Response of Maritime Education and Training to New Requirements of STCW’78 Manila Amendments

Bai Jun
Tutor, Second Officer, Dalian Maritime University,
baijundlmu@126.com

Zhang Bin
Lecturer, Third Officer, Dalian Maritime University,
zhangbindlmu@126.com

Yu Jiajia
Tutor, Dalian Maritime University,
rara-aza@126.com

Abstract: The background of this paper is the STCW’78 implementation of the Manila amendments. It summarizes the content of the amended STCW convention about marine education and training (MET). Meanwhile, the paper analyzes new requirements about MET in a new situation. That is to say, the requirements of digital and electronic navigational strategy, the requirements for protection of the marine environment, the requirements of integrated application of modern navigation technology, the requirements of human factor, the requirements of ship security, the requirements of teamwork and leadership etc. Finally, to respond and implement the new requirements and higher standards of STCW’78 implementation of the Manila amendments, the paper draws a conclusion about strategies which should be taken by maritime education and training.

Keywords: MET; STCW Convention; New Requirements; Response

1. Introduction

The STCW Convention is one of the main international maritime conventions. With stricter requirements for protection of ocean environments and more use of new technology, standards of seafarers training and watchkeeping were increasingly improved. At the same time, owing to more piracy events, requirements for ship security had been put forward to seafarers training and watchkeeping. Therefore, a comprehensive review of the 1978 STCW Convention commenced in January 2006 and culminated in a conference of parties to the STCW Convention, held in Manila, Philippines, from 21 to 25 June 2010, that adopted a significant number of amendments to the STCW convention and STCW Code. The standard of training, certification
and watchkeeping for seafarers would be much more rigorous and have higher requirements. In the face of the new situation, it was compulsory to research how MET responded to the new requirements of STCW'78 Manila Amendments.

2. Content of Manila amendments regarding to MET

2.1 Content of amendments in “Chapter II Master and deck department” and “Chapter III Engine department” [1]

2.1.1 The Manila amendments proposed new requirements about enhancing the protection of marine environment.

2.1.2 Bridge resource management and engine resource management had been mandatory standards. It was the first time to present new requirements on human factors including allocation, assignment, and prioritization of resources, effective communication, assertiveness and leadership, team experience, etc.

2.1.3 The Manila amendments added new requirements on application of leadership and team-working skill (operational level) and the use of leadership and managerial skill (management level). So, the MET institution should enhance the training of seafarers’ awareness of teamwork, leadership, human management and assertiveness. In the meantime, it should be embodied in practical assessment.

2.1.4 The Manila amendments added new requirements about maintaining safe navigation through the use of information from navigation equipment and systems to assist command decision making for masters and officers in charge of a navigation watch on ships. Hence, during the MET training course, using navigation equipment and systems should be emphasized.

2.1.5 Use of electrical equipment and systems, such as ECDIS, was emphasized. It had different requirements respectively for operational level and management level, use of ECDIS to maintain the safety of navigation and maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making.

2.1.6 Mandatory minimum requirements on certification of ratings, such as able seafarer of deck and engine, electro-technical officers. The MET teaching
content and outline should be modified according to new requirements referring to the above ratings.

2.2 Content of amendments in “Chapter V Special training requirements for personnel on certain types of ships” [1]

2.2.1 The Manila amendments changed mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied tankers, oil tankers, chemical tankers and liquefied gas tankers.

2.2.2 The Manila amendments added guidance regarding training of seafarers on passenger ships including enhanced fire fighting and damage control. Masters, chief engineering officers, chief mates, second engineering officers and any person designated on muster lists of having responsibility for the safety of passengers in emergency situations on board passenger ships should have completed approved training in crisis management and human behavior as specified in section A-V/2, paragraph 3 of the STCW Code.

2.2.3 Added: 1) Guidance regarding training and qualifications of masters and officers in charge of a navigational watch on board offshore supply vessels; 2) Guidance regarding the training and experience for personnel operating dynamic positioning systems; 3) Guidance regarding training of masters and officers for ships operating in polar waters.

2.3 Content of amendments in “Chapter VI Emergency, occupational safety, security, medical care and survival functions” [1]

2.3.1 The Manila amendments confirmed mandatory requirements for safety familiarization and basic training and instruction for all seafarers. Meanwhile, ocean environment protection and effective communication have been added.

2.3.2 Guidance regarding requirements in medical first aid and medical care training programs for seafarers who provide medical first aid on board ship should take into account guidance in the revised International Medical Guide for Ships, as appropriate.

