



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC



**Εθνική Αρχή
Ανώτατης Εκπαίδευσης**
Hellenic Authority
for Higher Education

Αριστέιδου 1 & Ευριπίδου 2 • 10559 Αθήνα | 1 Aristidou str. & 2 Evripidou str. • 10559 Athens, Greece
T. +30 210 9220 944 • **F.** +30 210 9220 143 • **E.** secretariat@ethaae.gr • www.ethaae.gr

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

Production and Management Engineering
Institution: Democritus University of Thrace
Date: 6 February 2020



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



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

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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 **Production and Management Engineering** of the **Democritus University of Thrace** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Assoc Prof Jannis Angelis (Chair)**
KTH Royal Institute of Technology, Sweden
- 2. Prof Andreas Efstathiades**
European University Cyprus, Cyprus
- 3. Prof Dimitrios Kyritsis**
École Polytechnique Fédérale de Lausanne, Switzerland
- 4. Prof Anthimos Georgiadis**
Leuphana Universität Lüneburg, Germany
- 5. Mr Vassilios Politiadis**
Member of the Technical Chamber of Greece, Greece

II. Review Procedure and Documentation

Due to the current Coronavirus (COVID-19) pandemic and in line with the measures for the limitation of the further spread of the virus worldwide, the standard process followed till now has been modified. The review of the study programme was implemented remotely, by the use of electronic means. All briefings and meetings were held via teleconference. The External Evaluation and Accreditation Panel members (EEAP) first met on Monday the 1st of February. On Monday morning they met via teleconference. After the official briefing on the procedures and requirements, the Panel members discussed about the process of accreditation of the Department. On the morning of Tuesday 2nd the Panel had its first teleconference with the Vice-Rector Professor Zoe Gavriilidou, Head of Department Professor Dimitrios Koulouriotis as well as members of the Democritus University Quality Assurance Unit (MODIP). This was followed by a teleconference with faculty members of OMEA (Internal Evaluation Team) of the Department of Production and Management and later with all the faculty members of the Department of Production and Management Engineering (PME). The Panel was briefed on the Department's structure and organization. During the meeting several documents were presented and delivered to the EEAP concerning the curriculum, teaching methods, and research activities. Further meetings with Department faculty covered various teaching and research issues related to the programme as well as the on-goings of the Department. In the afternoon teleconference with students without the presence of Departmental staff allowed for capture of the student experience and provided worthwhile insights. The students were open and frank about their experiences and views, and overall, very positive.

The second day started with presentation used a selection of visual aids (photos and videos) to give the Panel an impression of the PME infrastructure and laboratory facilities. The Panel had conversation of the administrative and technical staff and the Department's buildings and installations such as classrooms, lecture halls, computer labs and the Department's study room. Central facilities of the University that the Department students have access were also presented through a video, and administrative staff there provided useful information of how the facilities are being used in practice. Overall, this gave a positive view of the resources available to the Department students. Later the EEAP members met former students as representatives of alumni of the Department. They similarly provided noteworthy insights and placed their experiences at the Department on relation to other institutions they have attended. Again, the common view was very favourable of the Department and their studies there.

All teleconference with academic, administrative and technical staff, undergraduate and postgraduate students, were useful and insightful. All meetings took place in a very respectful and constructive manner, and all questions were answered openly and without avoiding any issues. For this the university members should be recommended. All met were extremely helpful and all seem to understand and accept the principles, objectives and demands of the external evaluation.

The teleconferences with the Department followed the following schedule:

Tuesday, 2nd February 2021		
11:00 - 11:30	Teleconference with Vice-Rector/President of MODIP & Head of Department	Welcome meeting - Short overview of the Undergraduate Programme (history, academic profile) current status, strengths

		and possible areas of concern
11:45 - 13:45	Teleconference with OMEA & MODIP	Discuss the degree of compliance of the Undergraduate Programme to the Standards for Quality Accreditation - Review of students assignments, thesis, exam papers & examination material
15:00-15:45	Teleconference with teaching staff members	Discuss professional development opportunities, mobility, workload, evaluation by students; competence and adequacy of the teaching staff to ensure learning outcomes; link between teaching and research; teaching staff's involvement in applied research, projects and research activities directly related to the programme; possible areas of weakness
16:00 - 16:45	Teleconference with students	Students satisfaction from their study experience and Department/Institution facilities; student input in quality assurance; priority issues concerning student life and welfare

