

## 18th Meeting of the ZEvA Commission for International Affairs on March 21st 2023

### Item 04.03

Study Programme	Degree	Programme Duration	Type of Programme	Maximum annual intake
Maritime Transport Technology	Bachelor	Four years	Full-time	300
Marine Engineering Technology	Bachelor	Four years	Full-time	100

Accreditation contract signed on: 06<sup>th</sup> March 2022

Date of site visit: 13<sup>th</sup> October 2022

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### Expert Panel:

- Prof. Dr. Bettar Ould el Moctar Professor for Ship Technology and Ocean Engineering, University of Duisburg-Essen (scientific representation)
- **Prof. Dr. Sönke Reise** Professor for Transports and Logistics, Wismar University of Applied Sciences (scientific representation)
- Dr. Michaela Mayer CEO INASEA (professional practice representation)
- **Rebecca Lauther** Doctoral student, Technical University Dortmund (student representation)



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#### - Arab Academy for Science, Technology and Maritime Transport, IP-0698-1 -

I Final Vote of the Expert Panel and Decision of the Accreditation Commission 1 Decision of the ZEvA Accreditation Commission (date)



# I. Final Vote of the Expert Panel and Decision of the Accreditation Commission

### 1. Decision of the ZEvA Accreditation Commission (March 21st 2023)

The ZEvA Commission follows the experts' report and recommendations and takes note of the university's response.

The ZEvA Commission decides to accredit the following degree programmes offered by the Arab Academy for Science, Technology & Maritime Transport for a period of six years:

- Maritime Transport Technology (Bachelor)
- Marine Engineering Technology (Bachelor)

The accreditation is awarded under the following conditions:

- 1. The internal regulations for the recognition of credits need to be in full accordance with the principles of the Lisbon Convention. In particular, the regulations should stipulate that the Academy shall bear the burden of proof in case recognition is denied.
- 2. The questionnaire for the assessment of teaching quality should include questions for the monitoring of student workload.

The conditions have to be fulfilled within 12 months upon awarding of the accreditation. In case a condition is not fulfilled within this period, the accreditation of the programmes will be withdrawn.

This decision is based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), the Framework of Qualifications of the European Higher Education Area and the recommendations of the ECTS Users' Guide as referred to in the ZEvA Manual for the External Assessment of Study Programmes.

I Final Vote of the Expert Panel and Decision of the Accreditation Commission 2 Final Vote of the Expert Panel



### 2. Final Vote of the Expert Panel

### 2.1.1 <u>Recommendation to the ZEvA Commission:</u>

The expert group recommends the accreditation of the following study programmes

- Maritime Transport Technology (Bachelor's degree)
- Marine Engineering Technology (Bachelor's degree)

as offered by the Arab Academy for Science, Technology and Maritime Transport for the duration of six years under the following conditions:

### General Conditions:

- The internal regulations for the recognition of credits need to be in full accordance with the principles of the Lisbon Convention. In particular, the regulations should stipulate that the Academy shall bear the burden of proof in case recognition is denied. Furthermore, a diploma supplement should be issued to all graduates.
- The Academy should monitor the students' workload as part of the students' survey.

To support the university and the programmes in their further development and enhancement, the experts give the following general recommendations:

### General Recommendations:

- The experts recommend that the appropriateness of the naming of the majors be systematically reviewed once again.
- The experts recommend examining whether larger modules would be possible in order to reduce the workload of the students.
- The experts advise to significantly expand on the descriptions given in the module handbooks.
- The experts strongly advise the Academy to discuss the results of the course surveys directly with the students of each cohort to include a larger number of students in the feedback loop.

<u>II Evaluation Report of the Expert Panel</u> 1 Introduction: Purpose, Design and Context of the Accreditation Procedure



# II. Evaluation Report of the Expert Panel

### **1.** Introduction: Purpose, Design and Context of the Accreditation Procedure

It is the purpose of the accreditation procedure to assess the quality of the study programmes **Maritime Transport Technology (Bachelor's degree)** and **Marine Engineering Technology (Bachelor's degree)** run by the **College of Maritime Transport & Technology (CMTT)** at the **Arab Academy for Science, Technology and Maritime Transport** at **Alexandria (Egypt)** against international standards. The assessment is based on the framework laid out in the ZEvA Manual for the External Assessment of Study Programmes. This assessment framework is fundamentally based on the "European Standards and Guidelines for Quality Assurance in Higher Education (ESG)" (ENQA 2015), the "Framework for Qualifications for the European Higher Education Area" (2005) and the "ECTS Users' Guide" (European Com-munities, 2015). In line with the ESG, the assessment was organized as a peer review procedure, involving an expert panel composed of two university professors in the discipline, one professional from outside academia and one student.

For assessing the study programmes, the College of Maritime Transport was asked to submit a selfreport in English containing a detailed description of the Academy, the College and the study programmes. Along with the self-report, several additional documents were submitted, including detailed course syllabi, CVs of teaching faculty, comprehensive statistical data as well as relevant rules and regulations. All documents were submitted in English translation. By special request, the expert panel also received additional documents such as a summary of the alumni surveys, revised module handbooks, a list of topics for bachelor thesis'.

Due to the travel restrictions imposed by the COVID-19 pandemic, ZEvA and the Arab Academy for Science, Technology and Maritime Transport jointly decided to conduct a virtual site visit in October 2022. The expert panel conducted separate interviews with the leadership board of the College of Fisheries and Aquaculture Technology, the Academy's president, the head of the quality assurance and accreditation centre, the head of the respective quality assurance unit at the college, academic supervisors and programme coordinators, teaching faculty, students and graduates. Moreover, the experts had the opportunity to have an extensive talk with the head of the Academy's library and campus facility management.

This report is based on the experts' assessment of the university's self-report and on their impressions gained during the digital site visit. It will serve as a basis for the ZEvA Accreditation Commission to decide on the accreditation of the two study programmes. In the case of a positive decision by the Commission, ZEvA will award its quality seal for a limited period, after which the university can apply for re-accreditation of the programmes.

The experts would like to thank all involved members of the College of Maritime Transport & Technology and staff for the professional organization of the online site visit and for the open and constructive atmosphere during the talks.

II Evaluation Report of the Expert Panel
2 Governance, Management and Profile of the University



### 2. Governance, Management and Profile of the University

### Organizational Structure and Mission of the University

The Arab Academy for Science, Technology and Maritime Transport (AASTMT) was founded in 1972 with the prime mission of providing education in the field of Maritime Studies and Maritime Transport to students from Egypt and other parts of the Arab world. As an organization of the Arab League, the Academy has a special status among the higher education institutions of Egypt and, according to the Academy's president, functions as a thinktank for the Arab nations. It is a non-profit and non-governmental organisation, which is mainly funded by tuition fees, supplemented by contributions from the Arab League and some maritime organizations.

Since its foundation, the Academy has been continuously expanded and re-structured. Apart from the main campus in Abu Qir, AASTMT holds several other campuses in Egypt, one branch in Latakia (Syria) and another branch in Sharjah (UAE)<sup>1</sup>. Currently, the Academy comprises 14 colleges and offers bachelor's and master's programmes in a large variety of disciplines, ranging from Electrical and Mechanical Engineering to Architectural Engineering, Business and Management, Transport and Logistics or Computer Science<sup>2</sup>. The Academy also awards doctoral degrees and engages in various research activities. According to its president, roughly 22.000 students are currently enrolled at AASTMT.

At the central level, the Academy is headed by a board consisting of the 22 ministers of transport of the respective Arab nations. This board is responsible for approving a five-year strategy plan and for discussing all financial issues. Out of these, nine members are annually elected to form the executive board. Besides the board, AASTMT possesses a separate governing body for financial issues in the shape of a committee which is also formed by the member states of the League of Arab states.

Additionally, the Academy is headed by a president and several vice-presidents as the prime decisionmaking authority, while each college is in turn governed by board consisting of a dean and several vicedeans. At least one member of each college board is responsible for student affairs. In addition, each college possesses a so-called industry consultancy board, whose members are representatives of the non-academic employment market. All colleges consist of several departments, each of which is specialized on a particular subject discipline.

On its <u>website</u><sup>3</sup>, the Academy summarizes its vision and mission as follows:

### AASTMT Vision:

"The Academy must be a smart educational institution with a positive impact on the knowledge society through research, creativity, innovation, and entrepreneurship.".

<sup>&</sup>lt;sup>1</sup> <u>AASTMT website</u>: Last accessed: January 2023.

<sup>&</sup>lt;sup>2</sup> AASTMT website: last accessed: January 2023.

<sup>&</sup>lt;sup>3</sup> Last accessed: January 2023.

II Evaluation Report of the Expert Panel 2 Governance, Management and Profile of the University



### AASTMT Mission:

"Achieving sustainable development in society through providing outstanding graduates capable of bringing about change and who are prepared through educational and training programs with international standards, and intellectual capital represented in centres of excellence and efficiency in scientific research, training, and consultations, through the application of the highest quality standards and governance".

