

Status of LPU-B Implementation of the Standard Requirements of Maritime Education and Training Systems

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Abstract – Maritime education and training systems are expected to maintain a level of competency comparable to worldwide skills and best practice to maintain viability, competitiveness of performance and capability of human resource. All the factors contributing to its development are considered with utmost importance, so they are supervised, monitored, and controlled to ensure that the institutions concerned are complying to the standard requirements for continuous improvement. This study intends to determine the Lyceum International Maritime Academy status of implementation of the Maritime Education and Training systems with respect to academic activities; certification arrangement; special training and flexibilities; quality management activities; medical standards; distance education/ e-learning; health, safety, and environmental measures and to find out the challenges in implementing the standard requirements of Maritime education and training systems to Maritime education. Students and faculty respondents participated in the study which utilized the descriptive method of research. From the findings, respondents considered that the academy is currently implementing the standards requirements across all indicators but need an enhancement program towards continuous improvement.

Keywords – Maritime Education and Training Systems (MET), Standards of Training, Certification and Watch keeping (STCW), global competitiveness, quality management activities, compliance to regulatory bodies

INTRODUCTION

To remain viable and competitive, the workplace must produce better quality products and services. This can be realized if the workplace maintains a level of competency comparable to worldwide skills and best practice to maintain viability, competitiveness, performance, and capability of human resource.

The human element at sea is so vital to ensure safety, security, preservation of resources and efficiency in operations, it becomes a requirement on securing and maintenance of highly equipped human resources needed by the maritime industries by means of effective maritime education and training, and establishing of connection between practical skills and management techniques with emphasis on qualitative practices and principles.

It is then the responsibility of the government and other maritime regulatory bodies to direct maritime related institutions to achieve quality among seafarers.

In response, several initiatives were done by the concerned maritime institutions and agencies. In fact, Maritime Industry Authority (MARINA) conducted a “Peer-Assisted Evaluation Scheme Workshop” on STCW and Maritime Education and Training (MET) issues on 15 November 2018. In coordination with the International Association of Maritime University (IAMU), the activity facilitated for collaboration among maritime higher education institutions (MHEIs) representatives: curriculum developers, quality assurance specialists, deans, instructors, and assessors by sharing their best practices in the implementation of the STCW Convention 1978, as amended (MARINA,2018).

Indeed, the country’s maritime industry gave stress on “the attainment of quality among the maritime human resource as it helping tremendously in alleviating the socio-economic situation of the country is manifested in having aboard international vessels a total of more than 700,000 strong Filipino seaman,

comprising 20 percent of the total number of international seamen actually aboard ship in the year 2000 and the seamen's remittances into the country amounting to U.S. Dollars \$5.575B last year [2]. With such high figures, it can only be surmised that they underwent extensive training to make them more competent and skillful seafarers. Before any seaman is hired, he is expected to have passed the required education and training courses and government examinations, in addition, to three- and four-years maritime schooling that all seafarers take. It does not matter if a seaman has been on board ship for 20 years, he must have updated certificate as mandated by International Maritime Organization (IMO) Standards of Training Certification and Watchkeeping (STCW) [3]. The IMO oversees the training of seafarers on the respective governments of each country; and also sets the rules, decides what training each kind of seafarer would need, then leaves it up to the government on how to implement the training procedures; and finally, issues certificates depending on the type and level of job one is hired to do [2].

Filipino Maritime professionals and future seafarers are then prompted to undergo trainings from time to time to ensure that they are equipped with the necessary competencies. Every educational institution and training centers are required to comply with the standards of STCW which sets the standards of competence for seafarers internationally. STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/1995/2010) established uniform standards of competence for seafarers. Maritime education and training now require certificates of proficiency such as STCW 95. In essence, the vital role of MET institutions according to Garcia [4] is to ensure success in maritime education and industry is to magnify cooperation amongst the different maritime industry sectors – “the government, the educational institutions, and shipping companies” which is more beneficial to the seafarers. Indeed, the maritime industry has initiated several measures to enhance maritime professionals’ performance. This signifies that confidence in standards of competence is underpinned.

In compliance to the provisions set by these aforementioned regulating bodies, every educational institution has to redesign curricular programs in coordination with certified maritime training centers and regulatory bodies to meet the standards of training and certification. But the effectiveness of the maritime

academies and training centers in delivering these maritime education and training requirements is yet to measure. The fact that there are considerable sea mishaps due to mechanical errors and lack of other competencies as shown on news and documented studies, can be attributed to the kind of training the Filipino seafarers undergo, hence, the purpose of this study. Moreover, compliance to the training requirements required by the educational institutions before graduation and additional retraining requirements after on board the ship among Filipino officers and ratings is the concern of the study.

The research is deemed necessary as the researchers would like to find out the level of implementation of these training requirements and the challenges, they have to face for the improvement of performance of Filipino seafarers on board the ships, local and international, hence, the study on an educational institution like the Lyceum International Maritime Academy was undertaken. Being consistent on its aim to meet the standards, the university has ceaselessly applied for accreditation of regulatory bodies such as ISO 9001: 2015, PACUCOA, MARINA, etc. It is very important that a study on the implementation of the requirements for maritime education and training must be done. It is also necessary to find out the impact and shared responsibility of educational institutions with respect to curriculum content as per training is concerned to achieve the required competence among seafarers. But despite the high implementation to standards, amendments to regulatory requirements are being introduced by regulatory bodies to sustain and even exceed the requirements, therefore, an enhanced program for continuous improvement is the intended output of this study.

OBJECTIVES OF THE STUDY

The research primarily intends to assess the status of implementation of the standard requirements of Maritime education and training systems as assessed by LIMA Maritime faculty and students. Specifically, the research intends to pursue the following objectives: 1. assess the status of implementation of the standards requirements and training systems to Maritime education in terms of academic activities; certification arrangement; flexibilities; special training; quality management activities; medical standards; distance education/ e-learning; health, safety, and environmental measures; test the significant difference

among the groups of respondents; find out the challenges in implementing the standard requirements of Maritime education and training systems to Maritime education; test the significant relationship of the responses and to propose an action plan to enhance the implementation of the standard requirements for maritime education.

MATERIALS AND METHODS

Research Design

The researcher employed the descriptive type of research in this study. It was used to describe and analyze the effectiveness of the content of the maritime education and training requirements among Filipino maritime professionals, from maritime officers and administrative officers of the academy to ratings. In this study, it aimed to describe the respondents' answers on the questionnaires and data collected were analyzed accordingly.