2.3.3 The Manila amendments confirmed mandatory minimum requirements for security-related training and instruction for all seafarers. It involved four kinds of security training and three kinds of security certification.
3. New requirements of Manila amendments for MET

3.1 The requirements of digital and electronic navigation strategy

The main content of the Manila amendments was the application of new technology based on informatization and digitization. Implementing of an e-navigation strategy had prospective content for MET. In the new situation, MET would soon be changed and advanced. Due to the use of electrical equipment and systems such as ECDIS, on the one hand, MET should pay more attention to training for intelligent equipment and digital technology, on the other hand, MET should take the initiative and adapt requirements of the STCW convention for digital navigation.

3.2 The requirements for protection of marine environments

Protection of marine environments was definitely presented in the Manila amendments to all seafarers. It was in accordance with society’s developmental requirements for protecting the marine environment [2]. So, during MET courses, knowledge of protection of the marine environment should be introduced so as to enhance seafarers’ consciousness of environment protection.

3.3 The requirements for integrated application of modern navigation technology

Following the development of satellite technology, communication technology, network technology, shipbuilding technology, surveying technology etc., navigation technology had made significant progress. Today’s navigation is related to abundant content including Global Position System (GPS), Automatic Identification System (AIS), Electronic Chart Display and Information System (ECDIS), Port Ocean environment Reporting and Forecasting System, Admiralty Publication Digitization and Electronization System. Hence, lots of high-tech equipment will be used on board. That is to say, MET should pay more attention to the requirements of integrated application of modern navigation technology. At the same time, special training for modern navigation technology and equipment should be carried out.

3.4 The requirements of human factor

The Manila amendments presented new requirements about human factors for deck and engine departments. Human factors in the amendment included effective communication, assertiveness, leadership skill, team-work awareness etc., due to more than 80% of marine accidents being caused by human factors. So, the IMO had fully realized the effect of human factors in marine safety. Hence, MET institutions should pay more attention to the content of human factors.

3.5 The requirements of ship security

Security-related training and instruction for all seafarers were also mandatory requirements in the new amendments. Meanwhile, corresponding requirements for different ranks were presented thereby improving all seafarers’ security awareness. In this situation, MET must adjust to the new requirements and consider how to fulfill the requirements of ship security training.
4. Response of MET to Manila amendments

4.1 Enhancing legislation about maritime education

The key to promote the development of shipping was personnel with abilities. Legislation about maritime education was the key to bring up qualified personnel who corresponded with the requirements of STCW’78 Manila amendments [3]. Legislation made significant sense to marine institutions which were mainly in place to train seafarers. Lack of marine education statutes, however, was a severe problem to MET. So enhancing the legislation about maritime education was imperative.

4.2 Revision of existing MET management system

Due to the STCW’78 convention being amended, MET management systems should be adjusted to synchronously develop new model courses. In this situation MET management systems, training quality management systems and training outlines should be revised. Consequently, MET can forwardly adapt requirements of integrated application of modern navigation technology.

4.3 Promotion of teaching level

The STCW’78 Manila amendments had perceptiveness for a digital and electronic navigation strategy. Meanwhile, knowledge updating and practical skills of teachers had been definitely included. The teachers of MET should do in depth research on e-navigational strategies and modern navigational technology, and master new theory, new technology, new equipment and new systems. On one side, renewed training for teachers of environmental protection and ship security should be carried out in advance. In another, based on the particularity of a marine vocation, MET institutions should provide opportunities for teachers to work onboard as seafarers, so as to enhance their practical skills.

4.4 Adjusting teaching equipment and content

Recognizing the importance of adequate education, training, and experience acquired by all seafarers, MET should appraise the use of new technology and new equipment through practical assessment tests to fulfill the STCW Convention and Code which established standards of training, certification and watchkeeping for seafarers. In order to meet the requirements for protection of ocean environments and ship security, MET institutions should revise teaching outline and training content. Aimed at requirements of human factor, MET institution can strengthen practical teaching and use simulators and training ships.
5. Conclusion

The Manila amendments have presented the mandatory minimum requirements for certification of seafarers in the future and pointed out the orientation of MET. Researching thoroughly the development and changes to the STCW Convention could make MET institutions forwardly implement the new requirements. MET will be confronted with the requirements of digital and electronic navigational strategy, protection marine environment, integrated application of modern navigation technology, teamwork and leadership, human factor and ship security. To respond to and implement these new requirements and high standards, MET should firstly enhance legislation about maritime education, and then revise existing MET management systems. Meanwhile, to reply to the use of various high technologies in the navigational area, MET institutions must promote teaching levels, update teaching equipment and adjust teaching content and practical assessment.

References