

Analysis and Trends of MET System in Croatia – Challenges for the 21st Century

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Abstract: The paper deals with present status and recent trends and challenges in the MET system in Croatia. The standards of the present MET system, as it has been implemented in Croatia up to now, are more demanding than those prescribed in the STCW Convention and at the same time student-oriented. Consequently, the MET system offers more career opportunities to graduate students, particularly to those seeking employments on highly sophisticated vessels or similar shore installations. However, more than sixty years after introduction of mandatory higher education for top-level positions on board, the Croatian Government approved a new maritime career path. The adopted amendments introduced the so called “the alternative MET system”, developed as a purely vocational system. It is expected that both systems will be running in parallel.

In the light of the aforementioned changes, the main objective of the paper is to assess and present possible impacts these changes will exert on the existing higher MET institutions in Croatia as well as to assess challenges to be faced by other stakeholders. In addition, possible consequences to the public image of the seafaring as a profession and its attractiveness among young people will be analysed.

Keywords: MET system, alternative maritime educational system, quality, comparison

1. INTRODUCTION

Education is one of the most important pillars in developing shipping industry. The shipping industry actively promotes maritime education activities and crew management represents very significant component of any shipping company policy. For this reason, education of seafarers as well as education for shore based personnel in

shipping industry have large importance, and vary from professional and vocational training to specialized maritime education and training on various levels, from secondary schools to university degree education. Additionally, due to globalization in shipping business maritime education follows international standards which tend to be equal worldwide.

As a maritime-oriented state, Croatia has had a Maritime Education and Training (MET) system operating for a quite long period. Today, the majority of Croatian seafarers are employed on foreign companies resulting in education standards fully complying with international requirements, primarily laid down in the IMO STCW convention as well as with requirements of the EU educational framework. Current demands for seafarers include those serving on highly sophisticated, technologically advanced and very expensive ships, such as LNGs, cruising or container ships. Additional requirements on safety and environmental protection which is in force on these types of ships require high educational standards and continuous improvement. In many segments the Croatian MET system is beyond minimum STCW standards, particularly when offered at the university education stage.

Finally, the MET system in Croatia has recently undergone significant transformations and improvement following institutional requirements placed by the EU (Bologna declaration) for university level education in general. However, recent amendments in MET system implemented by the end of 2010 tend to minimise seafarers' education standards. Such a step, unquestionably, provides educational flexibility but could also jeopardize the already achieved quality of Croatian MET system and put additional challenge for the future.

2. AN OVERVIEW OF THE CROATIAN MET SYSTEM

Throughout history, as well as today, the people of Croatia had a strong connection with the sea and with all activities related to the maritime industry. Such developments in the shipping industry and navigation gave rise to creating organized maritime education and training (MET) system. The first education for seafarers began in the 16th century in the Republic of Dubrovnik and other free towns on the eastern coast of the Adriatic Sea. As an example, the year 2009 marked 160 years of the establishment of the first nautical school in Croatia in Bakar.

The development of the Croatian MET system could be divided into several stages which basically rely on secondary education nautical schools [1]. After the 2nd world war, the first higher education MET institution was established in 1949 in Rijeka followed with another two institutions in Split and Dubrovnik. They were expanding parallel with secondary education maritime training schools. The quality of education in addition to continuous improvement which followed the latest technology developments and the need for highly educated seafarers made it possible in 1978 to transform the Rijeka College of Maritime Studies into a university college offering degree studies. This was the first MET institution in Croatia to become a member of a university.

Today, MET institutions follow international standards and requirements laid down in the IMO STCW convention as well as in the EU educational legislation. The institutions operate under the umbrella of the Ministry of the Sea, Transport and Infrastructure (Maritime administration) parallel with Ministry of Science, Education and Sport.