Participants of the study

The study targeted two (2) major groups of respondents, to wit: 35 faculty who are Maritime practitioners mostly acting as officers in the ship and some as LIMA administrative officers, and 90 students who have undergone their OJT's under LPU training center and other Maritime training centers where they were deployed. Purposive sampling was used in the study to generate reviews of events or experiences, as regard to the maritime education and training. LIMA administrative personnel and faculty (especially who had gone on board the ship) available during the semester and the student respondents were those who had their OJT's and practical hands -on training were the target participants.

Instrument

Part I instrument was adopted from the study of Garcia [4] Instruments Part 2 instrument to determine the challenges on the implementation of MET was also adopted from Garcia [4] which were modified to suit to the needs of the study. Other sources in the modification of instruments were taken from related literature. Validation of instruments was done by Maritime faculty and administrative personnel and statistically treated by the Statistics Center.

Procedures

The researchers presented the proposal to the Research council. Review of Several related literature and related information and findings from previous studies was done to get pertinent information for the

enrichment of the discussion of this. Instruments were distributed to the LIMA participants and were retrieved thereafter. The results of these gathered data were presented in tabular form where the frequency and percentage distribution and ranking and weighted mean were employed. Tabular results were then interpreted and analyzed.

Data Analysis

The data collected were encoded, classified, and tabulated for analysis. In the interpretation of the results, researcher utilized the frequency and percentage distribution the use of ranking system and mean average were also employed to analyze the data collected in this study. T-test was used to test significant difference of the responses between the admin / faculty and student respondents.

Ethical Considerations

All participants were made to understand the consent form and accept the terms relative to the study voluntarily before accomplishing the instrument. They were assured that their responses will be kept confidential and would be used solely for the purpose of this research. Ethics was also considered in the gathering of related literature appropriate citation of the sources.

RESULTS AND DISCUSSION

Table 1 revealed that respondents considered the high level of implementation of the standard requirements of maritime education and training systems as to academic activities change of national regulations for seafarers' certification, examination and assessment, regulations for the quality system of Maritime Safety Administration and the competitiveness and adjustment and updating of curriculum, training syllabi, training syllabi, textbooks, etc., including design of for new maritime courses ranked 1st. This implies that the LPU academy is very consistent in complying to the requirements of regulatory bodies such as MARINA and PACUCOA, ISO 9001:2015 etc. which the school is consistently being visited. In cognizance to this, the academy is updating the curriculum as mandated, the syllabi and instructional materials and tools as to instruction and training. This may be attributed to the fact that the LIMA regularly and voluntarily submits itself to accreditation of regulatory bodies such as MARINA, PACUCOA, ISO 9001::2008, etc. The consistent high results for BSMarine Transportation and BS Marine

engineering show that the academy is also consistent with its efforts to pass or even surpass the minimum requirements. Based on the existing record, both programs consistently acquired very high passing rating in all these accreditations particularly in its level

4 accreditation; therefore, it can be concluded that the academy has satisfactorily completed and implemented the standard requirements as specified by the Maritime education and training systems.

Table 1. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Academic Activities

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. adjustment and updating of curriculum, training syllabi, training syllabi, textbooks, etc., including design of for new maritime courses	4.26	HI	1.5	3.96	HI	6	4.11	HI	1.5
2. updating of maritime training facilities, refreshing of qualifications of maritime instructors,	4.14	HI	3	4.02	HI	4	4.08	HI	3
3 in particular the sea-going experience requirement	3.89	HI	7	4.00	HI	5	3.94	HI	7
4. re-designing of the academic management system	3.91	HI	6	4.09	HI	1.5	4.00	HI	6
5. management system for maritime students	4.03	HI	4	4.09	HI	1.5	4.06	HI	4
6. updating of the examination and assessment system for seafarers ((theoretical and practical skills)	3.97	HI	5	4.05	HI	3	4.01	HI	5
7. change of national regulations for seafarers' certification, examination and assessment, regulations for the quality system of Maritime Safety Administration and the competitiveness	4.26	HI	1.5	3.96	HI	6	4.11	HI	1.5
Composite Mean	4.07	HI		4.03	HI		4.05	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

These observations that may lead to non-conformance are being considered primarily to ensure continuous improvement. Next in rank is the academes to update the maritime training facilities and upgrade the maritime instructors' qualifications/credentials. The training center has been visited regularly by the accrediting agency to ensure compliance at least to the minimum requirements, the aftermath of which is rendering of quality education and training to the students who will become maritime professions. This is also beneficial to faculty in the sense that the knowledge and competencies that maybe shared to students can be reinforced. Demirel And Mehta [5] asserted that the aim of maritime education and training (MET) is to provide the necessary manpower for the shipping industry and therefore they recommended for giving continual education on all elements of MET to emphasize the significance of the continuity of education. Hence, a balance and a match between academic studies and on-board training is be considered necessary in granting license to authorities. It is therefore important that the scope of the designed programmes implemented by MET institutions be anchored primarily on the preparation of graduates not only to enhance their the basic acquired knowledge and skills in the classroom but also to “encompass a practical hands-on vessel operation and overall shipping company management operations”.

Further ABS [6] claimed that maritime organizations shall “plan the different stages of the educational/training service, including design and development of teaching/training methods; design, development, review, and updating of study plans and curricula; learning/training assessment and follow-up; support services activities; resource allocation; evaluation criteria; and improvement procedures to achieve the desired results”. Ranked lowest is “sea-going experience requirement” and “re-designing the academic management system”. Respondents claimed that the management has a big to responsibility in the compliance of the requirements as to these concerns. It is the main concern of the management; however, they know the details regarding these issues. Respondents' obligation however is to provide support to the management in realizing the desired goals and objectives

Table 2 shows that with respect to certification arrangement, respondents considered changes in certification arrangements for seafarers and that there may be modification in the certification arrangement in maritime nations as per the STCW of certificate of seafarers and that the relevant requirements in the table of “Knowledge, understanding and Proficiency” hinting that there is a need for updating, creation of and phasing out of some training courses maybe done.

