

MARINE ENGINEERS' TRAINING SYSTEM IN THE MARITIME STATE UNIVERSITY NAMED AFTER ADMIRAL G. I. NEVELSKOY

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The world economy development nowadays is inconceivable without further growth in the volume of transportation by sea; therefore safety and security of merchant shipping as a major constituent of international trade is one of the top priorities for the international shipping.

A special feature of the international shipping is a continuing growth in number of specialized superships which are on a large scale equipped with marine propulsion plant automated control systems and cargo handling automated control systems, namely chemical carriers, gas carries, car carriers and container ships.

The ever increasing intensity of navigation, while shipboard equipment is sophisticated and its upgrade rate tends to be shorter lead to some grave consequences resulting from accidents at sea due to the so called "human factor". In these circumstances it is the human factor, first of all seafarers' qualification and competency, that becomes the key factor for the safety of navigation.

In this connection the need for renovation of the structure and the content of maritime education and training, its instructional support and introduction of modern teaching technologies is much more pressing.

At present maritime education is developing in conjunction with profound reforms in the field of seafarers' professional training initiated by the adoption of the revised version of the Annex to the International Convention on Standards for Training, Certification, and Watch-Keeping (STCW-78/95) and of the STCW Code.

Compared to its earlier version the Convention's structure and the content have been considerably changed as to the requirements to the marine specialists' competency level as well as to the required competency provision and maintenance control system.

The independent foundation DNV has inspected 300 maritime educational institutions that provide education, training and advanced services. The inspection results have revealed the fact that neither training facilities nor education and training programs' content, nor the qualification level of the teaching staff meet the standards in approximately 50% of the institutions that provide educational services.

The Russian Federation being a participant to the STCW 78/95 has also signed the Bologna Convention on specialists' training that implies the unification of bachelor degree and master degree certificates.

The two above-mentioned factors of decisive importance have necessitated fundamental reforms in the structure of maritime educational institutions as well as in the content of their training programs.

At the first stage of the reforms the whole system of maritime education was tailored to comply with the STCW 78/95 requirements.

Results of reforms in the RF seafarers' training and certification system were reported at the IMLA 2002 Conference held in Shanghai and at the AMETIAP 2004 Conference held in Vladivostok.

Having accomplished the first stage of reforms we have proceeded to the next one, namely establishing a maritime university complex.

At present the University complex consists of more than 16 institutes. The leading one is the "Maritime Academy", where the unified programs of continuing multi-level education for seafarers are being introduced.

Maritime Academy includes:

- Basic Vocational Education Institutions (providing training for ratings);
- Secondary Professional Education Institutions (providing training for operation level specialists, with certain restrictions laid on ships' deadweight and BHP);
- Higher Professional Education Institutions (providing training for operation level specialists, with no restrictions laid on ships' deadweight and BHP; also providing training for management level specialists);
- Maritime Training Center for conventional simulator training.

While introducing amendments into curricula and training programs and taking the above into account, emphasis was placed on teaching practical skills.

In its turn obtaining practical skills in operating shipborne equipment featuring high degree of automation is only possible through the use of up-to-date simulators, that very closely imitate the real operational situation.

In order to achieve this goal a Simulator-based Training Center was started at the Marine Engineering Faculty, the "Marine Academy" Institute, incorporating 2 simulators used in teaching practical skills in operating slow-speed and medium-speed main engines, and a NORCONTROL-made (Norway) colorgraphic simulator for training purposes, as well as simulators of a marine power plant MODEQ-100, MODEQ-300, manufactured in UK.

As the rate of shipborne equipment upgrade tends to increase the existing simulators become outdated in a shorter period of time, while timely substitution is rather questionable due to simulators' high cost.

Under the circumstances the way of improving training in practical skills based on the use of simulators may be found through the integration of education, science and industry i.e. through participation of shipping business in the training process, as it was noted at the 2005 Conference in Manila.

A vivid example of such an approach to tackling the problem is cooperation between the MSU and one of the world's leading shipping companies MITSUI O.S.K Lines, LTD (MOL).

In August 2005 the MSU and the MOL signed an agreement for establishing a Seafarers' Training Center at the University (MOL TC RUSSIA). MOL has supplied the Center with an up-to-date ME Remote Control System Simulator and Reefer Container Simulator, manufactured by NABCO, Japan.

Thus, the Marine Engineering Simulator Complex makes it possible to provide complete cycle of training marine engineering officers in practical skills in consequent steps commencing with studies at PC-based (colographic) training simulators followed by training at physical simulators such as the ones manufactured by NORCONTROL or NABCO. The final step is a joint training at the NABCO-made Engine Room Simulator conjugated with the bridge and the Ship Handling and Maneuvering Simulator which will allow trainees to accomplish practical tasks in simultaneous handling the ship by the bridge team and the engine-room team.

The next step in developing the seafarers' training system is that of establishing the LNG Specialist Training Center.

In accordance with the STCW78/95 Convention and ISO 9001-2001 standards, the MSU has designed and introduced its own Quality System Management (QMS).

By the time being as a part of the University preparations for international certification according to DNV standards the MSU QMS's internal auditors have passed an approved training in DNV programs in Taiwan Province, PR China.