

BSMA EXPERIENCE IN MARITIME EDUCATION FACING THE 21ST CENTURY CHALLENGES

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Abstract

Introduction and aim: In this paper, a problem of advancements in maritime education facing 21st century challenges, based on the case study of BSMA experience is discussed. It is devoted to the main directions of advances in the maritime education toward the challenges in a global meaning. In this context, the education potential of BSMA, as the leading maritime university of Georgia is shortly presented. It is also dedicated to the BSMA experiencing the 21st century challenges. The BSMA's contribution and good practice concerning the participation in modification of the process of the IMO STCW 78/2010 convention, adoption of programs into the international and national qualification framework's standards and procedures, arising problems and their solution.

Research methodology: BSMA experience.

Results and implications: Suggestions for implementation of external mandatory regulation requirements in national and internal provisions.

Conclusion: Since Georgian Seafarers are fully employed in international market, it is reasonable to recognize all industry mandatory regulations on the state level, and implement them in national regulations. This process will simplify activities, improve their flexibility and force to effective MET.

Keywords: MET, maritime education and training, IMO, International Maritime Organization, ISO, International Organization for Standardization, NI, Nautical Institute, BTEC, Business and Technology Educational Council, STCW, International Convention on Standards of Training, Certification and Watchkeeping, Manila Amendments, Quality Assurance, International Industry standards

Introduction

Legal and technological aspects create a space and necessity for progress of maritime education and training (MET) in a wide meaning. This progress is stimulated and forced by the implementation of new technologies. The highest value for the world community today whether maritime or other ones are SAFETY, QUALITY and ENVIRONMENTAL FRIENDLINESS. Maritime education and training appear as the basis for the vertically integrated system. A wide perspective of the MET covers such elements like the concepts of learning, learning resources and educational technology, the organization of MET, fundamentals of assessment and evaluation, and approaches toward specialization. MET is driven by multiple factors, such as a global economy, industry, restructuring and policy governmental initiatives.

MET is also developed due to the changes within the international standards, like for example STCW'95 (2010) Convention. In this context the main goal of education is to prepare an individual for life which involves multiple roles in order to function effectively in seagoing service onboard the ships.

MET develops along with the fast improvement of maritime industry. It faces many new requirements in the progress of such evolvement like the requirements of further enhancement of seafarer's practical skills and ability under the new STCW'95 (2010) convention, the requirements for the introduction of new training items, such as Bridge Resource Management (BSM), Electronic Chart Displaying Information System (ECDIS), risk assessment and management (RAM), quality assurance and management (QAM) and other requirements and demands from maritime industry.

In order to meet the requirements, the appropriate amendments to MET should be provided. The university case-study is developed on framework, which includes the following elements:

1. Implementation of regulations
2. Development of skills
3. Personal development planning;
4. Inclusion the activities similar to those required in the external environment
5. Students reflection of knowledge and skills and their transferring to different contexts
6. The encouragement of career management
7. Regulations implementation

1. Challenges in Maritime education and training

Maritime Education progress is based on the full implementation of the STCW 1978 as amended in 2010 Convention in the teaching process of BSMA. Introduction of some new simulators and several laboratories is a must do for modern training and this goes along with the adoption of the maritime specialization and programs to the International (European) and National Qualification Framework. The flexible adoption of programs is response to the needs of global labor market. It's worth nothing that a full implementation of the Manila Amendments (STCW 2010) which requires not only some changes in teaching / training programs, but also installation of new laboratories and simulators. From 2013 the following laboratories and simulators were installed in BSMA and fully included in educational and training programs: automation, hydraulic, pneumatic, high voltage, navigational laboratories for bachelor and vocational students, electro-technical and physics laboratories, Navigational Bridge (full mission), Engine room and ARPA RADAR/ECDIS and Dynamic Positioning simulators.

After installation and appropriate training of the teaching staff, the educational programs (Navigation, Marine Engineering and Marine Electrical Engineering) were amended and significantly reached with the practical and laboratories lessons, which were quite formal in previous years. This leads to increase of the practical contact hours approximately twice, and as a result, the required learning outcome by STCW competence tables is tried to be reached.

