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HELLENIC REPUBLIC
H Q A
HELLENIC QUALITY ASSURANCE
AND ACCREDITATION AGENCY

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

Electrical and Computer Engineering
Institution: University of Thessaly
Date: December 21st, 2019

Report of the Panel appointed by the HQA to undertake the review of the Undergraduate Study Programme (Integrated Master) of **Electrical and Computer Engineering** of the of the **University of Thessaly** for the purposes of granting accreditation

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PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I.   The Accreditation Panel

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme (Integrated Master) of **Electrical and Computer Engineering** of the **University of Thessaly** comprised the following three (3) members, drawn from the HQA Register, in accordance with the Law 4009/2011:

1. **Prof. Sotiris Skevoulis** (Chair)
   Pace University, New York, USA

2. **Prof. Nikitas Dimopoulos**
   University of Victoria, Victoria, British Columbia, Canada

3. **Prof. Nik Bessis**
   Edge Hill University, Ormskirk, United Kingdom

II.   Review Procedure and Documentation

Prior to their visit in Athens and Volos, the members of the Accreditation Panel (AP) had the opportunity to study and discuss all relevant documents supplied to them by the HQA in advance, including (a) the Department's Proposal for Accreditation with several annexes and indexes covering all crucial aspects of the Study Programme.

The review procedure began on December 16th with a comprehensive briefing by Prof V. Tsiantos, Vice-President of the HQA and Dr C. Besta, General Director of HQA. In the briefing and the subsequent discussion with Prof. Pantelis Kyprianos, President of HQA, standards and guidelines of QA accreditation process, national framework of HEIs were explained. At 2pm in the afternoon after the end of the meeting at the HQA Headquarters the AP members travelled to Volos. After the arrival at their hotel in Volos, the members of the AP met in a private consultation to briefly discuss the Accreditation Proposal, to divide tasks among them and to organize in detail the teamwork.

On December, 17th at 9:30-10:15 the Accreditation Panel met first with the Deputy Rector and President of MODIP, Ioannis Theodorakis, the Head of the Department, Prof. Lefteris Tsoukalas, who gave a short overview of the Undergraduate Programme (history, academic profile), its current status, strengths and areas of concern. The meeting took place at the conference room. At 10.15-12.15 a meeting with OMEA and MODIP representatives took place. Present were the members of OMEA Prof. Manolis Vavalis, Associate Professor Spyros Lalis, Assistant Professor, Antonis Argyriou, and Prof. Th. Karakasidis, MODIP Representative.

This, and all subsequent meetings, took place at the Conference Room, in the School's Building in Volos. The next meeting of the AP (12:30 – 13:15) was with the following faculty members: Assoc. Professor Ch. Antonopoulos, Associate Professor M. Vasilakopoulos, Assoc. Professor D. Katsaros, Assoc. Professor A. Korakis, Assoc. Professor D. Bargiotas, Associate Head N. Bellas, Assoc. Professor F. Plessas, Assoc. Professor G. Potamianos, Assoc. Professor Ch. Sotiriou.

At 13:30 the AP met with a number of undergraduate students. The AP had a long and very interesting discussion about student's study experience, their input in the quality assurance procedures, their experiences with the administrative support and their plans after graduation. Following a lunch break, the AP met with a group of graduates at 15:30 all of them with impressive career paths. The following graduates were present (some of them via skype teleconference): D. Syrivelis, IBM Research Dublin, Ireland; A Goulalas-Divanis, IBM Watson Health, Cambridge, MA, US; K. Daloukas, Helic-Ansys, Greece; D. Parasiris, Barcelona Supercomputing Center, Spain; M. Spyrou, ARM, P. Kalos, Amazon, UK; K. Kousias, Simula Research Lab, Oslo; D. Evangelopoulos, Founder & CEO, Augmenta.ag; M. Triantafyllidis (Ericsson Sweden); N. Economou, Centaur, Volos; Th. Topaloudis, CERN, CH; D. Hatzopoulos, Research Assistant Professor, Hong Kong Univ. of Science and Technology; G. Karakonstantis, Associate Professor, Queen's University Belfast, UK (elected as ECE/UTH faculty) about their experience of studying at the Department and their subsequent career paths.

