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E-LEARNING PLATFORM FOR GMDSS VOCATIONAL TRAINING

ABSTRACT

An article presents foundation of Internet based GMDSS course. It has been elaborated by group of partners from 10 European countries. Maritime University of Szczecin is one of the them. Work has been commenced within a project 'E-Learning system for GMDSS VET' numbered 142173-LPP-1-2008-1-SI-LEONARDO-LMP under framework of European Union Leonardo da Vinci Programme. The article presents the results of current works.

Keywords:

distance learning, GMDSS.

DISTANCE LEARNING — YES OR NO

International convention on Standards of Training, Certification and Watch-keeping for Seafarers set standards of competences. Education combined with professional experience allows to fulfil STCW requirements for particular competence. The key factor is education. Nowadays customers and providers on educational market are looking for new ways of education. Traditional approach 'face to face', classroom lessons have been and will be always essential in education. Modern tools and information technology give us opportunity to deliver education in time and places wasted so far like: buses, trains, ships, homes. In such cases pupils/sailors/any one can have access to knowledge in suitable time before or after taking 'real' time in academies. That kind of education has been already known as distance learning or e-learning. In fact distance education is offered by more and more educational institutions. Initially, this method of training so called 'e-learning' was used just as a container for traditional teaching materials. Hence many persons associate it with such service only. Nowadays we can observe the appearance of complete courses offered by the centers, schools and universities. Complete where the educational process (providing the knowledge, evaluation of results, examination, etc.) is carried out remotely. Most training in this form does not apply to full training program, but a certain part. In this way, universities improve the visual quality and they can reach wider audience.

Maritime academies may be in doubt if e-learning should be applied for seafarers training? New version of the STCW Convention, which has been delivered by IMO in 25 of June 2010 provides recommendations for distance learning. Those are only recommendations, which the various administrations of the member states may introduce in their maritime education systems. The most important provision proposed for the introduction to Chapter I, Section B I/6 following guidance regarding training and assessment: Parties may allow the training of seafarers to distance learning and e-learning, according to the standards of training and assessment contained in the conventions in section A I/6 [4]. Additionally Convention defines a set of detailed guidelines for this form of education.

It seems that there is no escape from this form of education. Each center for maritime education should offer distance learning. It should be at least for course participants, none stationery students, postgraduates or vocational students. The training with the use of e-learning methods may be more attractive and effective for them. Of course, with distance education are related some risks associated with securing data, unauthorized access to systems, procedures for examination, sharing, etc. Although we must assume that these are merely technical problems. Time for distance learning has come.

OBJECTIVES OF DISTANCE LEARNING

International Maritime Organization has accepted revised version of STCW convention. Before comprehensive revision several directives were set. One of them should embrace following principle: do not down scale existing standards. Should distance learning down scale any education standard? No.

Distance learning can deal with several skills. One would say: reading, listening, writing, speaking, would be natural to upgrade through this way. That's true but not complete. Skills required for comprehensive understanding and handling of complex systems (ships) or subsystems (communication devices) could be also improved. These skills are built up through professional experience. Here often as substitution to onboard practice simulators are recommended for use. We can distinguish two main groups of simulators: real ones — same or simplified equipment that can be found on ships and artificial ones — computer based where equipment and processes are elaborated in computer stations. In reality almost all simulators are supported by computers for instance: visualization, external sensors, external environment etc. Well recognized full mission simulators are good example.

Let us ask again, can we use simulators in distance learning? Would it be in line with regulations? The answer is affirmative. The STCW Convention allows the use

of simulators in the training, skills assessment and validation of competence (and regulation I/12, Section A I/12) stating, inter alia, that the simulators should have sufficient behavioral realism to allow a trainee to acquire the appropriate skills training to the given objectives. Any simulator available remotely (web based) which fulfil these requirements might be used in the training. On the other hand many of potential trainees sail on non SOLAS ships (like yachts) and they are not covered by STCW requirements, and from that reason they even don't have any opportunity to take advantage of simulator based education.

Simulators are getting old sooner than some would expect. They require the physical presence of students during specified hours. Often the number of seats is limited, as well as time spent in training posts. They are relatively expensive and costly in use (operation). Therefore, these artificial ones are increasingly being replaced by computer applications. Such applications may be replicated or just some of their functions. In addition, there is often a remote possibility of their running and maintenance. In such applications, learners can practice in advance selected tasks. With that approach they can have better understanding of function of real equipment and be able to for directly execution of exercises.



