



Wishing you a very happy and prosperous new year

To promote, develop and support in the spirit of cooperation, the common interests of its members in all matters concerning the development and quality of maritime education and training.

# NEWSLETTER

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## TRAIN, TRAIN, RETRAIN, RETAIN!



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## Editorial

**T**he start of a new year brings many thoughts of the past year and of the year just getting under way. That 'we live in interesting times' is certainly true when participating in the global shipping industry. Already 2014 promises to be no less interesting, as indicated by the articles in this, the first newsletter of the year, all of which are of interest.

We were told about the Angkla campaign when in Manila for the 14<sup>th</sup> Asia Pacific Manning & Training Conference and GlobalMET AGM11/13 in late October. That a political party should campaign for more women at sea, recognising that the possibilities for Filipino global maritime professionals should transcend all gender barriers, is very encouraging. Also encouraging are the efforts by Women in Maritime-Philippines to empower and widen participation by women in the global maritime industry. Gender sensitivity awareness is justifiably seen as very important.

Industry development and greater interest in polar waters, and, perhaps, climate change are resulting in more ships operating adjacent to ice. Greater use of the North East and North West passages north of Russia and Canada and cruise ships venturing into ice prone areas demands more attention being given to the implications of encountering ice. Only last month, an icebreaker endeavouring to free a ship carrying an Antarctic expedition which was trapped in ice, also became trapped. Fortunately both vessels are now free and the services of powerful ice-breaker were not needed.

Educational development and the need for MET to use more recent developments, especially for distance learning for those off-campus and especially those at sea ensure that an article on MOOC's is also highly appropriate. The implications of Massive Open On-line Courses are huge! Unlimited participation, open access via the web and free! As the article states 'the "Genie" is out of the bottle and the technology isn't going back into that bottle anytime soon. That's significant because those who harness MOOC first may be the ones who ensure their institution continues as a "going concern" well into the future...' Now, how to bring the MOOC concept into MET?

IT development, ship design, equipment and control are behind the brief article on Crewless Cargo Ships. Although the idea is far from new and it will be many years before crewless ships are extensively used, the fact that a company such as Rolls-Royce – one with a £3.3 Billion order book – now says it has the expertise to deliver an unmanned, remotely controlled ship is significant. The stumbling block is not the technology, rather it is the governance. As stated 'we can make it happen faster technologically than we can on the regulatory side ...'

Just these four topics - women at sea, ice navigation, MOOCs and crewless cargo ships – have major implications and challenges. And the same comment can be made about the other articles in this issue – articles dealing with seafarer security training, the faults which almost sank Emma Maersk, a very large container ship at the entrance to the Suez Canal, the impending demise of paper charts, a plus factor for Gen Y and SEEMPs. As far as the newsletter is concerned 2014 is already full ahead and on course.

Re the Emma Maersk though, it is heartening to read the following comment by Denmark's Maritime Accident Investigation Board: 'Despite a series of technical breakdowns and system weaknesses, the shipboard organization remained resilient, and despite the breakdown of the structural barriers, the ship's officers and crew managed to contain the emergency situation and bring the ship alongside at the Suez Canal Container Terminal without any personal injury or pollution to the environment.'

Now to conclude by expressing a warm welcome to Dr Wilfredo E Yutuc as a contributor. It will be a delight to print more first time contributions from the many MET providers involved in the network. It would also be a big step ahead if we started to receive letters commenting on the many matters of interest generated by being involved in such a great industry.

**Wishing all readers a very good year.**

*Rod Short*  
Executive Secretary



## Resolution to Help Women in Maritime Sector



As part of its efforts to work for the interests of Filipino seafarers, Angkla party\* list formally filed a resolution in the House of Representatives, urging the Departments of Labor and Transportation to aid in advancing the global seafaring careers of undervalued Filipino women mariners.



**S**pearheaded by Angkla Partylist Rep. Jesulito Manalo, [the son of ship captain Illuminado Manalo] the resolution highlights the strengths in both character and skill that women in maritime possess but are most often overlooked by the male-dominated industry in which they operate.

Angkla now appeals to various government and maritime stakeholders to create the policies and programs that will increase opportunities for women who dare to dream of sailing the world's oceans.

Precedence must be placed on the safety and security of women on board through proper legislation which Angkla hopes to enact in Congress.

This comes at a crucial time for the international maritime industry as a shortage of marine officers has been perceived and the need to develop the abilities of women seafarers remains ever more apparent to be able to respond effectively to this threat.

The resolution also reiterates that with the country's intrinsic affinity to the sea due to its archipelagic composition as well as the renowned reputation of the country as the "seafaring capital of the world," the possibilities for Filipino global maritime professionals should transcend all gender barriers.

In particular, support for the "She-to-Sea Campaign" launched by the non-profit maritime organization Women in Maritime-Philippines (WIMAPHIL) on the Day of the Seafarer last June 25, 2013 is likewise deemed indispensable.

WIMAPHIL was established in 2007 in response to the International Maritime Organization's (IMO) directive to

empower and widen the participation of women in the global maritime industry.

