ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC

Εθνική Αρχή
Ανώτατης Εκπαίδευσης
Hellenic Authority
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Accreditation Report

for the New Undergraduate Study Programme in operation (Integrated Master) of:

Mechanical Engineering

Institution: University of West Attica
Date: 26 January 2023

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο
Επιχειρησιακό Πρόγραμμα
Ανάπτυξη Ανθρώπινου Δυναμικού,
Εκπαίδευση και Διά Βίου Μάθηση
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης
ΕΣΠΑ 2014-2020
enqa.

Report of the Panel appointed by the HAHE to undertake the review of the New Undergraduate Study Programme in operation (Integrated Master) of **Mechanical Engineering** of the **University of West Attica** for the purposes of granting accreditation.

ACRONYMS

ECTS:	European Credit Transfer and Accumulation System
EEAP:	External Evaluation & Accreditation Panel
EHEA:	European Higher Education Area
ENQA:	European Association for Quality Assurance in Higher Education
ESG:	Standards and Guidelines for Quality Assurance in the European Higher Education Area
EUA:	European University Association
GDPR:	General Data Protection Regulation
HQA:	Hellenic Quality Assurance & Accreditation Agency in Higher Education
HAHE:	Hellenic Authority for Higher Education
HEIs:	Higher Education Institutions
IM:	Integrated Master
IQAS:	Internal Quality Assurance System
ISO:	International Organization for Standardization
KPIs:	Key Performance Indicators
MOOCS:	Massive On-line Open Courses
NISQA:	National Information System for Quality Assurance in Higher Education (ΟΠΕΣΠ)
QAU:	Quality Assurance Unit
USP:	Undergraduate Study Program

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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 new undergraduate study programme in operation (Integrated Master) of **Mechanical Engineering** of the **University of West Attica** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

1. **Prof. John Botsis (Chair)**
   EPFL, Lausanne, Switzerland

2. **Prof. George Frantziskonis**
   University of Arizona, Tucson**,** Arizona, USA

3. **Prof. George Aggidis**
   Lancaster University, Lancaster, UK (remote participation)

4. **Mr. Panagiotis Kiskiras, Mechanical Engineer**
   Member of the Technical Chamber of Greece, Athens, Greece (remote participation)

5. **Mr. Efthymios Kechagias, Student**
   Department of Mechanical Engineering,
   University of West Macedonia, Kozani, Greece (remote participation)

II. Review Procedure and Documentation

The Hellenic Authority for Higher Education (HAHE) defined an External Evaluation & Accreditation Panel (EEAP) of experts to assess the compliance of the Internal Quality Assurance System (IQAS) of the Undergraduate Study Programme (Integrated Master) of **Mechanical Engineering** (**MENG**) of the **University of West Attica (UNIWA)** in accordance with the HAHE Quality Assurance (QA) requirements. The assessment was conducted in a hybrid manner: two of the panel members were present in person while the other three joined remotely via Zoom and MS Teams. The method used was based on sampling of the activities of MENG/UNIWA to evaluate the fulfilment of the HAHE requirements of the relevant Quality Standard of the IQAS, and comment on its compliance, effectiveness, efficiency and applicability with respect to the chosen requirements.

The review process was carried out during the period of 16 January to 21 January 2023 and the whole process including the submission of the Accreditation Report was completed on Wednesday 25 January 2023.

On January 15, 2023:

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 January 16, 2023:

The EEAP members met with:

The Vice-Rector/President of MODIP and the Head of Department:

- *Vice-Rector of Academic Affairs and President of MODIP, Prof. Efstathia Papageorgiou*
- *President of ME/UOWA, Prof. Constantinos Stergiou*

During this meeting, Prof. *Papageorgiou and* Prof. *Stergiou* each gave a short but very useful presentation providing an overview of the history and academic profile of UNIWA and MENG/UNIWA, respectively. The presentations were followed by an informative discussion.

The OMEA and MODIP Representatives:

- *Prof. Efstathia Papageorgiou (ViceRector/President of MODIP)*
- *Dr. Marisa Sigala (MODIP staff)*
- *Prof. Pandora Psyllaki (OMEA member)*
- *Prof. Gerasimos Panayiotatos (OMEA member)*
- *Associate Prof. Konstantinos Moustris (OMEA member)*

Prof. *Papageorgiou* and Prof. *Psyllaki* 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.

Teaching staff members of ME/UOWA:

- *Prof. John Kaldellis*
- *Prof. Aimilia Kondili*
- *Prof. George Chamilothoris*
- *Prof. Konstantinos Nikas*
- *Prof. Ioannis Sarris*
- *Prof. Achilleas Vairis*
- *Associate Prof. Kosmas Kavvadias*
- *Associate Prof. George Besseris*
- *Assistant Prof. Christiana Papapostolou*
- *Lecturer Zoe Kanetaki*

Prof. Chamilothoris, Prof. Kaldellis, Prof. Kondili, Ass. Prof. Papapostolou and Lecturer Kanetaki gave an outline of teaching activities and associated metrics of MENG/UNIWA. The informative discussion that followed related to the Department's role in ensuring quality with respect to the specific defined educational objectives.

On January 17, 2023:

The EEAP members met with 10 undergraduate students.

The meeting was useful and valuable input was provided to EEAP regarding the educational activities in MENG/UNIWA.

Visiting classrooms, lecture halls, libraries, other facilities (computer rooms, libraries etc.)

The two in person and the three remotely connected members of the EEAP, where taken to a tour around the teaching and research facilities. The following faculty and staff members of MENG/UNIWA participated:

1. *Prof. George Nicolaides*
2. *Associate Prof. Andreas Theodorakakos*
3. *Associate Prof. Carmen Mendrea*
4. *Assistant Prof. Dimitrios Zafeirakis*
5. *Dr. George Spyropoulos (Special Laboratory and Teaching Staff)*
6. *Mrs. Cleopatra Ntourou (Special Laboratory and Teaching Staff)*
7. *Mr. George Karellas (Special Laboratory and Teaching Staff)*
8. *Mr. Christos Tsitsis (Special Laboratory and Teaching Staff)*
9. *Mrs. Maria Kokkali (Head of the Secretariat)*

The visit of the facilities was well planned and informative with valuable information to the EEAP regarding the teaching activities of the MENG/UNIWA.

Meeting with employers, social partners EEAP & employers/social partners

1. *Mr. Nektarios Banakas, member of the board of directors Hellenic Aerospace Industry SA*

2. *Mr. Athanasios Stefanakis, Advisor to the General Directorate of Hellenic Petroleum Refineries*
3. *Mr. Panagiotis Papadopoulos, CEO VIEPA - Innovating Packaging & Robotic Systems SA*
4. *Mr. Efstathios Mandilaras, CEO MT ATE Construction Company*
5. *Mr. Christofis Koroneos – Mayor of Nisiros island*
6. *Mr. Nikos Zenetos, Mayor of Ilion-Attica*
7. *Mr. Antonios Alexandropoulos, Head of Quality, Kassinakis SA Plastic & Electrical Material Industry*
8. *Mrs. Nikoleta Mastoridou, Head of Quality, N.Bazigos SA Manufacturing*
9. *Mr. Arsenios Dragatsis Quality Engineer Elval Halcor SA*
10. *Mr. Aristotelis Maragiannis, Head of R&D, LALIZAS Safety equipment manufacturer*

In this meeting, valuable and positive input was provided to the members of the EEAP regarding employment/employability and the contribution of the graduates of the MENG/UNIWA programme to the industry and community. The participants provided positive input for the EEAP members to consider.