The process of maritime education in Croatia is divided into two stages. The first stage includes vocational education within secondary education nautical schools, followed by the second stage - MET institutions of higher education (maritime faculties). Along the Croatian coast there are 6 secondary education nautical schools (in 2010 there were 327 graduated students) and 4 maritime faculties: in Rijeka, Zadar, Split and Dubrovnik with 281 graduated students in 2010. All MET programs and curricula are in accordance with STCW requirements, approved by the Administration and the functionality of the system is under constant control. Basically, secondary nautical schools have the task of preparing students for watchkeeping duties on ocean-going ships and for top-level positions on board ships in limited trades, while maritime faculties educate students for top-level positions on ships in international trade and for jobs ashore at the operational and management level.

In the recent period there have been two significant changes in the national MET system. The first was on harmonization with the IMO STCW convention in 1998. The second and the most important one was the implementation of the Bologna processes in higher education, which started in 2005. Afterwards, maritime higher education institutions fully adopted the structural reforms imposed on the national higher education system. It is, fundamentally, a three-tier system of studies (3+2+3), i.e. three years of undergraduate study for the bachelor degree, two years of graduate study for the master's degree and three years of postgraduate studies for the academic title of Doctor of Science. All studies are based on the standardized credit system¹ organization. In order to promote the principles of the Bologna declaration, such as wider cooperation and mobility among universities, harmonized development of MET curricula, as well as reducing the diversity of the education systems, the Croatian maritime institutions of higher education (Rijeka, Zadar, Split and Dubrovnik) harmonized their respective MET programmes of study. Such an organization enables both students and the teaching staff mobility and comparability of curricula, diplomas and qualifications, which also were imperatives of the Bologna declaration.

The following graph presents the higher maritime education system currently in force in Croatia.

¹ ECTS (European Credit Transfer System) - European Credit Transfer System which is a student-centred system based on the student workload required to achieve the objectives of a programme, objectives preferably specified in terms of the learning outcomes and competences to be acquired [6].