Fig. 1. Interface of MF/HF simulator (www.egmdss.com)

Technological progress is rapidly altering and expiring the acquired knowledge. This applies particularly to devices, their operation, especially the automation of tasks they performed. In this respect, may be appear loss of understanding of the processes occurring in them. In such a situation we had to deal in case of collision of m/v Gdynia and m/v Whu San Hai in which the officer (by declaration) tried to establish radio contact with other ship [1]. While at the same time he was too much focused on

indications of automatic anti-collision systems during decisions making process. Automation brings two problems [3]: one concerning the inadequacy of Existing seafarers' education and training in using of alternative systems. Second the case concerns the lack of understanding of processes occurring in the devices (systems), their limitations, which may be the cause of many accidents [7]. In this situation, nowadays there is an especially big need/demand for introducing of vocational education. The possibility of such training should be offered to everyone who completes training in any MET institution. Lifelong Learning Service available as distance learning may be more effective in maintaining competences. This in turn will probably allows to maintain safety of navigation at the required level. In the case of communication systems in distress (GMDSS) is crucial. Statistically speaking, the proportion of navigators have conducted the correspondence in distress (for example, calls for help, SOS, Mayday) is very small. In case of real risk they should do so accurately and effectively. Procedures for correspondence in distress situation, therefore, should exercise practically often. In the training centers it is possible in case of refreshment courses (if given administration requires that) in the five-year interval. Those are long periods of time. They can be reduced to any period through the provision of distance learning methods (online simulators). With that approach the SRC and LRC vocational courses have been elaborated for requirements specified by appropriate certificates.

E-LEARNING PLATFORM

Vocational courses for SRC and LRC have been launched on e-learning platform. Platform is accessible from any computer station connected to the internet. Probably in next stage it might be delivered also for mobile users. Present content is available in most recognized European languages. It is not restricted to the IMO standards dedicated for radio operators but you can find more information and especially practical advices about GMDSS system, equipment, maintenance. Platform allows to have a chats with users from all over the world. You can find differences, customs in radio communications in their regions. GMDSS is a global systems so the present participants represent the global environment. It is great advantage of the platform.

Platform after SOLAS convention shows you mandatory equipment outfit of ships. In case of radio equipment it is related with operation area of the vessel. For that purposes GMDSS world was divided into four marine areas: A1, A2, A3 and A4. This division results from the different range of effective communication of radio equipment fitted on ships.

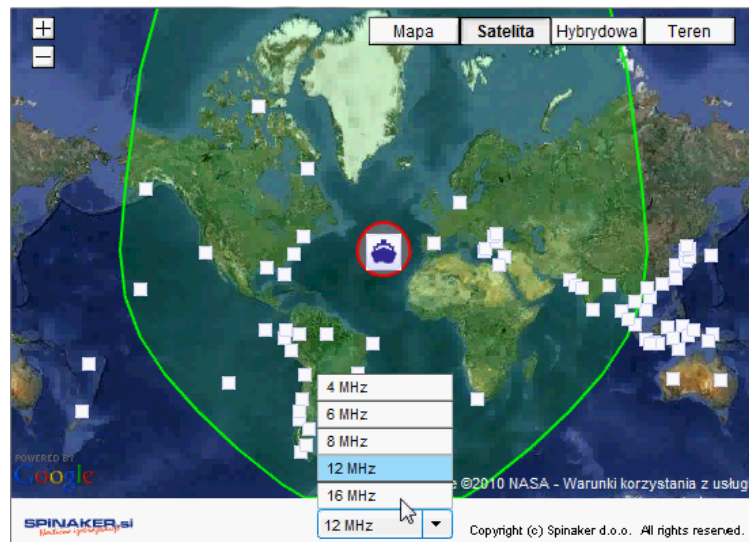


Fig. 2. Visualization station coverage MF/HF — www.egmdss.com

For example, sea area A2 is the area of sea which is within range of at least one MF coastal station (medium frequency), providing effective communications on the DSC frequency 2187.5 kHz, with the exception of the A1 area (approximately 150–200 NM from shore based stations). Vessels operating in this area should be equipped with equipment required for the area A1 and MF/HF DSC radio station. Radio operators in above area are required to hold an appropriate certificate of competency. In the case of non-SOLAS vessels, this should be at least certificate of long range communications operator — LRC. This certificate is proof of possession of theoretical knowledge and practical skills in handling the required devices. In the platform you will find out following ones:

- VHF radio with DSC;
- MF/HF radio with DSC;
- Inmarsat C;
- Navtex receiver;
- radiobuoy EPIRB;
- transponder SART.

