Accreditation Report
for the Undergraduate Study Programme
(Integrated Master) of:

Mechanical Engineering
Institution: Aristotle University of Thessaloniki
Date: 19 December 2020

Report of the Panel appointed by the HAHE to undertake the review of the Undergraduate Study Programme (Integrated Master) of **Mechanical Engineering** of the **Aristotle University of Thessaloniki** for the purposes of granting accreditation

Abbreviations

AUTH	Aristotle University of Thessaloniki
ECTS	European Credit Transfer System
EEAP	External Evaluation & Accreditation Panel
EDIP	Laboratory Teaching Staff
ETEP	Laboratory Technicians
HAHE	Hellenic Authority for Higher Education
HNARIC	Hellenic National Recognition and Information Centre
IQAS (ΕΣΔΠ)	Internal Quality Assurance System
MENG/AUTH	Department of Mechanical Engineering at AUTH
MODIP	Quality Assurance Unit (ΜΟΔΙΠ)
OMEA	Internal Evaluation Groups/School's Internal Evaluation Committee
QA	Quality Assurance
SA	Scientific Associates

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PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I.   The External Evaluation & Accreditation Panel

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme (Integrated Master) of **Mechanical Engineering** of the **Aristotle University of Thessaloniki,** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

1. **Prof. Fokion Egolfopoulos** (Chair)
    University of Southern California, Los Angeles, California, USA

2. **Prof. George Aggidis**
    Lancaster University, Lancaster, United Kingdom

3. **Dr. George Banias**
    Member of the Technical Chamber of Greece, Greece

4. **Prof. Manolis Gavaises**
    City, University of London, London, United Kingdom

5. **Prof. Konstantinos Kontis**
    University of Glasgow, Glasgow, United Kingdom

II.   Review Procedure and Documentation

The Hellenic Authority for Higher Education (HAHE) formed an External Evaluation & Accreditation Panel (EEAP) of experts to assess the compliance of the Undergraduate Study Programme (Integrated Master) of **Mechanical Engineering** of the **Aristotle University of Thessaloniki** in accordance with the HAHE Quality Assurance (QA) requirements. The assessment was conducted remotely via Zoom. The method used was based on sampling of the activities of MENG/AUTH to evaluate the fulfilment of the HAHE requirements of the relevant Standards for Quality Assurance of Undergraduate Programmes and comment on its compliance, effectiveness, efficiency and applicability with respect to the chosen requirements.

The review procedure and documentation were carried out during the December 14 to December 19, 2020 period.

On December 14, 2020:

The EEAP members met and discussed the standards and guidelines of the QA accreditation process as well as the logistics associated with the compilation of the report.

On December 15, 2020:

The 5-member EEAP met with:

The Vice-Rector/President of MODIP and Head of the School of ME:
- *Vice Rector and President of MODIP, Professor D. Koveos*
- *Head of MENG/AUTH, Professor A. Michailidis*

During this meeting, Prof. Koveos and Prof. Michailidis gave short but very useful presentations providing an overview of AUTH and MENG/AUTH. The presentations were followed by an informative discussion.

The OMEA and MODIP Representatives:
- *Prof. Georgios Tagaras, OMEA Coordinator*
- *Prof. Grigorios Koltsakis, OMEA Member*
- *Prof. Georgios Savaidis, OMEA Member*
- *Prof. Panagiotis Seferlis, OMEA Member*
- *Prof. Ananias Tomboulidis, OMEA Member*
- *Prof. Alkiviadis Bais, Department of Physics, MODIP Member*
- *Prof. Antonis Goulas, Department of Medicine, MODIP Member*
- *Ms. Alexandra Tzaneraki, MODIP Secretary*
- *Dr. Konstantinos Aivazidis, Quality Management Official*

Professors Bais and Tagaras gave detailed presentations outlining the activities of MODIP and OMEA respectively, followed by informative discussions that were mainly focused on questions raised by the EEAP members.

Faculty Members of MENG/AUTH:
- *Prof. Zisis Samaras (presentation)*
- *Prof. Dimitrios Vlachos*
- *Prof. Nikolaos Mousiopoulos*
- *Prof. Kyros Yakinthos*
- *Prof. Nikolaos Michailidis*
- *Prof. Sotirios Natsiavas*
- *Prof. Agis Papadopoulos*
- *Prof. Gabriel Mansour*
- *Associate Prof. Konstantinos Papakostas*
- *Assistant Prof. Fani Stergioudi*

Professor Samaras gave a short presentation outlining the teaching activities and associated metrics of MENG/AUTH. An informative discussion related to the Department's role in ensuring quality with respect to the specific educational objectives followed.

On December 16, 2020:

The EEAP members met with:

A Group of Undergraduate Students.