The EEAP also met with MODIP and OMEA representatives:

1. *Prof. Efstathia Papageorgiou (Vice-Rector/President of MODIP)*
2. *Dr. Marisa Sigala (MODIP staff)*
3. *Prof. Pandora Psyllaki (OMEA member)*
4. *Prof. Gerasimos Panayiotatos (OMEA member)*
5. *Associate Prof. Konstantinos Moustris (OMEA member)*

The President of the MENG/UNIWA, Prof. C. Stergiou, Vice Rector and Rector of UNIWA Prof. J. Kaldellis and Prof. K. E. Kaldis also participated in this meeting where detailed discussion on the points required clarification were raised, followed by some more general remarks of the EEAP members on the programme and its activities.

Material provided by OMEA:

In its deliberations, the Committee took into consideration the following documents provided by the Department (with the corresponding file names in parentheses):

1. The Department's accreditation proposal and related documents (B1, B2, B3, B10).
2. Feasibility and sustainability study (B4).
3. The quality policy and control (B6 to B9, B15, B16, B24_1 to B24_7, B25).
4. Study guide and rules of application (B11, B17 to B20_4, B26_1 to 28_2).
5. Four-year planning and strategic objectives (B5).
6. Course outlines (B12_1, B12_2, B13).
7. Data on personnel, finances, research and infrastructure, scientific output, ~~etc.~~ and other related ones (B14, B23).

8. Sample of diploma certificate, appendix of awarded diploma, awarded diploma, detailed appendix of awarded diploma (B21_1 to B22, B29_1 to B30_2).
9. Supplementary information such as faculty, MODIP, student catalogues, (B31, B32_1 to B32_5).
10. Hard and electronic copies of all presentations.

The committee also drew on additional information available on the Department's webpage. On several occasions, the Committee requested additional clarifications, all of which were provided by the Department.

Material provided by HAHE:

- European Qualifications Framework
- ODIGOS PISTOPOIISIS_en
- P1B Standards New UGP in operation EN
- P12B_Guidelines for the EEAP
- Quality Indicators for the academic years: 2017/18, 2018/19, 2019/20, 2020/2021
- P13B_MAPPING GRID & ASSESSMENT GUIDE
- P14B_INTEG_Template for the New Undergraduate Study Programme in operation Accreditation Report - Copy

Moreover, at the EEAP's request, all presentations were made available during and after the visit.

III. New Undergraduate Study Programme in operation Profile

CONTEXT

The University of West Attica (**UNIWA)** and the department of mechanical engineering (**MENG**) were founded in March 2018 pursuant to National Law 4521/2018. The foundation of the newly established university resulted from the merger of the former Technological Educational Institute of Athens and Piraeus University of Applied Sciences. In 2019, the National School of Public Health joined the newly established university. The newly formed MENG department is housed in two campuses, both west of the city of Athens. Before merging, MENG was renowned for its high educational and applied research activities, with a very successful accreditation report from the quality assurance and accreditation (ADIP). The department enjoyed a strong link with industry and the local and national communities which is exemplified with the industrial student placements, industrial projects, and the employment of its graduates. Today, MENG has maintained these activities and intents to increase them further, benefiting not only from its pursuit of excellence in their strategic vision but also from its geographical location. The region of Attica and its close prefectures are amongst the most economic and industrially active hubs in the whole country.

Based on the documentation that was made available and the additional information provided to the EEAP members during discussions, the strategy of the **MENG/UNIWA** aims at pursuing excellence in teaching, research and continuation of its strong links with industry. The number of newly admitted students in Year 1 (through the National Entrance Examinations) is 170 (2022-2023) with a total number of "active" students of 1,400. This brings the student to faculty ratio to 67. However, the student body of the department is about 3,500, resulting in a student-to-faculty ratio nearly double that. The population of female to male students is approximately 11% (373/3424), whereas that of the UNIWA is 42% (24,148/56,899). While the ratio in the MENG is low, and the overall university's average high, this may be explained by the well-known large choice of female students to other 'non-engineering' disciplines.

Today the ME/UNIWA consecrates its activities in the following areas.

1. Advanced Industrial and Manufacturing Systems (with Kingston University London)
2. Energy Systems (with Heriot Watt University)
3. Energy and Environmental Investment
4. Oil and Gas Process Systems Engineering
5. Research in Thermofluids

The ME/UNIWA activities are supported currently by 21 academic staff (4 Lecturers, 2 Assistant Professors, 6 Associate Professors, 9 Full Professors), 7 EDIP members and 1 ETP member. However, the department requirements for teaching and laboratory support are far from sufficient. For this reason, the department hires: 26 Academic Scholars funded by the University and 6 from the EU funded programme "Acquisition of academic teaching experience for young scientists with a PhD". In addition, 2 non-permanent part-time lecturers (state law 407) will also join the department for the summer semester of 2022-23.

The Department is rarely designated as first choice in the national entrance examination system where preference to other well stablished programmes is indicated. The university and the department have demonstrated their willingness to work hard on this issue by demonstrating the quality of their programmes in research and teaching and most importantly become a state-recognised university programmes in mechanical engineering, equivalent to the similar programmes in the country.

The research profile of the MENG/UNIWA indicates a healthy activity as measured by metrics on research average outputs in total so far with 1,081 publications and 18,506 citations in Scopus, bringing an average of 17 per faculty.

The department faces a number of challenges including the large number of students and low permanent teaching staff; a large load of administrative work; a small number of graduating students within the normal study period; lack of infrastructure/space for teaching and research; uncertainty in state funding; the good students do not choose the programme in the entry national-placement examination since the students choose other departments.

The department has also some strong points stemming from its geographical location, participation in research programmes, strong industrial links and increased doctoral students.

The main challenge of the department today, and the UNIWA as whole, is the upgrade/recognition of the programme (s), by the state, to a university level one, equivalent to the existing universities in the country. This will consequently bring direct professional recognition of its graduates, by the Technical Chamber of Greece (TEE) and in the work place. This recognition will solve at least in part the problem of the quality in the first-year entry students and promote the students' professional growth in the work place.

PART B: COMPLIANCE WITH THE PRINCIPLES

Principle 1: Strategic Planning, Feasibility and Sustainability of the Academic Unit

Institutions must have developed an appropriate strategy for the establishment and operation of new academic units and the provision of new undergraduate study programmes. This strategy should be documented by specific feasibility and sustainability studies.

By decision of the institutional Senate, the Institutions should address in their strategy issues related to their academic structure in academic units and study programmes, which support the profile, the vision, the mission, and the strategic goal setting of the Institution, within a specific time frame. The strategy of the Institution should articulate the potential benefits, weaknesses, opportunities or risks from the operation of new academic units and study programmes, and plan all the necessary actions towards the achievement of their goals.

The strategy of their academic structure should be documented by specific feasibility and sustainability studies, especially for new academic units and new study programmes.

More specifically, the feasibility study of the new undergraduate study programmes should be accompanied by a four-year business plan to meet specific needs in infrastructure, services, human resources, procedures, financial resources, and management systems.

During the evaluation of the Institutions and their individual academic units in terms of meeting the criteria for the organisation of undergraduate study programmes, particular attention must be place upon:

a. The academic profile and the mission of the academic unit

The profile and mission of the department should be specified. The scientific field of the department should be included in the internationally established scientific fields of Higher Education, as they are designated by the international categorisation of scientific fields in education, by UNESCO (ISCED 2013).

