Doc. Number: 300.1.1

Cyprus Agency of Quality Assurance and Accreditation in Higher Education

Republic of Cyprus

External Evaluation Report

Program of Study

Institution: Frederick University

SCHOOL OF ENGINEERING AND APPLIED SCIENCES

Program of Study: « MSc MARINE ENGINEERING»

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INSTRUCTIONS:

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the "Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 to 2016" [N. 136 (I)/2015].

The document is duly completed by the External Evaluation Committee for each program of study. The ANNEX (Doc. Number 300.1) constitutes an integral part of the external evaluation report for the external evaluation accreditation of a program of study.

EXTERNAL EVALUATION COMMITTEE:

NAME	TITLE	UNIVERSITY / INSTITUTION
Kostas Belibassakis	Professor	School of Naval Architecture and Marine Engineering National Technical University of Athens
Alistair Greig	Professor	Dept. Mechanical Engineering University College London
Gerasimos Theotokatos	Reader	Dept. Naval Architecture, Ocean and Marine Engineering University of Strathclyde, Glasgow
Michael Mavros	Students Representative	Dept. of Mechanical Engineering University of Cyprus

INTRODUCTION:

I. External Evaluation procedure

The external evaluation Committee for the proposed MSc programme in Marine Engineering, visited the Frederick University and the institution premises in Nicosia and Limassol on Monday 11th June 2018.

In the morning the Committee visited the Nicosia premises, and had meetings with the Rector, the Heads of the involved Departments and the program coordinators. Also, the Committee had meetings and discussions with members of the internal evaluation Committee, as well as with members of the administrative staff. The morning visit took place according to the following schedule:

1. Welcome from the University Vice President
2. Presentation of program's feasibility study.
3. Presentation of the School's structure and the collaborating departments offering the program.
4. Meeting with the Heads of the involved departments and the program Coordinators. Presentation of the curriculum (allocation of courses per semester, teaching methodology, internal evaluation report, admission criteria for prospective students).
5. Discussion of the program as a whole and information relevant to the completion of the standards and indication tables submitted with the internal evaluation report.
6. Meeting with members of the administrative staff
7. Site visit to the premises of the institution in Nicosia (library, computer labs, research facilities, labs and workshops of the Mechanical and Civil Engineering Departments) and discussion of the equipment used in teaching and learning (software, hardware, materials, online platforms.).
8. Private lunch with the educational officer of the agency.

In the afternoon the Committee visited Limassol premises and had meetings and discussions with academic/teaching staff and recent graduates of the offered Engineers of the Watch (EoW) training program.

The afternoon visit took place according to the following schedule:

1. Introduction and short presentation of the academic/teaching staff for the various courses of the program.
2. Meeting the members of the teaching staff.
4. Meeting the recent graduates of the offered training program Engineer of the Watch (EoW).
5. Site visit to the facilities of the Limassol campus (library, computer labs, teaching rooms).

The present report has been completed by studying information and data contained in the following documents that were provided to the Evaluation Committee prior to the visit in Cyprus on 11 and 12 June 2018. In particular, the following documents are examined:

1. Application for evaluation – accreditation of the new MSc Program in "Marine Engineering" offered by the Mechanical Engineering Dept. and Maritime Dept. of the School of Engineering and Applied Sciences of Frederick University, including the following parts/annexes:

A. PROGRAM'S GENERAL PROFILE

B. PROGRAM'S CONTENT

C. APPLICATION INFORMATION

D. SPECIFIC INSTRUCTIONS FOR COMPLETING THIS DOCUMENT

E. TABLES:

1– STRUCTURE OF THE PROGRAM OF STUDY

2 – LIST OF COURSES OF THE PROGRAM OF STUDY

3 – TEACHING PERSONNEL, COURSES AND TEACHING PERIODS IN THE PROGRAM OF STUDY

4 – TEACHING PERSONNEL, QUALIFICATIONS AND TOTAL NUMBER OF TEACHING PERIODS

F. ANNEXES:

1 – LIST OF COMPULSORY COURSES AND ELECTIVE COURSES

2 – COURSE DESCRIPTION

3 – DETAILED BIOGRAPHICAL NOTES

4 – INFRASTRUCTURE

5 –QUALITY STANDARDS AND INDICATORS

6 - SAMPLE OF CERTIFICATE

2. Moreover, the present report has been completed based on the following additional information/data:

(i) Presentation of the proposed MSc program during the visit of the Evaluation Committee
(ii) Additional material provided during the visit of the Committee
(iii) Meetings and discussions with the Management and the Academic/Teaching and Administrative personnel
(iv) The general impression, data and additional information collected during the site visits.

II. The Internal Evaluation procedure

- Comments concerning the quality and the completeness of the application submitted by the institution of higher education (Doc. Number 200.1), as well as concerning the overall acceptance of and participation in the quality assurance procedures, by the institution in general and by the program of study under evaluation in particular.

The internal evaluation report was completed by the Internal Quality Committee of the Institution and submitted as Annex 5, entitled: QUALITY STANDARDS AND INDICATORS of the proposed MSc program application form.

The committee feels that the filled form expresses the expectation of the University based on their experience from the other delivered programmes. The committee notes that all points were scored with 5 even in cases where the scores cannot be evaluated prior to the delivery of the program. The form does not contain justification of any provided scores.

FINDINGS:

1. EFFECTIVENESS OF TEACHING WORK – AVAILABLE RESOURCES

- **Organization of Teaching Work**

The duration of the proposed MSc program is 18 months (i.e. three semesters) for full time or 36 months (i.e. six semesters) for part time attendance. For the successful completion of the programme 90 ECTS are required. The program is offered at the full time mode in three semesters and each semester corresponds to 30 ECTS. The third semester is exclusively devoted to MSc thesis preparation and examination and corresponds to 30 ECTS.