The College of Maritime Transport and Technology CMTT is committed to serve the economic and national interests of the Arab and African countries by providing the shipping and transportation industries with qualified officers and leaders of quality, integrity and high ethical standards. The College educates, trains, and qualifies personnel to become licensed officers to serve in the Arab, African and international merchant marine fleets. It provides a comprehensive undergraduate educational background by combining nautical sciences with other programs to prepare the cadets for a successful career in maritime industry, both afloat and ashore. The College also aims at inculcating in cadet's pride in their own profession and commitment to uphold its finest tradition.

The College was listed by the World Bank in 1995 as a regional institution of maritime expert. [...] The existence of the College as one of the main units in an integrated and collaborative maritime complex within the Academy provides students with a unique opportunity to have excellent maritime educational and training services. The College seeks to efficiently combine the facilities of the Academy and its resources to provide the most advanced up-to-date maritime educational and training programs. [...] The College offers two bachelor degree programs, one in Maritime Transport Technology and one in Marine Engineering Technology [...]. In addition, the College offers educational and training programs in Meteorology, Hydrographic Survey and Diving. All courses are delivered in English (self-report, Introduction, p. 30).

As was explained during the online talks, the study programmes are entirely funded by means of tuition fees.

### Experts' Appraisal

The expert panel comes to the conclusion that AASTMT has clear institutional profile. Its mission is clearly stated and transparently published on the website. It becomes clear that the maritime programmes take up a special role within the Academy, as they were the institution's founding nucleus and are therefore still of great importance for the Academy.

AASTMT's unique profile as an institution shaped by all member states of the Arab League on the one hand and as an internationally oriented higher education institution on the other hand greatly contributes to the exchange between the various Arab nations and the rest of the international community.

### Student Mobility and Internationalisation

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AASTMT has signed several national and international cooperation agreements with the intention of strengthening (inter-)national student mobility (cf. self-report, p. 17 ff). According to the interviews held during the online site visit, AASTMT serves the purpose of all 22 member states of the Arab league and therefore strives to especially enhance student mobility between those states. Enhancing internalization is therefore regarded as a central pillar of AASTMT's strategic planning.

In reality, this manifests in students from different countries – especially Arab countries in Africa – partaking in the respective programmes. When asked for the variety of home countries of their current fellow students, students and alumni mentioned home countries such as Syria, Libya and Greece as examples during the interviews.

Both Bachelor programmes offer optional double degree possibilities in cooperation with the University of Plymouth (UK) (cf. appendices A–B). Furthermore, the study program is also offered within the scope of a franchise model at a Greek university, among others. In order to strengthen the exchange in this regard, there is an intensified exchange of students and teachers between AASTMT and the said Greek university in the regular program as well. Currently, roughly 20% of the students in each year of both bachelor's programs study abroad at universities in other countries, such as Germany, Spain or the United Kingdom.

AASTMT submitted a policy regarding educational regulations (cf. Appendix I). Articles (4) and (13) clearly stipulate that a main factor for the recognition of credits earned abroad is equivalence in terms of course content.

The expert panel also asked for a sample diploma supplement, which was not provided because no such document is issued yet.

### Experts' Appraisal

The experts have gained the impression that the Academy is generally striving to promote student mobility – especially among the member states of the Arab League. The cooperation with the University of Plymouth to establish a double degree option is highly appreciated. Additionally, it should be noted that the existing programmes can rely on a good and large (inter-)regional network of local partners – such as the University of Alexandria and a broad variety of local companies – and have close connections to other countries within the Arab League.

Nevertheless, for a successful cooperation within the European Higher Education Area (EHEA) it seems vital that the HEI introduces a diploma supplement, which should be a binding part of all final transcripts of records. To enable mobility within the EHEA it is also essential to implement standards which are fully in line with the Lisbon convention: The recognition policy therefore needs to clearly stipulate that in case recognition of credits is denied, the Academy bears the burden of proof of non-equivalence. Also, recognition decisions should be based on equivalence in terms of acquired knowledge and competences, rather than equivalence in course content.

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### Equal Opportunities

According to members of the university's leadership board a diversity policy is in place and referred to in the student handbook (Appendix G). The respective policy has been subsequently added in a former accreditation procedure at the College of Fisheries and Aquaculture Technology and is valid throughout the entire academy (cf. diversity policy). The policy contains regulations regarding discriminating language (cf. 1. a. ibidem), special technical support (e. g. the use of text-converting, Braille, voice-conversions to text and zooming in windows [...] special head-phones, cf. 2. c.–d. ibidem), the possibilities of alternative student assessment (cf. 2. e. & 4. ibidem), special counselling and representation within the HEI's governing bodies (cf. 2. f.–i. ibidem). Finally, it regulates matters of physical and non-physical accessibility (e. g. special financial support, 3. a.–f. ibidem, and the availability of Ramps in all AAST places to ease disability movement, 3. f. ibidem). Nevertheless, due to national regulations, which impose requirements for physical fitness as part of obtaining an officer's license, these regulations can only partly be considered in both programmes. One of the consequences of this is that studying with a physical disability is not possible in either study program.

Additionally, the HEI explained that Egyptian law forbids any discrimination due to religion and nationality.

The HEI elaborated that opening both degree programs to female students is a relatively new development, as the officer career was not previously open to women. However, there are already 35 female graduates to date.

### Experts' Appraisal

The expert panel appreciates the fact that a diversity policy is in place and contains regulations to support students with special needs.

Unlike a few years ago, it is now possible for female students to enrol in the bachelor's programmes. The experts acknowledge that progress has been made here, which is to be appreciated.



### 3. Assessment of the Study Programme/s

### 1.1 Common Features and Strategic Dimension of the Programmes

Both bachelor's degree programmes represent four-year undergraduate degree programmes, each leading to a first professional degree and providing access to a more advanced master's degree programme. *The academic year comprises two (2) major semesters and one summer semester. The major semester comprises fifteen (15) weeks followed by two (2) weeks for the end of semester examinations. The summer semester comprises five (5) weeks followed by one (1) week for the end of semester examinations* (cf. self-report, p. 32). According to statements made during the digital interviews, the shortened summer semester is used to repeat exams or to pre-term studies.

The bachelor's degree programme in Maritime Transport Technology is divided into four elective concentrations, Maritime Safety and Environmental Protection, Offshore Operations Technology, Shipping and Port Operations, and Maritime Transport Technology, and leads to the award of both a bachelor's degree and, in each of the elective concentrations, to the award of the 2nd Mate Certificate of Competency. The bachelor's degree programme in Marine Engineering Technology, on the other hand, has two elective concentrations: Marine Engineering Technology, which in addition to the bachelor's degree also provides for the attainment of the 3rd Engineer Certificate of Competency, and the Marine Electrical Technology concentration, which also provides for the attainment of the Electro-Technical Officer Certificate of Competency.

In both cases, the U.S. credit hour (CH) system is used. *The total Credit Hours of the Program is 144 Hours, which is equivalent to 288 ECTS* (cf. self-report, p. 32), which results in an average workload of 36 ECTS per semester.

### 1.2 Intended Learning Outcomes

### 1.2.1 <u>Bachelor's programme: Maritime Transport Technology</u>

The Academy describes the intended learning outcomes in the bachelor's degree programme in Maritime Transport Technology within <u>the program's web presence</u><sup>4</sup> as listed below, depending on the major selected:

### Maritime Safety and Environmental Protection Stream

• Qualify Students for a variety of maritime business careers, giving a special advantage to those wishing to enter the survey practices related to non-convention vessels, and how to apply requirements and recommendations developed by IMO, FAO, ILO and Classification Societies.

<sup>&</sup>lt;sup>4</sup> Last accessed: January 2023.

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II Evaluation Report of the Expert Panel 3 Assessment of the Study Programme/s

- Understand the Maritime Safety Management systems which oblige companies to address real causes of hazardous situations, non-compliance with mandatory requirements, and non-conformities with the requirements of the ISM Code.
- Improving proficiency of Students in managing crisis by recognizing how to optimize use of resources, controls response to emergencies, supervise personal during contingencies, organize and maintain effective communication.

Offshore Operations Technology Stream [....]

- Gain the needed knowledge, understanding and required skills for offshore maritime industry
- Capable to operate and handle all kinds of supply vessels.
- Capable of performing all offshore operations with the dynamic positioning system.
- Apply Methods of Risk assessment and Dealing with all offshore dangerous goods.

Shipping and Port Operations Stream

- Qualify Students for a variety of maritime business careers, giving a special advantage to those wishing to enter the Shipping and port business.
- Offer a balanced educational program in accordance with the general philosophy of the 21st century, and the dynamic field of shipping and port business.
- *Give a general but solid introduction into the exciting world of Shipping and maritime ports.*

Maritime Transport Technology Stream

- Analyze and apply the knowledge, understanding and proficiency while providing services to the maritime industry.
- Lead and engage in teams in problem solving tasks through analytical thinking and effective communicative abilities.
- Continue to advance his/her knowledge and competencies to explore future development in the maritime industries.
- Practice ethical and professional values in providing services to the recipients and providers of the maritime industry.

A detailed description and assignment of the respective competencies to the associated descriptors can also be found in the appendix of the program specification (cf. Appendix K, pp. 3ff.).