The department of mechanical engineering (MENG) of the University of West Attica (UNIWA) was established in 2018. Today, the department's aims at contributing to the scientific community by its high research level and provide university level engineering education in mechanical engineering as defined by the definition/requirement of the UNESCO (ISCED 2013). The mission of the MENG/UNIWA is to produce graduates in mechanical engineering with strong scientific and technical knowledge in basic principles and contemporary engineering to address the economic and societal challenges of today and the future. This will be achieved by sound education, exchange programmes of student and staff with national and international institutions and industry. The academic profile and the defined mission are in accordance with national and international higher-level academic institutions.

b. The strategy of the Institution for its academic development

The academic development strategy for the operation of the department and the new study programme should be set out. This strategy should result from the investigation of the factors that influence the studies and the research in the scientific field, the investigation of the institutional,

economic, developmental, and social parameters that apply in the external environment of the Institution, as well as the possibilities and capabilities that exist within the internal environment (as reflected in a SWOT Analysis: strengths, weaknesses, opportunities, and threats). This specific analysis should demonstrate the reason for selecting the scientific field of the new department.

MENG/UNIWA, centers its activities, around the excellence in teaching and research. Its approach seems to be realistic and sound. It is based on international standards using SWOT and PEST analyses and is in accordance with the directions set forth by MODIP. MENG/UNIWA strategy is well defined and planed. In particular it is about pursuing teaching, research and development in the areas relevant to mechanical engineering which include, digital transformation; continuous improvement in university life; the promotion of ethics and transparency; build national and international relations; sustainable growth and responsible management of resources; ensure quality. The department is fully aware of the needs to implement a dynamic study plan that will incorporate current needs in research and students' projects. Also, it plans to promote further the graduate studies; increase the faculty and staff; participate in interdepartmental activities and search for external funding.

c. The documentation of the feasibility of the operation of the department and the study programme

The feasibility of the operation of the new department should be justified based on:

- *the needs of the national and regional economy (economic sectors, employment, supply-demand, expected academic and professional qualifications)*
- *comparison with other national and international study programmes of the same scientific field*
- *the state-of-the-art developments*
- *the existing academic map; the differentiation of the proposed department from the already existing ones needs to be analysed, in addition to the implications of the current image of the academic map in the specific scientific field.*

The study programme in operation at the MENG/UNIWA meets international standards in terms of amount (credit hours), level, and quality of study/workload for the students. The credit units follow European programmes for an integrated Master programme and are of a level similar to existing ones nationally and internationally. The study program also considers the national requirements and needs for the proposed programme and has developed the necessary documentation. The addition of the MENG/UNIWA in the existing Greek academic map is mainly based on the needs of mechanical engineers in today's and future job markets in the private industrial sector. It is also justified by the role and contribution of mechanical engineers in the developments of technology in energy and product development in Greece and beyond. However, the feasibility study needs to be further elaborated.

d. The documentation of the sustainability of the new department

Mention must be made to the infrastructure, human resources, funding perspective, services, and all other available resources in terms of:

- *educational and research facilities (buildings, rooms, laboratories, equipment, etc.)*
- *staff (existing and new, by category, specialty, rank and laboratory). A distinct five-year plan is required, documenting the commitment of the School and of the Institution for filling in the necessary faculty positions to cover at least the entire pre-defined core curriculum*
- *funding (funding possibility from public or non-public sources)*

- *services (central, departmental / student support, digital, administrative, etc.)*

Teaching of courses offered by the MENG curriculum is carried out in the existing classrooms of the engineering school at UNIWA, which are shared with the other programmes of the UNIWA. Most of the classrooms are equipped with modern IT tools. For courses with laboratory component as well as projects, the department offers the necessary teaching space in corresponding laboratories. MENG has provided the list of courses and the required infrastructure. The visit of the EEAP also attests the well-defined programme of the MENG in this respect. However, is timely and important to update and/or replace some laboratory facilities.

MENG/UNIWA activities are supported currently by 21 academic staff (4 Lecturer, 2 Assistant, 6 Associate and 9 Full Professors), 7 EDIP members and 1 ETP member. The three academic staff were hired after the transition and one position is currently open. Also, two more positions, given by UNIWA, are to be opened. With the assumption that the three positions will be given to MENG, extra care should be taken as to the profiles of these positions. The MENG should seek and build a critical mass on key areas of its teaching and research activities.

The funding of the current teaching needs at MENG is provided by the annual funding to UNIWA given by the state. This funding is not sufficient, as it is the case in other Greek academic institutions, for research and the faculty is engaged in searching funding through competitive research proposals in national and European contexts.

e. The structure of studies

The structure of the studies should be briefly presented, namely:

- ***The organisation of studies:*** *The courses and the categories to which they belong; the distribution of the courses into semesters; the alignment of the courses with the European Credit Transfer System (ECTS).*
- ***Learning process:*** *Documentation must be provided as to how the student-centered approach is ensured (modes of teaching and evaluation of students beyond the traditional methods).*
- ***Learning outcomes:*** *Knowledge, skills and competences acquired by graduates, as well as the professional rights awarded must be mentioned.*

MENG/UNIWA has designed the programme for a duration of 5 years or 10 semesters. There are 50 courses in total, distributed rather equally over 9 semesters, with the 10th semester devoted to the senior project (DIPLOMATIKI). Amongst the 50 courses, 33 are core courses, 10 courses are within the chosen specialization and 7 are elective ones. The total number of ECTS is 300 units, compliant with the other national and European equivalent programmes. There is also a non-mandatory proposed practical training in industry for each student, if the student has completed the core courses.

The teaching approach is based on the course type and the teacher's evaluation by taking into account the learning outcomes, based on the national and international standards in MENG. Each teacher announces the needs and any requirements for the course at the start

of the corresponding teaching period. The documentation provided, lists and explains the expected learning outcomes. It is complete and reasonable.

However, the important requirement to complete the prerequisites of the follow-up course is not observed and that poses a problem in the learning outcomes for the student. Also, the curriculum is not very clearly presented as to the content of each class.

f. The number of admitted students

- *The proposed number of admitted students over a five-year period should be specified.*
- *Any similar departments in other HEIs with the possibility of student transfers from / to the proposed department should be mentioned.*

The MENG/UNIWA proposes admitting a number of first-year students based on their performance in the national examination. This is based on the department's discussions but eventually it is decided by the state for, seemingly, unclear reasons. In the last 3 years this number was about 120. However, this number is increased to around 170 with students transfer from other universities of the country due to its advantageous geographical location. This number is foreseen to remain at this level for the next few years.

g. Postgraduate studies and research

- *It is necessary to indicate research priorities in the scientific field, the opportunities for interdisciplinary research, the challenges towards new knowledge, possible research collaborations, etc.*
- *In addition, the postgraduate and doctoral programmes offered by the academic unit, the research projects performed, and the research performance of the faculty members should be mentioned.*

The MENG/UNIWA has given priority to contemporary scientific fields as listed in the documents provided. These are:

1. Advanced Industrial and manufacturing Systems (with Kingston University London)
2. Energy Systems (with Heriot Watt University)
3. Energy and Environmental Investment
4. Oil and Gas Process Systems Engineering
5. Research in Thermofluids

The department also offers a doctoral programme, with already a number of registered students and the programme is organised and operates according to the existing state regulations. The documents provided, include pertinent data and information.