The "She-to-Sea Campaign" aspires to promote women seafaring and heighten gender sensitivity awareness.

The program aims to draw the attention of global ship owners to the important roles women seafarers play in the merchant marine profession and encourage them to create more job opportunities for women on board their vessels.

Planned activities of the campaign include publishing stories of successful women in the maritime industry to important global shipping stakeholder and researching on the status of Filipino women seafarers.

Other activities are encouraging the idea of women seafarers as a viable solution to the shortage in merchant marine officers, enlightening ship owners to the various employment issues women seafarers face, and working with relevant government agencies such as DOLE and Marina to establish programs that will facilitate employment access to the maritime industry for women seafarers.

Through the joint efforts of Angkla and WIMAPHIL, the maritime industry is given opportunities to begin to break through the glass ceiling that has defined marine employment, eventually paving the way for women seafarers to benefit from equal, prosperous maritime careers that will ultimately help them contribute to the future of their loved ones back home.

Source: **Business Inquirer Oct 2013**

\* an organization working for the interests of Filipinos in local and global maritime industries

## Vessel Operations in Polar Regions

### Regulatory Framework, Standard Practices and Crew Training and Competence Requirements

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#### Abstract

The topic chosen in this write-up is dedicated to future shipping routes; relevant regulatory requirements, standards practices, technology and seafarers' training.

Ships operating in polar waters (Arctic and Antarctic areas) are required to comply with stringent regulations formulated by IMO and other international agencies. International maritime regulations like SOLAS, MARPOL, STCW and Torremolinos Protocol provisions provide for matters such as stability, life-saving appliances, navigation, guidelines for ships operating in polar waters, special area status, carriage requirements for heavy grade fuel oil, certification of ice navigators, and fishing vessels. The article also briefly touches on relevant provisions of the United Nations Convention on the Law of the Sea (UNCLOS) and other international requirements/activities concerning the subject in which IMO is directly or indirectly involved.

Ships operating in the Arctic and Antarctic environments are exposed to a number of unique risks. Poor weather conditions and the relative lack of good charts, communication systems and other navigational aids, pose challenges for mariners. The remoteness of the areas makes rescue or clean-up operations difficult and costly. Cold temperatures may reduce the effectiveness of numerous components of the ship, ranging from deck machinery and emergency equipment to sea suction. When ice is present, it can impose additional loads on the hull, propulsion system and appendages.

Whilst Arctic and Antarctic waters have a number of similarities, there are also significant differences. The Arctic is an ocean surrounded by continents while the Antarctic is a continent surrounded by an ocean. The Antarctic sea ice

retreats significantly during the summer season or is dispersed by permanent gyres in the two major seas of the Antarctic: the Weddell and the Ross. Thus there is relatively little multi-year ice in the Antarctic. Conversely, Arctic sea ice survives many summer seasons and there is a significant amount of multi-year ice. Whilst the marine environments of both Polar seas are similarly vulnerable, response to such challenges should duly take into account specific features of the legal and political regimes applicable to their respective marine spaces.

IMO has developed a raft of requirements, guidelines and recommendations regarding navigation in polar ice-covered waters, concerning Arctic and/or Antarctic areas. These relate to maritime safety (construction, search and rescue, navigation, life-saving, etc.) and marine pollution prevention (designation of special areas, carriage of heavy fuel oil, etc.) as well as certification of seafarers on ships operating in polar areas. IMO is also participating as an observer in projects related to shipping in polar areas.

#### Applicable Regulatory Framework

Following IMO Conventions and relevant codes, guidelines and recommendations are applicable:

- International Convention on the Safety of Life at Sea (SOLAS), 1974;
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL);
- International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW), 1978; and
- Torremolinos Protocol of 1993 to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (Torremolinos Protocol).

The United Nations Convention on the Law of the Sea (UNCLOS) for ice-covered areas also applicable.

#### Guidelines for Ships Operating in Polar Waters

Navigation in polar waters was first addressed by the Guidelines for Ships Operating in Arctic Ice-Covered waters, issued in 2002, which provides requirements additional to those of the SOLAS and MARPOL Conventions for navigation in Arctic waters, taking into account the specific climatic conditions in that area in order to meet appropriate standards of maritime safety and pollution prevention.

MSC 79 in 2004 considered a request by the XXVII<sup>th</sup> Antarctic Treaty Consultative Meeting (ATCM) for IMO to consider amending the Guidelines so that they would also be applicable to ships operating in ice-covered waters in the Antarctic Treaty Area and instructed its Sub-Committee on Ship Design and Equipment (DE) to revise the Guidelines accordingly. In 2009, DE 52 finalized a draft Assembly resolution on Guidelines for ships operating in polar waters, addressing both Arctic and Antarctic areas, which was approved by MSC 86 and MEPC 59 with a view to adoption at the twenty-sixth IMO Assembly (A 26) in December 2009.