At 16.30-17.15 a meeting with employers and social partners took place. Present were Didoe Prevedourou, Managing Director at Athens Information Technology – AIT; Charalampos Bakolias, Senior Director at ANSYS, Inc.; Sotiris Bantas, Founder & CEO, Centaur Analytics.

Next morning at 9:30-10.30 the AP members were guided to classrooms, lecture halls, laboratories and other facilities of the Department, accompanied by Lefteris Tsoukalas, Professor, Head Manolis Vavalis, Professor, OMEA Spyros Lalis, Associate Professor, OMEA Antonis Argyriou, Assistant Professor, OMEA Thanasis Fevgas, ETEP Member

Maria Papalexandri, Administrative Support. The AP also visited the impressive new building. The Department hopes to move there in the Spring of 2020.

After a debriefing meeting of the AP members, a discussion with OMEA and MODIP members (the same as in the previous meeting) clarified some points and findings; finally a preliminary exposition of the results by the Chair of the AP and a brief discussion with the University representatives took place (11:45-12:30).

On December 18th the AP members returned to Athens. The final report was discussed and written in meeting that took place in Royal Olympic Hotel from the afternoon of the same day until Saturday, December 21st .

III.   Study Programme Profile

The Electrical and Computer Engineering (ECE) Department of the University of Thessaly was founded in 2000 as part of the School of Engineering in the city of Volos, Greece. Annual enrollment is approximately 170-180 undergraduates (including transfer and special status students) and about 30-40 graduate students. Its mission is to support and advance the field of Electrical and Computer Engineering through education and research. In particular, it aims at providing students with the foundational knowledge and technical skills that will allow them to become competent engineers and pursue a successful career in the industry or an academic/research environment, in Greece or aboard. To that end, the Department offers a five-year program of undergraduate studies, leading to a diploma in Electrical and Computer Engineering, which offers a wide range of courses in the following areas: Fundamentals and Applications of Computer Science, Software Engineering and Information Systems; Hardware and Computer Architecture; Signals, Telecommunication and Networks; Energy.

The Department has attracted a number of faculty from leading universities worldwide (University of Illinois, University of Maryland, The John Hopkins University, Imperial College etc.) Department graduates either hold faculty position at prominent universities in the USA and European Universities or play key roles in leading the industry (IBM, Amazon, etc.)

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 University of Thessaly has instituted two units for the quality assurance and monitoring at two levels: MODIP at the university level, and OMEA at the Department level. The cooperation of MODIP with OMEA is deemed appropriate and helpful to the accreditation effort and continuous improvement of the programme. The AP met with representatives from both MODIP and OMEA during its visit. The Department, through its Head and OMEA expressed their firm commitment to apply appropriate measures that would lead to the programme´s successful

accreditation and continuous improvement. The Department implements a Quality Assurance Policy which, in principle, is in line with the Institution's Quality Policy and Quality Manual as well as the principles provided by the ADIP. The Quality Assurance Policy focuses on its educational, scientific, research and administrative work, and is accessible and sufficiently communicated to all members of the Department via its well designed and informative website to all stakeholders.

Following careful scrutiny of the study programme and the discussions with both students, faculty and staff, it is the judgment of the AP that the Department's curriculum is suitable in terms of its academic content, is comparable to similar Greek and international programmes, and it meets international academic standards. The Department has set objectives and it is committed to the carrying out of reviews and internal audit of the Quality Assurance Framework (QAF), quality assurance system, and OMEA's adherence to HQA's principles.

The Department monitors and improves the education and research processes by assessing courses and teachers on a semi-annual basis, revising of the Undergraduate Program of Study on an annual basis, assigning of courses to the regular and part-time teaching staff based on their scientific expertise and experience and updating course websites.

The AP was not presented with a strategic plan complete with vision and mission statements, and which includes an environmental scan and the identification of threats and opportunities. The Department instead presented the AP with a set of goals supported by groups of indicators which were measured and for which, the Department has established target values to be achieved.

The AP found that although these indicators support the said goals, the setting of their target values and timeframes were not always realistic. It is also important to note that the distribution of responsibilities is rather vague usually left upon the General Assembly, some (unspecified) faculty members or the Office of the Rector.