Relevant documentation

- *Introductory Report by the Quality Assurance Unit (QAU) addressing the above points with the necessary documentation*
- *Updated Strategic Plan of the Institution that will include its proposed academic reconstruction, in view of the planned operation of new department(s) (incl. updated SWOT analysis at institutional level)*
- *Feasibility and sustainability studies for the establishment and operation of the new academic unit and the new study programme*
- *Four-year business plan*

Study Programme Compliance

Based on the provided documentation and the discussions, the EEAP found an overall good program at MENG/UNIWA that aspires to grow further and become a major national and international participant in education and research in areas related to mechanical engineering. The work done so far by the faculty, shows that the results are good, and the department can do better.

The USP should be thoroughly designed for its feasibility and sustainability in the Hellenic educational landscape as well as work-market. While the program is substantially compliant, as indicated with discussions in the principle, certain aspects need to be improved to make an excellent program. Its medium- and long-term success will heavily depend on fulfilling the requirement of a 'critical mass' of faculty in key areas of mechanical engineering, increase and improve the space and laboratory facilities for teaching and address the quality of incoming students.

The EEAP found the faculty very enthusiastic that works relentlessly for the success of the program. If the necessary support from the University and/or state are provided, the committee believes that the program can be a success. The particular advantage of its geographical location as well as the links with the Hellenic industry at large should be further explored and exploited for the benefit of the department and the economy. The department should formulate its needs in all the aforementioned important 'academic' components in its multiyear 'business plan'.

Panel Judgement

Principle 1: Strategic planning, feasibility and sustainability of the academic unit	
a. The academic profile and the mission of the academic unit	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	
b. The strategy of the Institution for its academic development	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
c. The documentation of the feasibility of the operation of the department and the study programme	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
d. The documentation of the sustainability of the new department	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
e. The structure of studies	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	
f. The number of admitted students	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

g. Postgraduate studies	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Principle 1: Strategic planning, feasibility and sustainability of the academic unit (overall)	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- Conduct a USP feasibility study currently missing (B4).
- Update and/or replace some of laboratory facilities.
- MENG should plan in its strategy to seek and build a critical mass on key areas of its activities including, solid mechanics, computational mechanics in teaching and research.
- With the seemingly strong links and industry relations, the MENG/UNIWA should seek industrial support (funding) for permanent and/or short-term teaching and technical staff positions.
- It is important to follow the principle of passing the prerequisite courses in order to continue to the more advanced ones.
- The curriculum is not very clearly presented as to the content of each class.

Principle 2: Quality Assurance Policy of the Institution and the Academic Unit

The Institution should have in place an accredited Internal Quality Assurance System, and should formulate and apply a Quality Assurance Policy, which is part of its strategy, specialises in the operation of the new academic units and the new study programmes, and is accompanied by annual quality assurance goals for the continuous development and improvement of the academic units and the study programmes.

The quality assurance policy of the Institution must be formulated in the form of a published statement, which is implemented by all stakeholders. It focuses on the achievement of special annual quality goals related to the quality assurance of the new study programme offered by the academic unit. In order to implement this policy, the Institution, among others, commits itself to put into practice quality procedures that will demonstrate: the adequacy and quality of the academic unit's resources; the suitability of the structure and organisation of the curriculum; the appropriateness of the qualifications of the teaching staff; the quality of support services of the academic unit and its staffing with appropriate administrative personnel. The Institution also commits itself to conduct an annual internal evaluation of the new undergraduate programme (UGP), realised by the Internal Evaluation Group (IEG) in collaboration with the Quality Assurance Unit (QAU) of the Institution.

The quality assurance policy of the academic unit includes its commitment to implement quality procedures that will demonstrate: a) the adequacy of the structure and organisation of the curriculum, b) the pursuit of learning outcomes and qualifications in accordance with the European and National Qualifications Framework for Higher Education, c) the promotion of the quality and effectiveness of the teaching work, d) the adequacy of the qualifications of the teaching staff, e) the promotion of the quality and quantity of the research work of the members of the academic unit, f) the ways of linking teaching with research, g) the level of demand for graduates' qualifications in the labour market, h) the quality of support services, such as administration, libraries and student care, i) the implementation of an annual review and audit of the quality assurance system of the UGP through the cooperation of the Internal Evaluation Group (IEG) with the Quality Assurance Unit (QAU) of the Institution.

Relevant documentation

- *Revised Quality Assurance Policy of the Institution*
- *Quality Assurance Policy of the academic unit*
- *Quality target setting of the Institution and the academic unit (utilising the S.M.A.R.T. methodology)*

Study Programme Compliance

The MENG (Mechanical Engineering) Department of the University of West Attica (UNIWA) has established a Quality Assurance Policy developed by MODIP in coordination with HAHE policies and procedures. The aim of the QA policy is to develop a quality culture and "every day" policy in MENG towards improvement in quality of instruction and research as linked to the strategic goals of MENG. The QA policy and the associated procedures are well-defined and communicated to all relevant parties of MENG. An important goal is the continuous improvement of quality instruction and research and its continuous focus on student-centered engineering education. Continuous improvement is promoted through metrics such as student satisfaction based on their studies, satisfaction from contemporary web-based learning

delivery methods, data on employment career of MENG graduates, satisfaction of students from practical training, and satisfaction of industrial partners that participate in practical training.

Under this Principle 2, the panel addresses in particular the structure and organization of the curriculum and finds it adequate, yet with some limitations, for a high-quality undergraduate Mechanical Engineering programme that links seamlessly to the provided graduate and post-graduate programmes. MENG faculty is of high quality and several of its members have extensive experience since the programme was established in 2018 and before, while the programme operated as a TEI. The MENG faculty teach on average 6 hours per week, or about two classes per semester each. Student questionnaire and/or teacher/course evaluations is implemented in all taught classes every semester, is channelled through OMEA and results are disseminated to all interested parties. The student questionnaire is distributed electronically, and students have the option to fill it out via a smart phone, tablet, or computer. The questionnaire opens to students on a specific class time near the end of the semester and remains open for a few days. However, the majority of the students fill out the questionnaire on the day it opens up to them. Participation is high, evidently in the range of or higher than 80% which is exemplary. The overall marks, on a scale 0-5, is high, approaching on average about 4/5. This was estimated based on discussions with faculty and MODIP and from the data provided to the accreditation panel. In more detail, however, it is noted that weak points that emanate from the questionnaire include the non-prompt distribution of aides (books, notes, additional literature), the non-existence and/or non-enforcement of prerequisites/co-requisites to courses, difficulties on finding recitations to provided lectures/course material, the lack of opportunities to improve an existing work by students, and other relevant issues where the questionnaire scores are less than about 3.

Results from the questionnaire are used by faculty for their continuous improvement and learning.

In conclusion, within the current and present financial constraints of the UNIWA, MENG makes every effort possible to support the procedures for a successful implementation of the Quality Assurance policy.

Panel Judgement

Principle 2: Quality assurance policy of the Institution and the academic unit	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- MENG would benefit significantly by identifying, emphasizing, promoting and marketing unique aspects of its programme that differentiates it from ME programmes in other institutions. Possible such aspects include the unique aspects of energy and design and manufacturing in the ME programme and potentially a hands-on experience in Mechanical Engineering education and research.
- Addressing, on a systematic basis, the questionnaire of the teacher/course evaluations where scores on a scale 0-5 are less than about 3.
- In further transitioning from a TEI to AEI programme, curriculum enhancements such as further emphasis on “control” and “solid mechanics” and “industrial management” are some of the areas for improvement. Along those lines, the introduction of additional courses in mathematics is commended.

Principle 3: Design, Approval and Monitoring of the Quality of the New Undergraduate Programmes

Institutions should design the new 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.