Table 2. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Certification Arrangement

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. changes in certification arrangements for seafarers’	4.11	HI	1.5	4.04	HI	2	4.08	HI	1
2. certification arrangement in maritime nations must be modified as per the STCW of certificates of seafarers,	3.94	HI	5	4.07	HI	1	4.01	HI	2
3. the order of issuing various certificates, the requirements, and ways of combining theoretical education, practical skills training with sea-going experience, etc., are most influential	3.83	HI	9	4.00	HI	3	3.91	HI	7
4. new certificates of seafarers are clearly categorized into three levels by the new amendment, i.e., Certificate of Competency (CoC), Certificate of Proficiency (CoP) and Documentary Evidence (DE)	4.00	HI	3	3.91	HI	6	3.95	HI	5
5. the relationship between CoC and CoP has been established for the certification of relevant officers and engineers, which signifies the order of training that CoP courses must go before those for CoC	3.91	HI	6	3.89	HI	7	3.90	HI	8
6. requirements on higher standards than those in STCW in some existing national certification systems	3.86	HI	7	3.76	HI	9	3.81	HI	9
7. relevant requirements in the table of “Knowledge, understanding and Proficiency” (KUP), which hint that training courses need to be updated, created, and phased out	4.11	HI	1.5	3.87	HI	8	3.99	HI	3
8. the transitional period arrangements for seafarer’s certification required by the national maritime administration in accordance with the new STCW amendment	3.86	HI	7	3.98	HI	4	3.92	HI	6
9. the curriculum, training syllabi, textbooks, etc. of maritime	3.97	HI	4	3.96	HI	5	3.97	HI	4
Composite Mean	3.96	HI		3.94	HI		3.95	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented H(I); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

This refers to the consistent compliance of maritime programs as regard to the requirements as specified in the STCW. The Maritime Industry Authority (MARINA) IRCULAR NO. 2013-09 Series of 2013 requires that master’s and Officers who are holders of valid COPs under Table A-V/1-1-2 of Regulation V/1-1 and Table A-V/1-2-2 of Regulation V/1-2, shall be required, every five (5). years, to provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in Column 1 of the Table of Competence. 4. All seafarers who are holders of valid COPs under Tables A-VI/1-1, A-VI/1-2 of Regulation VI/1, Table A-VI/2-1, Table A-VI/2-2 of Regulation VI/2 and Table A-VI/3 of Regulation VI/3, shall be required, every five(5) years, to provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in Column 1 of the Table of Competence.

Since the academy is being regularly visited by the accredited bodies, it regularly receives feedbacks and compliance reports from the accrediting and regulatory bodies. This way, the academy is always reminded of what must address to ensure continuous improvement and ensuring of compliance to regulatory standards. For instance, to ensure compliance to the

certification arrangements, LIMA and its training center have been consistently updating with the necessary documents and required licenses. This is seen on the updating of documents and improvement of academic and training requirements to attain these certification requirements and permit to continuously operate. All the observations and feedbacks by accrediting agencies and regulatory bodies must be complied with, for the programs to be given certification.

Those items which got the lowest ratings are: requirements on higher standards than those in STCW in some existing national certification systems; the relationship between CoC and CoP has been established for the certification of relevant officers and engineers, which signifies the order of training that CoP courses must go before those for CoC; and. the order of issuing various certificates, the requirements and ways of combining theoretical education, practical skills training with sea-going experience, etc., are most influential. As the STCW requirements have become the main point of reference by the academy in meeting the set standards, the provisions are not so clear with the other faculty members and the students. Only the administrative officer of the academy, the training officer in charge, the area chairs and some faculty

members who have assumed high positions in the ship religiously know the requirements for certification. This is the main reason why the other respondents do not have adequate knowledge of such certification requirements. Aside from that, those who only had the experience of acquiring the updated required for certificate of competency and certificate of proficiency had full knowledge of the documents and pertinent training to acquire such certificates. Aside from MARINA assessment, the academy subjects itself from the scrutiny of the PACUCOA and ISO 9001:2015 standards, Investors in People (IiP) among others, which explains the high implementation about certification requirements.

This is the same with relevant requirements in the table of “Knowledge, understanding and Proficiency” (KUP), which hint that training courses need to be updated, created, and phased out. Respondents

particularly the students and those who do not work as maritime professionals in the ship, do not have so much knowledge on the relevant requirements of the training courses that need to be updated. The academy should have a regular information dissemination in the academy for them to be constantly and regularly updated of such requirements. The LIMA Training Center aims to provide the kind of training required for CoC and CoP certification. It also sends faculty as well as students for training in other training centers where they can acquire CoC and CoP certification. The rest of the participants acquired their certification thru their shipping agencies where they were previously hired for part time teaching in the academy. At least students and faculty who will embark or continue their maritime professional practice will have acquired the necessary training aside from other agencies and training centers before they land on seaboard practice.

Table 3. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Flexibilities

Indicators	Faculty		Students			Over-all			
	WM	VI	WM	VI	R	WM	VI	R	
1. The amendment, as required by the principles of full review set up by the IMO at the very beginning of amending STCW	4.14	HI	3	4.13	I	1	4.14	I	1
2. More flexibilities for the convenience of shipping and seafarers where the first type of flexibility can be seen in balancing “approved training” and sea-going experience	4.11	HI	4	4.02	I	2	4.07	I	4
3. Maritime officers can be certified “when they have complete combined workshop skill training and an approved sea-going service of not less than 12 months as part of an approved training programme which includes onboard training which meets the STCW requirements	4.30	HI	1	3.91	I	5	4.12	I	2
4. Have approved sea-going service of not less than 36 months	3.74	HI	8	3.87	I	7	3.81	I	9
5. The “equivalent transferring” where able seafarers can acquire from ratings with sufficient sea-going experience	3.74	HI	8	3.91	I	5	3.83	I	8
6. The Electro-Technical Officers can be transferred from “a suitably qualified person”, or an engineer officer certified as per the new amendment since the new amendment has incorporated electric and electronic KUP’s into that of the engineer officers, except the exclusive training for ETOs	4.06	HI	6	3.95	I	4	4.00	I	5
7. The mandatory minimum requirements for certification of electro-technical officer” of the code	4.09	HI	5	3.82	I	9	3.95	I	6
8. Diversity of MET training courses, the existence and development of MET programs, co-operations between MET institutions and shipping companies, competitiveness of students and trainees in different MET programs	4.23	HI	2	3.98	I	3	4.11	I	3
9. Closer watch for implementation of MET programs	4.03	HI	7	3.84	I	8	3.93	I	7
Composite Mean	4.04	HI		3.94	HI		3.99	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Table 3 shows the status of the implementation of the standard requirements of maritime education and training systems as to flexibilities, the academy highly implemented the following: the amendment, as

required by the principles of full review set up by the IMO at the very beginning of amending STCW provide that Maritime officers can be certified “when they have completed combined workshop skill training

and an approved sea-going service of not less than 12 months as part of an approved training programme which includes onboard training which meets the STCW requirements and lead to the diversity of MET training courses, the existence and development of MET programs, co-operations between MET institutions and shipping companies, competitiveness of students and trainees in different MET programs”. All these pertain to the certification requirements which must be complied with by maritime faculty who are mostly maritime officers, except for some who opt to become LIMA faculty members, but still they are sent by the academy to acquire such needed certification. Further, the maritime professionals and students understand there are diverse training programs offered by different academes and training centers. The need for these training certifications poses lucrative offers for academes and training centers to offer training programs to ensure that appropriate trainings to competitive maritime professionals and ratings.