Panel judgement

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

Panel Recommendations

1.1   The AP strongly recommends the development of a strategic plan complete with vision and mission statements, and which includes an environmental scan and the identification of threats and opportunities

1.2   The current and target values must be considered carefully and need to be realistic and achievable

1.3   The distribution of responsibilities must be more specific and introduce particular roles to champion the attainment of each strategic goal

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 Institutional strategy

In 2013, the Department, with the support of the University of Thessaly (UTh) has changed its name to that of the Department of Electrical and Computer Engineering (ECE) to broaden and refocus its program to better service the market demand. The design of the new program was accomplished with the advice of a group of external consultants that included the prominent Greek engineering educators from Universities in the US and Canada.

The new program provides a standard ECE curriculum in the first years of study and then focuses more in the areas of Computer Engineering, Networks and Energy. The Program is structured as a set of required courses and a set of elective courses culminating at the 10th semester with a diploma thesis.

The program offers a large number of electives (on their web site (https://www.e-ce.uth.gr/studies/undergraduate/ the program lists 106 elective courses) covering a broad set of subjects. However, this large number of electives is not congruent with the small number of faculty members (21).

These electives include a number of courses in complementary areas such economics (ECE 428 446 and 464), Environment (ECE 537) Engineering Design (ECE 553). These, together with the required course in communications (ECE 122) provide a graduate with a rounded Engineering Education. In many Engineering programs abroad, such complementary areas of study are mandatory (not elective) as it is considered that an engineer, in addition to their technical knowledge and skills, must have a good understanding of the impact of engineering in society, must know how to communicate effectively and must know how to work in teams and design.

The students the AP interviewed, were enthusiastic of the program; however, they may not have taken advantage of some of the aspects such as faculty advisors, or course evaluations fully.

Industrial representatives were interviewed and had very complimentary comments of the skills and knowledge of the students. The Department has held two day-long industry-university workshop through which it elicited information and opinion of the effectiveness of its program.

The Program, has instituted course prerequisites for the majority of its courses, and recently has optimized these prerequisites reducing long chain dependencies. It has also instituted rules according to which, a student cannot progress the subsequent year of studies, if they have failed a number of courses. These limits are quite generous in effect, a student cannot progress to the second year if they failed 70% or more of the first-year courses, to the third year if they have failed 55% or more of the first- and second-year courses etc. This seems to be a good strategy to ensure the cohesiveness of the cohort. However, the limits are quite generous and may contradict the goals of the prerequisites.

The graduation rates are at about 30% of the number of students entering each year, 7 years (v+2) after being admitted. Moreover, about 20% of the students have never graduated. Although these numbers may be indicative of the Greek reality, nevertheless, the graduation rate after a reasonable length of time is substantially lower as compared to practices abroad.

The program has allocated ECTS units to all its courses. Surprisingly though, all the courses are allocated exactly the same number of ECTS (6) except of the diploma thesis which is allocated 30. There does not seem that there is a methodology of establishing the ECTS units of each course. For all courses, the number of classroom/lab/tutorial contact-hours are easily accounted; however, the estimate of the student self-work seems to be simply the difference between the targeted notional hours (150) and the course contact hours. This approach does not reflect the true course load as expressed through the amount of homework/projects/reports ad self-study required or estimated for each course.

Students on the program are given the opportunity to work as work-placements (Πρακτική Άσκηση) for two months during the summer in industry or public services. This is an excellent opportunity for the participating students to be exposed to the requirements of the work environment and perhaps make connections that could lead to employment upon graduation. These internships are elective and takes place during the last semester of a student's program. The Program assigns a faculty member as an academic supervisor and the student is required to write a report at the end of their work-placement. The industrial partners the AP interviewed were fully satisfied with the knowledge and skills of the interns. They stated though that the supervising faculty had not visited their supervisees during their work-placement.

Faculty present examples of their research during their course instruction and provide opportunities for undergraduate students to work on small research projects in their labs. For example, during the networks course, students use a research platform developed in the instructor's lab which allows the students to experiment with and measure an active network.

The program is approved by the general assembly of the Department and then forwarded to the University Senate for approval. The program is eventually published in the official government gazette before it takes effect.