The Guidelines aim at mitigating the additional risk imposed on shipping due to the harsh environmental and climatic conditions existing in polar waters. They address the fact that the polar environment imposes additional demands on ship systems, including navigation, communications, life-saving appliances, main and auxiliary machinery, environmental protection and damage control, etc., and emphasize the need to ensure that all ship systems are capable of functioning effectively under anticipated operating conditions and provide adequate levels of safety in accident and emergency situations. In addition, the Guidelines recognize that safe operation in such conditions requires specific attention to human factors including training and operational procedures.

### The IMO Guidelines: Applicable to Crews and Navigators in Polar Waters

Part C of the IMO Guidelines focuses on Operational Procedures, Crewing and Emergency Equipment. All ships operating in Arctic ice covered waters are to carry an operating manual and a training manual for all ice navigators on board. Shipping companies are encouraged to develop such training manual that includes: "Summary of the IMO Guidelines; ice recognition; navigation in ice; and escorted operation. Furthermore, the IMO Guidelines address specific fire safety, lifesaving, navigational, operational and crew training issues. This includes the development and inclusion of drills and emergency instructions, emphasizing changes to standard procedures made necessary for operations in ice covered waters. These drills and emergency instructions would be incorporated into the routine vessel operational training. The IMO Guidelines recommends that: "All of the ship's officers and crew should be made familiar with cold weather survival by training or self-study of course material addressing the safety measures mentioned above." In addition, it is recommended that: "As many as possible of the ship's deck and engine officers should be trained in ship operations in ice-covered waters."

Moreover, the IMO Guidelines focus in particular on the role of the "Ice Navigator", which is defined as: "Any individual who, in addition to being qualified under the STCW Convention, is specially trained and otherwise qualified to direct the movement of a ship in ice covered waters. All ships in ice covered waters should carry at least one certified ice navigator."

In addition, the IMO Guidelines emphasize that: "The Ice Navigator should have documentary evidence of having satisfactorily completed an approved training program in ice navigation. Such a training program should provide knowledge, understanding and proficiency required for operating a ship in Arctic ice-covered waters, including: Recognition of ice formation and characteristics; ice indications; ice maneuvering; use of ice forecasts, atlases and codes; hull stress caused by ice; ice escort operations and; ice-breaking operations and effect of ice accretion on vessel stability."

### Development of a Mandatory Code for Ships Operating in Polar Waters

Immediately after finalisation of the above Guidelines, MSC 86 considered proposals by Denmark, Norway, United States and the DE Sub-Committee to further develop them and create a mandatory Polar Code. The Committee agreed with the proposal and instructed the DE Sub-Committee to commence work on the development of a mandatory Polar Code for ships operating in polar waters at DE 53 in February 2010, with a target completion date of 2012. This work is continuing.

The new Code would cover the full range of design, construction, equipment, operational, training, search and rescue and environmental protection issues relevant to ships operating in polar waters in order to address the increased interest and traffic in these regions and the unique operational, environmental and search and rescue concerns peculiar to these areas, taking into account that the consequences of any major safety or pollution incident in polar waters are likely to cause widespread harm to these pristine environments and also damage to the reputation of the shipping community.

A number of IMO Members expressed the view that measures to be applied in Antarctic waters need not necessarily be required in Arctic waters and vice-versa, and the Committee agreed that this aspect should be considered in the development of the Code.

### Guide to Cold Water Survival

In 1981, IMO developed the first issue of a Guide to cold water survival, providing advice to ships operating in cold water areas on how to prevent or minimize hazards of cold exposure, emphasizing individual responsibility to effect survival in cold water and advising on simple self-help techniques. The Guide was further revised in 1992 and 2006, when it was approved by the MSC in its final form as circular MSC.1/Circ.1185. It is also available as an IMO publication. The Guide explains in particular bodily reactions to cold air and water exposure, informs about body heat loss, insulation and hypothermia, gives recommendations on what to do in the case of ship abandonment in cold waters and advises on the treatment of immersion survivors. It also contains useful checklists for cold water survival and for rescuers.

Part II of Jai Acharya's interesting article will be included in the next Newsletter.



# Massive Open On-line Course is here: Maritime Education and Training won't be the same!



by  
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When I was asked about writing an article on MOOC (Massive Open On-line Course, figure 1. refers), my first thoughts were- where to start? Since there had been so many articles written on the subject of e-learning, what could I possibly constructively add talking about MOOC? Most of us are saturated with the topic of e-learning of any kind and pretty much have our minds made up on the subject—the battle lines are drawn; corporate, would-be educators and innovators! The three seem to be mutually incongruent, like oil and water; it just seems that's the way it is, some clarification forth-coming. I think it was a former U.S. president who once said something to the effect of, we can't always have things the way we would like, sometimes we have to accept things as they are and go from there.