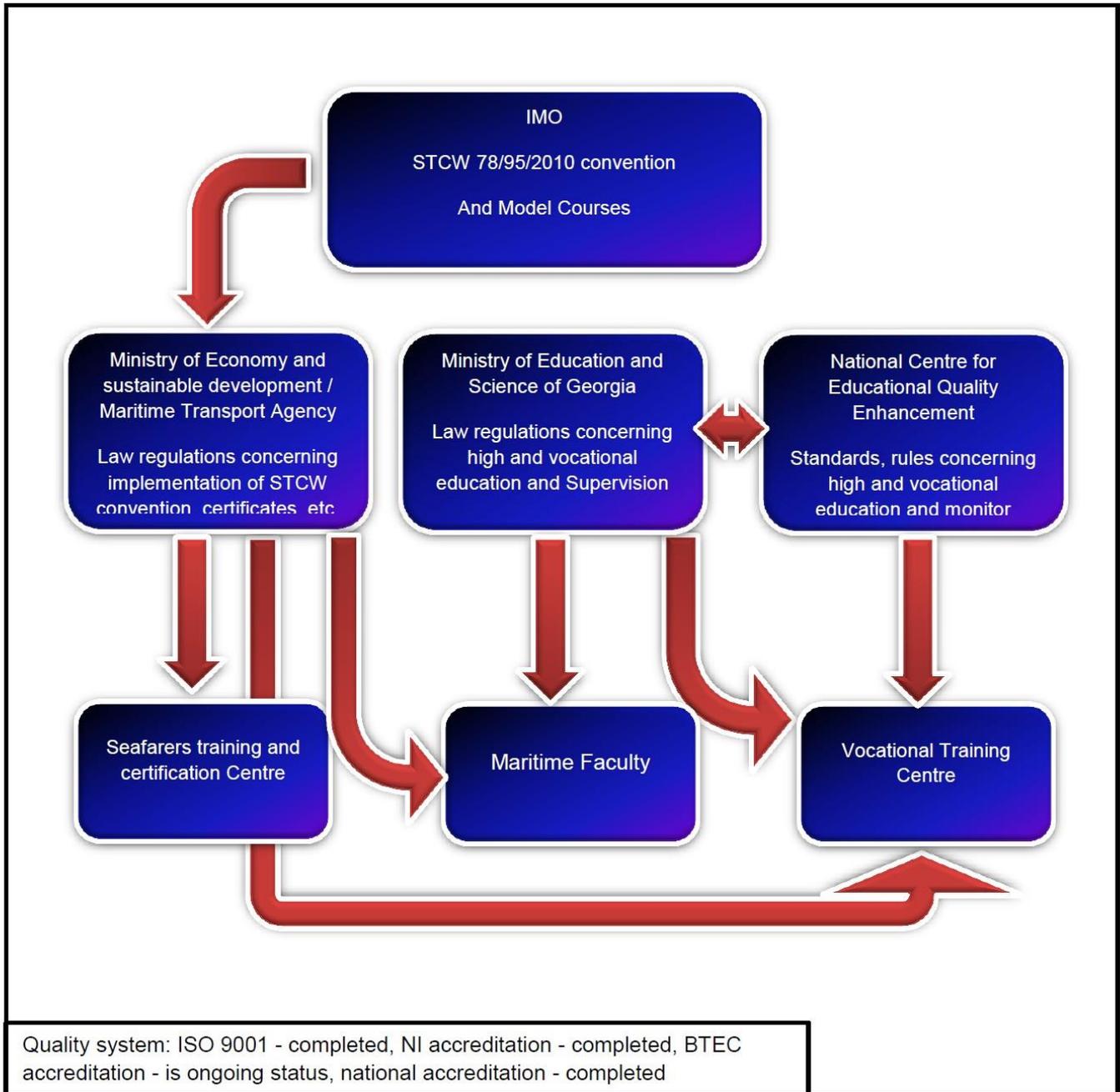
On the other hand, BSMA had to adopt its programs under the national qualification framework procedure. These processes were successfully completed and BSMA obtained national authorization and accreditation of the most programs. The National Framework of qualification for higher education should be considered in national and international meanings and to provide the outcomes described in categories of knowledge, skills and competence, required from the student to gain the qualifications.

2. BSMA – leading Georgian maritime university

2.1 BSMA history and particulars of regulations

Batumi State Maritime Academy is the major higher maritime educational institution in Georgia with a rich history. In 1920's of the last century the evening courses for seafarers were opened at the port of Batumi, on the basis of which, in 1929 Maritime Industrial Technical Secondary School was founded. On March 5th, 1944 Maritime Industrial Technical Secondary School was reorganized into Batumi Maritime College. In 1994, by the decision of Georgian Government, the College was reorganized into institution – Batumi State Maritime Academy. On June 25, 2012 BSMA received the current status – LEPL – Teaching University – Batumi State Maritime Academy. BSMA is subordinated by two ministries and must adhere the requirements and accreditation conditions formulated by Maritime Transport Agency of Minister of Economy and Sustainable Development (maritime standards) and by the Ministry of Science and Education of Georgia with National Centre for Educational Quality Enhancement (academic standards), respectively (see Fig 1).