The Institutions develop their new undergraduate study programmes, following a well-defined procedure. The academic profile, the identity 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 European and National Qualifications Framework for Higher Education are described at this stage. An important new element in the structure of the programmes is the introduction of courses for the acquisition of digital skills. The above components should be taken into consideration and constitute the subject of the programme design, which, among other things, should include: elements of the Institution's strategy, labour market data and employment prospects of graduates, smooth progression of students throughout the stages of the programme, the anticipated student workload according to the European Credit Transfer and Accumulation System (ECTS), the option of providing work experience to the students, the linking of teaching and research, the international experience in study programmes of similar disciplines, the relevant regulatory framework, and the official procedure for the approval of the programme by the Institution.

The procedure of approval or revision of the programmes provides for the verification of compliance with the basic requirements of the Standards by the Quality Assurance Unit (QAU).

Relevant documentation

- *Senate decision for the establishment of the UGP*
- *Curriculum structure: courses, course categories (including courses for the acquisition of digital skills), ECTS awarded, expected learning outcomes according to the EQF, internship, mobility opportunities.*
- *Labour market data regarding the employment of graduates, international experience in a related scientific field.*
- *Student Guide*
- *Course outlines*
- *Teaching staff (list of areas of specialisation, its relation to the courses taught, employment relationship)*
- *QAU minutes for the internal evaluation of the new study programme and its compliance with the Standards*

Study Programme Compliance

The undergraduate study programme (USP) is designed in accordance with other Mechanical Engineering programmes used in Greek Polytechnic Schools. In addition, the Department used Technical Chamber's report, the opinions taken from local government as well as studies by the University's Liaison Department. Although a feasibility study has been developed for the Department, there isn't one for the USP, outlining the objectives, input and expected output of the programme. Some of these are briefly described in the study guide, though a feasibility study for the USP should be drawn. In general, the USP shows a structure and contains course corresponding to similar USPs. The absence of the Industrial Management Module is deemed significant. The programme encourages student to develop digital skills through a series of course and the Department provides certification in computer proficiency.

The study guide is complete, coherent, and organized. It presents in detail the structure of the institution, the study programme, matters of attendance, handbooks, evaluation process etc. The structure of the programme is clearly outlined. For each semester, the coursed taught are clearly presented and course has its own detailed description.

The absence of a clear description of the periodic assessment and adjustment of the USP process is deemed important. Although students evaluate their professors at the end of each semester, there isn't a structured process following these evaluations, in which the students' opinions are taken into account and changed are being made. Instead, amendments are left to the sole discretion of the faculty members and the Department. The panel believes a detailed process should be developed.

Panel Judgement

Principle 3: Design, approval and monitoring of the quality of the new undergraduate programmes	
Fully compliant	
Substantially compliant	**X**
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

- Conduct a USP feasibility study.
- Develop a detailed periodic assessment and adjustment of the USP process.

Principle 4: Student-centered Approach in Learning, Teaching and Assessment of Students

The academic unit should ensure that the new 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.

In the implementation of student-centered learning and teaching, the academic unit:

- ✓ *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 application of 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*

Relevant documentation

- *Questionnaires for assessment by the students*
- *Regulation for dealing with students' complaints and appeals*
- *Regulation for the function of the academic advisor*
- *Reference to the planned teaching modes and assessment methods*

Study Programme Compliance

A student-centered approach in learning, teaching and assessments of students is implemented in the MENG programme through contemporary course-delivery methods, inclusion of theory, lab, and recitations/exercises/hands-on components in many courses, the assignment and delivery of a project (DIPLOMATIKI) in later semesters, and through practical training. These implementations are now addressed in further detail.

As is well-known, because of COVID-related restrictions, course delivery methods changed, at least temporarily, in many institutions and programmes, including the MENG programme in UNIWA. From interviews with students, and based on provided material, students prefer, rather by far, onsite as opposed to hybrid/online mode of course delivery.

Regarding projects (DIPLOMATIKI), in the MENG programme of UNIWA, students choose from a rather extensive list of announced potential projects, and subsequently, in coordination with relevant faculty member, a project is assigned and executed during the later semesters and before graduation. It is assessed that the project programme can in general attract good students.

Practical training is not mandatory, and is for only two (2) months in duration, as opposed to mandatory ones with duration of 6 months when the MENG programme operated as a

department in a TEI, and this is a disadvantage for students and for stakeholders as industrial ones where there is a tradition of effective practical training collaborations.

Other relevant issues and observations by the panel include:

Overall student to total faculty (currently 21 DEP members, 7 EDIP members, and 1 ETP member laboratory instruction members) ratio is about 67, which is considered high. Electronic Teacher Course Evaluations (ETCEs) with average scores on a 0-5 scale of 3.8/5.0 for the 2020-2021 academic year to 4.2/5.0 for the 2022-2023 academic year. These scores are high yet there are shortcomings as mentioned under “Principle 2” above.

The concept of the student-advocate exists, students are fully aware of it, and use it on a regular basis and/or as needed. The same holds for the student advisor.

Foreign students participate in regular/laboratory courses through the ERASMUS and/or other relevant programmes, and that is considered as very positive.

Classrooms are not up to par, e.g., some are outdated and provide problems, e.g., seating, to students.

The layout of elective courses together with the senior project (DIPLOMATIKI) provide satisfactory focus areas for students.

New curriculum, after the TEI to AEI transition, include an increased number of math courses and courses with emphasis on theory, and that is considered as very positive. Yet, further changes to the curriculum are needed such as enhancement of theme areas such as control and solid mechanics.

Some labs need refurbishing and/or updating, especially classic MENG labs. However, there are several labs with state-of-the-art equipment and strong support from highly qualified personnel, e.g., in energy storage, energy, and others.

The ERASMUS programme provides opportunities for having guest lectures from instructors in foreign institutions and that seems to be working well for the MENG programme. The same holds for MENG student opportunities to visit foreign institutions.

Students with disabilities are treated fairly with respect to the handling of the way they are examined, by, e.g., offering oral exams instead of written ones based on the needs of the student(s). However, specific examples were not described to the panel and do not appear in the QA report by MENG.

Panel Judgement

Principle 4: Student-centred approach in learning, teaching and assessment of students	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The ME programme will benefit from reducing/eliminating hybrid and/or fully online course delivery methods as those evidently reduce the student experience, especially the lab and hand-on experience, especially if the MENG programme targets establishing and promoting its programme as a practice-based, industry-connected, hands-on-experience programme.
- The MENG programme would benefit from establishing a 6-month, as opposed to the present 2-month practical training programme that is either mandatory or highly recommended for student graduation.
- The MENG programme should evaluate potential methods for attracting better students into its programme and in execution of projects (DIPLOMATIKI).
- The MENG programme would benefit from exploiting avenues for reducing the present ratio of students to teaching faculty.
- Updating/bringing up to par several classrooms should be a short-term-future priority of the MENG programme. Same holds for certain labs, especially classical Mechanical Engineering training ones.
- Courses that are introduced after the transition from TEI to AEI are not listed explicitly in the MENG QA report, so it is important for MENG to list such course and courses that are planned to be introduced or modifications to existing courses that are planned.

Principle 5: Student Admission, Progression, Recognition of Academic Qualifications and Award of Degrees and Certificates of Competence of the New Study Programmes

Academic units should develop and apply published regulations addressing all aspects and phases of studies of the programme (admission, progression, recognition and degree award).