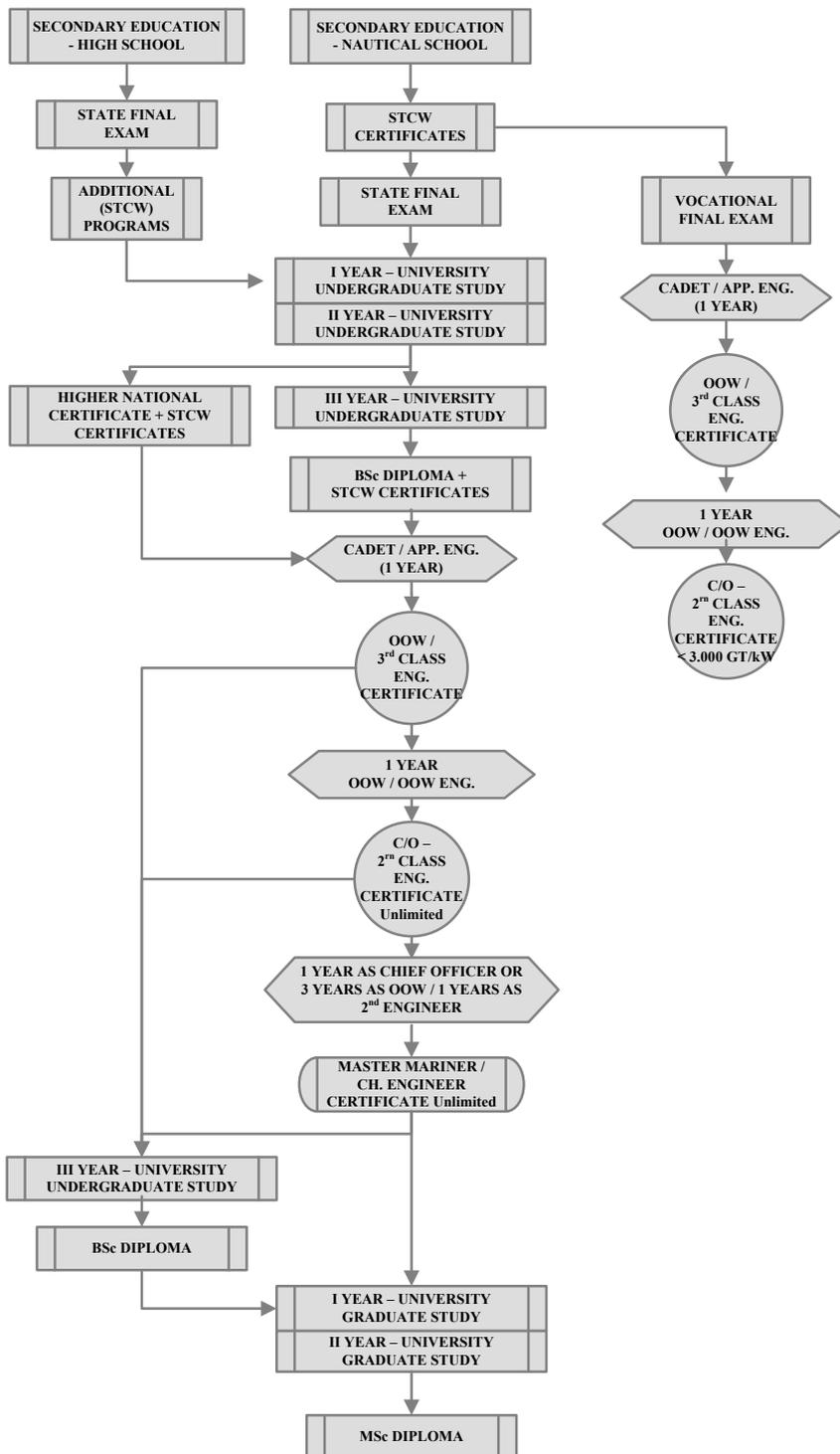


Figure 1. Croatian MET system

The specific feature of the new MET system was that the three-year BSc degree study can be conducted as a 2+1 programme, where the first two years cover the requirements of the STCW convention, sufficient for obtaining top-level positions on board, while the third year gives the student the possibility to gain the degree level education. It should be noted that such system represents a prolongation of education if compared to time before the Bologna changes in that the degree level education could be achieved in two years. However, with three years degree education, students can receive additional knowledge enabling them better competitiveness for shore-based employment possibilities. Also, the level of education is fully comparable with the education of other professions in Croatia. Furthermore, the second and the third educational tier are entirely designed for jobs and duties ashore. They are completely designed for creating high-level professionals in the maritime administration, R&D institutions as well as for top-level management in shipping and other related maritime companies.

Throughout all education levels special attention is given to quality of the curriculum which is a prerequisite for international recognition of the system and involvement of graduates in the global maritime market. In this way teaching is carried out using the latest teaching aids, including highly sophisticated simulators which are upgraded continuously.

3. “ALTERNATIVE” MARITIME EDUCATION SYSTEM

For the last several years an initiative was started for introducing changes to the existing, well known and established MET system in Croatia. Basically, the initiative started to build up as a consequence of the continuous threats on shortage of qualified and licensed officers, mostly engineering officers. At the beginning, the idea came from shipping companies, operated ships under Croatian flag. It followed by crewing agencies, particularly those representing low-to-medium level foreign shipping companies operating with technologically low-level ships. Towards the end, the strong initiative came from the seafarers organized in the association and from the Seafarers' union of Croatia.

The main objective of the proposal was the implementation of the so called “Alternative maritime education system”. It is based on minimizing educational standards for top-level positions on board. Alternative maritime education system enables seafarers without higher education to attain the highest maritime ranks and certificates (Master Mariner and Chief Engineer certificates) through additional training which will meet the minimum STCW convention standards. The system, basically, represents a special instance of vocational system. This is why the initiative raised a great deal of disagreement followed by severe criticism coming from the higher education institutions and their graduates.

After more than one year of negotiation and the process of harmonization between maritime faculties, secondary education nautical schools, seafarers associations, companies, the competent administrations, and seafarers union at the end of 2010 the maritime administration put into force a new regulation on Special MET system, popularly referred to as Alternative System of MET. The system will go parallel with the existing one.