Panel judgement

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

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

In case of negative judgement, please justify

Panel Recommendations

2.1   The Department should re-assess the number of ECTS units assigned to each course, and devise a process and criteria to more accurately estimate the ECTS assigned to each course.

2.2   The Department should re-assess the very large number of advertised (offered?) electives to be congruent with the number of faculty and perhaps consolidate the subjects and minimize overlap.

2.3   The Department should consider lowering the limits of the number of failed courses a student is allowed before they progress to the next year of studies.

2.4   The Department should consider making a number of complementary studies courses required. Such courses should include courses in communications, economics, law, the environment and the impact of engineering to society.

2.5   The Department should consider making a course concentrating in the design process as a required course.

2.6   The Department should examine the reasons of low graduation rates and devise approaches of improving them.

Principle 3: Student- centred Learning, Teaching and Assessment

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

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

The student-centred learning and teaching process

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

In addition :
- *the academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field;*
- *the assessment criteria and methods are published in advance;*
- *the assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary is linked to advice on the learning process;*
- *student assessment is conducted by more than one examiner, where possible;*
- *the regulations for assessment take into account mitigating circumstances*
- *assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures;*
- *a formal procedure for student appeals is in place.*

Study Programme compliance

The AP is pleased with the Department's commitment towards a student-centered learning process. Students and faculty stated to the AP that the Department puts students at the heart of the learning activities, enhancing their academic experience. The students have commented positively on faculty and staff's approachability and the academic support they are offered for their programme. Students also confirmed that they are aware of the complaints and appeals procedure.

The AP discussed the course selection and pedagogical methods used and found that these are well aligned with the sector-recognised standards and practices. The Department uses the **e-**

class platform as a virtual learning environment, and the **Turnit in** platform for plagiarism detection. The students are exposed to hackathons and a wide range of formative and summative assessment methods, such as individual and group work, final written exams, multiple-choice assessments, portfolios, presentations and practical project work. Students can take advantage of an "open door" policy. The Department's commitment to a complete student experience is complemented by the Department's participation in European and international students exchange programs (Erasmus+). An increased student participation in these exchange programs would certainly be of benefit.

The AP recognizes the Department's commitment to document student feedback with regards to academic and learning experience. On an annual basis, the Department distributes standardised online questionnaires to its students, addressing many aspects of the teaching and learning activity. It was noted that student participation to these student satisfaction surveys is disappointedly low. This is a well-recognized issue at both national and international levels. Individual faculty employ additional methods for collecting students' feedback; however, there is a need for the development of a robust method for increasing the participation rate and emphasize the importance for collecting a critical mass of student feedback and improving upon it.

Students are encouraged to develop their individual and independent skills through a number of ways including elective courses, internship or work-placement opportunities and a final year diploma thesis project which may be part of a research project or industrial collaboration. Meetings with industrial partners confirmed the high level of adaptability and technical competence of students and graduates from the Department. Meetings with both graduates and industrial partners confirmed also their willingness to sponsor equipment or events and to contribute to the course and programme development.

Finally, it was noted that monitoring of the results of the course evaluations is overseen by OMEA, and their analyses are considered by the General Assembly of the Department, before they are forwarded to MODIP for further consideration.

Panel judgement

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

Panel Recommendations

3.1   The Department should encourage more students undertake exchange programmes.

3.2   The Department should identify ways to increase the participation rate to course evaluations and student satisfaction surveys so as statistically robust analysis could be performed.

3.3   The Department should explore ways for industrial partners contributing to course and programme development (formation of an external-stakeholders advisory board).

Principle 4: Student Admission, Progression, Recognition and Certification

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

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

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

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

Study Programme compliance

The number of incoming students by Greek Law is determined the Ministry of Education and Greek universities have no direct influence on the system of admission. This is a permanent source of problems and has negative effects on academic life in all Greek Universities.

There is an elective work-placement (Πρακτική Ασκηση) course with a limited number of students attending it mainly because of the lack of major companies in the broader area of Thessaly.

The Department has made available a well-defined policy for the Thesis course and a Thesis handbook is available. The AP noticed that the overwhelming majority of graduating theses receives the highest grade (10).