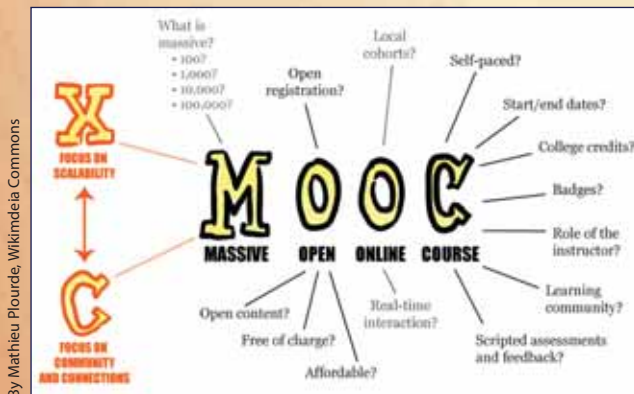


Figure 1 - MOOC

The early days of what one used to think of as “e-learning” has changed significantly in the past year alone and is probably unrecognizable today if one hasn't kept up with it; that's how things work, you get behind—it's hard to get back in front. Gone are the days when one would sit down to a large desk with an equally large and heavy PC (a real museum piece) at their leisure and plug in a cable to get to the internet (some of us still do just that!)—now, WIFI is already there waiting for you! Even laptops in today's technology are getting obsolete; to be truly anywhere, anytime means lowering one's footprint and travel weight—case in point on a recent training trip to an offshore oil platform 100 miles off the coast of Myanmar, baggage weight issues were very real! On the platform 100 miles from nearest land, there was WIFI heaven; I found myself more connected there than the land-lovers I had just left! The platform roustabouts, rough necks, drillers and tool pushers had mini-pads, i-pads, i-phones, notebooks, SMART Tabs, Tablets, SMART phones, you name it and there were multiple pathways to the internet, collaboration and learning with such packages as Skype, Viber, Outlook, Google and such. This brings me back to MOOC, conceptually—this is where we need to be going as I'll explain in a minute. The trouble is, the principals (corporate, educators and innovators) that can make this kind of thing happen—don't speak the same language. That is, those in corporate speak scenario based strategic planning and benefit analysis, while those on the cutting edge of innovations like MOOC see the future differently—significantly different! And, even if one doesn't quite get it, it bears one's full attention, scrutiny and constructive feedback—no one would ask any less!

Most of us have heard of the many e-learning platforms like-Blackboard, MOODLE, Google Apps for Education and a few more

platforms used for learning and such; I must say here that all forms of media are involved in MOOC. Probably the last thing we need is another acronym like MOOC having to do with e-learning. This new concept, however, may be difficult to get a handle on and bears more discussion—it's different in that not only does it have the potential to be distributive to the masses, but its Open Source model means it's free! This concept goes against everything that capitalism stands for—free; let the free or invisible hand of capitalism decide that!. What kind of self-respecting business model would offer free services?

Think of its implications, a Massive Open On-line Course aimed at unlimited participation and open access via the web, yes unlimited access and participation! What's evident is that this so called “Genie” is out of the bottle and the technology isn't going back into that bottle anytime soon. That's significant because those who harness MOOC first may be the ones who ensure their institution continues as a “going concern” well into the future—who really knows? Traditionally, institutions create proprietary content (they don't share), create obligatory lectures and administer the whole process most likely around some secure campus management system. A system which itself, may or may not have its own e-learning or learning management system. So to make the giant leap (even bigger than a giant leap) to a MOOC is an extraordinary proposition indeed.

MOOC at its core, among other things, is a response to an overload of information on the internet and quest for instant information and gratification exacerbated in some measure by none other than Generation “Y” and their social media cravings, demands and skills. Where one would previously be inclined to ask a subject matter expert, a teacher or a librarian for information or knowledge—MOOC is about having such information and answers ubiquitously available to all; no proprietary schools or venues but a framework to collaborate interactively and distributively anywhere and anytime! And, as mentioned in previous GMET articles, many virtual learning environments and venues help facilitate MOOC concepts, 21<sup>st</sup> Century Skill development and digital skills for the future. Only previously, these e-learning venues were on a smaller scale, proprietary and most likely closed, i.e., for fee.

In such an environment (MOOC is Open Sourced or free), how to make money? It has been proposed to charge for certificates, competencies, degrees and such but not for taking the course as the MOOC model says its open source or free! The course itself is distributed with no single pathway or subject matter expert as the ubiquitous medium is a collaborative and interactive space for the accumulation of the knowledge base and engine driver of quality competency through the richness and vastness of the collaborative experience itself- everybody wins! All benefit, including the universities that would offer a certificate based on known competencies; even though not all the SME actually reside at that university—ingenious indeed! But, it must be open to any and every one (of course there are laws in many countries pertaining to children under 13 years of age).

In such discussions, there is always the unspoken fear that one will be replaced somehow and loose one's jobs. A mentor of mine once said, stay current and you'll always have a job! Why would one have it any other way? We always speak of quality and being the best, i.e., everyone wants to be world class, but it seems may have issue with the required work to get there! There's still room for debate on all things related to MOOC, and there's certainly space for debate on quality and innovation! Until then—let the MOOC be with you!

## ICS Calls for Understanding from Port State Control on Seafarer Security Training Certification



The International Chamber of Shipping (ICS) has raised concerns with governments about preparations worldwide for issuing tens of thousands of seafarers with new certificates for security-related training by 1 January, as required by the 2010 amendments to the IMO Convention on Standards of Training Certification and Watchkeeping for Seafarers (STCW 2010).