A Group of Programme Graduates:
- *Dr. Vasilios Bakolas (Principal Expert Bearings R&D, Schaeffler Technologies, Germany)*
- *Dr. Efstratia Zafeiriou (Head of Operational Management & Digital Process Planning, Audi AG, Germany)*
- *Mr. Thanassis Fokylidis (Supervisor of Crash & Safety Dpt., BETA CAE Systems, Greece)*
- *Dr. Ioannis Kitsopanidis (Head of F1 Engine Development Engineering, Ferrari, Italy)*
- *Mr. Vasilis Loulos (Manager, Pfizer Digital Solutions Engineering, Greece)*
- *Ms. Stavroula Palatiana (R&D Manager, Palaplast, Greece)*
- *Ms. Olga Sivi, (Founder, Technical Office "Green Construction", Greece)*
- *Dr. Christina Salpiggidou (Engineering Advanced Programs, MTU Aero Engines AG, Germany)*
- *Mr. Ioannis Stefanis (Software Developer, Deloitte, Greece)*
- *Prof. Stefanos Theodosiadis (Professor of Non-Linear Dynamics, Loughborough University, UK)*

Representatives of a Number of Employers and Social Partners:
- *Mr. Athanasios Kollias (CEO, K-Invent, France)*
- *Mr. Panagiotis Kouvrakis (Chairman of the Board, BETA CAE Systems, Switzerland)*
- *Mr. Kyriakos Loufakis (Chairman of the Board, Alexander Innovation Zone, Greece)*
- *Mr. Georgios Mellios (CEO, Emisia, Greece)*
- *Mr. George Mylonas (Chairman of the Board and CEO, Alumil, Greece)*

- *Mr. Stelios Papakonstantinou (CEO, DOMKA, Germany)*
- *Mr. Dimitrios Samaras (Chairman of the Board, Samaras and Associates, Greece)*
- *Mr. Nikolaos Salpiggidis (CEO, CFT, Greece)*
- *Mr. Vasilios Tiriakidis (Chairman and CEO, B&T Composites, Greece)*
- *Mr. Lazaros Tsioraklidis (Chief of Technology / Managing Director, Altair Greece)*

During the abovementioned meetings, valuable input was provided to EEAP regarding the educational activities in MENG/AUTH. Between the meetings with the undergraduate students and graduates of the Programme, the EEAP members were given an on-line tour of various relevant facilities.

On December 17, 2020:

EEAP met with the OMEA members to discuss points that needed further clarification or quantification. The EEAP visit ended with a final joint meeting with the OMEA members, Vice Rector Prof. Koveos, and the Head of MENG/AUTH Prof. Michailidis to discuss key findings.

Material provided by OMEA:
- ΑΠΘ Τμήμα Μηχανολόγων Μηχανικών-Ανταπόκριση Τμήματος
- ΑΠΘ-Ενέργειες ΤΜΜ - Αναθεώρηση 11.6
- B0. Πίνακας Περιεχομένων
- B1. Πρόταση Ακαδημαϊκής Πιστοποίησης (11.6.2020) v2
- B2. Πολιτική Ποιότητας ΠΠΣ
- B3. Οδηγός Σπουδών 2019-2020 (11.6.2020) v2
- B4 Κανονισμοί (11.6.2020) v2
- B4.1. Κανονισμός ΠΠΣ
- B4.2. Erasmus+ Σύγκλητος (11.6.2020) v2
- B4.3. Κανονισμός Πρακτικής Άσκησης (11.6.2020) v2
- B5. Περιγράμματα Μαθημάτων (6.7.2020) v3
- B6. Στοχοθεσία Ποιότητας ΠΠΣ (6.7.2020) v3
- B7. Ερωτηματολόγια φοιτητών (11.6.2020) v2
- B8. Εσωτερική Αξιολόγηση ΠΠΣ ΤΜΜ
- B9. Αναφορές δεδομένων ΟΠΕΣΠ
- B10 Υλικό Τεκμηρίωσης (11.6.2020) v2
- B10.1. Δομημένος Έλεγχος ΠΠΣ
- B10.2. Δημοσιεύσεις Scopus
- B10.3. Ερευνητικά Έργα
- B10.4. Διακρίσεις
- B10.5. Αξιολόγηση υποδομών
- B10.6. Αναμόρφωση πτυχών ΠΠΣ
- B10.7. Εξωτερική Αξιολόγηση 2013
- B11 Πρόσθετοι όροι
- B11.1. Πρόσθετοι όροι ΠΠΣ
- B11.2. Ενιαίος αδιάσπαστος τίτλος ΦΕΚ

- Πρόσθετο Υλικό for 21 courses

Material provided by HAHE:
- AUTH_Mechanical Engineering_Ext Eval Report
- European Qualifications Framework
- ODIGOS PISTOPOIISIS_en
- P1_STANDARDS FOR QUALITY ACCREDITATION_PROGRAMME_EN
- P12a_Guidelines for the Accreditation Panel
- P13_MAPPING GRID
- P14_INTEG_Template for the Accreditation Report
- Quality Indicators_Dept Mechanical Engineering_15-16
- Quality Indicators_Dept Mechanical Engineering_16-17
- Quality Indicators_Dept Mechanical Engineering_17-18
- Quality Indicators_Dept Mechanical Engineering_18-19
- Quality Indicators_UP Mechanical Engineering_15-16
- Quality Indicators_UP Mechanical Engineering_16-17
- Quality Indicators_UP Mechanical Engineering_17-18
- Quality Indicators_UP Mechanical Engineering_18-19

Moreover, at the EEAP's request, the following information was made available during the visit:

- The presentation given by Vice Rector and President of MODIP Prof. Koveos
- The presentation given by the Head of MENG/AUTH Prof. Michailidis
- The presentation given by the MODIP Representative, Prof. Bais
- The presentation given by the OMEA Coordinator, Prof. Tagaras
- The presentation given by Prof. Samaras

III.   Study Programme Profile

AUTH is the largest University in Greece. It was founded in 1925 and it is comprised of 11 Schools and 41 Departments with nearly 75.000 undergraduate, 6.500 graduate, and 4.500 Doctoral students, supported by 1.628 Faculty members, 626 ΕΔΙΠ members, and 513 Administrative Staff.