### 1.2.2 Bachelor's programme: Marine Engineering Technology

The Academy describes the intended learning outcomes in the bachelor's degree programme in

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Marine Engineering Technology within the <u>program's web presence</u><sup>5</sup> as listed below, depending on the major selected:

Marine Engineering Technology Stream

- Analyze and apply the knowledge, understanding and proficiency while providing services to the maritime industry.
- Lead and engage in teams in problem solving tasks through analytical thinking and effective communicative abilities.
- Continue to advance his/her knowledge and competencies to explore future development in the maritime industries.
- Practice ethical and professional values in providing services to the recipients and providers of the maritime industry.

Marine Electrical Technology Stream

- Analyze and apply the knowledge, understanding and proficiency while providing services to the maritime industry.
- Lead and engage in teams in problem solving tasks through analytical thinking and effective communicative abilities.
- Continue to advance his/her knowledge and competencies to explore future development in the maritime industries.
- Practice ethical and professional values in providing services to the recipients and providers of the maritime industry.

A detailed description and assignment of the respective competencies to the associated descriptors can also be found in the appendix of the program specification (cf. Appendix L, pp. 3ff.).

### Experts' Appraisal (both study programmes)

The intended learning outcomes of both study programmes are presented consistently through the various formats, such as the module handbooks and the website, and do not contradict each other. They consist of different levels of competencies and skill sets and include dimensions such as acquiring knowledge, getting a basic insight into the scientific methods of the discipline, relevant soft skills, successfully communicating in intercultural and international work environments, and developing a professional self-conception.

It is welcome that a broad scientific base is laid in the undergraduate programme - also with respect

<sup>&</sup>lt;sup>5</sup> Last accessed: January 2023.



to a possible consecutive master programme.

Nevertheless, it should not go unmentioned that in some cases there are discrepancies between the naming of the respective majors and the associated curricular content (e.g., in the major Maritime Safety and Environmental Protection. The experts therefore recommend that the appropriateness of the naming of the majors be systematically reviewed once again.

### 1.3 Concept and Structure of the Study Programmes

### 1.3.1 <u>Bachelor's programme: Maritime Transport Technology</u>

The bachelor's programme "Maritime Transport Technology" comprises eight semesters with a total workload of 144 Credit Hours in the American Credit hour system, which roughly translates into 288 ECTS. Each semester 16–19 CH (32–38 ECTS) are to be achieved by the students (cf. self-report, p. 32). The following description refers to the study plans presented below.

Code	Title	CR	Pre-requisite	Code	Title	CR	Pre-requisite
1 <sup>st</sup> Semester					2 <sup>nd</sup> Semester		
BS 111	Seamanship Principles	2	None	BS 112	Marine Safety	2	BS 111
BS 131	Introduction to Navigation	2	None	BS 132	Terrestrial Navigation Part I	2	BS 131
BS 141	Computer I	2	None	BS 142	Computer II	2	BS 141
BA 111 N	Physics I	3	None	BA 112 N	Physics II	3	BA 111 N
BA 121 N	Mathematics I	3	None	BA 122 N	Mathematics II	3	BA 121 N
BS 121	Ship Construction & Marine Engineering	3	None	BS 133	Celestial Navigation	3	BA 121 N
BS 171	Maritime English I	3	None	BS 172	Maritime English II	3	BS 171
P 101	Physical Education 1	0.5	None	P 102	Physical Education II	0.5	P 101
L 101	Leadership I	0.5	None		Leadership II	0.5	L 101
	TOTAL		19		TOTAL		19
	3 <sup>rd</sup> Semester				4 <sup>th</sup> Semester		
BS 213	Watch Keeping & Marine Communication	3	BS 112	BS 214	Ship Handling and Emergency Proc.	3	BS 213
BS 234	Terrestrial Navigation Part II	3	BS 132	BS 251	Cargo Handling	2	BS 222
BS 222	Ship Stability	3	BS 121	BS 235	Voyage Planning & Weather Routing	3	BS 234
BS 261	Ship Compasses and Auto Pilot	3	BA112 N	BS 263	Radar & ARPA	3	BS 132+BA 112N
BS 292	Maritime Law & Leadership	3	None	BS 262	Navigational Aids	3	BA 112 N
BS 203	Maritime culture & Leader ship	3	None	BS 281	Meteorology	2	None
P 203	Physical Education III	0.5	P 102	BS 273*	Technical Report Writing	2	BS 272
L 203	Leadership III	0.5	L 102	P 204	Physical Education IV	0.5	P 203
				L 204	Leadership IV	0.5	L 203
	TOTAL		19		TOTAL		19
	5 <sup>th</sup> Semester				6 <sup>th</sup> Semester		
S 305	Guided Sea Training	16	BS 235 & BS 214	S 306	Guided Sea Training	16	S 305
3	TOTAL	1	19		TOTAL		16
	7 <sup>th</sup> Semester				8 <sup>th</sup> Semester		
NS 400	Research Methodology & Statistics	2	None	NS 419*	Seamanship & Maritime Safety	2	S 306 + BS 214
NS 436	Integrated Navigation System	3	(BS 263&235& 262) or (MT235 & MT263)	NS 423*	Ship Construction & Stability	2	S 306 + BS 251
NS 403	Innovation & Entrepreneurship	3	None	NS 438*	Terrestrial Navigation (3)	2	S 306 + BS 235
0	Elective	2		NS 439	Celestial Navigation (2)	2	S 306 + BS 133
	Elective	2	1	NS 456	Cargo Handling & Stowage	2	S 306 + bs251
	Elective	2		NS 401	Project	2	NS 400
	Elective	2			Elective	2	1
	Elective	2			Elective	2	4
					Elective	2	
2	TOTAL		18	1	TOTAL		18

### Schedule of Delivery (Study Plan)



During the first four semesters, students complete a variety of foundational courses in both basic science (computer science, physics, mathematics) and basic nautical science. In the first two semesters, this is also supplemented by courses on English skills related to the professional field. Parallel to the courses of the first four semesters, there are continuous courses of physical education as well as in the area of leadership. The third year of study (semesters five and six) is dedicated to practical training in the framework of the Guided Sea Training. In the seventh and eighth semesters, mainly the modules of the chosen major as well as a final project work as a final thesis are integrated. The program is formally concluded with the officer's examination.

Code	Title	CR	Pre-requisite	Code	Title	CR	Pre-requisite		
Offshore Operations Concentration Elective Courses			Shipping And Port Concentration Elective Courses						
OS 454	Liquid Cargo	2	BS 251	SP 495	Quality Assurance Systems	2	BS 273*		
OS 414	Offshore Units & Handling	2	BS 214	SP 494	Commercial Maritime Law	2	BS 292		
OS 417	SAR & Salvage Operations	2	BS 214	SP 471	Maritime Economics	2	BA 122 N		
OS 410	Offshore Operations	2	None	SP 497	Shipping Management	2	BS 292		
OS 413	Offshore engineering	2	BS 121	SP 452	Accounting & Investment	2	BA 122 N		
OS 455	Offshore Cargo Handling	2	BS 251	SP 473	Port Management & Operations	2	BS 251		
OS 416	Advanced Offshore Operations	2	OS 410	SP 402	Human Resource Management	2	None		
OS 478	Safety Management Systems	2	None	SP 472	Maritime Port Economics	2	SP 471		
OS 411	Offshore Risk Assessment	2	OS 410	SP 493	Maritime Logistics & Marketing	2	SP 473		
OS 412	Rig and Platform safety	2	OS 414	SP 496	Maritime Environmental Management	2	NS 417		
N	aritime Safety and Environn	nent P	rotection	Maritime Technology					
SE 419	Liquid Cargo	2	None	OS 454	Liquid Cargo	2	BS251		
SE 496	Crisis Management & Contingency Plan	2	None	SE 496	Crisis Management & Contingency Plan	2	None		
SE 495	Maritime Economics	2	BS273*	SP 471	Maritime Economics	2	BA122N		
SE 412	Port Management & Operations	2	None	SP 473	Port Management & Operations	2	BS251		
SE 420	Offshore Operations	2	None	OS 410	Offshore Operations	2	None		
SE 422	Quality Assurance Systems	2	None	SE 495	Quality Assurance Systems	2	BS273*		
SE 401	Commercial Maritime Law	2	None	SP 494	Commercial Maritime Law	2	BS292		
SE 424	Shipping Management	2	None	SP 497	Shipping Management	2	BS292		
SE 414	Maritime Logistics & Marketing	2	None	SP 493	Maritime Logistics & Marketing	2	SP473		
SE 402	Maritime Environmental Management	2	None	SP 496	Maritime Environmental Management	2	NS417		
то	TAL CREDIT HOURS			14	4 Cr.H. = 288 ECTS				
			2 <sup>nd</sup> Mate E	xamination					
	Bachelor of Maritime Transport Technology								

### 1.3.2 Bachelor's programme: Marine Engineering Technology

The bachelor's programme "Marine Engineering Technology" comprises eight semesters with a total workload of 144 Credit Hours in the American Credit hour system, which roughly translates into 288 ECTS. Each semester 16–19 CH (32–38 ECTS) are to be achieved by the students (cf. self-report, p. 32). The following description refers to the study plans presented below.