In a written submission to IMO, ICS has suggested that IMO Member States might give consideration to the possibility of an extended "grace period" with respect to Port State Control enforcement of the new certification required under STCW 2010.

STCW 2010, Regulation VI/6, stipulates mandatory minimum requirements for security-related instruction for all seafarers, which, where relevant – such as for Ship Security Officers as defined by the ISPS Code – requires certificates of proficiency to be issued by administrations to seafarers from 1 January 2014.

Since the amendments were adopted, ICS has gone to great lengths to advise shipping companies of the transitional measures for these new requirements, as set out in Section A-VI/6 of the STCW Code, which are different to those concerning the transitional measures that apply to other changes introduced by STCW 2010 and which are being phased in between now and 2017.

ICS is concerned that any certification that STCW requires governments to issue might not be fully in place by the 1 January deadline and that ships could potentially encounter difficulties during Port State Control inspections.

ICS Secretary General, Peter Hinchliffe, explained "We understand that the training and familiarisation required by STCW 2010 has

only just recently been approved by some maritime administrations, whilst others may not yet even have these arrangements in place. This could present serious difficulties for companies that need to ensure that the seafarers they employ are trained and certificated as required by STCW 2010."

He added "For the most part this is really just a technicality since most existing seafarers have already undergone necessary levels of training and instruction as required by the ISPS Code. Given that certification is entirely a government responsibility we think that a short delay in PSC enforcement can be justified."

The ICS submission to IMO, which suggests the possibility of an extended "grace period" with respect to Port State Control enforcement of the new security training certification, has been made to the first session of the new IMO Sub-Committee on Human Element, Training and Watchkeeping (HTW) which supersedes the STW Sub-Committee within the new IMO Committee Structure. The HTW Sub-Committee will meet in the week of 17 February.

### Notes

Advice to shipping companies about the STCW security training requirements is contained in the ISF Guidelines on the STCW Convention including the 2010 'Manila Amendments' published in 2011.

The ISPS Code is the International Ship and Port Facility Security Code, which is mandatory under the SOLAS Convention and was adopted in 2002 in response to the '9/11' terrorist attacks.



## Crewless Cargo Ships on the Horizon?

The “technology for remote-controlled ships exists,” says Rolls Royce’s Oskar Levander.

In an interview with the Financial Times, Oskar Levander, Head of Marine Innovation Engineering at Rolls-Royce, stated that “the idea of a remote-controlled ship is not new... [the idea] has been around for decades, but the difference is the technology now exists.”

Rolls-Royce, which has a highly active marine division with a £3.3B orderbook, has the expertise to deliver an unmanned, remotely controlled ship, but Levander considers the main stumbling block to be the acceptance of ‘drone’ ships to be the complex international rules governing sea operations, such as the legal requirement to maintain a qualified watchkeeper on the bridge at all times. “Let’s not make it sound too simple. It would require a lot of work, but the fact is we can make it happen faster technologically than we can on the regulatory side,” he said.

He added that although an ocean-going vessel was probably still several decades off, a robo-ship could start operations on local sea routes, such as US coastal waters or within the EU, if regulators were ready to introduce changes earlier.

“I think it will take more than 10 years before you have all the global rules in place, but you may have a local administration that is prepared to run [remote-controlled ships] sooner.”

However, short sea traffic, while labour intensive and therefore ideal for automation, is highly demanding with large numbers of ships sailing in close proximity to each other and the shore.



Look, no hands! (Photo: FT.com)



What might be more acceptable is for long haul deep sea vessels sailing between single hub ports to be remotely operated although it may be necessary to land a skeleton crew onboard just prior to docking. Routine areas such as container or trailer lashing inspection/tightening will need addressing, but several or more ships could be operated remotely by a shore-based team using a ‘3D’ bridge similar to that employed by a training simulator.

Apart from the reduction of crew costs, which can vary from 10% to 30% of operating costs, one attraction of an unmanned container or ro-ro ship would be increased deck areas for container/trailer stowage in place of the conventional bridge and accommodation deckhouse. Additionally, the removal of crew support systems from sewage treatment, accommodation, food storage/preparation to lifeboats, could help offset the additional automation, monitoring and data communication costs.

The EC is currently co-funding the MUNIN programme (Maritime Unmanned Navigation through Intelligence in Networks), a scheme to develop and verify concept cargo ships that could be remotely navigated by land-based pilots, as well as look at the legal and regulatory issues around them. The study so far has found that 75% of accidents are caused by human error, of which a significant proportion can be attributed to “fatigue and attention deficit.”

<http://www.worldcargonews.com/htm/w20131228.953448.htm>

## Emma Maersk

Denmark’s Maritime Accident Investigation Board has released its report on the Suez Canal approach incident on board the container ship ‘Emma Maersk’ earlier in 2013.