MENG/AUTH was established first as part of the Department of Mechanical & Electrical Engineering during the 1972-73 academic year and became Department of Mechanical Engineering during the 1976-77 academic year. It is comprised of 3 Sectors (Design and Construction, Energy, and Industrial Management) with nearly 1.850 undergraduate students out of which approximately 54% (~1.000) are considered as active. The nominal duration of studies is 5 years and less than 6% of the students graduate within this period. A student is considered as "active" up to Year v+2 where v = 5. Approximately 65-70% of the students graduate within v+2 years from their enrolment. The Department's activities are supported currently by 27 academic staff (3 Assistant, 3 Associate and 21 Full Professors), 12 EDIP members, 5 ETEP members, 4 SA, and 5 administrative staff.

The number of admitted students in Year 1 is by far larger than those admitted directly (through the National Entrance Examinations) based on pertinent legislation. For example, during the 2019-2020 academic year 103 students were admitted directly, while indirectly, additional 83 transfer students from other Universities.

The research profile of the MENG/AUTH is among the best in AUTH as measured by notable numbers of research programs and funding levels.

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 quality policy of MENG/AUTH is harmonized with the QA policy of AUTH and KPIs. The Department strives to provide high quality research-led education and to improve student performance. Despite the current challenges in terms of reduced numbers of teaching staff and space availability, an emphasis is placed on extroversion and internationalization with a continuous improvement of the curriculum, infrastructure, functions and services provision, in

order to adapt to the current and future academic ambitions, research directions and national needs. The quality policy of the Department specifies its strategic objectives and aims at achieving the quality objectives, which concern its operation in general and in particular the organization and operation of the Undergraduate Programme.

OMEA in collaboration with MODIP, plans and suggests to the Department the appropriate actions and the ways through which the objectives can be achieved. The implementation of the quality policy and the achievement of the quality objectives support the evolution of the academic culture and ambitions, and the direction of the Department and its Undergraduate Programme. These are made possible thanks to the high level and dedication of the departmental staff and the active participation of students in its activities.

OMEA consists of five full professors, who meet regularly (at least twice per semester), utilizing the assistance of all services and committees of the Department and at the same time cooperates closely with MODIP. The 13 quality objectives, which are part of the quality policy of the Undergraduate Programme, are specified and quantified with 46 specific indicators, where the current values and target values are also recorded together with the respective actions and plans, and the responsible bodies of the Department. The target values are taking into consideration the trends of the last three years allowing in most cases for an improvement of 2-10%. At the end of each academic year, OMEA conducts an internal evaluation, having collected and processed the data and other information on all issues related to the operation and targets of the Department and the Undergraduate Programme. The results of the annual internal evaluation are presented at the general assembly of the Department, where any corrective interventions and improvement actions are decided. The quality policy and quality objectives are publicly posted and available on the official website of MENG/AUTH. A dissemination event is also taking place for all members of the Department, students, graduates and other external stakeholders.

Panel Judgement

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

Panel Recommendations

- Strive for continuous improvements

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 panel has reviewed the undergraduate program of MENG/AUTH and has concluded that it overall fulfils the requirements for accreditation. The curriculum aims at providing a quality and in-depth education of the students in this field. There are ~125 modules (μαθήματα) that expand over three departmental Sectors; each Sector comprises of a number of specialisation streams. These consider the scientific advancements in their corresponding areas but also the needs of the Greek economic area and relevant businesses. The theoretical background and fundamental knowledge are addressed mainly during the first 3 years of studies, while the last two years are devoted to a number of specialisation streams. EEAP considers that ~80% of the taught modules are appropriate and internationally competitive, while ~20% can be modified/linked with relevant advancements or could be replaced with modules addressing emerging fields, such as, for example, biotechnology, nanotechnology, aerospace/aeronautics, artificial intelligence and complex logistics, which require specialised technical knowledge in order to be implemented.

Moreover, interdisciplinary subjects that cross over traditional boundaries could further improve the curriculum.

More specifically:

Institutional strategy:
Considers five areas, namely: (a) quality of education, (b) academic performance of the students, (c) link education with research, (d) student employability and (e) infrastructure and operational/administrative support. MENG/AUTH is committed to improve these areas continuously.

Active participation of students:
From the discussions with the staff members and interviews with the students, EEAP concluded that although participation in lectures is not mandatory, the large majority of the active students participates in classes. Students have enthusiastically described the efforts of academic staff to engage them in their classes; special mentioning was made to group projects that lead to design and testing of actual components.

