



GEIMS CHRONICLE



THE GREAT EASTERN INSTITUTE OF MARITIME STUDIES

A Division of The Great Eastern Shipping Company Limited

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'The Survival at Sea'

How to find and conserve drinkable water at sea!!!

Dear Cadets & Colleagues,

"Water! Water everywhere, but not a drop to drink". There are many clichéd stories out at sea and this is one of them that we wholly agree to. On the flipside, this can only hold true when we are in a small craft striving for our survival. Surviving in open seas is demoting and depends on the survivors' ability to apply the required skills and be able to use whatever is available and meant for survival. The question is how do we overcome the mountainous task of surviving in a craft with little or no drinkable water around? Science has shown us various techniques to manipulate our well-being.

When at sea and with no help at sight, one can still survive the life threatening conditions with little improvisation and a lot of patience. Here's how:

1. Our bodies require a minimum of a litre of water every day to stay alive and balanced. Drinking small amounts of fresh water when in a crunch situation can help us to be focused on our survival, although over-time ingesting less water will weaken the muscles and tissues of our system

2. Never drink sea water in its natural form – Unless there is sufficient fresh water available, one should completely avoid taking in salt water. Experts say and we agree that drinking seawater will make us all the thirstier.

3. Don't eat any food unless you are sure of availability of potable water – Digesting food requires lots of water and if one is rationing it, eating minimum quantity of food is the only solution. Besides, we can survive longer without food than water, so act wisely

4. In hot conditions, loss of water from the body, which can be in the form of sweat, should be avoided as much as possible. Keeping the body temperature cool by being in shade and using sea water to cool-off is advised

5. Collecting dew in misty conditions, rain water in the tropical regions and ice in polar conditions are a few suggested methods to contain potable water for survival. One can use sponge or a piece of cloth to collect dew from the crafts hull and this can be done at night in foggy conditions.

Plastic bags or other make shift containers may be used during a rainfall for a reserve that will be required later. One thing to remember here is that it is advisable to drink as much rain water possible, as it is very much safe.

If stuck in the Polar Regions, one can melt the bluish-grey ice and consume it as potable water. Such ice is normally devoid of salt and is ok to ingest.

6. Should you feel the need to eat, avoid taking in proteins such as fish or for that matter even dried eatables like biscuits as they require lots of water for digesting, though it is suggested to have fish for its aqueous content. Besides, bones and eyes of fish are a good source of salt free water, which can be easily suckled upon.

Reference

crisistimes

Improvising on the available survival equipment can save many lives at sea. Moreover, with good knowledge we can save many lives by finding and conserving water.

For the interim, I would set off to locate apt sources, that offers solutions to the problems faced by our young, able, and sharp cadets or officers sailing at sea!!!

Wishing, "A Very Happy New Year & flourishing upcoming years to all."

Meena Ravi Shankar
Editor & H. R. Faculty
The Great Eastern Institute
of Maritime Studies



Mantra for the decade: "efficient and sustainable shipping through environmental compliance"

Shipping is the lynchpin of the global economy and society. Over 90% of the world's trade is carried by sea. Given that the bulk of this trade consists of commodities such as grain and oil, the International Maritime Organization (IMO) concludes that, without shipping, half the world would starve and the other half would freeze! Accounting for some 70% of the Earth's surface, our oceans are not only an ecological asset of unparalleled importance but also a determinative regulator of the fundamental conditions under which life on this planet continues to survive. And this is to say nothing of their significance as a source of human sustenance. In short, we pollute at our collective peril!

The contribution which the shipping industry can make to the conservation of the marine environment is clearly of vital importance. Despite public perceptions to the contrary, reinforced by a popular media often hostile to marine enterprise, shipping is one of the cleanest forms of transportation with a safety and environmental record that exceeds many other forms of transportation.

The heightened concern at the impact of ever increasing global shipping activities on the environment has given further impetus to efforts by the IMO to develop sustainable and environmentally conscious means of preventing pollution from ships. We now live in an era where concerns about global warming, environmental protection and the sustainability of natural resources play a key role in our day to day lives and will be more important over the next decades.

