles and performance indicators become available to all interested parties on line. This will place a spotlight on the achievements of the Department and attract new students.

Principle 8: Public Information

INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES WHICH IS CLEAR, ACCURATE, OBJECTIVE, UP-TO-DATE AND READILY ACCESSIBLE.

Information on Institution's activities is useful for prospective and current students, graduates, other stakeholders and the public.

Therefore, institutions and their academic units provide information about their activities, including the programmes they offer, the intended learning outcomes, the qualifications awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students, as well as graduate employment information.

Study Programme compliance

The EnvEng departmental website provides the necessary information in Greek and English regarding the academic unit and the study programme. The EnvEng departmental website is the mirror of the Department to the outside world and should be periodically updated.

Panel judgement

Principle 8: Public Information	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The AP believes that the website of the Department should serve as a gateway for future students. The website should promote the strengths of the Department by demonstrating student-centred environmental and climate-change problem solutions.
- More detailed metrics with quantitative information about the Department should be made more easily accessible.
- The EnvEng Department should increase its outreach effort, for example:
 - Organize open-day visits to increase its visibility and recruit future students, but also to educate and raise awareness of the greater public in aspects related to environmental remediation and global change.

- Strategically plan more professional conferences, seminars by local professionals and alumni, and invite sponsorships by the industry, which will help promote EnvEng activities.

Principle 9: On-going Monitoring and Periodic Internal Review of Programmes

INSTITUTIONS SHOULD HAVE IN PLACE AN INTERNAL QUALITY ASSURANCE SYSTEM FOR THE AUDIT AND ANNUAL INTERNAL REVIEW OF THEIR PROGRAMMES, SO AS TO ACHIEVE THE OBJECTIVES SET FOR THEM, THROUGH MONITORING AND AMENDMENTS, WITH A VIEW TO CONTINUOUS IMPROVEMENT. ANY ACTIONS TAKEN IN THE ABOVE CONTEXT SHOULD BE COMMUNICATED TO ALL PARTIES CONCERNED.

Regular monitoring, review and revision of study programmes aim to maintain the level of educational provision and to create a supportive and effective learning environment for students.

The above comprise the evaluation of:

- *the content of the programme in the light of the latest research in the given discipline, thus ensuring that the programme is up to date;*
- *the changing needs of society;*
- *the students' workload, progression and completion;*
- *the effectiveness of the procedures for the assessment of students;*
- *the students' expectations, needs and satisfaction in relation to the programme;*
- *the learning environment, support services and their fitness for purpose for the programme*

Programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the programme is adapted to ensure that it is up-to-date. Revised programme specifications are published.

Study Programme compliance

The AP was given annual reports for the last 3 years. The reports record data derived from student questionnaires, course reports on a semester basis, and the teaching staff records, and assess strengths and weaknesses of the Department. In addition, there was an External Evaluation conducted in November 2008 by HQA.

The AP was not aware of a Department strategic plan with specific goals, objectives and indicators. The strategic plan should contain detailed objectives and implementation information.

The alumni interviewed mentioned their good contacts with the teaching staff, indicating that they work closely with the Department on issues of the study programme revisions and student guidance. The external stakeholders expressed their support and good collaboration with the Department.

Panel judgement

Principle 9: On-going Monitoring and Periodic Internal Review of Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The students' participation and the involvement of alumni, external stakeholders and partners in the undergraduate study programme revisions should be continued.
- The AP believes that it would be important for the Department to undergo a strategic plan exercise. This will allow better planning for the expected retirements of several senior faculty, and identify new and emergent areas of environmental engineering.

Principle 10: Regular External Evaluation of Undergraduate Programmes

PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY COMMITTEES OF EXTERNAL EXPERTS SET BY HQA, AIMING AT ACCREDITATION. THE TERM OF VALIDITY OF THE ACCREDITATION IS DETERMINED BY HQA.

HQA is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HQA grants accreditation of programmes, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the template's requirements, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees.

Both academic units and institutions participate in the regular external quality assurance process, while respecting the requirements of the legislative framework in which they operate.

The quality assurance, in this case the accreditation, is an on-going process that does not end with the external feedback, or report or its follow-up process within the Institution. Therefore, Institutions and their academic units ensure that the progress made since the last external quality assurance activity is taken into consideration when preparing for the next one.