Fig. 1 shows how BSMA operates and is supervised



Specific character of implementation of Maritime Educational programs is especially evident in Georgian legal regulations. Namely, “Law of Georgia on higher education” determines following peculiarities:

1. Article 11 clause 2 of “Law of Georgian on higher education” states that “in legal entity of public law – higher educational institution (except technological institute, also military, police, maritime, art and sport higher educational institutions) state control is assured by Ministry of Education and Science of Georgia according to law of Georgia on “Legal Entities of Public Law”, but legal entities of public law - military, police, maritime, art and sport higher educational institutions are controlled by relevant regulatory agencies. In case of Maritime Academy the control is assured by LEPL Maritime Transport Agency of Ministry of Economy and Sustainable Development.

2. According to Article 22 clause 4 “in higher education institution established by government (except higher educational institutions established by government - military, police, maritime, art and sport higher educational institutions) for the position of Rector can be considered only candidate with doctor’s academic degree or equivalent and corresponds to requirements set in statute of institution”.

3. According to article 29 clause 2 “the dean of the higher educational institution (except higher educational institutions established by government - military, police, maritime, art and sport higher educational institutions) can be elected professor or associate professor from relevant educational unit, while in higher educational institutions established by government - military, police, maritime, art and sport higher educational institutions elections of dean is determined by statute of institution.”

4. According to article-75 clause-2 sub clause “e” maritime education is sorted as regulated educational programs and the last the most important exclusion which defines specific character of maritime education is the Law of Georgia on “Education and Certification of Seafarers”. In this case we will define only article-45 clause-3 according to which “in legal entity of public law – by statute of maritime higher educational institution it is possible to establish structure and roles of structural units different from structure defined for higher educational institutions established by government which is determined by law of Georgia on Higher Education, as well as different rule for filling Rector’s position”.

Adherence the national and international regulations and standards of seafarers training and retraining leads to double regulation, but is complicated by the fact that Georgian legislation is still in process of harmonization with the international regulations.

2.2 Particulars of organization of educational process and training

The main objective of BSMA as the institution is the proper organization of learning and training process. The question of how to learn and train students/trainees, how to organize their education and training process and to help them to catch up the demand of modern navigation and marine engineering technology as quickly as possible and valuable results in many aspects have been obtained.

This situation generates some difficulties concerning the academic and maritime standards for teaching staff and also causes some limitations in regards to IMO KUP (Knowledge, understanding and proficiency) aspect corresponding to the function under consideration Navigation, Maritime Engineering and Maritime Electrical Engineering at the appropriate competence level, management or operation. For the effective and satisfactory operation of BSMA, to be in like of above mentioned standards, it’s necessary to accept some compromises and choices between the good maritime education and training leading to professional knowledge and skills on one sides, and the academic mission of the teaching university on the other. In this context, at present the academic programs are organized into 6 faculty departments (3 of them are profile and the rest 3 – general): Navigation, Marine Engineer, Marine Electrical Engineer, Foreign Languages (Maritime English), Basic Engineering Sciences and Basic Natural Sciences Departments. According to the good maritime practice, most of regulations and requirements are available in English language. And in order to be flexible and up-to-date it’s not always enough time to translate new tendencies and adopt curriculum and learning materials in Georgian. That’s why students have possibility to pass Maritime English before starting studying the specialization learning courses.

The use of the English language is increasingly becoming a mandatory requirement for all categories of seafarers. Under the requirements of the SOLAS convention, on all ships, to ensure effective crew performance in safety matters, a working language shall be established and recorded in the ship's log-book. The ISM Code also stipulates the need for seafarers to communicate in a common language. Taking into account the fact that the same regulations require that on ships English shall be used on the bridge as the working language for bridge-to-bridge and bridge-to-shore safety communications as well as for communications on board between the pilot and bridge watchkeeping personnel, the vast majority of companies, as defined in regulation IX/1, determine English as appropriate working language.

The Convention on Standards of Training, Certification and Watchkeeping for Seafarers requires adequate knowledge of the English language to enable the officer to use: charts and other nautical publications, to understand meteorological information and messages concerning ship’s safety and operation, to communicate with other ships, coast stations and VTS centers and to perform the officer’s duties also with a multilingual crew, including the ability to use and understand the IMO Standard Marine Communication Phrases.

In new amended higher educational programs these professional learning courses are available in both languages (in Georgian and in English), which helps student not only achieve learning outcome but also understand and use terminology on their professionally useful language. So the current trend of Maritime

Education in BSMA is the bilingual learning courses provision. Modern teaching methods includes multi-media teaching methods, cases teaching methods, virtual reality technology application – maritime simulator application, bilingual education in specialty education, etc.