All the issues from the beginning to the end of studies should be governed by the internal regulations of the academic units. Indicatively:

- ✓ *the registration procedure of the admitted students and the necessary documents - according to the law - and the support of the newly admitted students*
- ✓ *student rights and obligations, and monitoring of student progression*
- ✓ *internship issues, granting of scholarships*
- ✓ *the procedures and terms for writing the thesis (diploma or degree)*
- ✓ *the procedure of award and recognition of degrees, the duration of studies, the conditions for progression and assurance of the progress of students in their studies*

as well as

- ✓ *the terms and conditions for enhancing student mobility*

Appropriate recognition procedures rely on relevant academic practice for recognition of credits among various European academic departments and Institutions in line with the principles of the Lisbon Convention on the Recognition of Qualifications concerning Higher Education in the European Region. 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).

All the above must be made public within the context of the Student Guide.

Relevant documentation

- *Internal regulation for the operation of the new study programme*
- *Regulation of studies, internship, mobility and student assignments*
- *Printed Diploma Supplement*

Certificate from the President of the academic unit that the diploma supplement is awarded to all graduates without exception together with the degree or the certificate of completion of studies

Study Programme Compliance

Student admission process is beyond the control of MENG since admitted students are decided based on national higher education entrance exams, that take place annually, before the beginning of each academic year. With that, MENG, organizes, at the beginning of each academic year, a formal welcoming event for the new incoming students, and declares an entire week for student orientation and integration. Further an academic advisor for each incoming student is assigned that will serve as such for the entire duration of the student's

study. Students stay informed through the MENG web sites, and through the academic advisor. Further students stay informed about the ERASMUS programmes through the academic advisor and through the ERASMUS web pages in addition to obtaining information from the academic advisor. Similar notations hold about the practical training programmes and possibilities.

Several statistical data are tracked through the student handbook (FITITOLOGIO) and through MODIP, such as percent participation in exams, percent success in exams, spread of grades and percent of students excelling in exams, duration of studies, and percent of students graduating in the 5-year time frame. All such statistical data are reported in the annual report by OMEA.

Even though the MENG programmes are new as part of AEI (since 2018), data suggest a nice spread of student achievement, with about 2% of the students graduating with a GPA above 8,0, a mean value of GPA of 7,0, an average duration of study of 6,5 years, and 12% of students graduating on time, i.e., in 5 years. In general, however, the % of students' graduation in v+3 (8 years) is rather high (32,7%) and in > v+3 is rather very high (14,5%).

A healthy number of students participate every year in ERASMUS programmes, either as outgoing or incoming to the MENG programme.

It is noted that the senior project (DIPLOMATIKI) is mandatory and conducted during the 10th and ultimate semester of studies, while practical training is optional and its duration is only 2 months, conducted at any two-month period near the semester of graduation. As a result, participation in the project is healthy and tracked adequately, while participation in practical training is not very organized and rather shows low participation (10, 5, 9 students in 2019-2020, 2020-2021, 2021-2022 academic years, respectively) which seemingly comes in strong contrast with the practical training that existed before the transition from TEI to AEI.

Students with disabilities are assigned a specific advisor and his/her deputy who serves as a link to faculty and MENG/UNIWA administration. Specific cases relevant to students with disabilities were not provided in the QA MENG report, however, nor through the visit of the HAHE panel.

After completion of the requirements for graduation, a diploma, and a diploma supplement (with details on the education provided to the student) are automatically produced, without any fees to the students. There is no compliance or not issues relevant to this.

- There is an issue with practical training. Since, after the TEI to AEI transition, practical training was made voluntary and its duration was reduced to two (2) months instead of the six (6) months as a TEI, participation has decreased in terms of students and in terms of industrial partners. During the discussion of the panel with MENG industrial stakeholders it became clear that industry prefers the TEI format for practical training as well as the background and hands-on experience of TEI students. Thus, it is recommended that MENG continues to develop its AEI and polytechnic school identity, but at the same time retains its TEI "texture" in terms of hands-on and extensive lab training of students.
- Given the reported scope of the engineering school of UNIWA to become a polytechnic school, it is recommended that MENG further develops its "texture" as a unit of AEI but

at the same time address the previous recommendation above. This is important since recognition as a polytechnic school will allow graduates to join the technical chamber of Greece, after, of course, relevant screening, and thus become professional registered mechanical engineers.

Panel Judgement

Principle 5: Student admission, progression, recognition of academic qualifications, and award of degrees and certificates of competence of the new study programmes	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- The ME programme will benefit from reducing/eliminating hybrid and/or fully online course delivery methods as those evidently reduce the student experience, especially the lab and hand-on experience, especially if the MENG programme targets establishing and promoting its prog programme ram as a practice-based, industry-connected, hands-on-experience programme.
- The MENG programme would benefit from establishing a 6-month internship in industry, as opposed to the present 2-month practical training programme that is either mandatory or highly recommended for student graduation.
- The MENG programme should evaluate potential methods for attracting better students into its programme and in execution of projects (DIPLOMATIKI).
- The MENG programme would benefit from exploiting avenues for reducing the present ratio of students to teaching faculty.
- Updating/bringing up to par several classrooms should be a short-term-future priority of the ME programme. Same holds for certain labs, especially classical Mechanical Engineering training ones.
- Courses that are introduced after the transition from TEI to AEI are not listed explicitly in the MENG QA report, so it is important for MENG to list such course and courses that are planned to be introduced or modifications to existing courses that are planned.

Principle 6: Ensuring the Competence and High Quality of the Teaching Staff of the New Undergraduate Study Programmes

Institutions should assure themselves of the competence, the level of knowledge and skills of the teaching staff of the academic units, and apply fair and transparent processes for their recruitment, training and further development.

The Institution should attend to the adequacy of the teaching staff of the academic unit, the appropriate staff-student ratio, the suitable categories of staff, the appropriate subject areas and specialisations, the fair and objective recruitment process, the high research performance, the training – development, the staff development policy (including participation in mobility schemes, conferences and educational leaves- as mandated by law).

More specifically, 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 recognise 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.

Relevant documentation

- *Procedures and criteria for teaching staff recruitment*
- *Regulations or employment contracts, and obligations of the teaching staff*
- *Policy for staff recruitment, support and development*
- *Performance of the teaching staff in scientific-research and teaching work, also based on internationally recognised systems of scientific evaluation (e.g., Google Scholar, Scopus, etc.)*

Study Programme Compliance

The MENG/UNIWA has 21 Teaching and Research Staff (DEP), 7 Laboratory Teaching Staff (EDIP) and 1 Special Technical Laboratory Staff (ETP). Staff are engaged in teaching, both at the undergraduate and postgraduate level, supervising diploma or degree theses, research as well as other academic and administrative duties (committees, etc). The undergraduate study programme (USP) includes a wide variety of modern research objects in the field of Mechanical Engineering. Staff have a heavy workload, including significant administrative tasks. According to the Department's findings, a large portion of the staff (11 of them) is of advanced age, and it will be necessary to recruit new staff in future. Research activity is deemed good by publications and the Scopus index.

The MENG/UNIWA emphasizes on ensuring high quality, by enforcing all existing legislation for the recruitment and evaluation of its staff. The evaluation of the teaching ability given by the students is taken into account to hire or promote teaching staff. Students evaluate their

professors at the end of each semester. The responses to the questionnaires are processed by MODIP and the results are sent to the Department.

At the end of each academic year, the Department meets to evaluate the course of the UGP and decide whether to take corrective actions or not.

Staff mobility is encouraged with educational leave and participation in the ERASMUS and ERASMUS+ programmes.