Wednesday, 3rd February 2021		
11:00 - 12:00	On-line tour: classrooms, lecture halls, libraries laboratories, and other facilities /Discussion about the facilities presented in the video produced for this purpose	Evaluate facilities and learning resources to ascertain that the learning materials, equipment and facilities are adequate to ensure a successful provision of the programme
12:00 - 12:45	Teleconference with Programme graduates	Discuss their experience of studying at the Department and their career path
13:00 - 13:45	Teleconference with employers, social partners	Discuss relations of the Department with external stakeholders from the private and the public sector
15:30 - 16:00	Teleconference with OMEA & MODIP	Discuss on several points/findings which need further clarification
16:00 - 16:15	Closure meeting with the Vice-Rector/President of MODIP, Head of Department, OMEA & MODIP	Informal presentation of the EEAP key findings

III. Study Programme Profile

The Department was created in 2000 and from 2005 became self-governed, with its own General Assembly and graduated its first students in 2005. There are three Divisions within the Department, but these have not been formally declared operational as the number of staff per Division is below the critical number required. The planned Divisions are (i) Production Systems, (ii) Management Systems, (iii) Materials, Processes and Mechanical Engineering. The Department has 14 Laboratories.

The PME offers an undergraduate, postgraduate, and doctoral programme. The Undergraduate programme leads to an Integrated Master's Degree in Production and Management Engineering. The postgraduate (Master's Degree) programme delivers a MSc (Master in Innovation, Technology and Business Management). There is a number of 1045 undergraduate students in the Department, in particular given the number of faculty. Currently the Department is dispersed among several adjoining buildings of the intown Campus. This new equipment for the laboratories will be a both significant and positive contribution to the Department. The scope of the undergraduate programme is to provide a general engineering and management curriculum, considering the standards of similar programmes in Europe. The Department provides a five-year single subject degree programme, grounded in engineering. Proposals for changes and adaptations are discussed yearly during formal staff meetings.

PME is a relatively small Department consisting of; 14 faculty members - 5 Professors, 3 Associate Professors and 6 Assistant Professors – 6 technical staff members and 4 administrators. The Department has 1045 undergraduate students and 60 PhD students, which results in a high student/staff ratio in comparison to similar institutions at national and international level.

There are 55 required courses for the Integrated Master's Degree. Among these courses 47 are compulsory and 8 are elective among 81 offered courses. Most courses compulsory courses carry the same load, corresponding to 5-6 ECTS units and the elective are corresponding to 3 ECTS. To be awarded an Integrated Master's Degree in Production and Management Engineering a student must obtain 300 ECTS units and prepare a Diploma Thesis with 30 ECTS. The curriculum is organized in 10 semesters. Each semester lasts 12-13 weeks. Most courses have three-five teaching hours per week while some courses have four hours. The workload in terms of readings, assessments etc is rather uniform across the various courses. In general terms, the courses are clustered into four areas: Basic/Foundation, Industrial Production, Management and "Mechanical Engineering. In the last semester students must prepare a Diploma Thesis. There are also many elective courses available to the students, primarily for the 4th and 5th year of study. These electives are not accumulative in terms of knowledge requirements, but mainly function as independent courses with a narrow rather than broad scope. Hence, they can be part of a thematic grouping for the individual student choosing given electives, but they are not designed as such.

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 Department of Production Engineering and Management is one of the five departments of the Engineering School. The strategic goals of the Department are in accordance with the goals of the university and include strengthening, upgrading and interconnecting research and teaching, strengthening the human resources, and upgrading and improving the infrastructure, resources and services of the Department. The Department implements a Quality Assurance policy that is in line with that of the University's aiming at the continuous improvement of the programme. The Department's Quality Assurance policy focuses on its educational, scientific, research and administrative work, and is communicated to all its members who are committed or its implementation. Through the policy statement, the Department is committed to the