Since 2013, for the better organization of educational process, several structural changes have been implemented. Some supporting structural units were established, like the International standards assurance service, student support service, Learning process monitoring service, Examination centre, etc.

In 2017, BSMA has employed 100 teaching persons, including 50 elected academic staff (professors, associate professors, assistant professors) and 40 invited professionals, who serve at Maritime Faculty, Seafarer's training and certification Centre and Vocational Training centre. The total number of students at Maritime Faculty is over 1900 students in 3 specializations, there are more than 10000 trainees per year at STCC, and up to 200 students at Vocational Training Centre.

BSMA organizes regular trainings for academic and inviting teachers for improvement their specialization (simulator trainings) and also methodological skills.

The programs of studies offered by BSMA satisfy both NCEQE and IMO requirements.

BSMA is assessed and found to be in accordance with Quality Management System - ISO 9001:2008 requirements in scope of education and training in compliance with the international requirements.

In 2012 STCC (Seafarers' training and certification centre) was totally reorganized and equipped with the modern simulators, teaching aids and materials. Instructors were retrained and educated to the modern teaching materials. There were more than 30 short-term education and training courses established and accredited by MTA. Above to the local accreditation STCC of BSMA also achieved the Nautical Institute Accreditation and is authorized to provide Dynamic Positioning Training (basic and advanced/simulation courses) and to issue the certificate of compliance by the name of NI. BSMA's STCC is one of the 39 worldwide accredited by NI DP training centres. The whole organizational /administrative and operational documentation was developed according to the NI standards and requirements.

In 2015 BSMA developed the concept paper for modernization the existing Vocational Training Centre and promoting the vocational education in Georgia. There was the strict competition between different vocational colleges and higher education institutions to win the millennium grant project. In September 2016 BSMA's project (GWAVES – Georgian workforce assistant and vocational education strategy) finally became the winner. In the frames of the project, BSMA together with the International partner Pearson Education Limited, is obliged to develop and accredit new qualifications in Maritime and Engineering Industry and to develop and accredit 4 new local market demanded module programs (fisher-sailor, welding, crane operator and logistics and port management), reequip VTC with modern simulators (fisher navigation, manual and simulator welding and crane operator simulator), to retrain teaching and instructors staff and to obtain BTEC (Business and Technology Educational Council) certification of the VTC, which would be the another challenge and international accreditation of BSMA. In the scope of accreditation the VET of BSMA will be eligible to issue not only national diploma by also internationally recognized BTEC diploma.

The good practice is also taken by the active membership of BSMA in the international organizations: IAMU (International Organization of Maritime Universities), BSAMI (Black Sea Association of Maritime Institutions), whose aim is to unite professionals involved in the advancement of maritime education, training and research.

BSMA is also the member of IASST (International Association for Safety and Survival Training), IMSF (International Marine Simulator Forum), GOBTC (Global on Board Training Center), which helps BSMA to implement in time all industry mandatory requirements.

An active cooperation with the large number of foreign partners is one of the main goals of BSMA.

3. Current problems and solutions

3.1 Teaching staff

The process of implementation of above mentioned measures displayed the issues, considered as shortcomings, which should be settled at the formal level and need further development.

There should be analysed the principle of acting seafarers' involvement into academic activities at Maritime higher education institutions. According to the Law of Georgia on Higher Education, Article 35, Clause 5: "The statute of a higher education institution may provide for filling in the academic positions envisaged by Paragraph 1, 2, and 3 of this Article by the qualified personnel according to professional merits. In this case the qualification of the person can be evidenced by professional experience, special training or/and publications. A person with relevant qualification shall mean a person, who has competences necessary to attain the learning outcomes envisaged by the programme concerned".

Based on this cited exception, we can say that it exactly fits the needs of the maritime sector, considers existing vulnerabilities and creates a supportive mechanism, since not only in Georgia, but also throughout the world

development level of Maritime sciences does not allow scientist-researchers to be engaged in a process of education.

On the one hand, the legislative regulation gave positive results, particularly theory and practice were brought as close to each other as it is possible, that reflected in graduates' qualifications.

On the other hand negative aspects have appeared, from which shortages of required pedagogical skills of the chosen academic experts must be isolated. Although experienced practitioners' engagement in the learning process is clearly a positive factor, however, due to the lack of pedagogical efficiency it is much lower than it could have been.