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# Schedule of Delivery (Study Plan)

Code	Title	CR	Pre-requisite	Code	Title	CR	Pre-requisite	
1 <sup>st</sup> Semester				2 <sup>nd</sup> Semester				
LH 131 T	ESP I	2	None	LH132 T	ESP II	2	LH 131T	
BA 123	Mathematics I	3	None	BA 124	Mathematics II	3	BA 123	
BA 113	Physics I	3	None	BA 114	Physics II	3	BA 113	
CC 111	Introduction to computer	3	None	CC 114	Introduction to Programming	3	CC 111	
ME 151 T	Eng. Drawing & Projection	2	None	IM 112 T	Manufacturing Technology	2	none	
BA 141	Engineering Mechanics I	3	None	BA 142	Engineering Mechanics II	3	BA 141	
MT 112T	Marine Safety	2	None	BA 118	Chemistry	2	none	
P 101	Physical Education I	0.5	None	P 102	Physical Education II	0.5	P 101	
D 101	Leadership I	0.5	None	D 102	Leadership II	0.5	D 101	
	TOTAL		19		TOTAL		19	
1	3 <sup>rd</sup> Semester				4 <sup>th</sup> Semester			
LH 231 T	ESP III	3	LH 132T	BA 224	Mathematics IV	3	BA 223	
BA 223	Mathematics III	3	BA 124	IM 212 T	Manufacturing Processes I	3	IM 112T	
ME 252 T	Mechanical Engineering Drawing	3	ME 151 T	EE 218	Instrumentation & Measurements	3	EE 239	
ME 274 T	Material Science	3	BA 142	MM 221 T	Marine Diesel Engines I	3	ME 231T	
EE 239	Electrical Engineering Fundamentals	3	BA 124	MM 241 T	Naval Architecture & Ship Construction	3	none	
ME 231 T	Thermodynamics	3	BA 114	MM 211 T	Marine Engineering I	3	none	
P 203	Physical Education III	0.5	P 102	P 204	Physical Education IV	0.5	P 203	
D 203	Leadership III	0.5	D 102	D 204	Leadership IV	0.5	D 203	
	TOTAL		19	The second second	TOTAL		19	
	TOTAL CREDIT HO	URS	FOR THE PRE-SE	RVICE SEM	IESTERS		76	
	5 <sup>th</sup> Semester				6th Semester			
S 300	Guided Sea Training (AIDA	14	ME 241T-ME	NM 391 T	Maritime Law	2	None	
	IV)	1.11	221 T-ME 211 T-	MM 323T	Marine Diesel Engines III	3	S300-MM 221 T	
	1000		EE	ME 362 T	Hydraulics	2	BA114	
				ME 331 T	Heat Transfer	3	ME231T	
	0	80 - C		EE 329 T	Electrical Machines	3	EE239	
				ME 375 T	Mechanics of Materials	2	ME274T	
				MM303	Maritime Culture and Leadership	3	None	
	TOTAL		14		TOTAL		18	
1	7 <sup>th</sup> Semester				8th Semester			
ME 423 T	Steam Plant Engineering	3	ME331T	ME 421 T	Maintenance Planning	3	None	
EE 418 T	Automatic Control Systems	3	EE218	MM 443 T	Ship Design	3	MM241T	
MM 446T	Ship Repair Technology	3	MM241T	MM 416 T	Marine Engineering IV	3	MM415T	
MM 415T	Marine Engineering III	3	S300- MM 211 T	EE 449 T	Electrical Power in Ships	3	EE329T	
ME 434 T	Refrigeration & Air Conditioning	3	ME331T	MM 424 T	Marine Diesel Engines IV	3	MM323T	
ME 454 T	Machine Design	Project	3	None				
	TOTAL		18		TOTAL		18	
TO	TAL CREDIT HOURS				144 Cr.H. = 288 ECTS			
	3 <sup>rd</sup> Engineer Examination							

In the bachelor's degree programme Marine Engineering Technology, only the basic studies of the first two semesters are congruent in both major subjects. Again, the first two semesters include general fundamentals in computer science, mathematics, and physics. In addition, both majors include courses in English for Specific Purpose (ESP) in the first three semesters. Parallel to the courses of the first four semesters, there are continuous courses of physical education as well as in the area of leadership. The fifth semester is dedicated to practical training in the framework of the Guided Sea Training. The remaining components of the curriculum vary depending on the chosen major as shown in the two study plans. This bachelor's programme also includes a project as a final thesis in the last semester as well as the officer's examination.