IMO has adopted a whole series of conventions covering prevention of marine pollution by ships, preparedness, response and compensation to incidents involving oil and hazardous and noxious substances, prevention of use of harmful anti-fouling systems on ships' hulls and the international convention on ballast water management to prevent the inadvertent spread of harmful aquatic organisms and pathogens, or commonly known as Invasive Aquatic Species (IAS), in ballast water carried by ships. The



The Marine Environment Protection Committee (MEPC) at IMO has also developed regulations aimed at reducing atmospheric pollution from nitrous oxides, sulphur oxides, atmospheric ozone depleting substances and for reducing carbon dioxide emissions from engine exhaust gasses to address atmospheric pollution, climate change and global warming.

The recently introduced IMO's Goal Based Ship Construction Standards (GBS) underpins the philosophy that if ships are designed and constructed for a specified designed life, and that if properly operated and maintained, they should remain safe and environmentally friendly throughout their service life. The other aspect that will have profound impact on coastal marine environment and human health is IMO'S regulation for the mandate of having an Inventory of Hazardous Material (IHM) used for constructing ships(updated throughout her operating life) so that at the end of ship's life there will be confidence that the ship can be 'recycled' safely and responsibly. The regulations will also ensure management of the ship dismantling premises will be safe with no adverse environmental or human health impacts in the entire process.

It is therefore important for seafarers to educate themselves as to the impact ships, seaborne cargoes, fuels, stores and the people onboard can have upon the marine environment.

Ajoy Chatterjee,
Principal & Head

The Great Eastern Institute of Maritime Studies

Vasant J Sheth Memorial Foundation Summer Camp 2012 for municipal school children.

The Vasant J Sheth Memorial Foundation conducted a four-day summer camp in collaboration with Srushtidnyan (environmental NGO) and young volunteers from the Cathedral and John Connon School at the Children's Toy Library in The City of Los Angeles Municipal School at Mahim, Mumbai in May 2012. There were 36 municipal school children present under the age group of 15 years.

The camp was a huge success and the activities included games, lessons and films on the need for conservation of Mumbai's coastal ecology and marine wildlife conducted by Srushtidnyan's team of conservationists (environmental NGO). The Foundation's publication on marine ecology and conservation titled 'Samudramanthan' (teacher & student training manual) was used as the textbook in the camp, educating the children on the different species of oceanic flora and fauna. The screening of the popular film IQBAL, demonstrated concepts of communal harmony and realizing dreams through hard work and talent. The use of stencils,

origami, screening of video clips, educational games, Q & A sessions based on absorption and recall of information were the key tools in the camp. The activities were rounded up on the final day with an art competition with the theme being 'The Ocean.' The Vasant J Sheth Memorial Foundation gave the winner a small honorarium and six series booklets on the environment.

The Vasant J. Sheth Memorial Foundation had previously donated books and board games to the Children's Toy Library in early 2009.

This time the Foundation chose to actively demonstrate and participate in the children's activities.

The Vasant J. Sheth Memorial Foundation activities aim to promote maritime conservation and education, welfare of coastal communities and the significance of maritime history. To date, the Foundation has completed, assisted and supported approximately 70 projects. Towards this effort, both human and capital resources are pooled with like-minded NGO's.





Mr. Maruti B. Gimhavanekar

Rank: Work Shop Supervisor
 Qualification: S.S.C, Welding Course (GESCO)
 Experience: 40 years Experience in GESCO as a Mechanist on ships
 Date of Joining: 01 August 2012



Mrs. Swaleha Anis Shaikh

Rank: DLP Assistant
 Qualification: M.Com. And Post Graduate Diploma in Banking and Finance (PGDBF)
 Experience: 4 months in 'The Lagoon Resort Pvt. Ltd.' as Account Assistant
 Date of Joining: 09 July 2012



Mrs. Sonam Kamthe

Rank: Librarian
 Qualification: M.B.A.
 Experience: 4 Years in Maharashtra Academy of Naval Education Training (MANET)
 Date of Joining: 18 July 2012



Mr. Rajendra Kumar Joshi

Rank: Faculty (Engineering)
 Qualification: Diploma in Mechanical Engineering.
 Experience: 15 yrs. in Indian Navy, 15 yrs., sailing in Merchant Navy, 3 ½ years in Maritime Institute as Teaching Faculty
 Date of Joining: 01 May 2012