The basic characteristic of the alternative system could be summarized as a specialized education for experienced officers in their professional advancement. The opportunity to attend the alternative system is given to those officers and engineers who have graduated from the nautical secondary school and have more than 36 months of sea service as officer. The education will be provided exclusively by higher education

institutions as a part of lifelong education and credits in accordance with the European Credit Transfer System will be granted to all participants. Accreditation of the educational programme at the university level will give possibility for all participants to join and continue their studies within the existing higher educational system later on. The program comprises of 800 teaching hours² in total, divided in courses according IMO Model Courses 7.01 and 7.02. Exams are compulsory for each course. Due to the complexity of the seafarer profession, the programme is planned to be carried out in two or more modules (3 months or less per module), which enables seafarers an almost uninterrupted sea service. Participants' mobility will make possible to join the alternative programmes at any Croatian maritime faculty. However, participants will be obliged to take relative exams at the college were they attended that particular course. Participants who successfully complete this kind of education, i.e. who have successfully passed exams for each study course, will get the opportunity to take Master Mariner/Chief Engineer exam with the Harbour Master Office representing the competent Ministry of Transport. The following figure is a diagram representation of the new education system.

It may be concluded that the alternative MET system is introduced in addition to the existing, while at the same time retaining the existing maritime certification system. In addition, it should be noted that the new system follows the minimum STCW requirements. Mostly, the alternative system promotes and evaluates seafarer's practical knowledge, skills and experience. In relation to the regular higher education system, which involves higher educational standards and additional theoretical as well as practical knowledge, unquestionably above STCW requirements, this alternative MET system presents a minimalist STCW-based approach. It is expected that the alternative system will persist on condition that it is conducted under constant review by the maritime administration.

² 750 hours of education for Master Mariner certificate and 795 hours for Chief Engineer certificate.