Right now, the academy is consistently complying to the requirements to be granted renewal of the training center certificate to continuously offer training programs that will complement the classroom education provide to future and practicing seafarers. The Lyceum Maritime Training Center (LMTC) asks the approval of MARINA to offer the following programs: Personal survival Technique, Fire Prevention and fire Fighting, Elementary First Aid and Personal Safety and Social Responsibility. To ensure quality and effective delivery of these programs, LMTC is steadfast in complying with the requirements and the addressing the noted observations during the assessment visit.

Likewise, the LMTC is offering the following courses: Advanced Training in Firefighting, Consolidated MARPOL 73/78, SHIP Security Awareness and Ship Simulator Training a Bridge Teamwork and Ship Security officer. Pending the approval of accrediting body, the LMTC takes the responsibility of noting the observations during the assessment visit for compliance. Part of its efforts in compliance to the requirements, the training center thru the Property office also purchased additional tools and equipment for the training center such as firefighting hoses, high pressure regulator hose, portable oxygen meter and gas detector, Alex tank scope II multi-gas detector, Draeger aero test gas detector, face masks, portable combustible gas detector, safety harness full

body, smoke machine, Neil Robertson stretcher, life jackets, safety shoes, among others.

Least among the highly implemented standard requirements are: “approved sea-going service of not less than 36 months, the equivalent transferring where able bodied seafarers can acquire from ratings with sufficient seagoing experience and keep closer watch for implementation of MET programs”. Closer monitoring of the implementation of Maritime education and training programs is one of the prime concerns of the maritime academes and training centers but due to lack of teeth to impose such policy as to its strict implementation, these institutions and agencies become relaxed. Other requirements were kept under control by the shipping agencies which hire maritime officers and ratings in their agencies; therefore, they are needed once they apply for hiring. IMO Model Courses by the International Maritime Organization [7] were designed following the adoption of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (1978) to “help implement this Convention and, further, to facilitate access to the knowledge and skills demanded by increasingly sophisticated maritime technology”.

Table 4 presents the implementation status of the standard requirements of maritime education and training systems as to special training and the complete revision of new regulation and competence requirements for personnel operating Dynamic Positioning systems - “Training requirements for ships operating in ice-covered waters; the special shipping business and transportation need the effective strategy of enhancing the competitiveness of a shipping enterprise and shipping companies start such business and MET institutions should be involved”, all verbally interpreted as highly implemented. These items got the highest rating because they these are the most applied among the training programs offered by training centers and academes, for which they easily acquire competency certificates. The certifications are deemed necessary for they are the main evidence they have on hand to the level of competency in the maritime education and training, along with their length of service at sea, professional competence, medical fitness, and age all complying with STCW standards. Every party to the convention must ensure that certificates are only issued to those seafarers who meet STCW standards [3].

Table 4. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Special Training

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. The complete revision of new regulation and “competence requirements for personnel operating Dynamic Positioning (DP) systems”; “Training requirements for ships operating in ice-covered waters”	4.17	HI	1	4.07	HI	3	4.12	HI	1
2. Training requirements for personnel in charge of or involved in – anchor-handling operations”	3.97	HI	5	3.76	HI	7	3.87	HI	7
3. Training requirements for personnel serving on board offshore supply vessels” signifies the close attention of the organization and industry and great potential of special training	3.86	Hi	7	3.96	HI	5	3.91	HI	6
4. The special shipping business and transportation need the effective strategy of enhancing the competitiveness of a shipping enterprise	4.09	HI	2	4.11	HI	2	4.10	HI	2
5. Special training can be understood as a strong aid for the achievement of “high-level, professional and specialized” MET	4.06	HI	4	4.04	HI	4	4.05	HI	4
6. Shipping companies start such business and MET institutions should be involved	3.97	HI	5	4.16	HI	1	4.07	HI	3
7. MET institutions running special courses need qualified maritime instructors, special training facilities, and approved maritime expertise	4.09	HI	2	3.93	HI	6	4.01	HI	5
Composite Mean	4.03	HI		4.01	HI		4.02	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Items with the least weighted means but still highly implemented are: MET institutions running special courses need qualified maritime instructors, special training facilities; training requirements for personnel in charge of or involved in anchor-handling operations and training requirements for personnel serving on board offshore supply vessels signifies the close attention of the organization and industry and great potential of special training. It is necessary that the necessary training requirements are complied with by the qualified maritime instructors for them to qualify for training instructors,

The prospective trainees are expecting more expertise of the instructors and special training facilities as part of the international requirements. This is one sad state in the country, which is not given attention particularly by the government, by the private training centers and academies due to primarily lack of fund allocation. The government agency responsible also lack the strict monitoring mechanisms to impose control over the operations of these training centers. On the educational system, the respondents are also expecting for more adequate honing of their knowledge and development of their competencies thru the kind of education and training programs as specified in the curriculum. There are certain reasons why STCW is important [8]. The International Convention on Standards of Training, Certification and Watch keeping of Seafarers (STCW) has set the qualification standards

for masters, officers and watch personnel on seagoing ships. The basic concept of an STCW training course is to make it mandatory for seafarers to become Passed candidates with appropriate shipping training before going on board. STCW trainings are being mandated by IMO for all seafarers worldwide. With the high qualification requirements demanded for worldwide seafarers, the maritime training school exerts its best efforts to ensure that the training to be provided the students will equip them with the knowledge and skills as per the fast-growing industries demand. Moreover, to enhance Maritime faculty qualifications, the academy continuously sends the faculty and administrative officers of LIMA to different seminars and trainings as shown in their faculty profile.

Table 5 reveals that respondents regarded the status of the implementation of the standard requirements of maritime education and training systems as to quality management activities that are highly implemented. The “training and certification of seafarers should be more informalized and traceable and transparent for which continuous and effective quality management system can be helpful through its documentation and record mechanism and update current quality management system in MET systems to enhance the enforcement of the activities, and evaluation shall include all changes to national regulations and procedures in compliance with the amendments” regarded as highly implemented.