Admission is possible for students with a recognised bachelor degree or qualification deemed to be equivalent to BSc degree level based on the examination the official transcripts (grade reports) of their first-degree studies and an successful interview of the candidates. Candidates, who have completed university graduate level work in an accredited program at an institution other than Frederick University, are also eligible to apply for transfer admission. The language of instruction is English, and the students could come mainly from Cyprus or overseas.

According to the University academic calendar, intakes take place in September.

- **Teaching**

The proposed program has not delivered yet and in this respect the committee is not capable of evaluating the used teaching methods. Lecture notes have not developed yet, and it seems that this will be in the responsibility of the academic/teaching staff.

In addition, the teaching material was not presented in the committee. During the meetings and presentations, the committee was informed about the teaching methods and material that will be used. The courses delivery method will combine presentations and software tools in line with the international teaching delivery standards.

Library is relatively modern and provides access to electronic resources; however the existing material on the Marine Engineering discipline is limited. A number of books have been ordered, which will enhance the library resources. With regard to the available software, general software packages including Matlab, design software including AUTOCAD and Solid Works and Simulators COBALD, as well as CFD software including Star CD will be used in the students' courseworks of the various courses.

Continuous evaluation and feedback from the students are considered as a standard practice at regular intervals. The system and the criteria for evaluating and providing feedback on the students' performance are clear, sufficient and known to the students in advance. There are educational activities that encourage the active participation of students in the learning process; however these need to be clearly described and incorporated in the courses description.

- **Teaching personnel**

The coordinators of the MSc program in "Marine Engineering" of Frederick University are Dr. Elias Chatzidouros and Ceng. Rod Beams.

Dr. Elias Chatzidouros
Dr Chatzidouros is Technical Manager in Engitec Systems International Ltd. (Cyprus) with main activities and responsibilities in technical consultancy, management of Commercial contracts, R&D work for EU and industry as well as he is Research Engineer in Centre for Technology Research and Innovation Ltd. (Cyprus). Dr Chatzidouros has some 9 years-experience in the ALS Marine Consultants Ltd. Technical Manager as Technical consultancy, with main responsibilities in management of Commercial contracts, R&D work for EU and industry. He obtained his undergraduate Naval Engineering Diploma from the National Technical University of Athens, School of Naval Architects and Marine Engineers, Greece and his Doctorate (Ph.D.) from National Technical University of Athens, Greece in "Effect of hydrogen on the mechanical behaviour of pipeline steels". He has ten publications in Journals and International Conferences in Marine Structures aspects.

Ceng. Rod Beams BA, IEng, MIMarEST
Rod is currently the Director of the Marine Engineering Vocational Programme at Frederick University. This Programme is approved by the he Ministry of Transport Communications & Works, Department of Merchant Shipping (DMS) and enables graduates to obtain their Engineering Officer of the Watch (EOOW), 2nd and Chief Engineer's Certificates of Competency Licenses.
Rod has been involved with the marine industry all his working life since 1965. He has 12 years sea service on all types of vessels, including general and bulk cargo,

passenger, oil tankers, heavy-lift, and ro-ro ferries. Served at all ranks, up to and including Chief Engineer.

His main qualifications include a BA degree (Open University) in Technology, and has held a UK Unlimited Chief Engineer Certificate for Motor Ships since 1976. In 1984, he was a Senior Lecturer at Warsash Maritime College, UK., responsible for the installation, running and development of the first Engine Room Simulator Centre in the UK. In 1989, he served as a simulation Section Manager for Haven Automation Ltd, with responsibility for major full environmental engine room simulator contracts in: USA, Spain, Russia, Ukraine, Kuwait, Brazil and Egypt. In 1995 he established his own company, Cobalt CBT Systems working as an independent marine consultant, specialising in the field of education and training in the maritime environment, primarily using simulators, simulations and CBT programs. He is also an Engineer Consultant to Videotel, London. In 2000 worked in the mega-yacht industry, based in the South of France, establishing training courses for yacht marine engineer licences. In 2006 was a Senior Lecturer and Programme Leader, responsible for setting up and running a BEng Marine Engineering Degree at the University of Greenwich. In 2010 was awarded a prestigious National Award from the Higher Engineering Academy for Teaching Excellence for developing and using the Cobalt CBT system at the University. In 2012 was an Instructor at the Centre for Simulator Maritime Training (CSMART) of Carnival Corporation, Holland. Among his many training responsibilities one was the investigations into the cause of engine room accidents and first response procedures, in particular engine room fires.

The Evaluation Committee considers positive the proposed existence of two coordinators, one with the degree of Dr of Naval Architecture & Marine Engineering and academic/research qualifications, and one with extensive operation professional experience. However, the committee feels that a permanent academic staff should be considered as the program coordinator as this is the standard practice in similar programs of other Universities, which ensures the effective management of the program and the uninterrupted interaction with the students.

Teaching personnel:

The teaching personnel of the program, as presented in the documents and annexes of the application form (annex 3) and the provided data during the visit consists of 19 persons (including the coordinators), most of whom are PhD holders and many have significant practical experience. However, several academics fall short in publications in scientific journals in specific topics of Marine Engineering.

The number of the involved faculty is considered quite satisfactory for the completion and delivery of the proposed program. The committee noted that a sufficient number full-time permanent academic staff members is involved if the program delivery. The specialization of Visiting Professors could significantly support the curriculum.

The ratio of the expected number of students to the total number of teaching staff is considered to be sufficient to support and ensure the quality of the program.

The committee noted that little evidence provided in most of the staff' CVs concerning teaching experience.