### Summary

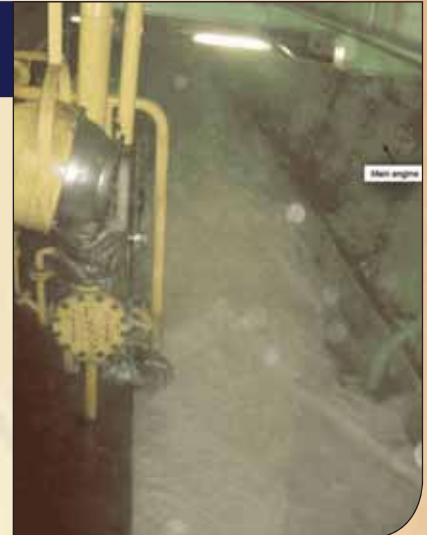
On the evening of 1 February 2013, a severe leakage occurred in the container ship EMMA MÆRSK while the ship, loaded with general cargo in about 14,000 containers, was about to pass southbound through the Suez Canal.

The leakage was caused by a mechanical break-down of a stern thruster situated at the aft part of the ship’s shaft tunnel whereby the shaft tunnel was flooded. The bulkhead between the shaft tunnel and the main engine room could not withstand the hydrostatic water pressure and eventually the main engine room was also flooded. The situation became complicated because the ship had just initiated a passage in a convoy through the Suez Canal. Loss of the ship’s own propulsion, electric power, steerage and manoeuvrability could be foreseen and eventually occurred.

The main technical sequence of events were a break-down of the forward stern thruster causing a major leakage into the shaft tunnel, a collapse of the watertight integrity of the bulkhead between the shaft tunnel and the engine room, primarily caused by non-effective

cable penetration sealings and some undesirable properties of the bilge system and the emergency bilge suction from the engine room. Throughout the course of events, all officers and crew members were constantly disturbed and highly stressed by the sound of countless alarms, which made it extremely difficult to concentrate on the many challenges that appeared.

Despite a series of technical breakdowns and system weaknesses, the shipboard organization remained resilient, and despite the breakdown of the structural barriers, the ship’s officers and crew managed to contain the emergency situation and bring the ship alongside at the Suez Canal Container Terminal without any personal injury or pollution to the environment. The report contains information about the preventive measures taken by the shipping company, the classification society and other parties involved. The report contains no safety recommendations from the Danish Maritime Accident Investigation Board.





# Use of Computer Software in Teaching: A Plus Factor for Generation Y

by  
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## Introduction

With the fast pace of technological advancement, the use of computer technology in the classroom has been steadily growing in most countries all over the world and has already broken the boundary of the computer science departments. In the field of marine engineering, besides engine simulators and computer-based training (CBT) softwares, the use of other computer softwares is worthy of consideration to further enhance the classroom teaching and learning experience.

## The Generation Y

Among the very first steps in effective andragogical learning are to know and understand the group of students. This will help an educator in selecting the most appropriate teaching strategy to achieve the expected outcome. Considering the generation of students today, also known as "Generation Y" or "Millennial Generation" (born from the early 1980s to the early 2000s) [1], drastic and unconventional measures will prove necessary. A new approach is needed in teaching this media-smart cohort, which considers computer as a social machine and part of life and learns better visually, not verbally and text-based. They might not properly respond to the conventional "talk and chalk" way of teaching, especially in subjects requiring a lot of problem-solving and analytical skills. Since Generation Y students are 'media smart', the use of computer software in teaching will certainly add more meaning and value to their learning.



Use of Computer-Aided Design (CAD) and Finite Element Analysis (FEA) software in the subject Marine Engineering Design.

## Computer Softwares Available

Most MET institutions would have simulators and CBT softwares as training tools. However, there are a lot more available in the market which are worthy of consideration and investment if value-added learning and improved course delivery are sought after. In marine engineering, some examples of engineering-based software available are:

- Computer-aided design (CAD) software for drawing three-dimensional (3-D) designs from which conventional two-dimensional orthographic views with automatic dimensioning can be produced (e.g., 3ds Max, Aries, AutoCAD, CadKey, I-Deas, Unigraphics, SolidWorks, and ProEngineer)

- Finite-element analysis (FEA) or finite-element method (FEM) software for analysis of stress and deflection, vibration, and heat transfer (e.g., Algor, ANSYS, MSC/NASTRAN, and SolidWorks)
- Computational fluid dynamics (CFD) software for fluid-flow analysis and simulation (e.g., CFD++, FIDAP, Fluent, and SolidWorks)
- Programs for simulation of dynamic force and motion in mechanisms (e.g., ADAMS, DADS, SolidWorks, and Working Model)
- Non-engineering-specific computer-aided applications which include software for word processing, spreadsheet software (e.g., Excel, Lotus, and Quattro-Pro) and mathematical solvers (e.g., Maple, MathCad, MATLAB, Mathematica, and TKSolver).