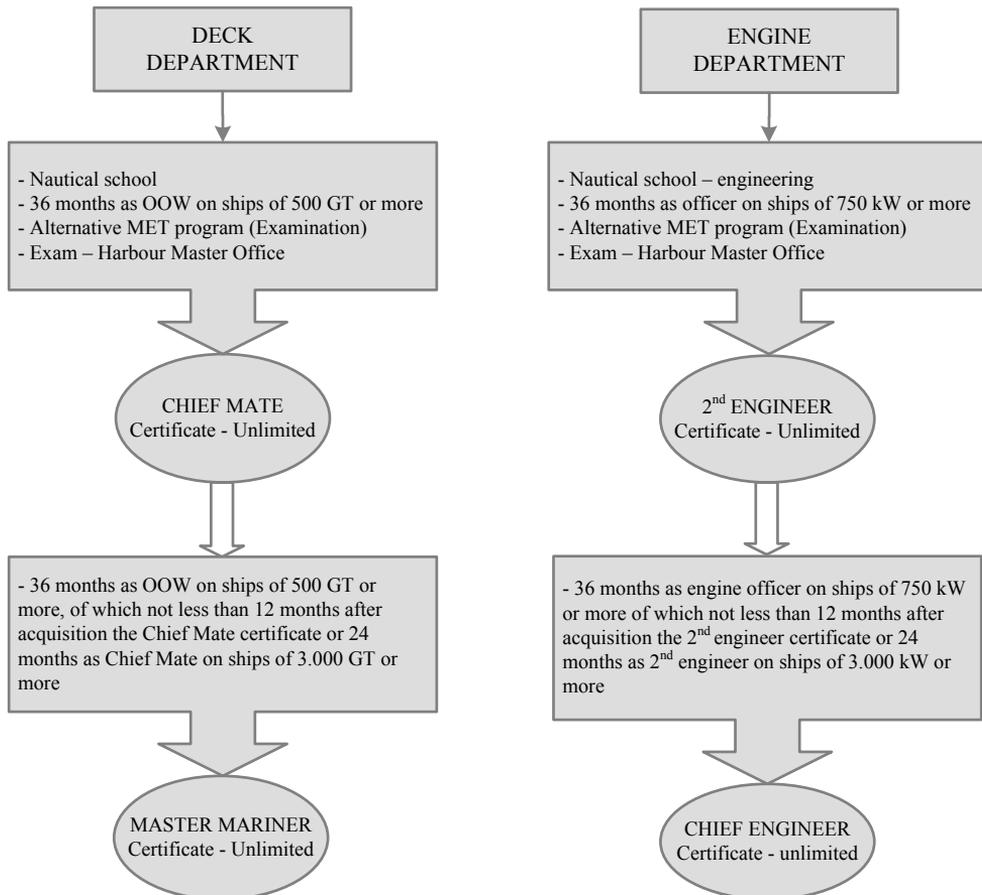


Figure 2. Alternative MET system organization

4. CROATIAN MET SYSTEM IN THE FUTURE - STRENGTHS AND WEAKNESSES

By introducing an alternative MET system the new era in Croatian MET system undoubtedly began. More than half century of well established and recognized education system has been changed. The policy of keeping degree programmes on the way to obtain Master/Chief Engineer certificates of competency has been apparently abandoned reducing the level of educational standards. The past Croatian MET system could be compared to the EU “3E” concept³ which advocates systematic approach in much more higher level than approach placed in alternative system [1].

³ Additionally, “4E” system lead to MSc and PhD programmes which is already included in Croatian MET system.

Having introduced the Bologna declaration principles into regular higher maritime education, five years ago, the Croatian MET system opted to follow the very high educational requirements of the 21st century. It satisfies almost all needs of a modern officer such as academic degree, computer science capabilities, maritime English proficiency, and leadership discipline to satisfy modern and expanded safety and environmental protection requirements.

A totally opposite system has been developed by introducing the low-level requirements which will inevitably cause negative consequences for the development of the Croatian MET system. Accordingly, in the future, we may expect an inevitable “battle” between demands of shipping industry for seafarers, mainly oriented to satisfying minimum education standards, and very high requirements of international and national maritime administration in respect to safety at sea and environmental protection connected with operation of highly sophisticated and technologically advanced ships.

Generally, the required standard of quality for seafarers depends on the shipping company’s employment policy. Some of them claim that the seafarers graduated from the degree programmes are “over-qualified” for on board duties. Consequently, there is a fear of diminishing the number of new seafarers and decrease in the attractiveness of the seafarer profession. On the other hand, experienced officers holding a B.Sc degree could satisfy demands for shore-based management level jobs inside shipping industry, which enables more professional career opportunities for former seafarers willing to continue working ashore.

In order to analyze the possible consequences on Croatian MET system, in the light of recent changes, a questionnaire was prepared and disseminated among experienced seafarers⁴. The questions in the questionnaire were the following:

- Do you think that higher education level is necessary for the highest ranks on board ships (master, chief engineer, first mate, second engineer)?
- Do you think that, in the long term period, the quality and consequently reputation and recognition of Croatian officers in the global shipping industry, will be reduced?
- Do you think that existing officers holding degree education get unfair competition?

The results shows that more than three quarters of the examinees think that higher education level is necessary for the highest ranks on board ships as well as that in the long term period the reputation, and wages, of the Croatian seafarers could be reduced. As for competition “only” 71% of the examinees answered positively. It should be emphasized that between the tested officers without degree education (totally 18), 39% of them are of the opinion that higher education is necessary.

Before the implementation of the new system another survey had been made by the maritime administration with the following questions⁵:

- Will you continue your education at higher education institution after completing the alternative MET programme?

⁴ Total number of examinees was 117.

⁵ Some of the questions and results are omitted because it is not relevant for analyzing alternative MET system.

- Do you intend to spend a whole career on board?
- Are you ready to continue your career in the maritime administration?

The answers show that 57% of the seafarers will try to continue education on higher institution later on, 70% do not want to spend a whole career on board and even 81% are ready to look for job ashore in the maritime administration.