2. PROGRAM OF STUDY AND HIGHER EDUCATION QUALIFICATIONS

- **Purpose and Objectives and learning outcomes of the Program of Study**

The purpose, objectives and learning outcomes of the curriculum are described in the application form (pages 10 to 11).

The general objectives of the the Programme are to cover subjects that are necessary for a marine engineer at the same time, it prepares students to become ship managers. The proposed Postgraduate Degree aims to develop this combination of essential knowledge and skill-sets, needed today in the marine engineering domain.

The sectors of society and the economy that are expected to benefit from the added value of the proposed program graduates are: 1) maritime/marine/shipping industry, 2) naval forces, 3) offshore oil and gas industries, 4) mineral extraction companies, 5) small boat build and operation, 6) transportation companies, 7) small shipyards, 8) ports, 9) scientific services, 10) marine consultancy and survey agencies.

The purpose and objectives of the proposed program are clearly expressed in the form of expected learning outcomes. However, the developed curriculum and courses syllabi only partially reflect on the program objectives and learning outcomes. The committee provided a number of proposal for rectifying this issues, which is listed and detailed below.

Following the adoption of the committee's proposals/recommendations, the awarded degree will correspond to the purpose and learning outcomes of the program. The content of the program, the teaching material and equipment need to be sufficiently modifying in order to achieve the program's aim and ensure the expected learning outcomes.

The committee noted that the characterization "advanced level" in the proposed courses is not defined in the documentation or during the visit/additional information provided post visit. This must be properly specified to permit the committed judge the academic level of the proposed program.

- **Structure and Content of the Program of studies**

The proposed programme includes, among others, the subjects of:
Fundamentals of Marine Engineering, Marine Mechanical Systems Construction and Maintenance, Marine Electrical Equipment Construction and Maintenance, Ship Performance at Sea and Maritime Safety, Marine Machinery Monitoring and Maintenance Modelling, Commercial Management of Ships, International Maritime Law, Logistics and supply chain management. The aforementioned subjects are at

the heart of the programme and constitute an outstanding curriculum of academic credentials that is useful for any engineer who wishes to specialise in the shipping industry.

The committee noted the lack of domain knowledge as also pointed out by the University staff during the presentation of the proposed program feasibility study. This reflects in the terminology (titles and syllabi) of some of the proposed courses. In addition, some of the proposed courses extensively cover fundamental topics and are not considered to be at a master's level. A number of courses are already developed and delivered in the MSc of International Trade and Shipping Management. The content of these is deemed to be appropriate; however do not lay in the widely accepted scientific area of Marine Engineering Master programs. During the discussions it was revealed that the specific courses are required for covering the needs of the Cyprus market. In this respect, a change in the proposed MSc program name is required by the committee, so that the developed courses and their contents are aligned with the program title. The committee feels that an appropriate program title should include "Management"; as an example "Maritime Engineering Management".

Although requested, the marking criteria of the thesis were not provided. In addition, progression rules are not described in the provided material and during the meetings. The break-down of the total students' loading activities per course must be provided. The proposed textbooks must be consistent with the courses contents; recently published text books should be preferred.

With regard to the proposed program structure, the committee noted that a number of courses, which include prerequisite topics, run in parallel to courses covered more advanced topics, which may create difficulties to the students attending the program. In specific, the course "Fundamentals of Marine Engineering" must be reconsidered and for example offered as a pre-course non-credit course.

Activities including laboratory and/or industrial visits are recommended to be included to the proposed courses. In addition, the committee noted overlapping of topics between various courses, whereas contemporary and advanced topics and technologies in the Marine Engineering area are not covered (for example, hybrid propulsion plants, alternative fuels engines and systems, electric propulsion etc.).

Synergies between teaching and research activities should be developed.

In this respect, revision of the proposed courses are recommended by the committee as detailed below.

MAEN501: The course content must be revised and the level need to be reconsidered. The delivered hours need to be taken into account whilst revising the contents. Formal and consistent terminology should be used (for example "propeller-engine matching and steering gear" instead of "shaft-engine matching and steer gearing").

MAEN502: Revise the title (e.g. “Ship machinery and Systems”) and the course contents. Remove the proposed topic on “Gear design” and include topics related to vibrations, noise, shaft alignment. The course should also cover impact of legislation on the ship propulsion e.g. alternative fuels systems and machinery.

MAEN503: Revise the title (e.g. “Ship electrical systems and components”) Revise the course content removing coverage of basic knowledge and topics. Consider the development of a new course on “Marine Systems monitoring, automation and control”. Contemporary and advanced topics e.g. diesel/DF electric propulsion, hybrid systems, converters and fault current should be covered.

MAEN504: Maritime Safety (and/or regulatory framework) must be covered by developing an independent course. Revise the course content to reflect the course learning outcomes and objectives. The Naval architecture topics must be reduced and moved to MAEN501. IMO regulations on energy efficiency and emissions and their influence on ship machinery/systems selection and operations must be included.

MAEN505: Revise the title. Move the risk assessment topic to the course covering Maritime Safety. Specify the tools that will be used for the modelling in the teaching process. The control topic must be removed (see comment for MAEN503).

MAEN507: Academic writing, presentation skills and ethics must be included. Consider revising the weights on Final Exam and Course work/presentations. A proposal for 20%/80% (instead of 60%/40%) seems more appropriate.

ITSM502: Clarify the semester that this course is delivered a it seems that runs in parallel with the thesis (38 credits in one semester will result in overloading the students).

MAEN506, ITSM502, ITSM503, ITSM505: These courses are delivered in other MSc programs and are appropriate.

MAEN508: Include relevant references on the contemporary and advanced topics covered by the program. Marking criteria must be provided.

- **Quality Assurance of the Program of studies**

Internal regulations by Frederick University are followed to ensure the quality of the program of study, which clearly define the processes for introduction, development, monitoring, evaluation and review of these programs.