Table 5. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Quality Management Activities

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. Evaluation shall include all changes to national regulations and procedures in compliance with the amendments	4.14	HII	1	3.75	HI	5	3.94	HI	3
2. Increase the frequency of a member state to communicate the IMO	3.80	HI	5	3.91	HI	4	3.85	HI	5
3. New amendment added as guideline which requires that “Each Party should ensure that a register of approved training providers, courses and programmes are maintained and made available to Companies and other Parties on request	3.89	HI	4	3.98	HI	3	3.93	HI	4
4. The training and certification of seafarers should be more and more “informalized”, “traceable” and “transparent”, for which a continuous and effective quality management system can be helpful through its documentation and record mechanism	3.97	HI	2	4.05	HI	2	4.01	HI	2
5. Update current quality management system in MET systems to enhance the enforcement of the activities	3.97	HI	2	4.13	HI	1	4.05	HI	1
Composite Mean	3.95	HI		3.96	HI		3.96	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (HI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Respondents are indeed eyeing for more effective quality management system that will prove high efficiency and control of necessary documents. ISO 9001: 2015 [9] provides that “defining, implementing, and documenting the quality management system which is only the first step towards the full implementation of its requirements. The effectiveness of each process and its subsequent output is measured and evaluated through regular internal audits, quality inspection and data analysis”. ISO 9001:2015 is applicable to any organization, regardless of size or industry, to “help them: organize processes; improve the efficiency of processes and continually improve” From more than 160 countries, more than one million organizations countries applied for certification to comply with the standard requirements as to their quality management systems [9]. Through accreditation, all the processes of the academe of training centers, constant monitoring of their adherence to quality standards for certification may uplift the quality of training programs, management staff and the training instructors as well as training facilities.

The least but often implemented is to “increase the frequency of a member state to communicate the IMO which requires that each party should ensure that a register of approved training providers” courses and programmes are maintained and made available to companies and other parties on request. These items got the lowest rating for the respondents accordingly do not have so much information as to these aspects, aside from the fact that according to them, they are not very confident that some training centers have not consistently adhered to the IMO standards.

Table 6 reveals the status of the implementation as to medical standards, those which are often implemented are that “medical standards are relevant to MET institutions and “attention for the possible reduced number of student enrollment while adjusting or inventing physical and medical standards for the students to be registered and substantial changes have been made to them and raise the “level of entrance” generally for the prospective seafarers, affecting the enrolment of the students, as well as the possibility of completing all training subjects and their seafaring profession”.

The International Labour Organization [10] the Medical Examination of Young Persons (Sea) Convention, 1921 (No. 16), followed by the Medical Examination (Seafarers) Convention, 1946 (No. 73). These instruments have now been consolidated into the MLC, 2006. The laws of most maritime countries require that all seafarers carry a valid medical certificate. The International Maritime Organization’s (IMO) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), 1978, as amended, provides “that the issuance of certificates of competency is conditional upon providing satisfactory proof of having met the standards of medical fitness specified in section A-I/9 of the STCW Code, including, in certain cases, minimum standards for eyesight and hearing”. Many related institutions therefore disseminate these guidelines and ensure that these are implemented to be able to harmonize the standards for medical examinations of seafarers and improve the quality and effectiveness of the medical care provided to seafarers

Table 6. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Medical Standards

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. medical standards are relevant to MET institutions	4.03	HI	1	4.15	HI	1	4.09	HI	1
2. substantial changes have been made to them and raise the “level of entrance” generally for the prospective seafarers, affecting the enrolment of the students, as well as the possibility of completing all training subjects and their seafaring profession	3.80	HI	5	4.07	HI	3	3.94	HI	3
3. attention are paid to the “potential and future” requirements on the “physical standards”	3.91	HI	3.5	3.91	HI	4	3.91	HI	4
4. attention for the possible reduced number of student enrolment while adjusting or inventing physical and medical standards for the students to be registered	3.91	HI	3.5	4.09	HI	2	4.00	HI	2
5. increase of the time of physical training and exercises by modifying the curriculum or other activities effective for the maintenance and promotion of the fitness of maritime students and trainees	4.00	HI	2	3.76	HI	5	3.88	HI	5
Composite Mean	3.93	HI		4.00	HI		3.96	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Those items which got the lowest weighted means are increase the time of physical training and exercises by modifying the curriculum or other activities effective for the maintenance and promotion of the fitness of maritime students and trainees and attention are paid to the potential and future requirements of physical standards respectively. This suggests that maritime students and faculty are still looking forward for modification of medical requirements which most often hinder their immediate hiring for employment. While some accredited medical centers’ release accurate results, some seamen experienced to wait for them to be physically fit or pay additional fees to pass the strict medical and physical standards. This complies of shipping agencies to ILO-

IMO-JMS-R-(2011) which provides that “each Administration has the discretionary authority to grant a variance or waiver of any of the standards set out in table B-I/9 hereunder, based on an assessment of a medical evaluation and any other relevant information concerning an individual’s adjustment to the condition and proven ability to satisfactorily perform assigned shipboard functions. The medical fitness standards should, so far as possible, define objective criteria about fitness for sea service, considering access to medical facilities and medical expertise on board ship. They should specify the conditions under which seafarers suffering from potentially life-threatening medical conditions that are controlled by medication may be allowed to continue to serve at sea”.

Table 7. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Distance Learning and E-Learning

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. use of distance learning / e-learning in MET is encouraged	3.97	HI	1	3.84	HI	4	3.90	HI	3
2. provision of two complete paragraphs on “the Guidance for training by distance learning and e-learning” and “Guidance for asses assessing a trainee’s progress and achievements by training by distance learning and e-learning”	3.74	HI	4	3.96	HI	3	3.85	HI	4
3. practice of accomplished learning strategies through distance learning and e-learning with the use of approved training facilities, monitoring systems, control of MET quality, control of examination and assessment	3.80	HI	3	4.02	HI	2	3.91	HI	2
4. provision of important technical support, and more distance learning / e-learning activities	3.83	HI	2	4.15	HI	1	3.99	HI	1
Composite Mean	3.84	HI		3.99	HI		3.91	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Table 7 shows that with respect to the status of the implementation as to distance learning and e-learning, items such as “provide important technical support and more e-learning activities” and “practice accomplished learning strategies through distance learning and e-learning with the use of approved training facilities, monitoring systems, control of MET quality, control of examination and assessment and use of distance learning in MET is encouraged”. Distance education tools and technology were agreed to be effective supplements for the traditional learning styles [11]. At present, there are advanced software programs, associated hardware and simulation tools having enabled multi-mode distance learning options [12].

Further a certain level of understanding and skills of seafarers in online education is a desirable method to realize this outcome. The whole shipping industry needs the utilization of modern maritime related technologies to refresh and sustain learning among maritime practitioners. Distance education may be the most flexible method to provide this training. Therefore, they suggested to establish lifelong distance education platform with various methods [13].