Linking the educational process with research is done through the development of research groups of undergraduate students. The department focuses on a number of cutting-edge research subject in order to ensure a high educational level and to attract new faculty members.

Panel Judgement

Principle 6: Ensuring the competence and high quality of the teaching staff of the new undergraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

The MENG/UNIWA should pursue its efforts to hire additional professors and teaching staff.

Principle 7: Learning Resources and Student Support of the New Undergraduate Programmes

Institutions should have adequate funding to meet the needs for the operation of the academic unit and the new study programme as well as the means to cover all their 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 resources, on a planned and long-term basis, to support learning and academic activity in general, in order to offer students the best possible level of studies. The above means include facilities such as, the necessary general and specific libraries and possibilities for access to electronic databases, study rooms, educational and scientific equipment, information and communication services, support and 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 students, students with disabilities), in addition to 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. Students should be informed about all available services. In delivering support services, the role of support and administration staff is crucial and therefore this segment of staff needs to be qualified and have opportunities to develop its competences.

Relevant documentation

- *Detailed description of the infrastructure and services made available by the Institution to the academic unit to support learning and academic activity (human resources, infrastructure, services, etc.) and the corresponding specific commitment of the Institution to financially cover these infrastructure-services from state or other resources*
- *Administrative support staff of the new undergraduate programme (job descriptions, qualifications and responsibilities)*
- *Informative / promotional material given to students with reference to the available services*

Study Programme Compliance

Study Programme Compliance

MENG/UNIWA receives its funding and means for undergraduate teaching from the Greek State 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-centered 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/UNIWA has the necessary facilities (classrooms, laboratories, IT infrastructure) to ensure an appropriate teaching and learning environment.

Classrooms require updating some furnishings that are old and worn. Laboratory equipment vary significantly between the two Divisions. The Energy Division has the most up to date laboratory equipment while the Division of Design and Manufacturing requires to update and modernize some of the existing laboratory equipment that are very old and be replaced with state-of-the-art equipment.

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

There is an adequate range of support services available to the students. 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 in a timely manner is required.

Panel Judgement

Principle 7: Learning resources and student support of the new undergraduate programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Update and replace old and damaged furnishings in the classrooms.
- Update and replace old laboratory equipment with new state of the art equipment.
- Improve the student to staff ratio with increasing staff and teaching resources.
- Institute an advisory board that includes all stakeholders such as external academics, representatives of public and private sectors, research institutes, and alumni.

Principle 8: Collection, Analysis and Use of Information for the Organisation and Operation of New Undergraduate Programmes

The Institutions and their academic units 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.

Effective procedures for collecting and analysing information on the operation of Institutions, academic units and study programmes feed data into the internal quality assurance system. The following data is of interest: key performance indicators for the student body profile, student progression, success and drop-out rates, student satisfaction with the programme, availability of learning resources and student support. The completion of the fields of National Information System for Quality Assurance in Higher Education (NISQA) should be correct and complete with the exception of the fields that concern graduates in which a null value is registered.

Relevant documentation

- *Report from the National Information System for Quality Assurance in Higher Education (NISQA) at the level of the Institution, the department and the new UGP*
- *Operation of an information management system for the collection of administrative data for the implementation of the programme (Students' Record)*
- *Other tools and procedures designed to collect data on the academic and administrative functions of the academic unit and the study programme*

Study Programme Compliance

MENG/UNIWA 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 analysing 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 development 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 analysing 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 8: Collection, analysis and use of information for the organisation and operation of new undergraduate programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

Clarify further the internal evaluation process.

Principle 9: Public Information Concerning the New Undergraduate Programmes

Institutions and academic units should publish information about their teaching and academic activities in a direct and readily accessible way. The relevant information should be up-to-date, clear and objective.

Information on the Institutions' activities is useful for prospective and current students, graduates, other stakeholders and the public. Therefore, Institutions and their academic units must provide information about their activities, including the new undergraduate programmes they offer, the intended learning outcomes, the degrees awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students. Information is also provided, to the extent possible, on graduate employment perspectives.

Relevant documentation

- *Dedicated segment on the website of the department for the promotion of the new study programme*
- *Bilingual version of the website of the academic unit with complete, clear and objective information*
- *Provision for website maintenance and updating*

Study Programme Compliance

MENG/UNIWA has developed a rather comprehensive, clear, easy-to-follow and well-structured website.

Some discrepancies are noted between the Greek and English version of the website regarding the information displayed. The website includes information on MENG/UNIWA's: (i) introductory message, (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 centers, (viii) support services and facilities especially for students, including e-class and Moodle, (ix) YouTube channel, news and announcements. All modules are well presented in a distinct section of the website.

The website could develop further to also include up-to-date and easily accessible news and announcements on scholarly, cultural, and physical activities like social clubs and activities, awards, distinctions, publications, and noteworthy accomplishments of the Department.

The two Divisions of Energy and Design and Manufacturing have their own single webpage each that could develop further as websites including specific information about their educational and research activities, resources, laboratories, and key personnel.

Past affiliations relating to TEI should be updated to the current affiliation of MENG/UNIWA on the website.

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

Panel Judgement

Principle 9: Public information concerning the new undergraduate programmes	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

- Establish coherence between the Greek and English versions of the website.
- Update past TEI affiliations to the current MENG/UNIWA on the website.
- Develop further the MENG/UNIWA website to include social clubs and activities, scholarly, cultural, and physical activities as well as up-to-date news and announcements.
- Make more visible on the website the differentiation and focus of MENG/UNIWA in relation to other institutions in order to attract top level students.
- Improve and market further the Plato link that is available on the logo.
- Develop further the MENG/UNIWA Divisions webpages into websites.

Principle 10: Periodic Internal Review of the New Study Programmes

Institutions and academic units should have in place an internal quality assurance system, for the audit and annual internal review of their new 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 the new study programmes aim at maintaining the level of educational provision and creating 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.

Relevant documentation

- *Procedure for the re-evaluation, redefinition and updating of the curriculum*
- *Procedure for mitigating weaknesses and upgrading the structure of the UGP and the learning process*
- *Feedback processes on strategy implementation and quality targeting of the new UGP and relevant decision-making processes (students, external stakeholders)*
- *Results of the annual internal evaluation of the study programme by the QAU and the relevant minutes*

Study Programme Compliance

There is an extensive data collection infrastructure in place for the objective analysis of quantitative metrics along with qualitative assessment based on student and staff surveys. Data collected for quality indicators include enrolment, grades, course enrolment, exam attempts, teaching load, faculty performance metrics, and others. This data is reported annually in a comprehensive report for review and analysis by the administration.

MENG/UNIWA collects feedback on the programme content through a range of sources. Some teachers are actively in contact with external industrial groups and have a high level of interaction, although MENG/UNIWA does not officially provide such actions. Employers are generally satisfied with the preparation of the students and feel that the programme provides an exceptionally strong foundational preparation for industrial practice. The committee's interviews with employers confirmed this high level of interaction and alignment of the programme with their needs.

Changes to courses and the programme are proposed and evaluated through a formal process and is approved through the Committee for Undergraduate Studies. Faculty can propose new

courses, curricular changes, and the elimination or combination of courses through this mechanism.

Student workload is monitored primarily through course surveys.

Student assessment in courses is well structured. In some courses, grades are based on a diversity of metrics taken along the progress of the course offering and are usually not exclusively determined by the final exam.

Student expectations, needs, and workload are collected through surveys that are distributed as part of each course. One fact is the high response rate for course surveys. Students are aware of these end-of-course surveys and fill them out towards the end of the semester.