These procedures are described in detail in pages 21-24 of the application document. The arrangements for ensuring the quality of the curriculum define clear responsibilities and procedures.

Participation in the quality assurance system of the curriculum is ensured by
- the members of the academic staff

- members of the administrative staff
- the students.

The guide and / or the quality assurance regulations provide detailed information and data on the support and management of the curriculum.

- **Management of the Program of Study**

Effective management of the curriculum with regard to planning, approval, monitoring and reviewing is carried out. It is ensured that learning outcomes can be achieved on the basis of the planned timetable.

The academic hierarchy of the Foundation (Rector, Heads of collaborating Departments, Program Coordinators, academic staff) have the sole responsibility for academic excellence and curriculum development. An effective mechanism for the assessment of the curriculum by the student (s) is ensured.

Recognition and transfer of credits from prior learning is regulated by procedures and regulations that ensure that most credit units are awarded by the institution awarding the present MSc title.

Program Coordinators have the main responsibility for the academic management and the preservation of the quality of the program, and are responsible for:

- Identifying the development needs of teachers in order to ensure the quality of teaching and the know-how in the course.
- Monitoring and evaluating the program and completing the annual monitoring report as well as addressing issues arising from quality assurance procedures.
- The settlement of the evaluation and review of the program.
- Establish contacts with the examiners and convene meetings to evaluate the program.

The Course leaders/responsibles undertake to prepare a report on the evaluation results of the course for the program Coordinator.

Assessment of lecturers and teaching/academic personnel is also done by the students through questionnaires. The students' assessment is elaborated by the internal evaluation committee and the program is revised based on the provided feedback.

- **International Dimension of the Program of Study**

The proposed program will be delivered in English and is expected to attract students and visiting lecturers from overseas. The existing staff have a wide international experience.

- **Connection with the labor market and the society**

Graduates of the program have very good employment prospects in the field of Marine Engineering and Shipping industry in specific to Technical Ship Management companies. More specifically, graduates of the proposed program may be employed as engineers in shipping companies and in the offshore oil and gas industry.

Given the strong position of Cypriot shipping in the world shipping map and the very strong links of the Frederick University with the local industry, the establishment of the proposed program seems as a positive development with the following benefits: (a) supporting Cyprus shipping with staff with appropriate theoretical and technical knowledge, (b) a particularly good career prospects for young people, and (c) the creation of new wealth for the benefit of the Republic of Cyprus.

3. RESEARCH WORK AND SYNERGIES WITH TEACHING

- **Research Teaching Synergies**

The Department of Mechanical Engineering is active in the areas of Manufacturing processes, Material Properties and Characterization, Evaluation of the mechanical properties of material, Design and development of computational procedures by means of FEM Simulation, CNC machine tools, CAD/CAM systems, Reconstruction of Archaeological Findings, Rapid Prototyping Methods, Design and manufacturing of fiber-reinforced composites, Automotive joining processes, Manufacturing of aero-engine components, Additive manufacturing.

The Department of Maritime Studies is active in the areas of Shipping Economics, Commodity Trade, Port Economics, Liner Shipping, Logistics and Maritime Regulations in marine safety and environment. The faculty looks at the effects of the recent economic crisis in the various shipping markets and main commodities, recent port developments, the privatization processes in the ports, the developments in liner shipping after the abolition of conferences and the regulation changes in the different shipping sectors.

The proposed MSc program intends to inspire and support the students to participate in research activities and to maintain research cooperation links with professional bodies and the local industry. Members of the department have already cooperated with the industry and there are prospects for enhancing the future collaborative research/innovative activities.

However, the Committee remarks that the nature of the proposed program does not prioritize enough the students engagement in research activities. Given the classification of the Program in the MSc category, it is necessary to enrich the Program with a more distinguished research component.

The involvement of academics with the necessary academic qualifications in all aspects of the research in the Maritime Engineering/Science domains, such as funded projects, publications, scientific conferences, as well as cooperation with other institutions is encouraged.

In addition, the content of courses must be revised on an ongoing basis, taking into account the latest relevant developments in research and technology. Also, the participation of students / students wishing to carry out research activities must also be encouraged.

4. ADMINISTRATION SERVICES, STUDENT WELFARE AND SUPPORT OF TEACHING WORK

- **Administrative Mechanisms**

The Program of study is inter-departmental and is offered by the Department of Mechanical Engineering and the Department of Maritime Studies, constituent Departments of the School of Engineering and Applied Sciences and the School of Business and Law, accordingly.

Head of the Department Mechanical Engineering:
Dr Marios Fytilas,
Head of the Department of Maritime Studies:
Dr Angelos Menelaou
Dean of the School of Engineering and Applied Sciences:
Ass. Professor Christos Anastasiou
Dean of the School of Business and Law:
Professor Eleni Hadjiconstantinou

Institutional administrative mechanisms for student monitoring and support are in place. There is a Student Welfare Service that supports students in their academic and personal problems and difficulties.

- **Infrastructures / Support**

As described in the application form Annex 4 and verified during the site visits, there is infrastructure including Library facilities, computer and information service facilities and other learning facilities, classrooms, workshops etc., which are available to support the program.

Laboratory exercises/tests are not included in the contents of the proposed courses. The existing lab facilities observed during the visit (old marine engine) is appropriate for training in a practical level; therefore not suitable to the MSc program level. The University facilities include an automotive engine test cell, which can be used in some courses to enhance the teaching/educational procedure. Electrical Engineering department labs could be considered to support a number of the proposed course (e.g. MAEN503).