implementation of a quality policy that supports the academic profile and orientation of the curriculum, promotes its purpose, implements its strategic objectives and determines the means, actions and ways to achieve it. In particular, the quality policy statement requires the implementation of quality procedures, with an aim to ensure continuous improvement of the quality of the programme and the service provided to the students. All quality assurance procedures of the Department of Production Engineering and Management are subject to continuous review, which is carried out on an annual basis by the OMEA and the curriculum committee in collaboration with the MODIP. The Department has set objectives and associated measurable Key Performance Indicators, which are fully compatible with the objectives of the programme and the University strategic goals. Special emphasis is given on the student satisfaction, research output and teaching methods. Furthermore, an action plan has been developed, the implementation of which ensures the achievement of the KPIs and quality objectives and consequently safeguards the proper organisation and structure of the curriculum, achievement of the programme learning outcomes, promotion of the quality and effectiveness of teaching, appropriateness of the qualifications of the Faculty members, enhancement of the quality and quantity of the research output among Faculty members of the Department, and linking of teaching and research. The Quality Policy is communicated to new students in the context of the Seminar at the beginning of the academic year, but also at regular intervals, when faculty members present the main pillars of the programme to the students. Evidence is given that the objectives and KPIs are communicated to all the members of the Department and all Faculty members were involved in their development. The Quality Policy is discussed and updated both at OMEA meetings and during the Departmental General Assembly Meetings is uploaded on the website and is accessible to all the stakeholders.

Panel Judgement

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

Panel Recommendations

The EEAP found that the programme is fully compliant with Principle 1. Suggestions are that the Department should consider the development of a framework and specific procedures in linking the Key Performance indicators and adjusting their specific values, with the strategic actions and pillars of the university strategy. It should also consider to include in the Quality Policy Manual a list of the procedures that are in place so as to indicate clearly the way the continuous improvement is achieved.

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 main purpose of the Department is to provide students with the theoretical knowledge and practical skills that will make them competent engineers, scientists, and specialists in the design and management of modern technological and administrative systems. The design of the curriculum cultivates in student skills and abilities necessary for the design of dynamic production systems of products and services. It combines basic and advanced knowledge of engineering, and management framed by courses in construction technologies and production systems, logistics, robotics, green and sustainable technologies, information technology, engineering and artificial intelligence, mathematics, humanities, ecology and environment, business administration, scientific decision making, applied economic and financial management, scientific, technological and industrial marketing etc. The Programme is at postgraduate degree level (integrated master), in the Production Engineering and Management, at the level 7 of the National and European Qualifications Framework. There are well-defined learning outcomes while the structure and delivery of the programme safeguards their fulfilment.

The structure of the programme offers its students a range of courses that are divided into the following three categories totalling to 300 ECTS: Category A: Core Courses (246 ECTS); Category B: Elective Courses (24 ECTS); Category C: Thesis Project (30 ECTS). It is noted by the EEAP that the Internship is an elective course. The Student Guide provides complete and concise information on the programme structure, curriculum and course content. The curriculum is well designed and compatible with universally accepted standards in the area and it provides students with the opportunity to develop a mandatory project of 30 ECTS that gives them the opportunity for hands on experience. The design of the curriculum has been developed considering the University strategy, and is adapted to meet the needs of the Greek Industry/Economy. The information regarding the needs of the local economy is obtained through informal consultations with employers, the Technical Chamber of Greece, monitoring employment and occupation status of graduates etc. The review of the programme is also supported through information that is collected by monitoring the output of the individual courses evaluation done by the students once a semester for each course. Information on research developments is given via the research centres of the Department. This information is forwarded to the Academic programme committee for further refinement. The Academic committee develops a recommendation to the Department General Assembly for final decision. The Department has followed a semi-formal approach in the process of involving stakeholders in the collection of relevant information towards the design and updating of the study programme.

Panel Judgement

Principle 2: Design and Approval of Programmes	
Fully compliant	√
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

The EEAP found the Department to be fully compliant with Principle 2. The EEAP has three recommendations, that the Department should consider moving the internship course from the electives to the compulsory modules. The Department should also consider setting up an External Advisory Board for the Programme, aiming at assisting towards the identification of the industry needs and adjusting the programme content accordingly. Membership could include

representatives of the Technical Chamber of Greece, the Alumni Association, Employer's Organisations, Representatives of Labour Organizations, and distinguished members of the academic community in areas related to the programme thematic areas. The Department should develop a flow chart presenting the procedure that is followed towards the study programme curriculum development.