## Competency Requirement

In the revised International Maritime Organization (IMO) Model Course 7.02 for Chief Engineer Officer and Second Engineer Officer, the use of the following engineering design and mathematical softwares is listed under Function 1 - Marine Engineering at the Management Level, Competence 1.1.6 - Technical Communications for Design [2]:

- AutoCAD
- Finite Element Methods (FEM)
- Computational Fluid Dynamics (CFD)
- Matrix Laboratory (MATLAB)

## Instructional Evolution

Old curricula on pedagogical and andragogical approaches should be reformed and, if necessary, replaced to take advantage of the affordances of the new media [3]. In an extensive study conducted by Apple from 1985 through 1998 on the routine use of technology in general classrooms by teachers and students, five stages of instructional evolution when using technology in a classroom were identified [4]:

1. *Entry*: Learn the basics of using the new technology.
2. *Adoption*: Use new technology to support traditional instruction.
3. *Adaptation*: Integrate new technology into traditional classroom practice. Here, they often focus on increased student productivity and engagement by using word processors, spreadsheets, and graphics tools.
4. *Appropriation*: Focus on cooperative, project-based, and interdisciplinary work - incorporating the technology as needed and as one of many tools.
5. *Invention*: Discover new uses for technology tools, for example, developing spreadsheet macros for teaching algebra or designing projects that combine multiple technologies.

According to the study, as educators use technology, and more importantly have strong professional development in integrating technology in education, they steadily improve in the effectiveness of technology in the classroom. In other words, the practice of integrating technology in classroom teaching results in the effectiveness of technology.



Analyzing the load on a hook using CAD and FEA from 2D to 3D with stress values – useful in validating results obtained by manual calculations.

**Conclusion**

Studies tell us that technology infusion should be the goal of institutions [5]. For an educator who seeks enhancement of teaching delivery of a traditional classroom instruction, the use of computer softwares as additional teaching tools will definitely make a difference. Their excellent graphics display, animation, and multiple functionalities give Generation Y students a cutting-edge advantage and a plus factor. This software has the capability to interestingly reinforce theoretical learning with practical application by means of virtual testing and experiment. However, integration into teaching requires time, effort, and dedication to reap the benefits and achieve the desired learning outcomes. It is easier and more common to find technology taught as a stand-alone course than infused and integrated into the course sequence of education programs focusing on authentic learning experiences [6]. Solid understanding on the use of the softwares, their capabilities, and the various tools available is required to further promote learning in the classroom. This is a challenge that educators should overcome if they are determined to embrace any technology. Moreover, it must be remembered that software is no substitute for the human thought

process. The burden and responsibility of ensuring effective teaching and learning within the classroom still lies in the educators' hands.

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**Paper Charts to no Longer be Printed**

By the U.S. National Oceanic and Atmospheric Administration (NOAA)

**N**OAA's Office of Coast Survey, which creates and maintains the nation's suite of a thousand nautical charts of U.S. coastal waters, has announced major changes ahead for mariners and others who use nautical charts. Starting April 13, 2014, the federal government will no longer print traditional lithographic (paper) nautical charts.

Most mariners now use Print-on-Demand nautical charts that are up-to-date to the moment of printing. These charts will continue to be available from NOAA-certified printers.

Since 1862, those lithographic nautical charts—available in marine shops and other stores—have been printed by the U.S. government and sold to the public by commercial vendors. The decision to stop production is based on several factors: the declining demand for lithographic charts, the increasing use of digital and electronic charts, and federal budget realities.

"With the end of traditional paper charts, our primary concern continues to be making sure that boaters, fishing vessels, and commercial mariners have access to the most accurate, up-to-date nautical chart in a format that works well for them," said Capt. Shep Smith, chief of Coast Survey's Marine Chart Division. "Fortunately, advancements in computing and mobile technologies give us many more options than was possible years ago."

NOAA will continue to create and maintain other forms of nautical charts, including the increasingly popular Print-on-Demand (POD) charts, updated paper charts available from NOAA-certified printers.

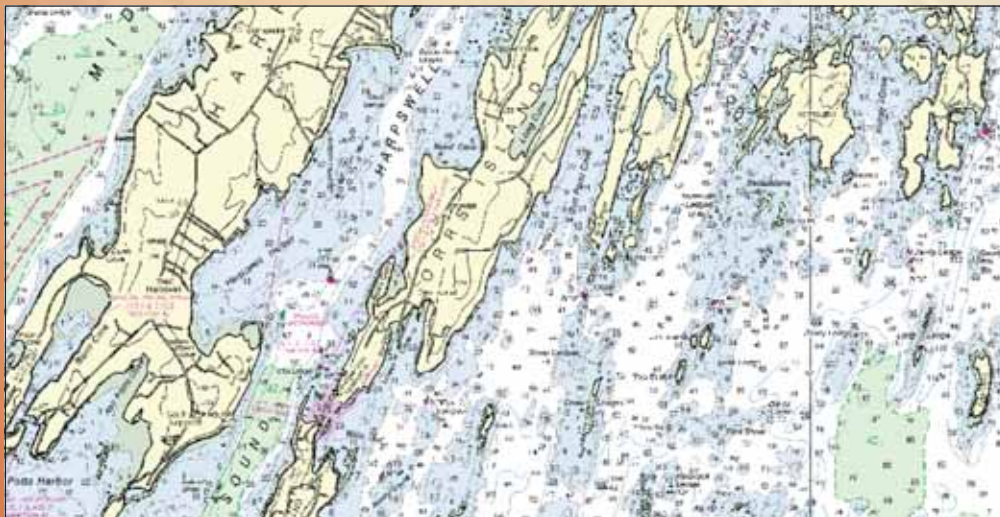
NOAA electronic navigational charts (NOAA ENC®) and raster navigational charts (NOAA RNC®), used in a variety of electronic charting systems, are also updated weekly and are available for free download from the Coast Survey website.