Experience of external stakeholders from the labour market:
EEAP had a discussion with the invited stakeholders; these covered representatives from both traditional/local businesses, where the daily work of the employed engineers does not necessarily require knowledge of high-end technological applications and high-end spin-out companies and internationally leading scientific software developers (e.g., BETA CAE), where knowledge in specialized scientific topics of the employers is a prerequisite. All of them, with no exception, have outspoken the high quality and in-depth knowledge of the graduates. Stakeholders have praised the collaboration they have with the academic staff and the open dialogue that considers their needs in the curriculum of the Department.

Smooth progression of students throughout the stages of the programme:
The progression of the students is an area that improvements are necessary. It has been reported that ~5% of students graduate at the end Year 5, close to 70% of students graduate by the end of Year 7, while there is a very big number of continuously increasing students that are registered beyond that; some exceed 12 years of registration. This situation creates obvious difficulties, both to the student's further development but also to the operation of the Department. The reasons for this situation are mainly related to factors outside the influence of the Department. However, there are also factors related to the organization of MENG/AUTH. For example, it has been observed that the Department does not have compulsory prerequisites of modules. This is something that inevitably leads to difficulties in achieving the learning outcome required for progression.

Anticipated student workload according to the European Credit Transfer System (ECTS):
300 ECTS credits are required for graduation; 270 of those are achieved from the modules and 30 from the Diploma Thesis. ECTS are almost evenly distributed across modules. EEAP concluded that the set targets are realistic and in agreement with international practices.

Option to provide work experience to the students:
The curriculum has the provision of practical experience in industry or via Erasmus, although admittedly, only a small number (around 5.7% of the students) participates in this. Both students and stakeholders have positively spoken about the involvement of students during their studies in their premises as part of the practical exercise; however, the need for longer periods than the usual 2-months has been emphasized by all involved.

Linking of teaching and research:
Active participation in research projects typically takes place during the Diploma Thesis. It has been reported that every year, students co-author research publications (for example, 25 papers in 2018-2019 have been published, while the department has a target of 28 publications co-authored by graduating students). In addition, it was described that it is common practice to involve the most research-oriented students to running research projects, as this may lead to an increase of the much required and well-trained Doctoral students for the Department.

In addition, MENG/AUTH has an impressive presence in international student competition with significant awards (racing team, European formula student, Aristotle Space & Aeronautics team, design and testing of drone unmanned vehicles, design and testing of the U3 satellite, the Panther team for moto-student competition), to name a few. To accomplish these interdisciplinary team-work projects, application or high-end research tools and research methods is a prerequisite.

Relevant regulatory framework and the official procedure for the approval of the programme by the Institution:
The review and renewal/approval of the programme of studies takes place almost every academic year. The process follows consultation with all academic staff members as well as with MODIP, following an established protocol. Following submission of the changes, MODIP checks and approves the proposals. The new programme of studies is communicated to the department and the students (internet, e-guide) prior to the start of each academic year.

Panel Judgement

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

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

Panel Recommendations

- To consider a strategy that can increase the progression rate; in particular, graduation at the end of Year 5 has to be taken seriously, as this is the standard practice in all universities abroad.
- To consider de-registering students after the pass of number of years; the panel understands that this is beyond the responsibility of the Department or the University; however, such a step would improve the quality of education as a whole. Of course, extenuating circumstances may apply to some students, which should be considered.
- A number of taught modules may not reflect today's cutting-edge fields, particularly those taught in the 9th and 10th semesters. It is recommended that some modules can be either replaced with new ones, or if this not possible due to shortage of staff, the programme of studies and the curriculum is renewed.
- It has been observed that the student to academic staff ratio is rather large. It is understandable that the decrease in both academic and technical staff has been the result of the austerity measures imposed to Greek universities over the last 10 years of the financial crisis. EEAP has concluded that an increase in academic and technical staff number is a pressing issue.
- EEAP has been informed that the AUTH management is planning for investments across various areas, which also touch in new fields. The panel considers that MENG/AUTH has the infrastructure and expertise to lead in this expansion; it is our strong recommendation to consider such possible expansions to take place in close consultation with MENG/AUTH.

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

Respects and attends to the diversity of students and their needs, enabling flexible learning paths:

MENG/AUTH follows well accepted practises for delivering specialised modules across the three departmental Sectors but also supporting students tailored in their individual needs. More specifically, it offers modules in the wider areas of Design and Construction, Energy, and Industrial Management. During Year 5, each student has to accomplish an individual Diploma Thesis, which is typically a topic that suits his/her needs.

Considers and uses different modes of delivery, where appropriate:

Regarding the delivery of modules, it has been reported that at least 50% of lectures are delivered via electronic means (video, PowerPoint projection, etc.) while training in specialised

engineering software also takes place. A dedicated laboratory space is available and almost continuously booked for delivering modules that require use of computers.

Flexibly uses a variety of pedagogical methods:
The contents of the curriculum and the relevant pedagogical methods are flexibly used/adapted depending on the needs of individual modules. They are discussed/approved by the departmental academic staff in relevant consultation meetings. Typically, these follow well accepted practices (lectures, tutorials, laboratory practice and tests, industrial visits).

Regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement:
Teaching modes are reviewed regularly from the general assembly, after consultation taking place within the three departmental Sectors. Every academic staff member reviews and proposes the contents of his/her taught modules prior to the start of each academic year, considering the questionnaires provided by the students during the previous academic year. It is noted that each academic staff member is delivering modules that are close to their background and research interests, while they are supported by Doctoral students and post-doctoral fellows.

Regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys:
A student survey is performed in every academic year. It has been reported that up to 50% of the students typically participate. Academic staff consider those for improving their teaching contents for the following academic year; however, no formal process is in place for taking into consideration student complaints or recommendations during the running year. Moreover, EEAP believes that the process of addressing student complaints could be improved.

Reinforces the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff:
Guidance to individual needs/interests of students is typically considered during the last two years and more specifically during the selection of the topic and execution of the Diploma Thesis. Topics are typically selected and supervised in areas where the academic staff have both the expertise and the infrastructure/space to support the selected topics.

Promotes mutual respect in the student - teacher relationship:
All students interviewed have enthusiastically commented on the availability and informal/friendly attitude of all academic staff to discuss with them and provide guidance whenever needed. Some students gave examples where they compared their experience with other universities abroad (via Erasmus placements), concluding that the relationships they can build with the academic staff of the Department were overall more personalized at AUTH.

Applies appropriate procedures for dealing with students' complaints:

Student complaints are allowed after the final exams and after the announcement of the examination outcome. This is happening during an allocated time slot during when the students may visit academic staff to discuss their complaints.

The assessment criteria and methods are published in advance:

The assessment methods are known in advance and typically at the start of each academic year. In most cases these follow well accepted practices: a combination of coursework and final examination. These are also available online (e-Οδηγός Σπουδών) and e-learning platform. It has been reported that overall, the average graduation mark is improving over the years (used to be below 7,00/10,00 and now has reached 7,50/10,00 since 2012/2013). Similarly, the average time to graduation has improved substantially (from 7.8 to 6.8 years).

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 advising on the learning process:

It has been reported that detailed feedback is given to each coursework and also to the exam marks, if requested. The interviewed students have enthusiastically commented on the support and feedback they are getting from academic staff.

The regulations for assessment take into account mitigating circumstances:

As part of the standard academic processes, the Department considers and takes action for cases that require special attention. For example, they provide exams outside the normal examination periods, provide specialized coursework and in general consider extenuating circumstances. In addition, the Department (after review) approves additional examinations for students that have either long-delayed their studies or are in need of graduating at a time earlier than the standard examination periods. The Department has a provision for students with learning difficulties or for addressing cases that may come up during the course of the studies. In such cases, provision for individual/tailored examinations/assessment is considered, in addition to the educational procedures.

Assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures:

Assessment follows standard and well-known procedures known to all in advance. The Department is committed to equality and fairness across all aspects of the education processes.

A formal procedure for student appeals is in place:

The department follows a transparent procedure in assessing the students' appeals; these are initially addressed between individual students and academic staff members, and if not

resolved, through the head of department. In cases that students fail consistently to pass a specific module (after 3 years), they have the right to request an examination from a panel.

Panel Judgement

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

Panel Recommendations

- To consider the establishment of a formal committee or panel (shown also in the Study Programme), where student representatives (or even individual students) may report malfunction of delivery in teaching. This may help all in addressing problems that may arise during the academic term, rather than waiting for the student feedback, that can only affect the delivery of the modules in forthcoming years.
- To consider a more formal way of addressing student appeals; this may be done by a committee or a panel instead of discussing such issues between the students and individual staff members.
- To consider making the findings of the results of the student surveys easily available. Obviously, this has the danger of making public comments that intentionally and unfairly damage the reputation of the Department from some individuals. However, it is a standard practice internationally to make all comment public.

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 admission of new students to MENG/AUTH, as in all university departments in Greece, is determined by the Ministry of Education in accordance with the pertinent legislation, usually in the form of entrance national exams. A large number of students from other universities in Greece are also admitted through an internal transfer system based on social and economic criteria. The universities do not have control of the admission criteria and the number of new students. As a result, the number of students in the Department is always well above the recommended annual quota resulting in high student to academic/teaching staff ratios and teaching loads.

The secretariat of the Department provides support on procedural issues to new students. At the beginning of the academic year, the Department organizes an information/dissemination event for new students about the program of studies, general activities and services provided. Informative events for all students are also held at later stages of their studies. These events are organized by the three Sectors and have as objective the presentation of the directions (in Year 4) and specializations (in Year 5) within the programme; however, this needs to be better communicated to the incoming students.

As attendance of the programme of studies is optional, a large number of students cannot meet the high standards resulting in very high failure rates in the core courses, especially in Years 1 to 3. Recognizing the above problems, the Department recently decided to systematically monitor the progress of students, especially during the first 3 years of study and to inform by email the students who are lagging behind (i.e., have been examined in less than half the modules provided), encouraging them to contact their academic advisors. In Years 4 and 5 of the

programme, the students have the flexibility to plan the rest of their studies by choosing their direction and specialization. A large number of electives are available to choose from. The studies are completed with the Diploma Thesis during Year 5 of the program. Each student can choose the area in which they wish to prepare their Diploma Thesis. The topic may be purely Sector-specific but may also require cross-sectoral cooperation. The presentation of the Diploma Thesis is made before a three-member examination committee. There are detailed procedures and regulations related to the allocation, execution, presentation and evaluation of the Diploma Thesis. Since July 2014, the Department automatically issues the Diploma Supplement Label according to the pertinent European legislation.