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

Overall, the EEAP found that the programme of the Department is largely compliant with Principle 3. In particular, the offer of core and elective courses is large and covers all the current trends of the domain worldwide. All courses, core and electives, are evaluated by the students taking them every semester using appropriate online forms in a safe and anonymous manner. The participation of the students in this evaluation is done by a satisfactory number of students, equivalent to similar practices at the international level. Surveys are also conducted upon graduation. There is extensive use of online access to course material via an efficient e-class platform. All these provide useful feedback to the Department on the perception and opinion of the students on each course as well as about the performance of the teaching team and the

teaching approach. This feedback is analysed using approved mechanisms by the teaching teams and the responsible department committees and helps to improve and strengthen both teaching and learning experiences. The e-class platform provides students with early and timely access to course material and support greater flexibility for the student in their work in each course. Also, students are encouraged to work in groups to perform projects designed on the principles of project-based learning. When appropriate, students are evaluated and credited on their contributions on project work and other learning activities with a final examination, in either written or oral form, that is weighted so that a fair assessment of the student performance is achieved and awarded correctly. Students are given opportunities to perform practical internships in private companies and other institutions in the regions, mainly through ESPA programmes. They can also do their diploma project in companies and other institutions; however, this is done based on personal contacts and relations of faculty members.

Panel Judgement

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

Panel Recommendations

The EEAP found the Department to be substantially compliant with Principle 3, and has two recommendations to be considered for further improving the teaching and learning experience of both teachers and students of the Department. First, the Department is encouraged to further develop its very good contacts with industries of the region, some of them being well organized and recognized internationally, with the objective to create an educationally and legally covered mechanism to allow interested industries to offer internships and diploma projects to students. The body of companies participating in this mechanism, could be also used to help the Department to review and adapt its educational programme to offer to its students the means to develop the competencies required by industry. Second, the mobility of the students, through the Erasmus programme, remains at quite low numbers, both in outgoing and incoming students. Certainly, there are serious obstacles to overcome this situation, mainly due to the geographical situation of the city of Xanthi and the fact that the city is not a metropolitan center with a high variety of opportunities for a social student life as, at least, Erasmus student perceive this need. However, the Panel believes that the quality of the educational programme of the Department, the quality of its faculty and the other teaching, technical and support staff and the so good examples of student initiatives, also at the international level, should be explored, to the measure of the given capacities of the Department at the current situation, and the Department should think about possible measures to encourage outgoing mobility of its students and attract good incoming students from selected Universities in Europe.

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

For compliance with Principle 4, the EEAP found that the PME has developed and applies published regulations that cover all aspects and stages of studies. Admission, progression, recognition and certification activities are implemented according to the laws and all steps are realized efficiently using appropriate control mechanisms and facilitated by informatics tools. The following points can be particularly noted: There is strong recognition by the PME of the value of practical work (internships) done outside the University. There is also recognition and encouragement of student initiatives to participate in creative projects with the support of their teachers and interested companies of the region. Some of these initiatives are integrated in recognized European academic networks in the area of Industrial Engineering. Interested and motivated students are also encouraged to do their diploma work in collaboration with interested companies of the region (with reference to Principle 3).

Panel Judgement

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

Panel Recommendations

While the EEAP finds the Department fully compliant with Principle 4, it may be useful to consider the creation of a programme of awards for that would encourage students to participate in the Erasmus mobility programme. These awards would cover both outgoing and incoming students.

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

The teaching staff of the Department, consisting of presently 14 faculty members, 6 supporting teaching faculty and 8 external teaching persons. This covers well the teaching needs of the study programme. A part of the teaching load is covered by other faculties. The faculty's teaching obligation follows the applicable Greek laws and regulations and does not constitute an overload. The Department provides a suitable infrastructure and working environment to its members and it cultivates an appropriate academic atmosphere. There is evidence of linking between teaching and research, mainly based on student project groups and the diploma thesis. Faculty assessment in teaching is based on regular student evaluations, which are examined by MODIP, OMEA, and the Department. Teaching excellence is formally recognized. The Department promotes the increase of externally funded collaborative research. However, the EEAP noted that the recruitment of faculty that is initiated by the Department according to its plan has not yet reach the planned 23 positions 20 years after the study programme began. The hiring and promotion procedure follow the Greek state laws and regulations. There is not gender balance yet. The opportunities for faculty mobility are limited and the Department does not support staff mobility proactively.

Panel Judgement

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

Panel Recommendations

The EEAP finds that the Department is substantially compliant with Principle 5, and makes the recommendations that it seeks to increase teaching staff mobility, and ensures there is a focused strategy for hiring the foreseen faculty staff. The Department should also develop policies to attract female faculty staff.