The diploma supplement is issued to all graduates.

While the documentation received by the Department mentions the existence of an annual welcome event for incoming students, the AP during the meeting with the undergraduate students received conflicting messages. Most student reported that the welcome event is limited to a one hour (or less) talk during one of the first classes of the semester. This does not appear to be an "event".

Panel judgement

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

Panel Recommendations

4.1   The AP strongly recommends that the ministry of education and the Department agree to a commonly acceptable number of admitted students.

4.2   The AP recommends the establishment of a day long Welcome Event for incoming students at a University Level where in the morning students will be given tours of the main University campus/facilities and in the afternoon they will be briefed about the Department, the courses and directions as well as information about pastoral and welfare, faculty advising (personal tutoring), careers etc.

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 academic staff comprises 21 members (4 Assistant Professors, 13 Associate Professors and 4 Professors) as listed in the "Appendices to the Synoptic Document for Accreditation".

Their expertise spans many areas of Electrical and Computer Engineering with emphasis in Signal Processing, VLSI/CAD design, Computer Architecture, Networks, Software Engineering, one faculty with research in Power Systems and Smart Grids and another with research emphasis in machine condition monitoring and non-destructive testing. Given that the Department has been renamed and emphasizes, in addition to computer engineering and telecommunications, the area of energy, it is imperative that the expertise of the faculty body be reflective of the subjects the Department and its programs deliver.

The faculty are all active in research publishing and presenting their work in appropriate venues. Additionally, the faculty are attracting significant research funding. As per indicators M3.128 to M3.140, they are coordinating 26 research projects. Some of the research projects have substantial funding; 58 of the projects the faculty are participating in are receiving more than EUR 200K.

The faculty have been appointed and promoted through the ranks following the established Greek framework of an appointments committee that includes members from other universities and follows a rigorous evaluation of the research and teaching credentials of the faculty under consideration.

The faculty have the opportunity for a leave of absence or a sabbatical, or a leave to teach at other institutions. For example, for 2017/2018 academic year, one faculty was on sabbatical, and one had a teaching assignment at another institution. Such activities promote faculty mobility, and could be used to introduce improvements in the course delivery.

It is not evident that the University of Thessaly provides any support for teaching and learning improvements through what is known at other institutions as a Teaching and Learning Center of Excellence.

Panel judgement

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

Panel Recommendations

5.1   The AP recommends that the Department includes, in its strategic plan, as a goal to increase the number of faculty members with expertise in Energy.

5.2   The AP recommends that the University of Thessaly establish a Teaching and Learning Center of Excellence with responsibilities of introducing new and effective course delivery methods and of helping and training the faculty in utilizing such methods.

5.3   The AP recommends that the Department further encourage its faculty's mobility taking advantage of study leaves, faculty exchanges (e.g. through ERASMUS) or other opportunities to enhance their research and teaching.

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

Currently, the Department is housed in rented high-rise buildings downtown Volos. These buildings were designed as apartment buildings and they are not designed to house an academic environment. These buildings lack easy access for people with special needs in certain rooms. The admin, staff offices and meeting room are appropriate. There are also 3 teaching labs which are well equipped but in terms of size and layout are below standard. Most of the other teaching and 3 specialized research lab facilities and the library are scattered across town. Apart of visiting one research lab, the AP did not have the opportunity to physically visit the other facilities. The AP was impressed with the research lab (Nitos) it visited.

Students benefit from free software (i.e. MS Office, Matlab, VMWare, CAD etc), cloud infrastructure, servers, Arduino kits etc.

Within the next few months the Department will move to a dedicated, brand new building. Currently, the construction of the building has been completed and is due to undergo the sign off procedure. Tenders for furniture, audio-visual and IT equipment are underway. The new building includes 3 amphitheaters (150-250 student capacity), 3 large classrooms, 4 large specialist teaching labs, 36 faculty staff offices, admin staff offices, conference rooms, etc. These facilities appear to be more than sufficient for the Department's teaching needs; however,

under the current layout, these are not sufficient to house student meeting rooms, and spaces for graduate students, researchers and research labs.