Mr. Ravi Kumar Agarwal

Rank: Engineering Faculty
 Qualification: MEO Class I, Graduation (Marine Engineering)
 Experience: Lecturer at L.B.S College, Superintendent at ASP Management, and Chief Engineer at Anglo Eastern Ship Management Company.
 Date of joining: 09 October 2012



Mr. Melville A Patrao

Rank: Engineering Faculty
 Qualification: B.E. (Mech) F.I.E (India) and MEO Class I
 Experience: Sailed as Chief Engineer on Oil Tankers for 20 years
 Date of Joining: 03 September 2012

A Ceremonial visit of Vice Chancellor IMU

Professor G. Raghuram, Vice Chancellor. IMU visited GEIMS on 14 Sept 2012. His stopover started with a formal introduction of GEIMS faculty members to Prof Raghuram in the conference room, by our Principal & Head, Mr. Ajoy Chatterjee. Later, he was escorted to the Auditorium where he addressed one and all, (with his exceptional thoughts on his interest areas), on Infrastructure and Transportation Systems, Supply Chain and Logistics Management. His views of the Institute was well conveyed by his own words "Many thanks for your hospitality. Enjoyed the visit to this Institute, lab and simulators. Moreover, the interaction with the students was educational for me and my best wishes to all".

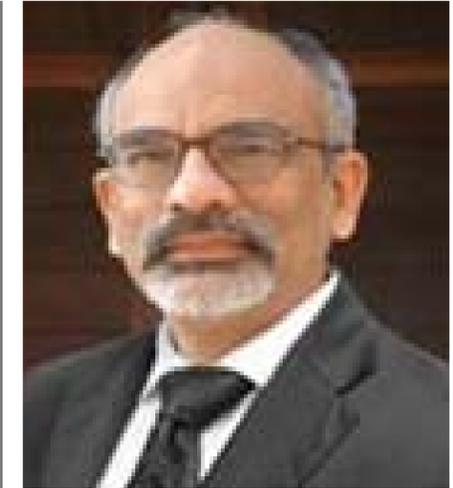
Prof. Raghuram has done his doctorate from North Western University Kellogg Graduate School of Management, Evanston, Illinois, USA Decision Sciences, 1984, PGDM from Indian Institute of Management, Ahmadabad, India, 1978, and B.Tech from Indian Institute of Technology, Madras, India, 1978.

Prof. Raghuram is a professor in the Indian Institute of Management, Ahmadabad. His specialization is in infrastructure and transportation systems, and supply chain and logistics management. His research, consultancy, case studies and publications focus includes railways, ports

Teacher's Day Merriment At Geims...

Faculty of every Institution are visionary architects whose mission evokes universal respect. It is not the brick and mortar that can make any institution efficient and useful, nor the books in the library or appliances in the laboratory so essential. It is the faculty who reveal the direction and the goal, so that the students could successfully follow the road and journey into the future. At large, teachers play a significant role in molding the future of the country.

To ensure this, on 5 Sept 2012, 'The teachers Day in GEIMS', was celebrated splendidly by handing out special 'Teacher's Day Cards', from our Administrative staff, to



and shipping, air and road sector, service organizations and issues in logistics and supply chain management. He has also taught at Northwestern University and Tulane University, USA. He has been visiting faculty at universities in USA, Canada, Yugoslavia, Tanzania, UAE, Singapore and several institutions in India. He has co-authored four books. He was the President of Operational Research Society of India (1999-2000) and is a member of boards and government committees related to infrastructure and logistics. He is a Fellow of the Operational Research Society of India and Chartered Institute of Logistics and Transport.

He was impressed with our Institute's training facilities including Workshop, Classrooms, Simulators, and Cadets Hostel.



every faculty followed by a wonderful message delivered by our Principal & Head, Mr. Ajoy Chatterjee', that made this day the most memorable!!!

The Message on 'Teacher and Guru'...

I know "All Gurus are Teachers ; But All Teachers are not Gurus". So let us know how many ways are the Teachers different from the Gurus!!

Teacher: A teacher takes responsibility of your growth.