Panel Judgement

Principle 10: Periodic internal review of the new study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Formal surveys are offered only at the end of the course which is too late to improve a course (this is seen by the students as the only function of the surveys and motivation to complete them). Offering a mid-term logged assessment could help improve this response and memorialize this feedback.
- MENG/UNIWA could also consider convening a formal industrial advisory board to offer more regular/structured feedback on the programme. Several of the alumni and industrial partners interviewed as part of this exercise expressed interest in further engagement of this type.

Principle 11: Regular External Evaluation and Accreditation of the New Undergraduate Programmes

The new undergraduate study programmes should regularly undergo evaluation by panels of external experts set by HAHE, aiming at accreditation. The results of the external evaluation and accreditation are used for the continuous improvement of the Institutions, academic units and study programmes. 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 panel of independent experts. HAHE grants accreditation of programmes, based on the Reports submitted by the panels, 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 Standards, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees. Both academic units and institutions must consistently consider the conclusions and the recommendations submitted by the panels of experts for the continuous improvement of the programme.

Relevant documentation

- *Progress report on the results from the utilisation of the recommendations of the external evaluation of the Institution and of the IQAS Accreditation Report.*

Study Programme Compliance

Last time that the previous TEI departments went through external evaluation was in 2012/13. The findings of the evaluation committee at that time led to the programme restructure of the previous TEI departments and then in the newly established MENG/UNIWA which took place the academic year 2019/2020. MENG/UNIWA has provided evidence of what has happened since then, which, overall demonstrates a progress.

Faculty, support staff and administrative personnel are aware of the importance of the external evaluation and have done their best to comply with the whole process. All involved parties seemed willing to contribute to the evaluation.

There is some evidence that external stakeholders and employers are consulted for programme modifications, but there is no industrial advisory board or any other formal interaction to make this correspondence more efficient.

Panel Judgement

Principle 11: Regular external evaluation and accreditation of the new undergraduate programmes	
Fully compliant	
Substantially compliant	**X**
Partially compliant	
Non-compliant	

Panel Recommendations

The external evaluation process must be a regularly recurring event, once, with a strict requirement to address and start implementing recommendations within one year.

Principle 12: Monitoring the Transition from Previous Undergraduate Study Programmes to the New Ones

Institutions and academic units apply procedures for the transition from previously existing undergraduate study programmes to new ones, in order to ensure compliance with the requirements of the Standards.

Applies in cases where the department implements, in addition to the new UGPs, any pre-existing UGPs from departments of former Technological Educational Institutions (TEI) or from departments that were merged / renamed / abolished.

Institutions should implement procedures for the transition from former UGPs to new ones, in order to ensure their compliance with the requirements of the Standards. More specifically, the institution and the academic unit must have a) the necessary learning resources, b) appropriate teaching staff, c) structured curriculum (courses, ECTS, learning outcomes), d) study regulations, award of diploma and diploma supplement, and e) system of data collection and use, with particular reference to the data of the graduates of the pre-existing UGP. In this context, the Institutions and the academic units prepare a plan for the foreseen transition period of the existing UGP until its completion, the costs caused to the Institution by its operation as well as possible measures and proposals for its smooth delivery and termination. This planning includes data on the transition and subsequent progression of students in the respective new UGP of the academic unit, as well as the specific graduation forecast for students enrolled under the previous status.

Relevant documentation

- *The planning of the Institution for the foreseen transition period, the operating costs and the specific measures or proposals for the smooth implementation and completion of the programme*
- *The study regulations, template for the degree and the diploma supplement*
- *Name list of teaching staff, status, subject and the course they teach / examine*
- *Report of Quality Assurance Unit (QAU) on the progress of the transition and the degree of completion of the programme. In the case of UGP of a former Technological Educational Institution (TEI), the report must include a specific reference to how the internship was implemented*

Study Programme Compliance

The Department has established a committee to match course from the old UGPs to the new one. Legacy TEI USPs continue are still supported as long as there are active students attending them and until the 2024-2025 academic year. Although there are many students enrolled in a TEI USP, only about 10% of them are active and expected by the Department to successfully complete their studies in the above-mentioned time frame.

The mandatory six-month internship of the TEI USP has been transformed to the new USP, which is now optional and its duration is reduced to two months, according to the Greek legislation. Students complete the corresponding internship, depending on their USP.

Panel Judgement

Principle 12: Monitoring the transition from previous undergraduate study programmes to the new ones	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None.

PART C: CONCLUSIONS

I. Features of Good Practice

- The QA process is in place and is properly functioning.
- Involvement of undergraduate students in hands-on projects and research is successful.
- Strong links with Industry
- The IT platform is good and efficient.
- Good support to students interested in practical training and internships.
- Links with the private and public sectors are well established, and further encouraged and promoted.
- There is a very positive atmosphere within MENG/UNIWA.

II. Areas of Weakness

(not in order of priority)

- A low-level entry student body
- The student to faculty ratio is very high
- The female to mail student ratio is very low
- Some of the infrastructure needs updating or replacement
- Improve on the laboratory teaching material support and quality
- Some aspects of the current curriculum are still based on the TEI mechanical engineering programme

III. Recommendations for Follow-up Actions

- Define a clear research strategy for the next 5 years that will act as the MENG/UNIWA research focus and help define the new appointments.
- The new appointments should be oriented towards creating critical mass in control, industrial management and solid-computational mechanics, currently missing.
- Establish an external advisory board with industry and community partners.
- Establish a series of annual seminars from outstanding researchers in contemporary themes in Engineering and Society.
- Promote outreach activities to enable and facilitate societal impacts, for example, visiting schools in the region and professional societies and associations to promote awareness of the current societal issues and Science, Technology, Engineering, Mathematics (STEM) related opportunities.
- Maintain the offered core courses and introduce courses in machine learning and artificial intelligence.

- Address thoroughly the comments of the students in the course evaluation questionnaire, regarding their input of the courses (especially those that affect students' learning and performance).
- There is a need for longer period than the usual 2 months for an industrial internship.
- The EEAP strongly recommends that the course prerequisites should be implemented especially in the transition from the 3rd to the 4th year of studies.
- Introduce a series of seminars to be delivered from external lecturers / industry representatives on the profession of a mechanical engineer and the latest developments.

In summary, EEAP recommends MENG/UNIWA to nurture and promote education and research programmes and projects related to the Energy, Design, Structural Control and Automation as related to today's economic and environmental issues.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **4, 6, 7, 8, 10, and 12.**

The Principles where substantial compliance has been achieved are: **1, 2, 3, 5, 9, and 11.**

The Principles where partial compliance has been achieved are: **None.**

The Principles where failure of compliance was identified are: **None.**

Overall Judgement	
Fully compliant	
Substantially compliant	**X**
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** **X**	**NO**

The members of the External Evaluation & Accreditation Panel

Name and Surname **Signature**

1. **Prof. John Botsis (Chair)**
   EPFL, Lausanne, Switzerland

2. **Prof. George Frantziskonis**
   University of Arizona, Tucson**,** Arizona, USA

3. **Prof. George Aggidis**
   Lancaster University, Lancaster, UK (remote participation)

4. **Mr. Panagiotis Kiskiras, Mechanical Engineer**
   Member of the Technical Chamber of Greece, Athens, Greece (remote participation)

5. **Mr. Efthymios Kechagias, Student**
   Department of Mechanical Engineering,
   University of West Macedonia, Kozani, Greece (remote participation)