Students have access, based on criteria set by the University and the State, to dormitories. There are also faculty advisors (personal tutors), career office, student welfare office and health services. Students seem to be aware of the available services. Meetings with graduates confirmed that graduates from the programme need improving their communication and interviewing skills (soft skills). The students, during their meeting with the AP, commented that career services could be more organized and structured.

Panel judgement

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

Panel Recommendations

6.1   The Department should intensify efforts for the smooth transition to the new building

6.2   The Department should work closely with the career services office to identify deficiencies in soft skills the students have. The Department should address these deficiencies accordingly.

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 Department maintains the overall responsibility for overseeing the continuous improvement of its academic provision, research outputs, and the performance standards of its students. The University and the Department have well established information management systems. The MODIP of the University of Thessaly is responsible for overseeing the continuous improvement of its academic provision and research outputs, as well as the efficient operation of its academic services, in accordance with international practices and the guidelines stipulated by HQA. As such, the Department closely adheres to the institutional principles which govern the collection of data regarding students, teaching staff, course structures, annual monitoring, assessments, progression, and completion rates.

A long list of KPIs has been established. The AP strongly advises that the list of KPIs should be made shorter with S.M.A.R.T. goals that are monitored, revised and re-defined at regular intervals (e.g. annually).

The AP noted that there are no staff surveys nor alumni ones being conducted.

The Department should develop a set of long-term procedures for analysing these data and reflecting on the outcomes with an approach that monitors the implementation of long-term strategies and goals.

The completion rate of student surveys is extremely low.

Panel judgement

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

Panel Recommendations

7.1   Encourage the establishment of staff surveying on a regular basis and ensure that they are properly analysed.

7.2   Establish an alumni/career office which will survey alumni as to their careers and satisfaction with the program. Such an office would analyse the collected data and provide thoughtful recommendations to the Department.

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 Department maintains a well-organized web site (https://www.e-ce.uth.gr) that includes all pertinent information about the Department and the programs it offers.

The website is offered both in Greek and in English with substantially the same content.

The website includes the full list of courses offered. Each course entry comprises a course description, the required or recommended textbooks, the times and places of the lectures, labs and tutorials and the learning outcomes. It also includes a link to the individual course's website at the e-class platform (http://eclass.uth.gr/eclass/courses/xxx).

The e-class sites of the individual courses include more extensive information including course notes, lab assignments, announcements, and evaluation and grading methodology.

The website also includes a plethora of other useful information pertaining to the Department. This includes staff profiles, ongoing research, Alumni, Services, Announcements etc.

Panel judgement

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

Panel Recommendations

 8.1   The Department should ensure that the English version of its website is identical to the Greek one.

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

It was evident that all stakeholders of the programme, including academic, administrative and technical staff, undergraduate and graduate students are actively engaged in the current accreditation review. It has been demonstrated both in the OMEA meeting and in the meeting with staff that staff are fully aware of the importance of the reviewing process and the positive effects that can derive from it. The Institution has a number of review procedures in place in which the Department may take advantage of.

The Department has not undergone an evaluation by an external committee. This is due to the Department's name change back in 2013. There is evidence of internal evaluations; however there is not much evidence of a consistent annual analysis. The results from these evaluations have not identified any major concerns.

Panel judgement

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

Panel Recommendations

9.1   The Department should produce reflective reports based on regular monitoring and annual intervals.

Principle 10: Regular External Evaluation of Undergraduate Programmes

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

> *HQA is responsible for administering the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HQA grants accreditation of programmes, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the template's requirements, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees.*
>
> *Both academic units and institutions participate in the regular external quality assurance process, while respecting the requirements of the legislative framework in which they operate.*
>
> *The quality assurance, in this case the accreditation, is an on-going process that does not end with the external feedback, or report or its follow-up process within the Institution. Therefore, Institutions and their academic units ensure that the progress made since the last external quality assurance activity is taken into consideration when preparing for the next one.*

Study Programme compliance

As per the letter of the President of HQA, dated May, 14, 2014, protocol no. 1408, the Department was not required, and has not undergone an external evaluation.

Based on the information the AP collected during the site visit, it appears that the faculty, lab personnel, and administrative staff are fully aware of the importance of the external review process and its contribution to improvement. Students and recent graduates overall were happy with their student experience and were praising the efforts of the Department's and University faculty and staff.