II Evaluation Report of the Expert Panel

3 Assessment of the Study Programme/s

# Schedule of Delivery (Study Plan)

1** Semester         2** Semester           LH 131 T         ESP I         2         None         LH 132         ESP II         2         LH 131T           BA 123         Mathematics I         3         None         BA 124         Mathematics II         3         BA 123           BA 113         Physics I         3         None         BA 114         Physics II         3         BA 113           CC 111         Introduction to computer         3         None         BA 114         Physics II         3         BA 113           CC 111         Introduction to computer         3         None         BA 114         Introduction to computer         3         BA 113           F11         Eng. Drawing & Projection         2         None         BA 142         Engineering Mechanics II         3         BA 141           MT112T         Marine Safety         2         None         P 102         Physical Education I         0.5         P 101           P101         Physical Education I         0.5         None         P 102         LH 32T         Marine Engineering Knowledge         2         None           BA 123         BA 113         BA 124         MT210T         Marine Engineering Knowledge         2         <	Code	Title	C R	Pre-requisite	Code	Title	CR	Pre-requisite		
LH 131 T         ESP I         2         None         LH 132 T         ESP II         2         LH 131T           BA 123         Mathematics I         3         None         BA 124         Mathematics II         3         BA 123           BA 113         Physics I         3         None         BA 114         Physics II         3         BA 123           CC 111         Introduction to computer T         3         None         CC 114         Programming Programming         3         CC 111           ME 151         Eng. Drawing & Projection T         2         None         BA 142         Engineering Mechanics II         3         BA 141           MT112T         Marine Safety         2         None         BA 142         Engineering Mechanics II         3         BA 141           MT112T         Marine Safety         2         None         D 102         Physical Education II         0.5         D 101           Leadership I         0.5         None         D 102         Eadership II         0.5         D 101           Leadership I         0.5         None         D 102         Eadership II         0.5         D 101           Terratu         3         BA 124         MT20T         Marine Safet	1 <sup>st</sup> Semester					2 <sup>nd</sup> Semester				
BA 123         Mathematics I         3         None         BA 124         Mathematics II         3         BA 123           BA 113         Physics I         3         None         BA 114         Physics II         3         BA 113           CC 111         Introduction to computer         3         None         CC 114         Introduction to computer         3         BA 113           CC 111         Introduction to computer         3         None         CC 114         Introduction to computer         3         BA 114           RE 151         Engineering Mechanics I         3         None         BA 118         Chemistry         2         none           P 101         Physical Education I         0.5         None         P 102         Physical Education II         0.5         P 101           TOTAL         19         TOTAL         19         101         Leadership II         0.5         None         P 102         Engineering Mechanics II         3         BA 113           BA 223         Mathematics III         3         BA 124         MT210T         Marine Engineering Regineering Regineering Romos Simulator I         2         ET 231           Et 231         Etectrical Engineering Recon Simulator I         3         BA 113	LH 131 T	ESP I	2	None	LH 132 T	ESP II	2	LH 131T		
BA 113         Physics I         3         None         BA 114         Physics II         3         BA 113           CC 111         Introduction to computer 3         3         None         CC 114         Introduction to Programming Programming         Introduction to computer 3         3         CC 111         Introduction to computer Programming         3         CC 111           ME         151         Eng. Drawing & Projection 3         2         None         BA 142         Engineering Mechanics II         3         BA 141           Marine Safety         2         None         BA 142         Engineering Mechanics II         3         BA 141           D101         Leadership I         0.5         None         D 102         Leadership II         0.5         D 101           D 101         Leadership I         0.5         None         D 102         Leadership II         0.5         D 101           D 101         Leadership I         3         LH 132 T         MT218T         Engineering Recom Simulator I         2         ET231           BA 223         Mathematics III         3         BA 114         MT210T         Marine Pring Room Simulator I         3         B A113           ET 231         Electricia         Engineering Circuits I<	BA 123	Mathematics I	3	None	BA 124	Mathematics II	3	BA 123		
CC 111         Introduction to computer T         3         None         CC 114         Introduction to Programming         3         CC 111           ME 151         Eng. Drawing & Projection T         2         None         BA 142         Engineering Mechanics II         3         BA 141           MT 112T         Marine Safety         2         None         BA 142         Engineering Mechanics II         3         BA 141           MT 112T         Marine Safety         2         None         BA 142         Engineering Mechanics III         0.5         D 101           Leadership I         0.5         None         P 102         Leadership II         0.5         D 101           Leadership I         0.5         None         P 102         Leadership II         0.5         D 101           TOTAL         19         TOTAL         19         TOTAL         2         ET231           BA 223         Mathematics III         3         B A 124         MT210T         Marine Engineering Circuits II         3         ET 231           Circuits I         Electrical Engineering Circuits II         3         B A113         ET 232         Electrical Engineering Circuits II         3         B A113         ET 231         Er 231         Marine Engineering	BA 113	Physics I	3	None	BA 114	Physics II	3	BA 113		
ME         F31 T         Eng. Drawing & Projection A         2         None         IM         112 T         Manufacturing Technology         2         none           BA 141         Engineering Mechanics I         3         None         BA 142         Engineering Mechanics II         3         BA 141           MT 112T         Marine Safety         2         None         BA 143         Chemistry         2         none           P 101         Physical Education I         0.5         None         D 102         Leadership II         0.5         D 101           Leadership I         0.5         None         D 102         Leadership II         0.5         D 101           Leadership I         3         LH 132 T         MT218T         Engine Room Simulatori         2         F1231           BA 223         Mathematics III         3         BA 124         MT210T         Marine Engineering Nowledge         3         ET 231           E12471         Electrical Engineering Circutis I         3         BA113         ET 232         Electrical Engineering Nowledge         3         BA113- ET 232           ME232 T         Thermo fluids         3         BA114-BA 142         ET 211         Fundamental sof Electrical None         S         P102	CC 111	Introduction to computer	3	None	CC 114	Introduction to Programming	3	CC 111		
BA 141         Engineering Mechanics I         3         None         BA 142         Engineering Mechanics II         3         BA 141           MT 1127         Marine Safety         2         None         BA 118         Chemistry         2         none           P101         Physical Education I         0.5         None         D102         Leadership I         0.5         P101           D 101         Leadership I         0.5         None         D102         Leadership I         0.5         D101           TOTAL         19         TOTAL         19         19         19         19         19         19         101         Leadership I         0.5         P101           BA 223         Mathematics III         3         BA 124         MT210T         Marine         Engineering Circuits I         2         F1231           Efectrical         Engineering         3         BA113         ET 232         Electrical         Engineering         3         BA 131           ME274 T         Materials Science         3         BA114-BA 142         ET 221         Fundamentals of Electric Carcuits II         3         BA 131         ET 231         Effication III         0.5         P102         P204         P	ME 151 T	Eng. Drawing & Projection	2	None	IM 112 T	Manufacturing Technology	2	none		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	BA 141	Engineering Mechanics I	3	None	BA 142	Engineering Mechanics II	3	BA 141		
P 101         Physical Education I         0.5         None         P 102         Physical Education II         0.5         P 101           D 101         Leadership I         0.5         None         D 102         Leadership II         0.5         D 101           TOTAL         Image: Ima	MT 112T	Marine Safety	2	None	BA 118	Chemistry	2	none		
$ \begin{array}{c c c c c c } \hline 0.01 & Leadership I & 0.5 & None & D 102 & Leadership II & 0.5 & D 101 \\ \hline $ TOTAL $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $$	P 101	Physical Education I	0.5	None	P 102	Physical Education II	0.5	P 101		
TOTAL19TOTALPTOTALPP3" SemesterLH 23 TESP III3LH 132 TMT218TEngine Room Simulator I2ET231BA 223Mathematics III3BA 124MT210TMarine knowledgeEngineering Circuits I3ET231Etectrical Circuits IEngineering Circuits I3BA113ET 232Electricial Fundamental Instrumentation3KT231ME274 TMaterials Science3BA114-BA 142ET 211 Fundamentals of CommunicationsSBA113ET 221Fundamental Power and MachinesABA 113-ET 231ME274 TAtterials Science3BA114MT220TMarine Prime Movers2MT232TME274 TInterno fluids3BA 114MT220TMarine Prime Movers2MT232TME232 TInterno fluids3BA 114MT220TMarine Prime Movers2MT232TME203Physical Education III0.5P 102P 204Physical Education IV0.5P 203D 203Leadership III0.5D 102D 204Leadership IV0.5P 203D 203TOTAL CREDIT HEVER THE FUETOTALET 311Logic Circuits and Signal Conditioning2NoneFormationSET 211-ET 21 ET 324ET 311Logic Circuits and Signal Conditioning2NoneFormationSET 211-ET 21 ET 324ET 321 <td>D 101</td> <td>Leadership I</td> <td>0.5</td> <td>None</td> <td>D 102</td> <td>Leadership II</td> <td>0.5</td> <td>D 101</td>	D 101	Leadership I	0.5	None	D 102	Leadership II	0.5	D 101		
Marine semistariMarine semistariConstantial colspan="4">Constantial colspan="4"		TOTAL	1.1	19		TOTAL		19		
LH 231 TESP III3LH 132 TMT218TEngine Room Simulator I2ET231BA 223Mathematics III3BA 124MT210TMarine Engineering Roweledge2NoneET 231Electrical Engineering Circuits I3BA 113ET 232Electrical Engineering Circuits II3ET 231ME274 TMaterials Science3BA 114-BA 142ET 211Fundamental of Instrumentation3BA 113-ET 231Electronics and Gommunications3BA 113ET 211Fundamental of Electric3BA 113-ET 231ME232 TThermo fluids3BA 114MT201Marine Prime Movers2MT232TME232 TThermo fluids3BA 114MT201Marine Prime Movers2MT232TME203 LLeadership III0.5D 102D 204Leadership IV0.5D 203D 203 LLeadership III0.5D 102D 204Leadership IV0.5D 203D 204 LLeadership III0.5D 102D 204Leadership IV0.5D 204D 205		3 <sup>rd</sup> Semester				4 <sup>th</sup> Semester				