Study Programme compliance

The Department is undergoing its first Accreditation procedure and has already undergone an external evaluation in 2008.

The AP found that many of the recommendations of the External Evaluation Committee were implemented by EnvEng Department. Specifically, the number of courses was reduced from 72 to 54, which was positively acknowledged by both students and faculty.

The AP was provided with a point-by-point description of the recommendations that were fulfilled. With the exception of the laboratory and instructional space, the Department has rectified the majority of the issues identified by the 2008 evaluation committee.

Panel judgement

Principle 10: Regular External Evaluation of Undergraduate Programmes	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- The Department must address the instructional and laboratory issues regarding the recommendations of the External Evaluation Committee. The state of the Department's infrastructure has deteriorated to the point that threatens the safety of the students and instructional staff.

PART C: CONCLUSIONS

I. Features of Good Practice

- The EnvEng Department offers a very good undergraduate study programme that promotes the scientific knowledge, hands-on experience, development of individual skills, lifelong learning, standard methods of analysis, and professional development.
- The social achievement of the EnvEng Department has created a national reputation and tradition of quality among the graduates and the society of professional engineers of Greece.
- An active internship program exists that promotes student's skills and connections with the labour market.
- Excellent relationships of students, alumni and stakeholders with faculty members have been developed.
- There is evidence of personal involvement of EnvEng teaching staff and desire to further improve their teaching and research activities.
- A significant amount of external research funds is available, positively also affecting educational purposes.
- The Technical Chamber of Greece has conferred professional rights in the field of environmental engineering.

II. Areas of Weakness

- Lack of space for students in specific laboratories.
- Insufficient participation of students in course evaluations.
- Lack of alternative methods of course delivery and assessment.
- Inefficient practices in distribution and utilization of the available laboratory space and equipment to serve the educational and research needs of the Department.
- The deteriorating infrastructure and unpleasant environment in both buildings and surrounding areas that inhibit the growth of academic spirit and possibility of collegiality among the faculty.
- The low attendance of lecture in some courses and the lack of desire by the corresponding instructors to remedy the situation.
- Inefficient practices in the student-centred learning and teaching process.
- The understaffing of laboratory and office personnel (ΕΔΙΠ & ΕΤΕΠ) that leads to an ineffective operation of the Department.

III. Recommendations for Follow-up Actions

Addressed to Enveng Department

- The EnvEng Department should adopt the mentality that infrastructure problems should be remedied locally and not rely on expectations of government funding alone. The

Departmental leadership should find ways to improve the teaching and laboratory facilities by alternative funding and improvised techniques.

- Fully implement the relevant and still valid recommendations of the External Evaluation Committee.
- Use a variety of delivery and assessment modes in teaching.
- Secure additional hands-on laboratory training of students.
- Promote students and staff mobility through the Erasmus programme.
- Continue efforts to ensure student participation and involvement in OMEA.
- Involve alumni, external stakeholders and partners in revisions of the undergraduate study programme in a more structured way.
- Increase outreach efforts to improve visibility of research and teaching activities, also taking advantage of social media.
- Pursue hiring personnel.
- Establish a student and staff awards system promoting excellence.
- Draw a strategic plan with detailed action steps and implementation timelines providing the roadmap for future accreditations/evaluations.
- Reduce the large ratio of mandatory to elective courses.

Addressed to DUTH

- The DUTH must give priority to address the infrastructure issues in instructional and laboratories spaces.

Addressed to the State Authorities

- The number of admitted students must be substantially reduced.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: 1, 2, 4, 7, 8 & 9

The Principles where substantial compliance has been achieved are: 3, 5 & 10

The Principles where partial compliance has been achieved are: 6

The Principles where failure of compliance was identified are: none

Overall Judgement	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

The Accreditation Panel agrees that this Programme leads to a Level 7 Qualification according to the National & European Qualifications Network (Integrated Master)	YES	NO
	X	

The members of the Accreditation Panel for the UGP (Integrated Master) of Environmental Engineering of the Democritus University of Thrace

Name and Surname

Signature

1. **Prof. Constantin Vamvakas** (Chair)
Ghent University, Ghent Belgium

2. **Dr Nicolas-George Eliades**
Frederick University, Nicosia, Cyprus

3. **Prof. Nikolaos Katopodes**
University of Michigan, Ann Arbor, USA

4. **Mrs Katerina Vini**
Technical Chamber of Greece, Greece