Panel judgement

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

Panel Recommendations

PART C: CONCLUSIONS

I.   Features of Good Practice

The AP found that the faculty has excellent credentials, and are approachable by the students. The graduates of the program have found positions in academia and industry world-wide. There is satisfactory academic student support. Courses utilize a range of formative and summative assessment methods. The website of the Department is excellent. Certain research labs are state of the art. Faculty include their research results in their courses.

II.   Areas of Weakness

The AP found that the Department is lacking a strategic plan complete with a vision and mission statements. The current goals are unrealistic and lack the role responsible for their implementation. There is evident methodology of assigning ECTS to each course. The students seem not to participate in the student-satisfaction-surveys. The current buildings housing the Department are clearly below standards. There is no external stakeholders advisory board. The number of faculty is low.

III.   Recommendations for Follow-up Actions

1.1   The AP strongly recommends the development of a strategic plan complete with vision and mission statements, and which includes an environmental scan and the identification of threats and opportunities

1.2   The current and target values must be considered carefully and need to be realistic and achievable

1.3   The distribution of responsibilities must be more specific and introduce particular roles to champion the attainment of each strategic goal

2.1   The Department should re-assess the number of ECTS units assigned to each course, and devise a process and criteria to more accurately estimate the ECTS assigned to each course.

2.2   The Department should re-assess the very large number of advertised (offered?) electives to be congruent with the number of faculty and perhaps consolidate the subjects and minimize overlap.

2.3   The Department should consider lowering the limits of the number of failed courses a student is allowed before they progress to the next year of studies.

2.4   The Department should consider making a number of complementary studies courses required. Such courses should include courses in communications, economics, law, the environment and the impact of engineering to society.

2.5   The Department should consider making a course concentrating in the design process as a required course.

2.6   The Department should examine the reasons of low graduation rates and devise approaches of improving them.

3.1   The Department should encourage more students undertake exchange programmes.

3.2   The Department should identify ways to increase the participation rate to course evaluations and student satisfaction surveys so as statistically robust analysis could be performed.

3.3   The Department should explore ways for industrial partners contributing to course and programme development (formation of an external-stakeholders advisory board).

4.1   The AP strongly recommends that the ministry of education and the Department agree to a commonly acceptable number of admitted students.

4.2   The AP recommends the establishment of a day long Welcome Event for incoming students at a University Level where in the morning students will be given tours of the main University campus/facilities and in the afternoon they will be briefed about the Department, the courses and directions as well as information about pastoral and welfare, faculty advising (personal tutoring), careers etc.

5.1   The AP recommends that the Department includes, in its strategic plan, as a goal to increase the number of faculty members with expertise in Energy.

5.2   The AP recommends that the University of Thessaly establish a Teaching and Learning Center of Excellence with responsibilities of introducing new and effective course delivery methods and of helping and training the faculty in utilizing such methods.

5.3   The AP recommends that the Department further encourage its faculty's mobility taking advantage of study leaves, faculty exchanges (e.g. through ERASMUS) or other opportunities to enhance their research and teaching.

6.1   The Department should intensify efforts for the smooth transition to the new building

6.2   The Department should work closely with the career services office to identify deficiencies in soft skills the students have. The Department should address these deficiencies accordingly.

7.1   Encourage the establishment of staff surveying on a regular basis and ensure that they are properly analysed.

7.2   Establish an alumni/career office which will survey alumni as to their careers and satisfaction with the program. Such an office would analyse the collected data and provide thoughtful recommendations to the Department.

8.1   The Department should ensure that the English version of its website is identical to the Greek one.

9.1   The Department should produce reflective reports based on regular monitoring and annual intervals.

IV.   Summary & Overall Assessment

The Principles where full compliance has been achieved are:

3, 6, 8, 10

The Principles where substantial compliance has been achieved are:

1, 2, 4, 5, 7, 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	**X**
Partially compliant	
Non-compliant	

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

The members of the Accreditation Panel for the UGP (Integrated Master) of Electrical & Computer Engineering of the University of Thessaly

Name and Surname   **Signature**

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