Also often implemented but with the lowest rank are the “use of distance e-learning in MET” and “guidance for training by distance and e-learning and for assessing a trainee’s progress and achievements in distance learning and e-learning. While technology offers a lot of developments in the shipping industry

respondents especially from developing countries are still apprehensive of their training in the use of technology. Most often, they only avail of technology when on board the ship, depending on the availability of technology tools and facilities as provided [13].

As presently applied in MET, distance learning is not very applicable and practiced for mandatory certification of seafarers due to the lack of approved training facilities, examination and assessment systems and quality standards system to regulate the MET activities. In their paper, Lokuketagoda, et al.,[12] quoted that there is difficulty in the accessibility of the internet in some countries. The limited use of computer and IT technology affect the use of distance education. Khan [14] claimed that educational technology such as “multimedia, computer, web, simulators accelerate their motivation, influence their behavior, change their attitude, broaden their cognition, and activate their perception furthermore, the application of systematic knowledge about learning and instruction for teaching and training to improve quality and efficiency”. It also has been found significant when technology is used to develop values among the students. Further, technology in teaching and learning requires high cost and enormous investment. It is an effective tool when used intelligently as it may produce positive change in behavior. Therefore, “seniors mariners may transfer their experiences, wisdom intuition and advice by knowledge management and CBT to youth”

Table 8. Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems as to Health and Safety and Environmental Measures

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. Practice of maritime safety to prevent pollution at sea	4.37	HI	1	3.91	HI	10	4.14	HI	1
2. Guaranteeing the quality of the special group of people seafarers onboard modern ships	4.03	HI	2	3.95	HI	9	3.99	HI	3.5
3. Revised requirements on hours of work and rest	3.86	HI	6.5	3.98	HI	7.5	3.92	HI	8
4. New requirements for the prevention of drug /alcohol use	3.86	HI	6.5	4.02	HI	4	3.94	HI	6
5. Updated standards relating to medical fitness standards	3.83	HI	8	4.15	HI	1	3.99	HI	3.5
6. New certification requirements for seafarers’ deck and engine	3.97	HI	4	3.98	HI	7.5	3.98	HI	5
7. New requirements for marine environment awareness training/ leadership and teamwork training	4.00	HI	3	4.04	HI	2	4.02	HI	2
8. updated competence requirements for personnel serving on board or teachers including new requirements for training on liquefied gas tankers, handling chemicals.	3.89	HI	5	3.80	HI	11	3.84	HI	11
9. Updated IMO Model courses such as those on:									
9.1. Automatic Monitoring System	3.80	HI	10	4.02	HI	4	3.91	HI	9
9.2. Familiarization Training for Liquefied Gas tanker operations	3.83	HI	8	4.04	HI	2	3.93	HI	7
9.3. Basic Training in marine environment awareness on Integrated Bridge System, Liquefied Petroleum Gas Tanker, Cargo and Ballast Handling Simulator	3.74	HI	11	4.02	HI	4	3.88	HI	10
Composite Mean	3.92	HI		3.99	HI		3.96	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Table 8 shows that with respect to health and safety and environmental measures, respondents rated highly implemented to the following items: practice maritime safety to prevent pollution at sea; New requirements for marine environment awareness training/ leadership and teamwork training and guarantee the quality of the special group of people seafarers onboard modern ships and update standards relating to medical fitness standards both with a weighted mean of 3.99. Respondents strongly to these items as highly implemented because this information is being taught in the classroom in major subjects and therefore, they presumed that these are being practiced by maritime students and faculty of this academy when they go on board the ship. Some special topics discussed by experienced maritime instructors that are being discussed include environmental protection at sea, discharging of sludge to shores, discharging of

ballast to water that should pass certain standards, determination of pollution at sea, segregation through incinerators, etc. On the other hand, respondents feel that they still have to acquire more adequate knowledge and training in the following items as they rated the least “ update competence requirements for personnel serving on board for teachers including new requirements for training on liquefied gas tankers, handling chemical, etc. basic training on marine environment awareness to integrated Bridge System, Liquefied Petroleum Gas Tanker, Cargo and Ballast Handling Simulator and Automatic Monitoring system. Respondents therefore suggest that the academy may provide them more avenues to acquire such needed skills relative to the implementation of health, safety and environmental measures, knowledge and practice on automatic monitoring system needs reinforcement for their stricter implementation on board the ship.

Table 9. Summary Table on the Status of the Implementation of the Standard Requirements of Maritime Education and Training Systems

Indicators	Over-all								
	WM	VI	R	WM	VI	R	WM	VI	R
Academic Activities	4.07	HI	1	4.03	HI	1	4.05	HI	1
Certification Arrangement	3.96	HI	4	3.94	HI	6.5	3.95	HI	6
Flexibilities	4.04	HI	2	3.94	HI	6.5	3.99	HI	3
Special Training	4.03	HI	3	4.01	HI	2	4.02	HI	2
Quality Mgt, Activities	3.95	HI	5	3.96	HI	5	3.96	HI	4.5
Medical Standards	3.93	HI	6	4.00	HI	3	3.96	HI	4.5
Distance/ e-learning	3.84	HI	7	3.99	HI	4.5	3.91	HI	7
Health Safety Environmental Measures	3.92	HI	8	3.99	HI	4.5	3.96	HI	8
Composite Mean	3.97	HI		3.98	HI		3.98	HI	

Legend: 4.50 – 5.00 = Very Highly Implemented (VHI); 3.50 – 4.49 = Highly Implemented (HI); 2.50 – 3.49 = Moderately Implemented (MI); 1.50 – 2.49 = Least Implemented (LI); 1.00 – 1.49 = Not Implemented (NI)

Among all indicators those which got the highest rank are academic activities, special training, and flexibilities all verbally implemented as often implemented. All these aforementioned items are the priorities of the maritime academy. The academy aims to improve instruction and development of competencies by giving special trainings that are necessary for highly competent seafarers in preparation to future seamanship. The academy has been complying with the requirements of the regulatory and accrediting bodies, that is why it has been receiving accreditation high ratings as shown in their record. It has consistently reviewed and revising the curriculum. In fact, it is always one of the main agenda in their faculty development program and faculty and administrative meeting. In fact, a new revised curriculum for BSMT and BSME programs were

recently submitted to CHED. In the CHED curriculum review, theoretical and practical sessions have been specified in the course syllabi. All syllabi are being revised and enhanced in accordance with STCW '78 as amended and the CMO's 13 and 14 and CMO's 31 and 32, series of 2013. As a result, make up or catch-up plan to comply with CMO no. 15 was submitted to CHED.