Library is relatively modern and provides access to electronic resources; however the existing material on the Marine Engineering discipline is limited. A number of books have been ordered, which will enhance the library resources. The Library needs to include books covering modern and future marine engineering technologies, for example: electric ship technologies, LNG/alternative fuels ships and dual fuel engines, alternative prime movers and propulsors. The Encyclopedia of Maritime and Offshore Engineering published by Wiley is strongly recommended as a necessary addition for the library.

In addition, important scientific journal in the field of marine engineering should be included, for example, IMechE Journal of Engineering for the Maritime Environment (JEME), IMarEST Journal of Marine Engineering and Technology (JMET), Journal of Marine Science and Technology, Ocean Engineering, SNAME and RINA journals.

Software packages for marine engines and ship systems simulation are recommended to be used in a number of courses and for the student dissertation.

- **Financial Resources**

In the application form the required Fees and the Financial Resources Management of the Study Program are provided. It is clarified that the program receives centralized financial management from the College's main budget.

The tuition fees of the program are set to 120 euro per ECTS, which results in a total fees of €10,800 for the proposed MSc program.

The management and allocation of the financial resources of the curriculum allows for the development of the program as well as the academic / educational staff.

The allocation of financial resources relating to academic issues is the responsibility of institutional academic and administrative bodies.

The fees of academic and other staff are proportional to the salaries of academic and other staff of respective institutions in Cyprus.

The proposed program could, in the future, seek additional financial resources, such as donations from the shipping community, to enhance its laboratory and general infrastructure.

5. DISTANCE LEARNING PROGRAMS

N / A

6. DOCTORAL PROGRAMS OF STUDY

N / A

CONCLUSIONS AND SUGGESTIONS OF THE EXTERNAL EVALUATION COMMITTEE[1]

- The present situation of the program, good practices, weaknesses that have been detected during the external evaluation procedure by the external evaluation Committee, suggestions for improvement.

The proposed MSc program is a three semester program, following the European Credit Units (ECTS). It consists of 7 required courses (52 ECTS) and one elective course (8 ECTS).

Graduates of the program have very good employment prospects in the fields of Marine Engineering and Shipping industry. More specifically, the proposed MSc program graduates may be employed in the shipping industry, and possibly in the offshore oil and gas industry.

The program could attract prestigious scientists and researchers as visitors. The teaching staff is characterized by a mix of people with good academic background studies and theoretical training, and people with appropriate professional experience. The Committee regards as positive the proposed existence of two coordinators, one doctoral holder in Naval Architecture & Marine Engineering, and one with extensive professional experience in the field.

The main findings of the evaluation committee are as follows.

- The proposed MSc program title must be revised according to the recommendations provided above.
- The proposed program structure and contents must be revised according to the detail provided above.
- The proposed program coordinator must be a full time member of the academic staff of Frederic University and preferably PhD holder.
- Advanced level must be defined in terms of Master program expected learning outcomes.
- The proposed program must be reviewed after the first cohort graduation.

Nicosia, 12/6/2018

[1] It is highlighted, at this point, that the External Evaluation Committee is expected to justify its findings and its suggestions on the basis of the Document num.: 300.1. The External Evaluation Committee is not expected to submit a suggestion for the approval or the rejection of the program of study under evaluation. This decision falls under the competencies of the Council of the Agency of Quality Assurance and Accreditation of higher education.

Doc. Number: 300.1

Quality Standards and Indicators

External Evaluation of a Program of Study

Institution: Frederick University
Program of Study: MSc in Marine Engineering
Duration of the Program of Study: 18 months
Evaluation Date: 11 June 2018

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the "Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 to 2016".

The document describes the quality standards and indicators, which will be applied for the external evaluation of programs of study of institutions of higher education, by the External Evaluation Committee.

DIRECTIONS: Note what is applicable for each quality standard/indicator.

1. Applicable to a minimum degree
2. Applicable to a non satisfactory degree
3. Applicable to a satisfactory degree
4. Applicable to a very satisfactory degree
5. It applies and it constitutes a good practice

It is pointed out that, in the case of standards and indicators that cannot be applied due to the status of the institution and/or of the program of study, N/A (= Not Applicable) should be noted and a detailed explanation should be provided on the institution's corresponding policy regarding the specific quality standard or indicator.

Members of the External Evaluation Committee

NAME	TITLE	UNIVERSITY / INSTITUTION
Kostas Belibassakis	Professor	School of Naval Architecture and Marine Engineering National Technical University of Athens
Alistair Greig	Professor	Dept. Mechanical Engineering University College London
Gerasimos Theotokatos	Reader	Dept. Naval Architecture, Ocean and Marine Engineering University of Strathclyde, Glasgow
Michael Mavros	Students Representative	

Date and Time of the On-Site Visit: 11 June 2018, from 9.00 to 17.30

Duration of the On-Site Visit: 11 June 2018, from 9.00 to 13.00 and from 15.00 to 17.30

1. EFFECTIVENESS OF TEACHING WORK – AVAILABLE RESOURCES							
1.1	**Organization of teaching work**		**1**	**2**	**3**	**4**	**5**
1.1.1	The student admission requirements to the program of study, are based on specific regulations which are adhered to in a consistent manner.						X
1.1.2	The number of students in each class allows for constructive teaching and communication, and it compares positively to the current international standards and/or practices.						
1.1.3	The organization of the educational process safeguards the quality implementation of the program's purpose and objectives and the achievement of the learning outcomes. Particularly, the following are taken into consideration:						
	1.1.3.1	The implementation of a specific academic calendar and its timely publication.					
	1.1.3.2	The disclosure of the program's curricula to the students, and their implementation by the teaching personnel					
	1.1.3.3	The course web-pages, updated with the relevant supplementary material					
	1.1.3.4	The procedures for the fulfillment of undergraduate and postgraduate assignments / practical training					
	1.1.3.5	The procedures for the conduct and the format of the examinations and for student assessment					
	1.1.3.6	The effective provision of information to the students and the enhancement of their participation in the procedures for the improvement of the educational process.					
1.1.4	Adequate and modern learning resources, are available to the students, including the following:						
	1.1.4.1	facilities				X	
	1.1.4.2	library				X	
	1.1.4.3	infrastructure				X	
	1.1.4.4	student welfare					X