Principle 6: Learning Resources and Student Support

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

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

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

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

Study Programme Compliance

The EEAP found that the Department provides sufficient teaching laboratories for its students. These laboratories are overall sufficiently equipped, although some need to be upgraded with new equipment. The Department has maintained sufficient funding for its teaching and research activities and academic activities in general, so it is able to offer to students an adequate level of studies. The students benefit also from the funding, since they are involved in student project groups and research during their final thesis. The classrooms are moderately maintained and renovations are under way. Although there are free spaces for students to stay, the department does not offer a dedicated and suitably equipped study area for its students except the reading space of the library. Students have access to the University library and some outdoors sports facilities located close to the department buildings. The student dormitories are sufficient and in a good condition. Transportation between the different locations of the university are free of charge for students. Although lectures and laboratories are held online during the COVID-19 period, normally all classes of the study programme offered are face-to-face, with class-related material being posted at the internet. Students have access to the internet-posted material and found these useful. In general, access to persons with disabilities is provided by the department, though in some cases this access is very cumbersome.

Panel Judgement

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

Panel Recommendations

The EEAP finds the Department fully compliant with Principle 6, but also recommends that the department offers a dedicated and suitably equipped study area for its students.

Principle 7: Information Management

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

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

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

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

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

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

Study Programme Compliance

The EEAP noted the positive student perceptions and experiences of the programme, as was also evident by the high employment record of programme graduates, with successful international careers are not uncommon. The student profile is typical for the technical nature of the programme in terms of gender profile, and entrance exam results have remained stable despite similar programme having been introduced in other Greek institutions. Student evaluations of individual courses are systematically conducted at the end of individual courses. These evaluations include information related to the programme and cover a broad range of factors and indicators on achieved learning outcomes, workload, and student and faculty performance. The evaluations contain an assessment of the available teaching material and resources and fit with the course specific academic goals. Accessibility to resources such as IT equipment, library, and academic support are tracked. The EEAP notes that there is limited space for students to study and work in teams on projects and assignments, in particular during exam periods. Evaluation and eventual remarks related to programme courses are examined by the programme staff and if needed submitted to the Department chair who may note individual issues with any academic staff concerned with the courses. The EEAP did note that performance indicators were being employed on programme, student and staff activities and progression, but that these indicators were not always readily available in the provided material albeit well

known by the staff. The EEAP also noted the considerable efforts deployed by Academic staff to be available and provide support to the students, including actively seeking students to participate in ongoing research activities and even publishing academic articles. These efforts are not measured nor assessed, although they constitute one of the core strengths of the programme.

Panel Judgement

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

Panel Recommendations

The EEAP finds the Department fully compliant with Principle 7. It recommends that resources for study space follow the evolving programme needs.

Principle 8: Public Information

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

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

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

Study Programme Compliance

The EEAP found that the department website includes information on the study programme, its mission, structure and brief information on individual and elective courses. Information on the teaching staff and Quality Assurance policy are also available. The information is updated regularly. This includes the research centres which provide information on ongoing events. The website is available in Greek and English. Details on the mandatory and elective courses, such as comprehensive course content description and reading lists, are found in the student accessible system (e-class) and not readily available to potential students and external stakeholders. It allows registered students to search for information about courses offered in the curriculum, on instructors, suggested reading and other course related issues, course registration for each semester, access grades for courses in which they have been enrolled, receive a confirmation of studies instantly in electronic format, and obtain a variety of other documents related to their academic endeavours. The EEAP notes that this may be a missed opportunity to provide potential student with useful information on content, format and learning outcomes. It also may reduce stakeholder understanding of the programme and in turn willingness to collaborate in particular courses.

Panel Judgement

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

Panel Recommendations

The EEAP found the Department fully compliant with Principle 8, but it recommends that the public website provides more course specific information to assist prospective students in their study plans and to orient external stakeholders on relevant courses for their collaboration.

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

There is ongoing monitoring of the learning environment and support services. As needed, appropriate steps are taken to ensure even processes and standards. Current and former students met by the EEAP did not raise any concern with the fairness of programme procedures of examinations, structure and content, and were vocal in their positive experience of the accessible and inclusive staff. The EEAP found that the ongoing monitoring and feedback in place is focused on student progression throughout the programme. By including student feedback from their course experiences the programme is kept relevant and in accordance with the requirements. The small faculty size enables close collaboration that informally keeps staff informed of teaching developments and quality of teaching. The EEAP did note that responses to results from the monitoring were not readily accessible, thereby reducing the effectiveness and usefulness of the ongoing programme reviews. While improvement to the programme was noted by the EEAP, a more transparent and direct link between identified issues and associated actions taken would ensure ongoing improvements on the programme as well as individual courses. This in turn helps ensure the programme courses are of high standard and incorporate new ideas and events in the technical and more management related subject fields. The programme courses have an emphasis on courses of more technical nature, and with relatively few elective courses. With the research centres which actively seek student participation, it is important that the monitoring incorporates both developments scientifically and the participants' learning activities, since they both add significant value to the programme quality as a whole.