MENG/AUTH fully implements the ECTS credit transfer system, both in its curriculum and in the procedures of recognition of modules and study time for students of other universities in accordance to the current legislation. The general assembly of the Department may also recognize modules that have been successfully examined in other co-educational institutions, as free electives. The relevant information is provided in person, with the registration application and on a case-by-case basis. All the necessary information related to educational periods spent in Institutions abroad within the framework of the European programs (e.g., Erasmus+ and Erasmus international), is available on the main website of AUTH, the website of the Department of European Programmes and the Departmental website. Although, scholarship opportunities are limited compared to similar institutions abroad, the university provides a number of scholarships available to all students and are awarded based on academic performance and socio-economic criteria. HNARIC is responsible for the recognition of degrees (of any level) abroad. All qualifications in domestic universities are automatically recognized.

The students of MENG/AUTH have the opportunity to travel for 3 to 12 months to collaborating European universities under the Erasmus+ programme. According to the regulations of the programme, the transfer can be done either by attending modules (transfer for studies) or for the preparation of an internship (Erasmus + Internship). The Department has a number of bilateral cooperation agreements with foreign institutions. Student mobility is supervised by the departmental Erasmus team, which consists of three ECTS coordinators, all of whom are professors. The selection of students is done after an invitation from the Department of European Educational Programmes. Its website provides comprehensive information to students. The applications are examined by the Erasmus Team of the Department and are classified according to the criteria, which have been decided by the Senate. There is a well-established procedure starting with drafting the Learning Agreement by the Erasmus Team to final approval by the general assembly of the Department.

Internships are offered to students since 2003. They are integrated to the curriculum, but they are optional to students taking into consideration the requirements of the market and industry. The Department has developed significant activity, procedures and plans together with participating companies and other external organizations, to inform and prepare students and to execute and monitor the internships. The external stakeholders are collaborating closely with

MENG/AUTH for the implementation of the internships based on established links and relations. All procedures and regulations are articulated in the Internship manual of the Department.

Panel Judgement

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

Panel Recommendations

- Orientation events should be better communicated to the students, especially the incoming ones.

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

MENG/AUTH has very clear and transparent processes in place towards recruiting the most qualified academic staff and the importance of both teaching and research is emphasized. Due to its high visibility, the Department's recruitment process is based largely on research credentials, as it should, and the expectation is that the new academic staff will also excel in the classroom. The introduction of innovation to teaching methods and the use of new technologies are clearly encouraged, but it is not always feasible due to various constraints that frequently cannot be controlled by the Department. The academic staff mobility is also encouraged in the form of sabbatical leaves or extensive visits to other universities abroad, which are considered vital for the staff development. However, it is not easy for faculty members to take long leaves due to their limited resource availability and the heavy teaching commitments.

The following issues are largely beyond the control of MENG/AUTH. The number of students keep increasing and the number of academic staff keeps decreasing. Specifically, the number of academic staff was reduced from 33 in 2011-12 to 27 in 2020-2021 while the number of registered students increased from 1386 to more than 1850 during the same period. The Department reports a ratio of active students to academic staff being 37,89, which is rather conservative if one considers the total number of registered students. At the same time, this ratio decreases further to 29,24 by accounting also additional 8 Teaching Associates who assist in teaching. It is clear that the unacceptably large number of incoming students is beyond the

control of the Department that is stretching itself thin to provide the best possible education and should be commended for that.

There is a mechanism for the students to evaluate each module and instructor and the percentage of participation varies between 30 and 50%, which is considered statistically satisfactory. It is not clear again, what are the consequences of bad teaching as there are no mechanisms to create incentives based (again) on rules imposed by the State. EEAP appreciates though the efforts of the Department to mitigate such issues via communications with the academic staff that underperforms in the classroom and this is the best that can be done under the circumstances.

The students appear to be in general happy with the teaching in the Department. However, it was brought to the attention of EEAP that some teaching approaches such as those using PowerPoint presentations in undergraduate classes is far from ideal and/or effective.

EEAP considers the teaching load per academic staff as being rather high and the direct consequence is the reduction of the time that could be allocated to research endeavours and initiatives. It is not a good practice for the State to ignore processes that become obstacles to research development in Departments of the calibre of MENG/AUTH. This point requires serious consideration.

Regarding attracting the very best academic staff, MENG/AUTH is well positioned to do so. However, it will be unrealistic to not realize that for highly qualified candidates there will be competing offers from universities abroad (especially in Europe and the US), with resources that cannot be matched by what the State allows AUTH to offer.

Panel Judgement

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

Panel Recommendations

- Keep the number of incoming students close to that of the directly admitted.
- Increase the number of faculty close to 35 and eventually to 40.
- Provide incentives for rewarding good teaching.
- New effective and attractive methods of teaching should be introduced in larger numbers, and methods not appropriate for undergraduate teaching should be abandoned.
- Provide incentives for attracting the best academic staff from abroad and Greece and minimize inbreeding. Emphasis should be also in emerging areas that grow exponentially.