	1.1.4.5	academic mentoring					X
1.1.5	A policy for regular and effective communication, between the teaching personnel and the students, is applied.						X
1.1.6	The teaching personnel, for each course, provide timely and effective feedback to the students.						
1.1.7	Statutory mechanisms, for the support of students and the communication with the teaching personnel, are effective.						
1.1.8	Control mechanisms for student performance are effective.						
1.1.9	Support mechanisms for students with problematic academic performance are effective.						
1.1.10	Academic mentoring processes are transparent and effective for undergraduate and postgraduate programs and are taken into consideration for the calculation of academic work load.						
1.1.11	The program of study applies an effective policy for the prevention and detection of plagiarism.						
1.1.12	The program of study provides satisfactory mechanisms for complaint management and for dispute resolution.						

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

The program has not started yet; therefore not possible to answer many questions.

Note, additionally:

α) the expected number of Cypriot and International Students in the program of study.

β) the countries of origin of the majority of students.

γ) the maximum planned number of students per class-section.

1.2	**Teaching**	**1**	**2**	**3**	**4**	**5**
1.2.1	The methodology utilized in each course is suitable for achieving the course's purpose and objectives and those of the individual modules.			X		
1.2.2	The methodology of each course is suitable for adults.					X
1.2.3	Continuous-formative assessment and feedback are provided to the students regularly.					
1.2.4	The assessment system and criteria regarding student course performance, are clear, adequate, and known to the students.					
1.2.5	Educational activities which encourage students' active participation in the learning process, are implemented.					
1.2.6	Teaching incorporates the use of modern educational technologies that are consistent with international standards, including a platform for the electronic support of learning.				X	
1.2.7	Teaching materials (books, manuals, journals, databases, and teaching notes) meet the requirements set by the methodology of the program's individual courses, and are updated regularly.				X	

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

The program has not started yet; therefore not possible to answer many questions.

1.3	**Teaching Personnel**		**1**	**2**	**3**	**4**	**5**
1.3.1	The number of full-time academic personnel, occupied exclusively at the institution, and their fields of expertise, adequately support the program of study.						X
1.3.2	The members of teaching personnel for each course have the relevant formal and fundamental qualifications for teaching the course, as described by the legislation, including the following:						
	1.3.2.1	Subject specialization, preferably with a doctorate, in the discipline.					X
	1.3.2.2	Publications within the discipline.			X		
1.3.3	The specializations of Visiting Professors adequately support the program of study.						X
1.3.4	Special Teaching Personnel and Special Scientists have the necessary qualifications, adequate work experience and specialization to teach a limited number of courses in the program of study.						X
1.3.5	In every program of study the Special Teaching Personnel does not exceed 30% of the Teaching Research Personnel.						X
1.3.6	The teaching personnel of each private institution of tertiary education, to a percentage of at least 70%, has recognized academic qualification, by one level higher than that of the program of study in which he/she teaches.						X
1.3.7	In the program of study, the ratio of the number of courses taught by full-time personnel, occupied exclusively at the institution, to the number of courses taught by part-time personnel, ensures the quality of the program of study.						X
1.3.8	The ratio of the number of students to the total number of teaching personnel is adequate for the support and safeguarding of the program's quality.						X
1.3.9	The academic personnel's teaching load does not limit the conduct of research, writing, and contribution to the society.						
1.3.10	Future redundancies / retirements, expected recruitment and promotions of academic personnel safeguard the unimpeded implementation of the program of study within a five-year span.						

1.3.11	The program's Coordinator has the qualifications and experience to efficiently coordinate the program of study.					X

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

The program has not started yet; therefore not possible to answer many questions.

1.3.9, 1.3.10: Evidence of the other teaching/administrative activities was not provided, so that the committee has not sufficient information to answer these questions.

2. PROGRAM OF STUDY AND HIGHER EDUCATION QUALIFICATIONS						
2.1	**Purpose and Objectives and learning outcomes of the Program of Study**	**1**	**2**	**3**	**4**	**5**
2.1.1	The purpose and objectives of the program of study are formulated in terms of expected learning outcomes and are consistent with the mission and the strategy of the institution.			X		
2.1.2	The purpose and objectives of the program and the learning outcomes are utilized as a guide for the design of the program of study.			X		
2.1.3	Thehighereducationqualificationandtheprogramofstudy,conformtothe provisions of their corresponding Professional and Vocational Bodies for the purpose of registration to these bodies.		X			
2.1.4	The program's content, the methods of assessment, the teaching materials and the equipment, lead to the achievement of the program's purpose and objectives and ensure the expected learning outcomes.			X		
2.1.5	The expected learning outcomes of the program are known to the students and to the members of the academic and teaching personnel.					
2.1.6	The learning process is properly designed to achieve the expected learning outcomes.			x		
2.1.7	The higher education qualification awarded to the students, corresponds to the purpose and objectives and the learning outcomes of the program.				x	

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

2.1.3 Not clear which professional body is involved.

The program has not started yet; therefore not possible to answer many questions.