Panel Judgement

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

Panel Recommendations

The EEAP found the Department substantially compliant with Principle 9, and recommends that the programme monitoring and review continues, and that actions and responses taken based on the monitoring is made readily available. It also recommends, as far as possible, the involvement of industry stakeholders in programme reviews in general and practice opportunities and final dissertation in particular.

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

The Department was evaluated by an External Evaluation Committee in 2013, with one member of that external expert group being part of this Panel. The EEC had made comments and important improvement suggestions. The EEAP notes in response that the programme progress report submitted by the Department is organized in an informative format, well written and its content deals with ongoing programme conditions and improvements. The EEAP finds that the Department, and the MODIP were most helpful in providing additional information when requested, clarifying various aspects, and openly discussing areas without hesitation. Their own areas of concern were raised in the meetings with the EEAP, which is highly commendable. The programme is continuously evaluated externally. This has led to significant and appropriate improvements to the programme and its environment. Of note is that during the EEAP's digital visit all staff, academic and administrative, as well as necessary documentation were made readily available. This indicates their awareness of the importance of the accreditation for the ongoing improvement of the educational services provided.

Panel Judgement

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

Panel Recommendations

The EEAP found the Department fully compliant with Principle 10 and has no specific recommendation.

PART C: CONCLUSIONS

I. Features of Good Practice

The EEAP found evidence of good practice in the Principal areas at the department in regard to the production and management engineering study programme. Of note were the following good practices:

- Student learning is emphasized, and the student outputs in terms of placements and further careers indicates that the research-led teaching provides a high level of learning provision
- Close collaboration between academic staff and students, in particular the staff accessibility, the inclusion of students in ongoing research, and the participation in results dissemination through authorship in academic journal articles.
- The Department has very strong and positive relations with companies in the region, which are favourably used for research purposes and student access.

II. Areas of Weakness

The EEAP noted a few areas of weakness that should be given further attention. These areas are as follows:

- There is limited space available for students to study and to work on team-based exercises and projects.
- The use of performance indicators and links to the set strategy are not always transparent and visible to ensure a common understanding among all relevant stakeholders. The way quality policies are incorporated in the indicators do not support continuous improvement activities.
- Information on actions taken in response to the ongoing monitoring of the programme is not as readily available to promote programme improvements.

III. Recommendations for Follow-up Actions

The EEAP recommends that the department takes action in a few areas to ensure that the study programme retains its already high quality and further improves on it. The key recommendations of the EEAP are as follows:

- That the Department involves the stakeholders in a more comprehensive manner, for instance moving beyond the reliance on LinkedIn to a dedicated platform for alumni and company representatives.
- That the Department strengthen the alumni network, for instance involve an Industrial Advisory Board that provides input in programme design and development.
- The practice opportunities should be expanded throughout the programme, including making the internship course compulsory.

- The Department is encouraged to further develop its very strong contacts with industries of the region to create an educationally and legally covered mechanism to allow interested industries to offer internships and diploma projects to students.
- Practicalities and support around mobility should be considered to ensure that students (incoming and outgoing) seeking to participate in Erasmus are able to do so.
- As far as possible, foster to increase teaching staff mobility, and ensure new staff are hired and with policies to attract female faculty staff.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **1, 2, 4, 6, 7, 8, 10**

The Principles where substantial compliance has been achieved are: **3, 5, 9**

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	
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
	√	

The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

- 1. Assoc Prof Jannis Angelis (Chair)**
KTH Royal Institute of Technology, Sweden
- 2. Prof Andreas Efstathiades**
European University Cyprus, Cyprus
- 3. Prof Dimitrios Kyritsis**
École Polytechnique Fédérale de Lausanne, Switzerland
- 4. Prof Anthimos Georgiadis**
Leuphana Universität Lüneburg, Germany
- 5. Mr Vassilios Politiadis**
Member of the Technical Chamber of Greece, Greece