Guru: A Guru makes you responsible for your growth.

Teacher: A teacher gives you things you do not have and require.

Guru: A Guru takes away things you have and do not require.

Teacher: A teacher answers your questions.

Guru: A Guru questions your answer.

Teacher: A teacher helps you get out of the maze.

Guru: A Guru destroys your maze.

Teacher: A teacher requires obedience and discipline from the pupil.

Guru: A Guru requires trust and humility from the pupil.

Teacher: A teacher clothes you and prepares you for the outer journey.

Guru: A Guru strips you naked and prepares you for the inner journey.

Teacher: A teacher is a guide on the path.

Guru: A Guru is the pointer to the way.

Teacher: A teacher sends you on the road to success.

Guru: A Guru sends you on the road to freedom.

Teacher: When the course is over, you are thankful to the teacher.

Guru: When the discourse is over, you are grateful to the Guru.

Teacher: A teacher explains the world and its nature to you .

Guru: A Guru explains yourself and your nature to you.

Teacher: A teacher makes you understand how to move about in the world.

Guru: A Guru shows you where you stand in relation to the world.

Teacher: A teacher gives you knowledge and boosts your ego.

Guru: A Guru takes away your knowledge and punctures your ego.

Teacher: A teacher instructs you.

Guru: A Guru constructs you.

Teacher: A teacher sharpens your mind.

Guru: A Guru opens your mind.

Teacher: A teacher shows you the way to prosperity.

Guru: A Guru shows the way to serenity.

Teacher: A teacher reaches your mind .

Guru: A Guru touches your soul.

Teacher: A teacher gives you knowledge.

Guru: A Guru makes you wise.

Teacher: A teacher gives you maturity.

Guru: A Guru returns you to innocence.

Teacher: A teacher instructs you on how to solve problems.

Guru: A Guru shows you how to resolve issues.

Teacher: A teacher is a systematic thinker.

Guru: A Guru is a lateral thinker.

Teacher: A teacher will punish you with a stick.

Guru: A Guru will punish you with compassion.

Teacher: A teacher is to a pupil what a father is to his son.

Guru: A Guru is to a pupil what a mother is to her child.

Teacher: One can always find a teacher.

Guru: But Guru has to find and accept you.

Teacher: A teacher leads you by the hand.

Guru: A Guru leads you by example.

Teacher: When a teacher finishes with you, you graduate.

Guru: When a Guru finishes with you, you celebrate.

Finally, A Satguru:

When one gets not only 'A Guru', but also 'A Satguru', then he/she is the most blessed one.

26th National Convention of Marine Engineers & National Seminar Programme:

The Institution of Engineers (India) & The Institute of Marine Engineers (India) organized the 26th National Convention of Marine Engineers & National Seminar on 'Economic Meltdown- Overcoming Effects on the Maritime Industry on September 22nd – 23rd, 2012 at Navi Mumbai. On this day, our Principal & Head , Mr. Ajoy Chatterjee , presented the first paper at the Technical Session I ,entitled 'Identification of key technical measures for Improving Energy Efficiency of Ships and to achieve required Energy Efficiency Design Index (EEDI)' , which included both power point and video presentation. . Overall there were five Technical Sessions that continued for two days, and the first day had two Technical Sessions with seven papers and the next day was followed by the remaining technical sessions having 13 papers presented. The abstract of the presentation is given below to give a vivid picture of the topic:

"Emissions of carbon dioxide in the exhaust gasses of ships' engines burning fossil fuels contribute significantly to the harmful air pollutants in coastal areas and in congested shipping lanes as well as to wider global warming. This paper highlights the potential options for reduction of emissions of greenhouse gases from the shipping sector, from a technological perspective. The fundamental categories of options are by improvement in design of ships and propulsion devices; using renewable energy sources and use of emission reduction technologies, fuel cells etc."



Invitations from South Asia Technical Committee (SATC):

Our Principal & Head, Mr. Ajoy Chatterjee, was invited to join the 'South Asia Technical Committee' (SATC) Lloyds Register of Shipping', on August 2012. Similarly, on invitation, Mr. Ajoy Chatterjee, Principal & Head, was cordially invited to join the Technical Committee of Class NK, on Oct 2012.