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

MENG/AUTH receives its funding and means for undergraduate teaching from the Greek Government to support learning and academic activity in general, so that they can offer to students the best possible level of studies. The above means also include facilities like the library, study rooms, educational and scientific equipment, information and communications services, student support and counselling services.

The allocation of the available resources considers the needs of all the undergraduate students and the shift towards student-centred learning and the adoption of flexible models of learning and teaching. IQAS ensures that all resources are appropriate, adequate, and accessible, and that students are informed about the services available to them.

The role of support and administrative staff is crucial in delivering the support services and therefore they need to be qualified and have opportunities to develop their competences. MENG/AUTH has the necessary facilities (classrooms, laboratories, IT infrastructure) to ensure an appropriate teaching and learning environment.

With increasing number of students beyond the direct admissions there is a requirement for additional space and facility related resources. There is a rational distribution of the existing facilities.

There is an adequate range of support services available to the students (i.e., boarding, dormitories, career counselling, student welfare office, sport/cultural facilities etc.) although certain services like career counselling would require further development. The students are informed about the available services and these services are functional and accessed by the students, although there is always room for further and continuous improvement on this matter.

EEAP noted also that the input from external stakeholders could be improved in order to increase the effectiveness of the practical training and assist the students with their career development and aspirations.

It appears that there is sufficient and competent administrative staff to ensure the smooth operation of the student support services although with increased student numbers additional staff might be required.

Panel Judgement

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

Panel Recommendations

- Improve space availability and technician resources.
- Improve further resource library and available computers with software licenses.
- Introduce in depth orientation from Year 1.
- More detailed procedure for practical training with increased duration.
- Institute an advisory board that includes all stakeholders such as external academics, representatives of public and private sectors, research institutes, and alumni.

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

MENG/AUTH established and operates an information system for the management and monitoring of data concerning students, academic staff, module structure and organization, teaching and provision of services to students as well as to the academic community.

There is reliability of data that is essential for accurate information and decision making, as well as for identifying areas of smooth operation and areas for improvement as it is evident by the information provided.

It appears that there are procedures for collecting and analyzing information on study programmes and other activities, feeding data into the internal system of QA, as evidenced by information that was also provided including aspects like KPIs, student population profile, student progression, success and drop-out rates, student satisfaction with their programme(s), availability of learning resources and student support and career paths of graduates. Some are working well, and some require improvements like for example tracking the career paths of graduates that requires improvement and is currently work in progress centrally rather than at departmental level.

A number of methods are used for collecting information and further effort is required to ensure that both students and staff are involved in providing and analyzing information and planning the follow-up activities.

On-line information systems and other feedback forms are used for the collection of data. The student and staff satisfaction surveys are conducted annually.

The information obtained from the satisfaction surveys is systematically analysed, as evidenced by the information provided and appropriately communicated to be used towards further improvement.

More detailed data relevant to the analysis and evaluation of data related to the availability and accessibility of resources (equipment, social services, IT facilities etc.) were not provided. The data provided were properly presented in graphs, demonstrating trends and allowing direct interpretation and comparisons.

Panel Judgement

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

Panel Recommendations

- Clarify further the internal evaluation process.

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

MENG/AUTH has developed a rather comprehensive, clear, easy-to-follow and well-structured website, yet with an outdated, blocky design.

Some discrepancies are noted between the Greek and English version of the website regarding the information displayed. The website includes information on MENG/AUTH's: (i) history, (ii) mission, (iii) administrative organizational structure, (iv) academic staff and key personnel, (v) information on both undergraduate and graduate programmes, (vi) scientific laboratories and research, (vii) facilities infrastructure, computer and network centres, (viii) support services and facilities especially for students, (ix) social clubs and activities, scholarly, cultural, and physical activities as well as up-to-date news and announcements.

Each Department's Sector and the laboratories within it, have their own website with specific information about their educational and research activities, resources and key personnel. They also include up-to-date and easily accessible news, announcements, awards, distinctions, publications, and noteworthy accomplishments of the Department. All modules are thoroughly presented in a distinct section of the website.

It should be highlighted that, MENG/AUTH website provides a brief description and indicative information regarding the policy of QA. These sections are included only in the Greek language version of the website.

Panel Judgement

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

Panel Recommendations

- Establish coherence between the Greek and English versions of the website.

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

MENG/AUTH follows the established by AUTH accreditation and quality policy procedure. The activity categories subject to the principle of self-assessment that MENG/AUTH utilizes are:

- Instructional activity.
- Research and innovation activity.
- Economic activity and financial management.
- Human resources.
- Facilities and infrastructure.

MENG/AUTH has defined its own set of KPIs relevant to its strategic goals that are compatible with the above stated categories:

- Excellence in the delivery of education integrated with research at all study levels.
- High level research output combined with innovation for the benefit of the economic and social development of the country.
- Promotion of excellence and innovation.
- Development of new knowledge and applications.
- Strengthening of outreach activities (extroversion) and internationalization.
- Improve human resources staffing.
- Maintenance and improvement of infrastructure.

- Improvement of administrative effectiveness.
- Interaction with scientific organizations and its graduates.