Those in the lowest ranks are indicators health, safety, and environmental measures (3.96WM), distance and e-learning (3.91WM) and certification arrangement (3.95WM). The results imply that the academy is looking forward to more development and information in terms of health, safety, and environmental measures. Seafarers and faculty are eyeing for more trainings and seminars relative to health, safety, and environment concerns, to support the lectures given in the classroom and the books or

manuals they have read. Respondents are also expecting for more practice and exposure to distance and e-learning education which is one of the recent indispensable tools in maritime industry development.

Table 10 presents the challenges in the implementation of the standard requirements of maritime education and training systems to maritime education, competitiveness of graduates in the

international seafarer manpower market; incorporating compulsory bridge and Engine Room Resource Management (ERM) training requirements by transferring relevant requirements and compliance to new requirements for security training, as well as provisions to ensure that seafarers are properly trained to cope if their ship comes under attack by pirates are the mostly highly rated by respondents.

Table 10. Challenges on the Implementation of the Standard Requirements of Maritime Education and Training Systems to Maritime Education

Indicators	Faculty			Students			Over-all		
	WM	VI	R	WM	VI	R	WM	VI	R
1. Adoption / Setting up new standards of training and competency	4.09	HO	8	3.82	HO	18	3.95	HO	17
2. Bringing not only opportunities for training and competency, but also challenges to the demands of the global shipping industry	3.97	HO	17	3.82	HO	18	3.89	HO	19
3. Being ready in all respects in:									
3.1. Strategic development	3.97	HO	17	3.75	HO	20	3.86	HO	20
3.2. Details and upgrading of training facilities and equipment	3.97	HO	17	3.87	HO	16	3.92	HO	18
3.3. Maritime expertise of teaching staff	4.09	HO	8	3.84	HO	17	3.96	HO	16
3.4. Quality MET management	4.03	HO	11	4.00	HO	10	4.01	HO	11
3.5. New Curriculum and training program development	4.11	HO	5	4.02	HO	8	4.07	HO	7
4. Readiness of quality seafarer manpower worldwide	3.94	HO	20	4.07	HO	5	4.01	HO	14
5. Balance of the demand and supply for international manpower	4.11	HO	5	3.91	HO	14	4.01	HO	13
6. Review the context of how MET institutions are being operated:									
6.1. Capability of the institution to implement the STCW convention and guidelines in terms of quality, quantity, type and mode of training	4.26	HO	1	3.89	HO	15	4.07	HO	6
6.2. Updated training facilities, for professional and special training	4.03	HO	11	4.04	HO	7	4.03	OI	9
6.3. Qualification of maritime faculty/ and teaching staff instructors and teaching staff related maritime expertise	4.17	HO	2	3.98	HO	12	4.08	HO	5
6.4. Quality management system substantial and procedural requirements	4.03	HO	11	3.98	HO	12	4.01	HO	15
7. Compliance to new requirements for security training, as well as provisions to ensure that seafarers are properly trained to cope if their ship comes under attack by pirates	4.17	HO	2	4.02	HO	8	4.09	HO	3
8. Implementation of modern training methodology including distance learning and e-learning	4.00	HO	15	4.05	HO	6	4.03	HO	10
9. Simplification of celestial navigation standards	4.06	HO	10	4.13	HO	3	4.09	HO	4
10. Addition of new requirements of Vessel Traffic System (VTS) training for masters, chief officers, and officers of Watchkeeping for maritime safety	4.00	HO	15	4.09	HO	4	4.05	HO	8
11. Incorporating compulsory Bridge and Engine-room Resource Management (ERM) training requirements by transferring relevant requirements	4.11	HO	5	4.15	HO	1.5	4.13	HO	2
12. Adjustment to change of national regulations for seafarers's certification, examination and assessment, regulations for the quality system of Maritime Safety Administration	4.03	HO	11	4.00	HO	10	4.01	HO	11
13. Competitiveness of graduates in the international seafarer manpower Market.	4.14	HO	4	4.15	HO	1.5	4.14	HO	1
Composite Mean	4.06	HO		3.98	HO		4.02	HO	

Legend: 4.50 – 5.00 = Very Highly Observed (VHO); 3.50 – 4.49 = Highly Observed (HO); 2.50 – 3.49 = Moderately Observed (MO); 1.50 – 2.49 = Least Observed (LO); 1.00 – 1.49 = Not Observed (NO)

The rating given by the respondents proves that global competitiveness is indeed the thrust of maritime schools all over the world. This means that the maritime academy though highly complying with the requirements for maritime education and training systems for Filipino seafarers to become competitive in

the international market, it should continuously strive for further improvement to get a Very highly implementation of MET requirements. “By 2016, MARINA shall become a premiere maritime administration in Southeast Asia propelling the Philippine maritime industry to global

competitiveness”, in Shipping, Shipbuilding/Ship Repair and Seafaring [15].

On the contrary, the items “details and upgrading of training facilities and equipment” and “be ready in all respects in strategic development” as well as bring not only opportunities for training and competency but also challenges to the demands of the global shipping industry got the lowest weighted means. This means that the challenges met in the implementation of the standard requirements of maritime education and training systems, if not fully addressed will create a great impact on the development of competent and globally competitive seafarers. It will be a potent factor in the realization of the CHED, 2016 Maritime Education and Training Sector ROADMAP which envisions a Philippine

Maritime education and training sector committed to generating a competent practitioners imbue with the attributes of responsible citizens who contribute to achieving an inclusive and sustainable socio-economic growth for the country. Its mission is to develop and administer appropriate programmes and curricula rooted on compliance with national and international standards and responsive to industry requirements by establishing centers of excellence. Its vision and mission states what MET needs to do to reach its destination as stated by the vision. MET needs to do to reach its destination as stated by the vision: by establishing centers of excellence which will administer quality and responsive curricula and programs.

Table 11. Relationship Between the Status of the Implementation of MET and Challenges Encountered

	r-value	p-value	I
Aatotal	.371**	0.000	Highly Significant
Catotal	.456**	0.000	Highly Significant
Ftotal	.398**	0.000	Highly Significant
Sttotal	.471**	0.000	Highly Significant
Qmstotal	.420**	0.000	Highly Significant
Mstotal	.386**	0.000	Highly Significant
Dtotal	.502**	0.000	Highly Significant
Ntotal	.611**	0.000	Highly Significant

Legend: Significant at $p\text{-value} < 0.05$

Table above shows the relationship between the status of implementation and challenges encountered. It was observed that all computed R-values indicates a moderate correlation, and the resulted p-values were less than 0.01 alpha level. This means that there were statistically significant relationship exists and implies that the better the implementation the more that the challenges confronting the maritime education. This means that the two groups of respondents have different view on the challenges on the implementation of MET. For instance, students ranked first the capability of the institution to implement the STCW convention and guidelines in terms of quality, quantity, type and mode training, followed by the qualification of maritime faculty and teaching staff related maritime expertise as well as compliance to new requirements for security training and the provisions to ensure that seafarers are properly trained to cope up if the ship comes under attack by pirates. On the other hand, faculty rated most the items, “incorporating compulsory bridge and

Engine room management (ERM) training requirements by transferring relevant requirements and competitiveness of graduates in the international manpower market. Although their responses are mostly related to each other, they have significant difference as the students are more concerned with their competence and safety when on board the ship.