Summing up the results of the questionnaires several important points can be stated. First above all, the Croatian MET system should continue promoting higher education because any further reducing of education requirements could jeopardize Croatian seafarer's excellence and reputation. In addition, among the seafarers there are strong tendencies to carry on professional careers ashore, during their lifetime. Undoubtedly, MET system, as a part of higher education system, leads to better competitiveness and more professional opportunities for seafarers.

In the future, MET system should prepare seafarers to operate modern, expensive and technologically advanced ships in the first place and additionally for managing level positions within shipping and other maritime related companies. According to the presented results and in view of authors' knowledge and experience, here are the most prominent strengths and weaknesses that the Croatian MET system will be faced with in upcoming years (Figure 3).

<p>Strengths</p> <ul style="list-style-type: none"> - Long tradition and good organization - More career-oriented - Higher and highest degree education system (BSc, MSc, PhD) - Preparing students for shore based jobs 	<p>Weaknesses</p> <ul style="list-style-type: none"> - Reducing educational standards – alternative MET system - Frequent changes - Shortage of seafarers - Theoretically oriented teachers
<p>Opportunities</p> <ul style="list-style-type: none"> - Keeping existing educational level - Part of the EU educational framework - Supports from the shipping companies - Financial independence 	<p>Threats</p> <ul style="list-style-type: none"> - Low entry standards - Weak attractiveness for seafarers - Minimizing educational standards worldwide - Lack of financial support from the Government - Lack of teaching staff

Figure 3 SWOT analysis of the Croatian MET system

Additionally, as a possible consequence of the minimizing educational requirements another important issue could be emphasized. During the last decade in Western Europe, but also in Croatia, attractiveness of the seafarer profession was decreased. Therefore, the number of students enrolled in maritime educational institutions, secondary education maritime training schools and maritime faculties were decreasing, particularly among

marine engineers⁶. On the other hand, higher education becomes almost mandatory as a rule for many other professionals and persons without degree education are not sufficiently competitive on the labour market. Therefore, there is a risk that minimising the existing values of MET system parallel with enhanced requirements of education standards in general. This will produce a negative influence on young people in their profession selection and will continue to decrease the attractiveness of the maritime profession in the general public.

It is obvious that the Croatian MET system has many positive attributes and could be considered as one providing excellence in international maritime education. However, internal weaknesses and demands imposed by the shipping industry worldwide require from all stakeholders, i.e. higher education institutions and nautical schools, teachers, as well as the administration, additional efforts to maintain existing standards. Furthermore, MET system shall adapt and follow updates in educational standards satisfying industry demands for highly skilled seafarers. This means they should take further actions for increasing the attractiveness of the seafarer profession and, at the same time, for improving MET quality to standards much more above minimum of STCW convention.

5. CONCLUSION

During the recent history the MET system in Croatia has been constantly adapting to all significant changes in shipping. Educating well trained seafarers meeting advancements in modern technology has been first issue for the national MET system. On the other hand, the process of constant diminishing the number of seafarers put the system under the pressure by the shipping companies willing to satisfy demands for seafarers.

Under such circumstances the Croatian MET system is placed between the need for education of seafarers at high standards for those intending to sail on highly sophisticated vessels and the industry requirements for filling the gap for officer's in short period with minimum education standards. In this respect, the implementation of Bologna process was the step forward in increasing education level at the university standards with added value for seafarers willing to continue work on shore once they finish sea career. On the other hand the alternative MET system based on minimum STCW standards mostly suits low-to-medium level shipping companies in their desire, at a short term, to solve the shortage of seafarers.

The future of Croatian MET system can be seen as dual and flexible, offering both approaches to education. However, the tendency among the seafarers to carry on professional careers ashore, will most probably promote education at the higher education institutions as an imperative. Nevertheless, MET system should create a motivating environment for the seafarer profession, maintain highest standards in education, training and certification and be side by side with the education systems in other professions.

⁶ In last five years, total number of students graduated from all faculties in engineer department not exceeds 100 and is double less from the number of students in nautical department.

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