Mr. Ajoy Chatterjee , Principal & Head, has been empanelled as an Advisor to the Chairman of the Union Public Service Commission, New Delhi for conducting interviews & selection of Maritime Professionals in the Government.

Technovanza - 2012

Technovanza is the Annual Techno-management Event organized by VJTI, Mumbai. The objective of Technovanza, "Taking Technology to the Society", is to educate people about the principles of engineering and thus spreading the knowledge of engineering and technology to the society at large. It had an active participation from students of several Engineering Colleges and Polytechnics in and around Mumbai.

TNOC 12A Cadet Jude Lobo , and Cadets of GME 19 , Sydney D'Silva and Rebello Keith Jude participated in this event where they jointly exhibited a ship's model, and briefed the visitors on the career opportunities in the Merchant Navy.



Campus News - Faculty Activities

In other words, they tried to bring awareness on the career options and the advancement of shipping in India. Our Principal & Head, Mr. Ajoy Chatterjee, & Engineering Faculty, Mr. Rajeev Wad accompanied the participants. The Great Eastern Shipping Co. Ltd was one of the sponsors of the annual event held at VJTI Campus, Mumbai. Mr. Chatterjee formerly addressed a large section of engineering students highlighting the challenges and rewards of a career in the merchant navy available for all young persons.



The Presentation at the Seminar, 'The Maritime Training Institute (MATRAIN), Port Klang, Malaysia':

The International Maritime Organization (IMO), through its Integrated Technical Cooperation Programme (ITCP) to support Maritime Development in Asia, in collaboration with the Marine Department, Government of Malaysia, organized a three-day National Seminar in order to discuss the implementation of the Ballast Water Management (BWM) Convention with all stake-holders of the maritime industry in Malaysia from 19 to 21 November 2012.

The seminar aimed to ensure that key national stakeholders in Malaysia (government agencies and ministries, shipping companies, training institutes, academia, etc.) and policy makers are up to date with the issue of invasive species in Malaysia and the region, the requirements of the BWM Convention 2004, as well as the implications for all stakeholders. Mr. Ajoy Chatterjee, as IMO Consultant, prepared and delivered the presentations at the Seminar held at the Maritime Training Institute (MATRAIN), Port Klang, Malaysia



National Seminar on the Ballast Water Management Convention 2004
19 – 21 November, MATRAIN, Malaysia



Campus News - Events



Cdt. Vipin Rathee, 20110839, GME XIX, was awarded 'The Gold Medal', by Chief Guest Mr. H.S.Gandhi, Area Manager, DNV India, on 2 April 2012.



Cdt. Navjot Singh Brar, 201108 25, GME XIX, was granted 'The Silver Medal & The Best Cadet Award ', by Chief Guest Mr. H.S.Gandhi, Area Manager DNV India, on 2 April 2012.



Cdt. Nisanth.V Pillai, 20111119-GME XX, was awarded 'The Gold Medal', by Chief Guest Capt. L.K.Panda, Principal Officer and Chairman of Western Academic Council, Mercantile Marine Department, Mumbai, on 5 July 2012.



Cdt. Rahul Pawar Sahadeo, GME XX 20111123, was rewarded 'The Silver Medal', by Chief Guest, Capt. L.K.Panda, Principal Officer and Chairman of Western Academic Council, Mercantile Marine Department, Mumbai, on 5 July 2012.



Cdt. Raghunath Abhiram, GMEXX 20111101, was granted 'The Best Cadet Award', by Chief Guest, Capt. L.K.Panda, Principal Officer and Chairman of Western Academic Council, Mercantile Marine Department, Mumbai, on 5 July 2012.



Cdt. Jude lobo TNOC 20110825-12 A, was awarded the first place, by Chief Guest, Capt. H. Subramaniam, Principal Emeritus, L.B.S College of Advanced Maritime Studies & Research, Mumbai, on 13 July 2012.



Cdt. Akshay Ranjan Chavan, TNOC 20110810 12A was granted 'The Best Cadet Award', by Chief Guest, Capt. H. Subramaniam, Principal Emeritus, L.B.S College of Advanced Maritime Studies & Research, Mumbai, on 13 July 2012.