Elaborated courses consists of nine chapters supplemented by appendix and glossary. Content of same chapters in SRC and LRC courses have same differences. Authors believed that in some areas LRC participants should have more information delivered while in another SRC participants. The first chapter contains a general

knowledge of the GMDSS. While others procedures used in marine communications and discuss marine radio equipment required in the area A2, their service and supplies. Each chapter contains test that allows you to check the degree of assimilation of the material in question. For course participants four online simulators were prepared, respectively, MF/HF DSC [2] (fig. 2), VHF DSC [5] (fig. 3), Navtex and Inmarsat C.



Fig. 3. Interface of VHF simulator

PURPOSE OF THE PLATFORM

egmdss.com platform was initially and formally dedicated for those who want to obtain SRC (Short Range Certificate) certificates. In year 2010 it was extended for LRC (Long Range Certificate) certificate. In fact everyone who wants to maintain previously acquired skills can use it or any person who wants to possess knowledge of the global communication distress and safety system may undertake this course. Also any MET providers or training centers offering vocational education could use it. Content of the course, especially animations may be very helpful in understanding its functions (fig. 4). In a graphic way the present GMDSS system operation, functions such as communication range MF/HF, Navtex messages etc. It should be underlined that every operator of the ship or yacht following the departure for the sea must have adequate training confirmed by a GMDSS certificate. However, from the point of view of safety of navigation, every member of the crew should be aware of the distress communications system and its purpose and have the ability just to call for assistance.

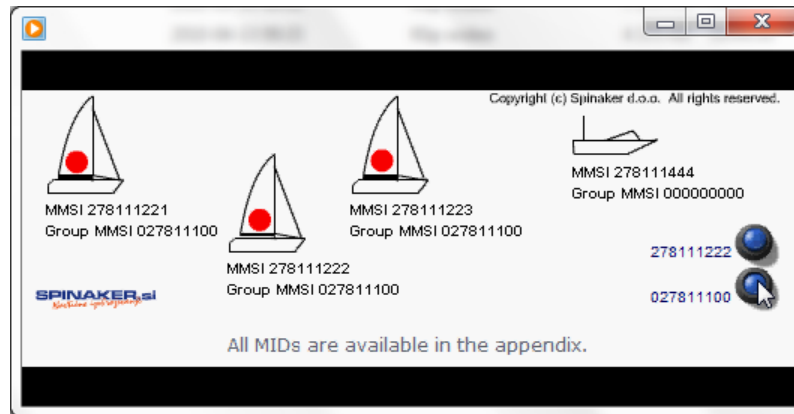


Fig. 4. Visualization of group calling

Availability of courses on the Internet, in the form of distance learning allows its widespread use. Also, it can benefit for training centers offering vocational learning. The form of the course is consistent with recent recommendations of IMO. Although IMO deals with professional sailors but the authors recommend to encourage to learn the basis of GMDSS also other people (those who don't work at sea). However those who are somehow connected with maritime industry, like: stevedores, ship agents, shipowners, crisis centers, service workers (coastguard, police, fire brigades, ambulance, rescue squads, users of inland waterways, etc.). Listed service employees may find themselves in situations where during their duties they shall be required to establish communication with ship. Therefore, they should have at least a basic knowledge of communication systems and maritime English language [6]. Let us recall one of the world's most dramatic and successful rescue operation, when all 571 passengers were saved from passengers ship Oceanos on 4 of August 1991, was possible because help was called by... guitarist Moss Hills (www.oceanossinkig.com)! He was the only one who used onboard radio station for calling for a help while all crew members had already abandoned the ship.

SUMMARY

The increasing mobility of people is causing alternative methods of education and learning. One of them is distance learning. In the article some details of EGMDSS.COM e-learning platform were shown. Foundation of the platform was supported by EU Leonardo da Vinci program.

Anyone who wants to possess, refresh or deliver knowledge about GMDSS system may use it including professionals and amateurs.

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