The Quality Targeting (Β6 Στοχοθεσία Ποιότητας) Table submitted by MENG/AUTH, in the format required by HAHE includes 46 "Quality Targets". It includes a combination of selected KPIs from (a) the set that HAHE tracks which the institution recognizes as being relevant to their strategic goals and (b) a set which includes KPIs defined by MENG/AUTH for the optimal monitoring of their strategic goal categories and subcategories.

EEAP noticed the significant effort towards the optimal management of the data gathering, processing, and analysing. Nevertheless, the results of the self-assessment process could be documented more effectively and efficiently.

Last but not least, the feedback that OMEA received from the self-assessment process could be better communicated so that appropriate mitigating actions to be taken.

Panel Judgement

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

Panel Recommendations

- Better documentation and communication of the self-assessment process and findings.

Principle 10: Regular External Evaluation of Undergraduate Programmes

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

HAHE is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HAHE 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

MENG/AUTH underwent an external evaluation in 2013, and an extensive number (30) of recommendations were made. The purpose of such recommendations is dual. First, to alert the Department what measures need to be taken to improve based on what its members can control. Second, to bring to the attention of the University Administration and more important the State (via the Ministry of Education) real issues with very negative consequences that they can only resolve. In summary, the Department took very seriously the external evaluation report and managed to respond to 20 out of 30 recommendations, with 13 being relevant to the undergraduate programme.

The EEAP members were impressed by the actions taken by the Department. EEAP noted in particular:

- The overlaps between modules were reduced.
- Even though the Department has not imposed rules about prerequisites, which would have no chance to be implemented within the current social climate, an excellent rule has been introduced. More specifically, the students need to complete at least 90 ECTS in core modules during the first 3 years before they can take modules in various specialized areas. EEAP commends the School for doing that and hopes that it could be used as an example for other Academic Institutions in Greece to follow.
- The importance of Chemistry was recognized in view of many areas including energy and materials and was introduced as a core module.
- Students are encouraged to consider modules across Sectors.

However, additional actions could and should be taken for further improving the quality of the undergraduate education. The number of offered modules is quite large (~125) and an effort should be made to reduce it. It appears also that the majority of the modules are in rather traditional areas at the expense of emerging scientific and technological areas that MENG/AUTH should consider for its future. For example, it is not inconceivable that several courses in Design and Construction could be part of a Materials Science Department that could be introduced in AUTH given the rapid growth of the field and the prominence of such Departments in leading universities abroad. Examples of additional areas that the Department could consider are indicated in Principle 2.

Last but not least, consider input from stakeholders of the programme regarding strengths and weaknesses in view of traditional and new areas. This connection needs to be further improved.

Panel Judgement

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

Panel Recommendations

- Consider further reduction of the number of offered modules.
- Introduce modules in new areas.
- Increase the input to the programme by the external stakeholders.

PART C: CONCLUSIONS

I.   Features of Good Practice

- MENG/AUTH has demonstrated an impressive commitment to QA at all levels as well as students and stakeholders.
- MENG/AUTH has implemented an effective quality policy that defines and describes QA processes and procedures well.
- The establishment of an electronic platform for collection and processing of data at all levels.
- MENG/AUTH has responded effectively and satisfactorily to the recommendations of the external evaluation report.

II.   Areas of Weakness

- There is no established procedure of engaging external stakeholders during the process of module development and review.
- Insufficient procedures of communicating and disseminating the results of data collection and processing.

III.   Recommendations for Follow-up Actions

- The curriculum and its implementation need to undergo a continuous review and improvement by striking a balance between traditional and emerging areas and topics.
- The consistency of content and information across webpages should be improved.
- The Department should continue its efforts for developing and implementing a strategy for recruiting new academic staff, especially in emerging areas, and minimizing inbreeding.
- The development of a clear procedure for collecting information for continuous module development and engaging with external stakeholders operating in the region and more widely (Greece, Europe or globally), possibly in the form of an advisory board.
- To introduce additional measures (and/or procedures) for improving student's participation in the QA processes and procedures.

IV.   Summary & Overall Assessment

The Principles where full compliance has been achieved are:

- Principle 1: Academic Unit Policy for Quality Assurance
- Principle 2: Design and Approval of Programmes
- Principle 4: Student Admission, Progression, Recognition and Certification
- Principle 5: Teaching Staff
- Principle 6: Learning Resources and Student Support
- Principle 7: Information Management
- Principle 8: Public Information
- Principle 9: On-going Monitoring and Periodic Internal Review of Programmes
- Principle 10: Regular External Evaluation of Undergraduate Programmes

The Principles where substantial compliance has been achieved are:

- Principle 3: Student-centred Learning, Teaching and Assessment

The Principles where partial compliance has been achieved are:

None

The Principles where failure of compliance was identified are:

None

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

The External Evaluation & 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 External Evaluation & Accreditation Panel

Name and Surname   **Signature**

1. **Prof. Fokion Egolfopoulos** (Chair)
   University of Southern California, Los Angeles, California, USA

2. **Prof. George Aggidis**
   Lancaster University, Lancaster, United Kingdom

3. **Dr. George Banias**
   Member of the Technical Chamber of Greece, Greece

4. **Prof. Manolis Gavaises**
   City, University of London, London, United Kingdom

5. **Prof. Konstantinos Kontis**
   University of Glasgow, Glasgow, United Kingdom