NOAA announced a new product as well: full-scale PDF (Portable Digital Format) nautical charts, available for free download on a trial basis.

The world of navigation is benefitting from advances in technology, Smith explained. He said that NOAA will consult with chart users and private businesses about the future of U.S. navigation, especially exploring the use of NOAA charts as the basis for new products.

*Originally formed by President Thomas Jefferson in 1807,*

*NOAA's Office of Coast Survey is the nation's nautical chartmaker. Since President Thomas Jefferson asked for a survey of the coast in 1807, Coast Survey has been the nation's trusted source for nautical charts covering the coastal waters of the U.S. and its territories. The traditional lithographic paper chart has been NOAA's signature product, trusted by mariners over the centuries as they navigate the Great Lakes and the coastal waters of the U.S. and its territories. Coast Survey also updates charts, surveys the coastal seafloor, responds to maritime emergencies, and searches for underwater obstructions that pose a danger to navigation.*



Screen shot from NOAA Chart 13290, the PDF version which is currently available for free download



## Ship Energy Efficiency Management Plan

Mahendra Singh



It should better be known as 'Ship energy efficiency improvement habits'.

Habits and attitudes are the most important things and everything else automatically follows. If you make a plan but don't implement it seriously then it is of no use.

The biggest saving in fuel consumption is achieved by reducing speed suitably while negotiating rough weather. Many times, we are mistakenly driven by an ETA (many mishaps have happened due to this alone) and simply to follow it rigidly, we do not reduce speed even if it puts stain on the engine and the ship's structure.

For the ships which will come in future, there are going to be lot of features included concerning the hull shape and improved paints and various other techniques for wake equalization and flow separation, written in various articles by other friends, but here we are confining to existing and older vessels.

Generators should be run on as high load as possible if burning heavy fuel. Air and Fuel are the things that we need to manage but it is easier said than done. Maintenance of fuel injectors and fuel pumps and keeping fuel viscosity at the injector correct must be the main aim. Then, maintaining the scavenge pressure by regular cleaning of Turbochargers and the Air coolers. Now, the main point is who will do it? We are mostly used to working with the fitters but on many ships there is only one fitter and there is always a tug of war between engine and deck departments to utilize the fitter. The answer to this question is known to all but spoken by none.

In our Marine Colleges we must pay more attention to skill training than mere theoretical training. Marine colleges around the world should give priority to skill training because when you go on board, you need to start doing something and doing it proficiently. The owners can arrange for skill training on board if the vessel is staying in port for some time OR between one port and the other in a reasonable span of time. This needs consideration at IMO level.

Ballasting and deballasting should, as far as possible, be done by gravity. How much quantum of ballast we should carry and where (in which tanks) is an art and this will depend upon our route. Some officers, thoughtlessly, insist on emptying all ballast by pump and fill up again by pump with total disregard to stress and strain on the steel structure. Not many officers have

adequate structural knowledge. Again, we need to think radically, why we can not provide on the spot training during dry docking where we have great chance of seeing many things, not visible while afloat and while trading.

Cleaning of smoke sides of oil fired boiler and the economizer should be given importance and boiler pressure is to be adjusted depending upon the need (trading in cold area or hot area). In hot areas there is no need to open steam to all bunker tanks but we often do not clean the dump condenser and do not maintain dumping valve on auto and to cope with the boiler pressure, end up opening steam full in all tanks. These are important things and the Class surveyors, while surveying the boiler, are requested to also pay attention to these important accessories, which are mostly the main cause of commotion in Engine room.

I do not think that Viscotherm is even now a survey item with all Class Societies, though this is important equipment in connection with correct burning of fuel. Earlier, it was perhaps not considered necessary but with emphasis on clean exhaust and added attainment of Energy efficiency, this equipment attracts attention. Our Japanese Superintendent readily got it serviced when its importance was pointed out to him. Container Ships run to attain 22-24 Knot speed burning lot of costly fuel. This can be justified if the aim is to catch a convoy but not for a normal run when in many cases such a gain will be nullified by delay in berthing, a slack customs clearance in ports and delays further down the multimodal system up to the door step. It will be worthwhile to give a thought; can we save some fuel by reducing a few notches?

Once we were coming from Maputo to Durban but there was delay in berthing so NYK advised us to come on economical speed but we almost reached in time at Durban, mostly by drifting along with the favorable currents. Cutting everything very short, a significant saving of fuel will be achieved merely by avoiding forcing the vessel under adverse winds and current.





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