2.2	**Structure and Content of the Program of Study**	**1**	**2**	**3**	**4**	**5**
2.2.1	The course curricula clearly define the expected learning outcomes, the content, the teaching and learning approaches and the method of assessing student performance.				x	
2.2.2	The European Credit Transfer System (ECTS) is applied and there is true correspondence between credits and workload per course and per semester for the student either he / she studies in a specific program or he/she is registered and studies simultaneously in additional programs of studies according to the European practice in higher education institutions.					x
2.2.3	The program of study is structured in a consistent manner and in sequence, so that concepts operating as preconditions precede the teaching of other, more complex and cognitively more demanding, concepts.			x		
2.2.4	The higher education qualification awarded, the learning outcomes and the content of the program are consistent.				x	
2.2.5	The program, in addition to the courses focusing on the specific discipline, includes an adequate number of general education courses.				x	
2.2.6	The content of courses and modules, and the corresponding educational activities are suitable for achieving the desired learning outcomes with regards to the knowledge, skills, and abilities which should be acquired by students.			x		
2.2.7	The number and the content of the program's courses are sufficient for the achievement of learning outcomes.				x	
2.2.8	The content of the program's courses reflects the latest achievements / developments in science, arts, research and technology.			x		
2.2.9	Flexible options / adaptable to the personal needs or to the needs of students with special needs, are provided.					x

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

Note the expected number of students who will be studying simultaneously at another academic institution, based on your experience so far, regarding students who study simultaneously in the programs of your institution.

2.3	**Quality Assurance of the Program of Study**		**1**	**2**	**3**	**4**	**5**
2.3.1	The arrangements regarding the program's quality assurance define clear competencies and procedures.		x				
2.3.2	Participation in the processes of the system of quality assurance of the program, is ensured for						
	2.3.2.1	the members of the academic personnel					x
	2.3.2.2	the members of the administrative personnel					x
	2.3.2.3	the students.					x
2.3.3	The guide and / or the regulations for quality assurance, provide detailed information and data for the support and management of the program of study.						x
2.3.4	The quality assurance process constitutes an academic process and it is not restricted by non-academic factors.						x

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

2.3.1 The advanced level of the program is not defined.

2.4	**Management of the Program of Study**		**1**	**2**	**3**	**4**	**5**
2.4.1	Effective management of the program of study with regard to its design, its approval, its monitoring and its review, is in place.					x	
2.4.2	It is ensured that learning outcomes may be achieved within the specified timeframe.					x	
2.4.3	It is ensured that the program's management and development process is an academic process which operates without any non-academic interventions.						x

2.4.4	The academic hierarchy of the institution, (Rector, Vice-Rectors, Deans, Chairs and Programs' Coordinators, academic personnel) have the sole responsibility for academic excellence and the development of the programs of study.						x
2.4.5	Information relating to the program of study are posted publicly and include:						
	2.4.5.1	The provisions regarding unit credits					
	2.4.5.2	The expected learning outcomes					
	2.4.5.3	The methodology					
	2.4.5.4	Course descriptions					
	2.4.5.5	The program's structure					
	2.4.5.6	The admission requirements					
	2.4.5.7	The format and the procedures for student assessment					
2.4.6	The award of the higher education qualification is accompanied by the Diploma Supplement which is in line with the European and international standards.						
2.4.7	The effectiveness of the program's evaluation mechanism, by the students, is ensured.						
2.4.8	The recognition and transfer of credit units from previous studies is regulated by procedures and regulations which ensure that the majority of credit units is awarded by the institution which awards the higher education qualification.						

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

In the case of practical training, note:

- The number of credit units for courses and the number of credits for practical training
- In which semester does practical training takes place?
- Note if practical training is taking place in a country other than the homecountry of the institution which awards the higher education qualification

The program has not started yet; therefore not possible to answer many questions.

2.5	**International Dimension of the Program of Study**	**1**	**2**	**3**	**4**	**5**
2.5.1	The program's collaborations with other institutions are compared positively with corresponding collaborations of other departments / programs of study in Europe and internationally.				x	
2.5.2	The program attracts Visiting professors of recognized academic standing.					x
2.5.3	Students participate in exchange programs.					
2.5.4	The academic profile of the program of study is compatible with corresponding programs of study in Cyprus and internationally.				x	

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

The program has not started yet; therefore not possible to answer many questions.

Also, comment on the degree the program compares positively with corresponding programs operating in Cyprus and abroad in higher education institutions of the same rank.

2.6	**Connection with the labor market and the society**	**1**	**2**	**3**	**4**	**5**
2.6.1	The procedures applied, so that the program conforms to the scientific and professional activities of the graduates, are adequate and effective.					x
2.6.2	According to the feasibility study, indicators for the employability of graduates are satisfactory.					x
2.6.3	Benefits, for the society, deriving from the program are significant.					x

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

3. RESEARCH WORK AND SYNERGIES WITH TEACHING							
3.1	**Research - Teaching Synergies**	**1**	**2**	**3**	**4**	**5**	
3.1.1	It is ensured that teaching and learning have been adequately enlightened by research.				x		
3.1.2	New research results are embodied in the content of the program of study.			x			
3.1.3	Adequate and sufficient facilities and equipment are provided to support the research component of the program of study, which are available and accessible to the personnel and the students.			x			
3.1.4	The results of the academic personnel's research activity are published in international journals with the peer-reviewing system, in international conferences, conference minutes, publications etc.				x		
3.1.5	External, non-governmental, funding for the academic personnel's research activities, is compared positively to the funding of other institutions in Cyprus and abroad.				x		
3.1.6	Internal funding, of the academic personnel's research activities, is compared positively to the funding of other institutions in Cyprus and abroad.				x		
3.1.7	The policy for, indirect or direct, internal funding of the academic personnel's research activity is satisfactory.				x		
3.1.8	The participation of students, academic, teaching and administrative personnel of the program in research activities and projects is satisfactory.			x			
3.1.9	Student training in the research process is sufficient.						N/A
Justify the answer you have provided and note the additional comments you may have on each standard / indicator.							