BA 223     Mathematics III     3     BA 124     MT210T     Marine Engineering knowledge     2     None       ET 231     Electrical Engineering Circuits I     3     BA113     ET 232     Electrical Engineering Circuits II     3     ET 231       ME274 T     Materials Science     3     BA114-BA 142     ET 211     Fundamental of Iectric Instrumentation     3     BA113-ET 231       ME232 T     Thermo fluids     3     BA113     ET 221     Fundamentals of Electric Communications     3     BA113     ET 221     Fundamentals of Electric Power and Machiness     3     BA113-ET 231       ME232 T     Thermo fluids     3     BA 114     MT20T     Marine Prime Movers     2     MT23T       ME232 T     Thermo fluids     3     BA 114     MT20T     Marine Prime Movers     2     MT23T       ME232 T     Thermo fluids     3     BA 114     MT20T     Marine Prime Movers     2     MT23T       ME232 T     Thermo fluids     3     BA 114     MT20T     Marine Prime Movers     2     MT23T       P203     Physical Education III     0.5     P 102     P 204     Physical Education IV     0.5     P 203       D 203     Leadership III     0.5     D 102     D 204     Leadership IV     0.5	LH 231 T	ESP III	3	LH 132 T	MT218T	Engine Room Simulator I	2	ET231		
ET 231Electrical Engineering Circuits I3BA113ET 232Electrical Engineering Circuits II3ET 231ME274 TMaterials Science3BA114-BA 142ET 211Fundamental of Instrumentation3NoneET 271Electronics and Communications3BA113ET 221Fundamental sof Electric Power and Machines3BA 113 - ET 231ME232 TThermo fluids3BA 114MT220TMarine Prime Movers2MT232TME232 TThermo fluids3BA 114MT220TMarine Prime Movers2MT232TP 203Physical Education III0.5P 102P 204Physiconstruction0.5P 203D 203Leadership III0.5D 102D 204Leadership IV0.5D 203D 203Leadership III0.5D 102D 204Leadership IV0.5D 203TOTAL CREDIT HOURS FOR THE PRE-SUFICE SEMESTERS0TotalTotalTotalC 5 <sup>th</sup> SemesterET 211 - ET 21ET 213Conditioning2NoneES 400Guided Sea Training (AIDA IV)1ET 211 - ET 221ET 312Microprocessor basics3C C 111ET 312Microprocessor basics3ET 211ET 312Control system3ET 221M 21Marine Culture and Leadership3ET 221ET 322Electrical Machines I3ET 221M 32For SemesterIIIMaritime Culture and L	BA 223	Mathematics III	3	BA 124	MT210T	Marine Engineering knowledge	2	None		
ME274 TMaterials Science3BA114-BA 142ET 211Fundamental instrumentation3NoneET 271Electronics communications3BA113ET 221Fundamentals of Electric power and Machines3BA 113 - ET 231ME232 TThermo fluids3BA 114MT200TMarine Prime Movers2MT 232TME232 TThermo fluids3BA 114MT200TMarine Prime Movers2MT 232TME232 TThermo fluids3BA 114MT200TMarine Prime Movers2MT 232TP 203Physical Education III0.5P 102P 204Physical Education IV0.5P 203D 203Leadership III0.5D 102D 204Leadership IV0.5D 203TOTALTOTAL CREDIT HORES FOR THE PRE-SWICE SEMESTERSTOTAL18TOTAL CREDIT HORES FOR THE PRE-SWICE SEMESTERSTO75SemesterSingel Conditioning2NoneFS 400Guided Sea Training (AIDA IV)14ET 211 - ET 231 ET 232 - MT 210T 	ET 231	Electrical Engineering Circuits I	3	BA113	ET 232	Electrical Engineering Circuits II	3	ET 231		
ET 271Electronics and Communications3BA113ET 221Fundamentals of Electric Power and Machines3BA 113 - ET 231ME232 TThermo fluids3BA 114MT220TMarine Prime Movers2MT232TME232 TThermo fluids3BA 114MT220TMarine Prime Movers2MT232TP 203Physical Education III0.5P 102P 204Physical Education IV0.5P 203D 203Leadership III0.5D 102D 204Leadership IV0.5D 203TOTAL CREDIT HOUSE FOR THE PRE-SET TOTAL	ME274 T	Materials Science	3	BA114-BA 142	ET 211	Fundamental of Instrumentation	3	None		
ME232 TThermo fluids3BA 114MT220TMarine Prime Movers2MT232TMarine Prime Movers2NoneNoneNoneNoneNoneNoneP 203Physical Education III0.5P 102P 204Physical Education IV0.5P 203D 203Leadership III0.5D 102D 204Leadership IV0.5D 203TOTALTOTALTOTALTOTAL CREDIT HOTEConditioning0.5D 203TOTAL CREDIT HORES FOR THE PRE-SETVICE SEVESTERS0.5D 203ConditioningTOTALSemesterTOTAL CREDIT HORES FOR THE PRE-SETVICE SEVESTERSO TOTALShomesterConditioning2NoneShomesterTOTAL CREDIT HORES FOR THE PRE-SETVICE SEVESTERSConditioning2NoneShomesterConditioning2NoneShomesterConditioning2NoneIT 311Logic Circuits and Signal Conditioning2NoneET 311Logic Circuits and Signal Conditioning2Stoto-MT232TIT 311Marine Diesel Engines3<	ET 271	Electronics and Communications	3	BA113	ET 221	Fundamentals of Electric Power and Machines	3	BA 113 - ET 231		
P 203         Physical Education III         0.5         P 102         P 204         Physical Education IV         0.5         P 203           D 203         Leadership III         0.5         D 102         D 204         Leadership IV         0.5         D 203           D 203         Leadership III         0.5         D 102         D 204         Leadership IV         0.5         D 203           TOTAL         TOTAL         19         TOTAL         18           TOTAL CREDIT HOURS FOR THE PRE-SETTERS         F0         TOTAL         75           6 <sup>th</sup> Semester           Sinder Semester         F0         FOR THE PRE-SETTERS         F0           Sinder Semester         F0         F0         F0           Sinder Semester         F0         F0         F0           Sinder Semester         F0         F0           F19         F1311         Logic Circuits and Signal Conditioning         2         None           ES 400         Guided Sea Training (AIDA IV         14         ET 312         Maritopocessor basics         3         ET 211	ME232 T	Thermo fluids	3	BA 114	MT220T	Marine Prime Movers	2	MT 232T		
$ \begin{array}{c c c c c c } \hline P 203 & Physical Education III & 0.5 & P 102 & P 204 & Physical Education IV & 0.5 & P 203 \\ \hline D 203 & Leadership III & 0.5 & D 102 & D 204 & Leadership IV & 0.5 & D 203 \\ \hline \hline D 203 & TOTAL CREDIT HOUSS FOR THE PRE-SETVICE SEMISTERS & TOTAL CREDIT HOUSS FOR THE PRE-SETT & TOTAL FOR THE P$				22	MT240T	Basics of Naval Arch. & Ship Construction	2	None		
D 203Leadership III0.5D 102D 204Leadership IV0.5D 203TOTAL19TOTAL18TOTAL CREDIT HOURS FOR THE PRE-SETVICE SEMESTERS755 <sup>th</sup> Semester755 <sup>th</sup> Semester6 <sup>th</sup> Semester5 <sup>th</sup> Semester6 <sup>th</sup> Semester10Ciricuits and Signal Conditioning2NoneET 311Logic Circuits and Signal Conditioning2NoneET 311Logic Circuits and Signal Conditioning2NoneET 311Logic Circuits and Signal Conditioning2St400-MT232TET 312Microprocessor basics3ET 211MI 321TMarine Culture and Leadership3ET 221MM303Maritime Culture and Leadership3ET 221TOTAL19TOTAL19MT391TMaritime law<	P 203	Physical Education III	0.5	P 102	P 204	Physical Education IV	0.5	P 203		
TOTAL19TOTAL18COLL CREDIT HOUSENE FOR THE PRE-SEVICE SEMESTERSCOLL75Semester6" Semester6" SemesterStadoGuided Sea Training (AIDA IV)14ET 211 - ET 221 ET 232 - MT 201 P204, D204ET 311Logic Circuits and Signal Conditioning2NoneES 400Guided Sea Training (AIDA IV)14ET 211 - ET 221 ET 232 - MT 201 P204, D204ET 312Microprocessor basics3CC 111ET 312Microprocessor basics3ET 211ET 313Control system3ET 211MT 321TMarine Diesel Engines2ES400-MT232TET 322Electrical Machines I3ET 221MT 321TMaritime Culture and Leadership3ET 221ET 322Electrical Machines I3ET 221MT 391TMaritime law3NoneMT495TMaintenance Planning3NoneTT 423Power electronic design3ET 231ET 444Power system protection3ET 342ET 423Electrical Machines II3ET 322ET 424Electrical Machine drives3ET 342	D 203	Leadership III	0.5	D 102	D 204	Leadership IV	0.5	D 203		
TOTAL CREDIT HOURS FOR THE PRE-SERVICE SEMESTERS75Simester6th SemesterES 400Guided Sea Training (AIDA IV)14ET 211 - ET 221 ET 232 - MT 2017 P204, D204ET 311Logic Circuits and Signal Conditioning2NoneET 312Microprocessor basics3CC 111ET 313Control system3ET 211MT 3217Marine Diesel Engines2ES400-MT232TMT 3217Marine Diesel Engines3ET 221MT 3217Marine Diesel Engines3ET 221MT 3217Marine Culture and Leadership3ET 221MT 303Maritime Culture and Leadership3CC 111MT391TMaritime law3NoneMT495TMaintenance Planning3NoneMT3917Maritime law3ET 231ET 444Power system protection3ET 342ET 423Electrical Machines II3ET 232ET 424Electrical Machine drives3ET 342		TOTAL		19		TOTAL		18		
5 <sup>th</sup> Semester6 <sup>th</sup> SemesterES 400Guided Sea Training (AIDA IV)14ET 211 - ET 221 ET 232 - MT 210T P204, D204ET 311Logic Circuits and Signal Conditioning2NoneET 312Microprocessor basics3CC 111ET 313Control system3ET 211ET 314Marine Diesel Engines2ES400-MT232TMT 3217Marine Diesel Engines2ES400-MT232TMT 3217Marine Diesel Engines3ET 221MM 303ET 322Electrical Machines I3ET 221MM 303Maritime Culture and Leadership3CC 111MT391TMaritime law3NoneMT495TMaintenance Planning3NoneMT3917Maritime law3ET 231ET 444Power system protection3ET 342ET 432Power electronic design3ET 231ET 444Power system protection3ET 342ET 423Electrical Machines II3ET 322ET 424Electrical Machine drives3ET 342		TOTAL CREDIT HO	URS	FOR THE PRE-SE	RVICE SEM	ESTERS		75		
ES 400       Guided Sea Training (AIDA IV)       14 Product       ET 211 - ET 221 ET 232 - MT 210T ET 271, MT 220T P204, D204       ET 311       Logic Circuits and Signal Conditioning       2       None         ET 312       Microprocessor basics       3       CC 111       CC 111       Control system       3       ET 211         MT 321T       Marine Diesel Engines       2       ES 400-MT232T       MT 321T       Marine Diesel Engines       2       ES 400-MT232T         MT 321T       Marine Diesel Engines       3       ET 221       ET 322       Electrical Machines I       3       ET 221         MM303       Maritime Culture and Leadership       3       CC 111       CC 111       CC 111         TOTAL       14       Total       Total       3       CC 111         TOTAL       14       Total       State		5 <sup>th</sup> Semester		-general sectors and		6 <sup>th</sup> Semester				
Image: Problem intermediate	ES 400	Guided Sea Training (AIDA IV)	14	ET 211 - ET 221 ET 232 -MT 210T	ET 311	Logic Circuits and Signal Conditioning	2	None		
Image: Proof, 10204     ET 313     Control system     3     ET 211       MT 321T     Marine Diesel Engines     2     ES400-MT232T       Image: Proof, 10204     ET 342     Power systems     3     ET 221       Image: Proof, 10204     ET 342     Power systems     3     ET 221       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     3     ET 221       Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204     Image: Proof, 10204       Image: Proof, 10204     Image: Proof, 1020				ET 271, MT 220T	ET 312	Microprocessor basics	3	CC 111		
Image: state in the state i				F204, D204	ET 313	Control system	3	ET 211		
Image: space of the system					MT 321T	Marine Diesel Engines	2	ES400-MT232T		
Image: here in the second s			1 10	8) 	ET 342	Power systems	3	ET 221		
Image: Model of the system protection     MM303     Maritime Culture and Leadership     3     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111     CC 111       CC 111     CC 111       CC 111     CC 111       CC 111     CC 111       CC 111     CC 111       CC 111     CC 111       CC 111     CC 111       Co 110       Co 110					ET 322	Electrical Machines I	3	ET 221		
TOTAL     14     TOTAL     19       7th Semester       7th Semester     8th Semester       MT391T     Maritime law     3     None     MT495T     Maintenance Planning     3     None       ET 432     Power electronic design     3     ET 231     ET 444     Power system protection     3     ET 342       ET 423     Electrical Machines II     3     ET 322     ET 424     Electrical Machine drives     3     ET 432					MM303	Maritime Culture and Leadership	3	CC 111		
The Semester         Semester           MT391T         Maritime law         3         None         MT495T         Maintenance Planning         3         None           ET 432         Power electronic design         3         ET 231         ET 444         Power system protection         3         ET 342           ET 423         Electrical Machines II         3         ET 322         ET 424         Electrical Machine drives         3         ET 432		TOTAL		14		TOTAL		19		
MT391T         Maritime law         3         None         MT495T         Maintenance Planning         3         None           ET 432         Power electronic design         3         ET 231         ET 444         Power system protection         3         ET 342           ET 423         Electrical Machines II         3         ET 322         ET 424         Electrical Machine drives         3         ET 432	7 <sup>th</sup> Semester					8 <sup>th</sup> Semester				
ET 432         Power electronic design         3         ET 231         ET 444         Power system protection         3         ET 342           ET 423         Electrical Machines II         3         ET 322         ET 424         Electrical Machine drives         3         ET 432	MT391T	Maritime law	3	None	MT495T	Maintenance Planning	3	None		
ET 423 Electrical Machines II 3 ET 322 ET 424 Electrical Machine drives 3 ET 432	ET 432	Power electronic design	3	ET 231	ET 444	Power system protection	3	ET 342		
	ET 423	Electrical Machines II	3	ET 322	ET 424	Electrical Machine drives	3	ET 432		