The faculty, on the other hand, focused more on the requirements to produce students who can be globally competitive in the international maritime industry. The results show that in all indicators, faculty and students differ in their rankings due to different perspectives on looking at things as regard to the challenges faced and impact to maritime education.

As an output of the study, the proponents of the study proposed an Action Plan to Enhance Implementation of Maritime Education and Training systems in LPU-Batangas as seen in table 12. This is to sustain and continuously improve the implementation of the standard maritime education and training systems requirements

Table 12. Proposed Action Plan to Enhance Implementation of Maritime Education and Training systems in LPU-Batangas

KRA	Activities and Programs	Strategies
Academic Activities and Flexibilities	<ul style="list-style-type: none"> Updating of information for maritime Seaman's requirements Regular updating of syllabi Strategic planning based on changes and amendments stipulated in the STCW / MET and other international maritime organizations 	<ul style="list-style-type: none"> Constantly coordinate with regulatory and accrediting bodies Hold strategic planning as the demand arises
Special training and Certification Arrangements	<ul style="list-style-type: none"> Offering of more training courses to combine theoretical education and practical skills training Coordination for more OJT venues among maritime shipping companies for practicum and training to acquire CoC's and CoPs Sending students for more trainings under the scholarship programs of other shipping companies Consistent compliance to certification requirements Continuous Provision and maintenance of special training facilities and equipment for utility of maritime students and faculty. Review the mechanisms in how maritime education institutions hire, select, and train their faculty/trainers and personnel Hiring of highly skilled and competent instructors in the training center. 	<ul style="list-style-type: none"> Strengthen Linkages with other maritime schools and training centers and Provide tests and assessment to strengthen qualification of scholarship applicants Strengthen linkages with training centers and shipping agencies Training center to consistently follow up certification requirements Hold LIMA Planning and Development Be updated with the Certification and training requirements form faculty / Hiring of qualified competent trainers
Quality Mgt. Activities	<ul style="list-style-type: none"> More strict monitoring of MET programs thru internal and external conducts against a set of quality standardized system (QSS) and other regulatory bodies' requirements Consistent application for ISO certifications 	<ul style="list-style-type: none"> Continuous application for accreditation Consistency in the compliance of standards Closely coordinate with the national agencies and institutions responsible in achieving quality in maritime professional practice.
Medical Standards	<ul style="list-style-type: none"> Review of the curricular offerings for Physical education of the maritime academy Physical training and wellness and spiritual activities among faculty and students and Program for the promotion of health and physical fitness of maritime students and trainees 	<ul style="list-style-type: none"> Coordination with the medical practitioners and PE faculty members for the general physical fitness and wellness of students/ trainees Provision of physical fitness gym and spiritual facility in LIMA
Distance/ e-learning	<ul style="list-style-type: none"> Provision of recent technology equipment and tools for Maritime education and training of faculty and students Consistent application of technology in MET (in the classroom and training centers) 	<ul style="list-style-type: none"> Coordination for additional availment of the needed technology and equipment for MET Coordination with MIS to take charge of technology
Health, Safety Environmental Measures	<ul style="list-style-type: none"> Reinforcement training on liquefied gas tankers, handling chemicals etc. Provision of trainings /seminars on marine environment awareness and protection Seminars / Training on Cargo and Ballast handling simulator. Training on the application of automatic monitoring system 	<ul style="list-style-type: none"> Holding the requires seminars in and off campus Strengthened linkages with other shipping agencies and organizations for continuous education and training of students and faculty More special trainings offered by the LPU Training center Practice of the use of automatic monitoring system

CONCLUSION AND RECOMMENDATION

Based on the results and discussion, the researchers generate the following conclusions: The standard requirements of maritime education and trainings systems are highly implemented in all indicators, with academic activities, special training and flexibilities topping the list but need special

attention in related concerns as health, safety and environmental measures, certification arrangement and medical standards as well as management activities. The challenges on the implementation of the standard requirements of maritime education and training systems to maritime education impacted on the competitiveness of graduates in the international seafarer manpower market, incorporating compulsory

bridge and Engine Room Resource Management (ERM) training requirements by transferring relevant requirements and compliance to new requirements for security training, as well as provisions to ensure that seafarers are properly trained to cope if their ship comes under attack by pirates. There is a significant relationship between the status of implementation and challenges encountered as the two groups of respondents have different views on the impact of the challenges on maritime education. An action plan to enhance implementation of MET is proposed.

Based on conclusions, the following are recommended: The LIMA administration may continuously plan and seek support to enhance orientation seminars and training on standard requirements of maritime education and trainings systems to continuously comply with the requirements and amendments as proposed by local and international regulatory bodies for seafarers, particularly the revised version of STCW. The LIMA management may review the curriculum and syllabi to enhance lecture and training on compulsory bridge and Engine Room Resource Management (ERM) and requirements and compliance to new requirements for security training. The administration may sustain the application for Maritime institutions accreditations, ISO 2001:2015 and other regulatory bodies to sustain or exceed the standard requirements for MET. LIMA Stakeholders may consistently participate in the development and monitoring of MET systems and processes to them ensure quality and effective implementation. CHED and TESDA, representing the government sector to strengthen the implementation of the National Quality Standard System (NQSS) that integrates the quality system of all government agencies involved in MET of seafarers, certification and endorsement, and revalidation of certificates. LIMA to invest in leadership training and development of students and professionals both for T&D and educational benefits, like scholarships and grants. LIMA may strengthen partnership with public and private sector not only for best practices in the Maritime industry but also to install feedback mechanism to ensure only current and relevant MET programs are offered. Work closely with the Maritime Industry Authority for marine deck and engine officers; TESDA for ratings; and Commission on Higher Education (CHED) for the MET bachelors' program/courses to raise the quality of MET Follow up studies including other variables maybe included to come up with more effective action plan or programs.

The proposed action plan may be implemented, monitored, and evaluated thereafter.

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