4. ADMINISTRATION SERVICES, STUDENT WELFARE AND SUPPORT OF TEACHING WORK						
4.1	**Administrative Mechanisms**	**1**	**2**	**3**	**4**	**5**
4.1.1	There is a Student Welfare Service that supports students with regards to academic and personal problems and difficulties.					x
4.1.2	Statutory administrative mechanisms for monitoring and supporting students are sufficient.					x
4.1.3	The efficiency of these mechanisms is assessed on the basis of specific criteria.					x
Justify the answer you have provided and note the additional comments you may have on each standard / indicator.						
4.2	**Infrastructure / Support**	**1**	**2**	**3**	**4**	**5**
4.2.1	There are suitable books and reputable journals supporting the program.			x		
4.2.2	There is a supportive internal communication platform.				x	
4.2.3	The facilities are adequate in number and size.				x	
4.2.4	The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc) are quantitatively and qualitatively adequate.				x	
4.2.5	Teaching materials (books, manuals, scientific journals, databases) are adequate and accessible to students.			x		
4.2.6	Teaching materials (books, manuals, scientific journals, databases) are updated regularly with the most recent publications.			x		
4.2.7	The teaching personnel are provided with training			x		

	opportunities in teaching method, in adult education, and in new technologies on the basis of a structured learning framework.					
Justify the answer you have provided and note the additional comments you may have on each standard / indicator.						
4.3	**Financial Resources**	**1**	**2**	**3**	**4**	**5**
4.3.1	The management and allocation of the financial resources of the program of study, allow for the development of the program and of the academic / teaching personnel.					x
4.3.2	The allocation of financial resources as regards to academic matters, is the responsibility of the relevant academic departments.					x
4.3.3	The remuneration of academic and other personnel is analogous to the remuneration of academic and other personnel of the respective institutions in Cyprus.					x
4.3.4	Student tuition and fees are consistent to the tuition and fees of other respective institutions.					x
Justify the answer you have provided and note the additional comments you may have on each standard / indicator.						

The following criterion applies additionally for distance learning programs of study.

5.	**DISTANCE LEARNING PROGRAMS**	**1**	**2**	**3**	**4**	**5**
5.1	Feedback processes for teaching personnel with regards to the evaluation of their teaching work, by the students, are satisfactory.					
5.2	The process and the conditions for the recruitment of academic / teaching personnel, ensure that candidates have the necessary skills and experience for long distance education.					
5.3	Through established procedures, appropriate training, guidance and support, are provided to teaching personnel, to enable it to efficiently support the educational process.					
5.4	Student performance monitoring mechanisms are satisfactory.					
5.5	Adequate mentoring by the teaching personnel, is provided to students, through established procedures.					
5.6	The unimpeded long distance communication between the teaching personnel and the students, is ensured to a satisfactory degree.					
5.7	Assessment consistency, its equivalent application to all students, and the compliance with predefined procedures, are ensured.					
5.8	Teaching materials (books, manuals, scientific journals, databases) comply with the requirements provided by the long distance education methodology and are updated regularly.					
5.9	The program of study has the appropriate and adequate infrastructure for the support of learning.					
5.10	The supporting infrastructures are easily accessible.					
5.11	Students are informed and trained with regards to the available educational infrastructure.					
5.12	The procedures for systematic control and improvement of the supportive services are regular and effective.					
5.13	Infrastructure for distance education is comparable to university infrastructure in the European Union and					

	internationally.					
5.14	Electronic library services are provided according to international practice in order to support the needs of the students and of the teaching personnel.					
5.15	The students and the teaching personnel have access to the necessary electronic sources of information, relevant to the program, the level, and the method of teaching.					
5.16	The percentage of teaching personnel who holds a doctorate, in a program of study which is offered long distance, is not less than 75%.					

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

N/A

If the following apply, note "√"in the appropriate space next to each statement. In case the following statements do not apply, note what is applicable:

The maximum number of students per class-section, should not exceed 30 students.	
The conduct of written examinations with the physical presence of the students, under the supervision of the institution or under the supervision of reliable agencies which operate in the countries of the students, is compulsory.	
The number of long distance classes taught by the academic personnel does not exceed the number of courses taught by the teaching personnel in conventional programs of study.	

The following criterion applies additionally for doctoral programs of study.

6.	**DOCTORAL PROGRAMS OF STUDY**	**1**	**2**	**3**	**4**	**5**
6.1	The provision of quality doctoral studies is ensured through Doctoral Studies Regulations.					
6.2	The structure and the content of a doctoral program of study are satisfactory and they ensure the quality provision of doctoral studies.					
6.3	The number of academic personnel, which is going to support the doctoral program of study, is adequate.					
6.4	The doctoral studies' supervisors have the necessary academic qualifications and experience for the supervision of the specific dissertations.					
6.5	The degree of accessibility of all interested parties to the Doctoral Studies Regulations is satisfactory.					
6.6	The number of doctoral students, under the supervision of a member of the academic personnel, is apt for the continuous and effective feedback provided to the students and it complies with the European and international standards.					
6.7	The research interests of academic advisors and supervisors are satisfactory and they adequately cover the thematic areas of research conducted by the doctoral students of the program.					

Justify the answer you have provided and note the additional comments you may have on each standard / indicator.

N/A

Note the number of doctoral students under the supervision of each member of the academic personnel of the program and the academic rank of the supervisor.

FINAL REMARKS – SUGGESTIONS

Please note your final remarks and suggestions for the program of study and/or regarding particular aspects of the program.

Please see detailed comments, remarks and recommendations provided in pg.17 of this report.

Names and Signatures of the Chair and the Members of the External Evaluation Committee:

Name:	**Signature:**
Kostas Belibassakis	
Alistair Greig	
Gerasimos Theotokatos	
Michael Mavros	

Date: **12/6/2018**