MT 434T	Refrigeration & Air Conditioning	3	MT 232T	ET 401	Project	3	Consultation		
	Plus Two Elective Courses		1.1		Plus Two Elective Courses	2			
ET 452	Electrical Marine Systems	3	ES 400	ET 425	Special Electrical machines	3	ET 432		
ET 472	Signals & systems	3	ES400 - CC114	ET 419	Marine Robotics Application	3	ET 313		
ET 414	Automation system 1-PLC1	3	ET 313	ET 415	Automation system 2-PLC2	3	ET 414		
ET 447	Control of power systems in Marine	3	ET 342	MT 482T	Offshore Vessel's DP	3	None		
	TOTAL		18		TOTAL		18		
TO	TAL CREDIT HOURS	144 Cr.H. = 288 ECTS							
	Electrical Technical officer								
	Bachelor of Marine Electrical Technology with ETO Certificate of Competency								



### Experts' Appraisal (both study programmes)

The design of both curricula is convincing and generally enables students to achieve the intended learning outcomes. The respective module structures are compelling, and the modules relate to each other in a meaningful way.

Thus, in the bachelor's programme, the relevant scientific fundamentals are taught, which are further deepened in advanced semesters and supplemented by skills that are necessary for either the operation of a vessel or the corresponding engineering skills.

Both programmes include, especially in the final year of the bachelor's programmes, an elective course section, which enables students to set individual specialisations to a certain extent and to actively participate in shaping their own course of study.

The module handbooks provided give a good overview of the study programmes, but the descriptions could benefit from being more detailed and less generic in some places (cf. the corresponding chapter on transparency). Finally, it should be noted that some of the courses have comparatively few credit points and the curricula are therefore very small-scale in places. In the view of the evaluators, this leads to a partially unnecessary workload for the students. Furthermore, the students wished for more comprehensive preparation for the concrete requirements of professional life, such as preparation for job interviews and more practice hours in the simulators. The experts therefore recommend that these wishes be examined and implemented where possible.

### 1.4 Teaching Faculty

The HEI described the policy for staff recruitment in length in its self-report, the staff handbook and during the site-visit (cf. self-report, p. 42; Appendix E). There The criteria state that for teaching undergraduate students at least a master's degree in the respective field or in an equivalent specialisation is necessary. For teaching graduate students in a master's programme, a Ph.D. is necessary. The Academy's requirements differentiate between the technological staff and the academic staff: so-called 1<sup>st</sup> lecturers (full professors) need to hold a Ph.D. or a master degree and to publish at least two research papers, additionally she or he needs to hold a STCW-Certificate of Competency (CoC), 2<sup>nd</sup> lecturers (assistant professors) need to hold a master's degree, a STCW-CoC and work as a 3<sup>rd</sup> lecturer for at least four years, 3<sup>rd</sup> lecturers (lecturers) at least need to hold a bachelor's degree, a STCW-CoC and work as a captain or as a chief technical officer for three years minimum, 4<sup>th</sup> lecturer (assistant lecturers) act as a support to other lecturers.

The Academy also provided a list of all staff members involved in teaching in both programmes (Appendix F) as well as detailed CVs of all staff members (cf. Appendix B). A short biography of the lecturers is also presented on the Academy's website. The experts criticized that the biographies presented there were comparatively incomplete. The website was then updated while the assessment was still being conducted.

The teaching staff elaborated that an assistant professor must teach five to six hours per week, with six usually being the maximum. The necessary teaching hours also depend on the respective additional



responsibilities, such as supervision.

There is a staff developing centre, which is responsible for the didactic training of the lecturers. Taking classes there – as e. g. in scientific writing, improving communication skills or how to appropriately deal with students – is entirely voluntary. Nevertheless, it was mentioned during the talks that in order to be promoted within the college, staff members are obliged to at least participate in one such class.

### Experts' Appraisal

The experts have gained the overall impression that there is sufficient and sufficiently qualified staff to teach in both programmes. In recent years the number of staff has increased, which is a positive trend. Also, a significant number of staff members involved hold a Ph.D. and a differentiation between teaching graduate students and undergraduate students is made.

Fair and merit-based regulations for recruitment and promotion seem to be in place and have been provided by the Academy.

The training measures for lecturers, especially as a precondition for promotions, seem very suitable to encourage participation in further didactic training. The experts find that this is an outstanding approach with role model potential for other institutions.

### 1.5 Infrastructure, Resources and Student Support

### Infrastructure and Technical Equipment

The academy describes the College's physical facilities in detail in its self-report (cf. self-report, pp. 49ff.). CMTT is equipped with a number of simulators (full mission ship handling simulator, integrated bridge system, tug boat simulator, small fast ship simulator, vessel traffic service simulator, EDICS labs simulator, mini bridge simulator, full mission engine room simulator, liquid cargo handling simulator, natural gas & petrochemical simulator, global maritime distress & safety system simulators, modular egress training simulator, a helicopter model on a helideck, a crisis management simulator, a helmsman simulator lab, a gantry crane simulator and a truck simulator) on the one hand and a number of laboratories (marine engineering laboratory, steam laboratory, a medical laboratory, a H2S lab, a fire fighting lab, an oil spill combating training centre, a chemical analysis laboratory, a seamanship lab, a maritime safety lab, an engineering lab, a hydraulic systems lab, a refrigeration & air conditioning lab and a generator & electric equipment lab) and workshops (metal workshops, marine diesel engine workshop) on the other hand. Furthermore, the college is equipped with a metrological station, a diving centre, a swimming pool and its own training vessel, the AIDA IV. According to staff members all simulators are regularly maintained and updated.

The interviewed students expressed their general satisfaction with the lab facilities.



#### Library

The academy has, on the one hand, an on-campus library owned by the college and, on the other hand, a centralized library. During the digital site visit, the expert panel was given a presentation by the head of the AASTMT's library to gain an overview of the facilities. As was explained during the site-visit, there are different AASTMT libraries on campus – usually tied to the respective colleges with opening times from 08:00 am to 06:00 pm during the academic year. Each library usually comprises up to five computer labs where students can work. To get students familiarised with the library, there is an orientation session at every college at the beginning of each academic year.

By and large, students have access to roughly 85.000 publications in print and an estimated amount of ten times of that in digital formats. Publications in different languages are available, the vast majority of them in English. The ongoing pandemic initiated a strong push towards more digitization regarding AASTMT's library facilities.

Requests for acquiring additional books are exclusively handed in by lecturers. Nevertheless, the library management staff also acquires books whenever they are regularly requested by students and not yet in stock.

Additionally, the HEI has a full subscription to the British Library Document Supply System, which grants a full document delivery for all its publications. Furthermore, AASTMT gives students (including foreign students who study at AASTMT) access to the Egyptian Knowledge Bank, a digital library database which usually is only accessible by Egyptian citizens in Egypt.

### **Teaching and Learning Environment**

Students and lecturers both described the learning environment and the atmosphere as encouraging and confirmed there was a generally constructive and open feedback culture.

Teaching staff members explained that the average course size was about 20 students per simulator class. In case of bigger cohorts the academy runs up to five parallel classes.

### Student Support Services

The programme managers referred that each student is assigned a scientific advisor, who is responsible for counselling him or her during his or studies. An academic advisor is always a graduated teaching assistant of the respective college. Additionally, the Academy's president explained that there are special assistants, responsible for student affairs and, besides the scientific advisors, act as the first counterparts for the students.

AASTMT possesses a career development centre and an entrepreneurship centre, which according to the Academy's president, offer their services to students on a voluntary basis and are responsible for individual counselling.

Following the statements made in during the digital site visit there are possibilities for students gaining



scholarships – both smaller ones (e. g. for fee reduction) or for full scholarships covering the entirety of tuition fees.

On course level it was stated that students are provided with digital lecture notes and reading material via Moodle.

### Experts' Appraisal

The expert panel was impressed by the technical infrastructure – especially the library's subscriptions and collections are exceptional and state-of-the-art. The laboratories and the simulator could not be inspected due to the ongoing pandemic situation. As the Academy provided further detailed insights on the infrastructure during the digital talks, the experts nevertheless had a good overall basis for a substantiated judgment.