For the continuous improvements of teaching staff abilities, besides organization of regular specialization and methodological trainings, in 2016 BSMA, in cooperation with the partner educational institutions, has developed and now carries out relevant short-term program for pedagogical activities, however it is apparently insufficient and is not able to provide an effective and proper grounds for teaching activities.

3.2 Training on-site and on-board

The biggest gap in MET is that BSMA has no training ships to provide not only the adequate education and also the appropriate training for student to achieve them the proficiency diploma.

So our students as well as all Georgian maritime students have to address the crewing companies and gather appropriate seagoing practice time for the diploma of competence. Without doubt, BSMA, in close cooperation with the crewing companies, does its best to promote its student's and gives them the additional trainings which are required by the employers.

Another problem of the national education system is ordinary approach to all types of education and is paying attention to theoretical teaching in general that is embodied in the following aspects:

1. The quantity in the theorization of learning courses
2. Result of teaching are tested by theorization examination and the training and testing to their ability of practice are neglected;
3. Teachers usually explain the theories, calculate the examples and seldom recommend the worthy reference books or on-line available up-to-dated links to their students
4. Teachers also infrequently explain and analyze practice examples related to the theory when they teach the students
5. Teachers have lack communication with each other, so many overlapping contents in different courses
6. Students who have no practice experience are inclined to view the courses as dull and lack motivation to study positively

To solve the above-listed problems BSMA performed the followings:

1. BSMA encourages teachers to apply teaching staff to enrich the content of the learning courses annually to new technologies and application in maritime teaching and ensure that the students learn the latest in technical development and application. In order to gain this one of the main goal BSMA ensures systematical retraining for teaching staff both for methodology of teaching and professional trainings and their fully access to the modern training materials and databases.
2. Because courses in navigation and maritime engineering technology include both theory and practice, BSMA adopts case teaching to enrich teaching content, integrate bald theories with navigation practice.
3. Deeply using of simulators in teaching process makes possible things to be realized. These simulators attract the interest of the students by using them learn the skills necessary to control the ship.
4. In order to comply with the conventional and State Accreditation requirements BSMA developed the syllabi of Maritime English according to the approved frame and in fully compliance with the followings: Specification of minimum standard of competence for officers in charge of a navigational/engineering watch (Function: Navigation/Marine Engineering at the operational level); Specification of minimum standard of competence for masters/chief mates/chief engineers (Function: Navigation/Marine Engineering at the management level and specification of minimum standard of competence for electro-technical officers) Function: Electrical, electronic and control engineering at the operational level and the IMO 3,7 Model Course.
5. In order to improve BSMA students' level of English, BSMA encourages their teachers to put bilingual education into their teaching practice and appointed foreign teachers / active seafarers to teach students on English. As the manipulator of an international ocean ship BSMA students will need not only solid professional knowledge, but also a high level of foreign language in order to communicate information and professional knowledge or terminology with colleagues, and to understand all kind of instructions spoken in different accents.

6. BSMA paid a close attention to strengthening contact with relevant Maritime institutions and Training Centres around the world, with a view to enhancing academic communications and student participation in International student Conferences. Active attending at the international conferences deeply raise students' self-confidence and greatly motivates their studying process.

3.3 Accreditations

MET is comprehensive, strict regulated process, which is governed by the national and international regulations:

- On national level MET is affected by the basic national educational and Maritime Transport Agencies regulations and,
- On the international level by the IMO and the ISO regulations' requirements.

Often, when the documentation is prepared in accordance with one controlling body requirements it is useless for another body, and vice versa. As an example, mandatory documentations required by ISO 9001 accreditations are less interested and neglected by the state accreditations. It is difficult to comply with all regulations requirements and to develop the universal compatibility model to satisfy them. It creates the bureaucratic chain and requires the additional human resources.

Since Georgian Seafarers are fully employed in international market, it is reasonable to recognize all industry mandatory regulations on the state level, and implement them in national regulations. This process will simplify activities, improve their flexibility and force to effective MET.

4. Final remarks

The modern tendency of maritime education is that it's not enough for graduate to "know", he/she also have to "understand".

Today and tomorrow challenges in front of BSMA concern the aspects of maritime education and training. Maritime education should comply with the requirements of the IMO conventions. First of all the full implementation of the STCW 1978 as amended in 2010 convention reflecting to teaching and training programs is necessary. BSMA should be open for flexible adoption of programs and creation of the new specializations in the respond of the needs of local and global labor market.

Taking into account the global trends concerning the 21st century challenges in maritime education and training, BSMA does its best in the way of continuous improvement. A good standing of the graduates on the international labor market and increasingly growth of student amount in last four years present the indicators of high quality and standards of maritime education provision at BSMA.

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