The college has command over its own training vessel.

The small course sizes allow for a close relationship between students and the teaching staff. The mentoring system makes individual counselling possible, which is to be appreciated.

### **1.6** Methods of Teaching and Student Assessment

### Admission to the Programme(s)

To gain admission to the programmes, applicants must have a certificate of completion of general secondary school or equivalent certificates (self-report, Admission Requirements, p. 11). Additionally, applicants must achieve the minimum admission score determined by the Supreme Council of Universities and by the Academy's Council of Educational Affairs and pass the entrance examinations (ibidem). Prospective students must also pass the admission exams determined by AASTMT as well as medical examination tests (ibidem, p. 12).

For foreign certificates, respective regulations for recognition are in place (cf. ibidem).

### Student Assessment

A large variety of teaching methods is applied at bachelor's level. In all programmes, teaching units combine lectures with practical simulator training or lab work, tutorials, exercises, or case studies.

In its self-report, the HEI outlines that there are three assessment periods during each academic semester: Firstly, there are midterm exams in the 7th week of each semester. Secondly, there are exams in the 12th week and thirdly, there are the final exams (cf. self-report, p. 47). All assessment events flow into the student's final course grades and are weighted with 30 %, 20 % and 40 %. The last 10 % of the grade depends on the student's performance during the class sessions and assignments, which are to be handed in during the semester (ibidem). Besides written exams, there are oral exams and assignments. However, written examinations make up the lion's share of the forms of examination



#### used.

The teaching staff explained that if a student failed, he or she usually received counselling from his or her student advisor first. It was said that every student had the right to request a second grading if he or she felt unfairly treated. Students generally have the right to repeat failed exams as often as they wish to.

The students expressed their general satisfaction with the way the assessments were designed and with the attributed workload.

### **Teaching Methods**

The applied teaching methods mainly consisted of standard lectures, simulator practicals, group projects and lab classes. According to the students, lectures are dynamic and interactive in their design. The teaching staff mentioned that they usually tried to generate a more dynamic classroom situation by using whiteboards, videos, and assignments, which are then also discussed in the classroom.

Additionally, the students mentioned that the Academy maintained various cooperation, which allow for field trips and guest lectures.

### Experts' Appraisal

The Academy has proven that fair and merit procedures for student admission and assessment are in place. The student's assessment seems well-suited to allow for a continuous monitoring of students' progress during a course. It covers are variety of different ways of assessing students and is competency-based in general, even though there is a clear surplus of written examinations overall. The Academy has also shown that there are mechanisms in case students feel graded unfairly or need to repeat exams.

### 1.7 Quality Assurance

### **General Procedures and Underlying Regulations**

The Academy's quality management system EDQMS (College Education Quality Management System) and its mechanisms are intensively described in the HEI's self-report and its quality manual (cf. self-report, The standards and guidelines for quality assurance, p. 23 ff, Governance, Management and Quality Development, p. 37 and Appendix D).

On the College level, a quality assurance unit manages all quality aspects at the college in cooperation with the quality committees at the Departments level and the College Crisis and Disaster Management Committee, as may be seen from the organizational structures of the College Quality Assurance Unit and the College at large (self-report, College Quality Assurance Policy, p. 37).

As described during the digital site-visit and in the self-report, AASTMT's quality assurance system



addresses different levels: There can be optional audits at college level, another level are international accreditation procedures, which are optional, but colleges are encouraged to engage in such by the Academy's board.

In addition to these optional procedures, all study programmes at AASTMT undergo an obligatory program review at least every three years. Students are obliged to partake in the evaluation process before they receive their grades.

Finally, there are two kinds of student surveys within each programme: Firstly, the students' satisfaction with their programmes is surveyed every semester. Secondly, every lecturer (including the external lecturers) is evaluated by the students each semester (cf. Appendix D, p. 16). Furthermore, there are also alumni surveys (ibidem, p. 22).

The Academy also monitors key indicators such as the number of students, drop-out-rates, transfer rates to other programmes and so on, which can be seen by the respective document provided. The experts recommend that more attention is paid to ensuring that the results of teaching evaluations are also reflected back to the cohorts being surveyed.

### Responsibilities and Stakeholder Involvement

As mentioned in a previous chapter (cf. chapter 1) company representatives are part of the college's business consultant committee and as such are partaking in the design of curricula as stakeholders of the non-academic employment sector. The committee met for the first time in November 2022.

Students are obliged to fill out the regular course and lecturer surveys. According to the Academy's QM staff, the results of these are discussed with representatives of the student unions and within the college council, where also student representatives take part. The student unions and council both act as mediating bodies when it comes to matters concerning student's affairs. Due to the small cohorts, the two assessed programmes additionally allow for a more direct and informal feedback culture, which is explicitly praised by the students.

The head of the quality assurance unit explained that the results of both surveys are analysed at the unit of educational affairs and forwarded to the responsible dean of a college.

If a problem shows up the dean will have a talk with the respective lecturer and see if they can find a solution for it. It can also result in the dean closely following a course's progress during the next or the current semester in combination with having regular meetings with students from said course. Programme managers explained that in case of a rating underneath average, lecturers can be taken out of the teaching staff.

For complaints, following the statements during the site-visit, students have the possibility to either informally contact the respective course instructor or file a formal complaint directed to their academic supervisor.

II Evaluation Report of the Expert Panel

3 Assessment of the Study Programme/s



### Applied Instruments and Methods

The surveys use quantitative methods to measure students' satisfaction with the respective programmes. A blank questionnaire, which shows that a question intended to measure the accredited workload is included, is not provided.

# Quality Assurance of the Programme(s): Evaluation Results, Conclusions Drawn and Measures Taken in Response

A summary of evaluation results was provided (cf. Courses' Survey results & Lecturer Survey Results), but a short discussion of the results was given to the expert panel during the site-visit.

### Experts' Appraisal

The Academy has shown that it highly engages in quality assurance and quality improvement at all levels. There are various institutional mechanisms in place to track the development and success of the study programmes.

The experts welcome that student unions are involved in the discussion of the respective feedback. Nevertheless, the experts strongly advise to discuss the results of course surveys directly with the students of each course and in this way include a larger number of students in the feedback loop.

Additionally, the experts recommend including a question concerning the adequacy of the attributed workload of each course into the course survey. In this way it would be possible to monitor potential problems in this realm systematically and regularly.

A cohort-tracking seems to be in place.

### 1.8 Transparency and Public Information

The AASTMT website contains extensive descriptions of the institution's profile in teaching and research, the organisational structure, and the history of the Academy. The website is offered both in Arabic and in English. The same applies to the separate websites of the College and the Institute, where more detailed information on the study programmes is to be found. The <u>programmes' websites</u> provide a brief overview of the module structure, key learning objectives, professional qualifications, and some of the content. Furthermore, teaching staff is introduced and possibilities to contact lecturers are provided. The grading system is also presented shortly. Links to relevant advisory services and regulations are also presented, as well as crucial documents, such as the student handbook.

### Experts' Appraisal

From the discussions during the review, it became clear that some of the information or advisory services under discussion are communicated to the students in other ways, e. g. via online platforms



such as Moodle. The experts appreciate this as well as the English-language version of the website – especially in view of the increase in international students induced by the double degree options. Additionally, the module handbooks provided could be more detailed and more up to date in parts. The experts therefore urgently recommend that the module handbooks be reviewed and updated. This applies in particular to literature references as well as the general consistency of the specified course content.

### 1.9 Summary of the Findings and Appraisal

The expert panel has gained a very positive overall impression of the educational infrastructure AASTMT provides for students in the field of Maritime Studies. Students benefit from the excellent, state-of-the art technology on campus that shows only little need for optimisation. Especially the library and its subscriptions are at a very high level and can easily compete in an international context. This support system (e.g. the mentoring and advisory system) and the close and personal atmosphere contribute to optimal learning conditions for students. The Academy has developed an elaborate internal quality assurance system, both at central and decentral level. All internal and external stakeholders, including the students, are actively involved in the continuous improvement and development of the study programmes, even though this could be further improved by involving students more directly in the feedback loop and by monitoring students' workload. The voluntary option to study the present degree programs in a double-degree option in cooperation with the University of Plymouth is very welcome by the experts. The decision to have the programmes assessed against a set of European standards is part of the process and makes particular sense in the context of said cooperation. The experts still see potential for improvement regarding the implementation of some central aspects of the Bologna reform (issuance of a diploma supplement as a standard document, recognition of credits in line with the Lisbon convention), yet by and large, they see a high degree of compliance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

#### <u>0 Appendix</u>

1 Statement of the University in Response to the Expert Report



# Appendix

### 1. Statement of the University in Response to the Expert Report

The College of Maritime Transport & Technology at the Arab Academy for Science, Technology & Maritime Transport expresses its sincere gratitude and appreciation for the ZEvA expert panel for the highly effective and efficient online visit for the reaccreditation of the Bachelor Degree programmes offered by the College. It is acknowledged that the reaccreditation process was conducted with great professionalism and transparency.

The College of Maritime Transport & Technology invaluably appreciates the recommendations presented in the experts' report and would definitely save no effort to put them into action and report in due course.