Cdt. Ghavate Umesh, TNOC 20110848 12B stood first and was awarded by, Chief Guest, Capt. H. Subramaniam, Principal Emeritus, L.B.S College of Advanced Maritime Studies & Research, Mumbai, on 13 July 2012.



Cdt. Deepak Kumar, ETO III Batch, 20120519 was granted 'The Best Cadet Award', by the Chief Guest Capt. Sudhir Subhedar Chairman of CMMI Pune Chapter, and an IMF Member Technical Director of INSA & Director of Ocean Sparkle Group of Companies.

WORKSHOP - GEIMS Shop floor

"A Leadership Exercises for desired Institutional & Cadets Benefits..."

A mission to upgrade the technical proficiency of all GME and TNOC cadets and to boost the infrastructural development of GEIMS. Our efficient Workshop Instructors, Mr. Raju Shinde, Mr. Vikas Gaikwad & Mr. Vikas Patil under the supervision of Mr. Pramod Vaishampayan, have been innovative in developing various in house projects:

Two stands were built in-house, one stand to make easy the 360 degrees of 6G position welding and the other stand of 40ft for G.P.S. Antenna (Global Position System, used for Navigation), presently placed near Navigation Lab.



Also a ladder was developed with a strong base at the bottom, to smooth the progress in repairing the A/C Unit, in order to uphold the Turbo Charger, required for Post Sea Training.



Cdt. Sawant Sourabh TNOC 20110874 12B, was rewarded 'The Best Cadet', by Chief Guest, Capt. H. Subramaniam, Principal Emeritus, L.B.S College of Advanced Maritime Studies & Research, Mumbai, on 13 July 2012.



Cdt. Pragyan Sharma, ETO III Batch, 20120521, attained the first position, and was awarded by the Chief Guest, Capt. Sudhir Subhedar, Chairman of CMMI Pune Chapter, and an IMF Member Technical Director of INSA & Director of Ocean Sparkle Group of Companies.



Cdt. Pranow Chaganty ETO III Batch, 20120510, attained second position and was awarded by the Chief Guest, Capt. Sudhir Subhedar, Chairman of CMMI Pune Chapter, and an IMF Member Technical Director of INSA & Director of Ocean Sparkle Group of Companies.

To remove the Cylinder cover, hydraulic jack nipple is created on lathe machine. Lastly a trolley was made for transporting the acetylene and oxygen gas cylinders, used for gas cutting and gas welding in the workshop.

Fire Safety And Uses Of Life Saving Appliances

This section under STCW Course is a step up from our General Fire Awareness course and entails revision of all knowledge as well as additional firefighting techniques and how to apply them in a safe and correct manner.

Increasing one's knowledge and skills in handling fire is only going to mean better handling of an emergency situation.

To ensure its veracity, Our Institute, GEIMS, has been conducting STCW courses where a basic fire awareness training that includes, general safety procedures in day to day life is provided to all GME, DNS, & ETO cadets.

Also, this training is made effective by our best experienced marine faculty along with fire fighting instructor, Mr. Ram Pukar Chaubey, who together have schooled their thoughts on safe operation of all fire fighting appliances including casualties evacuation through smoke filled compartment and first aid given to the casualties.



The documentation on 'New revised STCW 2010' is in progress to cover the requirement of fixed installation of fixed Foam and Fixed DCP.

'An inventive approach to upgrade the Electrical Training Program in GEIMS'

To provide a quality-training program to trainee engineers, our Institute recently has been working on a development program logically designed, to comply with the new competencies and task of electro-technical officers and graduate marine engineers on board ships. This is done by installing marine modules of control gear/ starter panel does this, Steering gear control system and PLC oriented OL mission Auxiliary Boiler in the Institute.

These working modules of Motor Starter/control gears panels have been fabricated by Mr. Irfan Sayeed and Mr. Promod Sawant .T, under the guidance of Electrical faculty, Mr. V.K.Katyal, and Electrical Supervisor, Mr. Nilesh Supe



Brief Reports on departmental activities upholding, 'preservation and repairs of GEIMS'...

The maintenance Department has ensured all the equipments to remain in excellent working condition. The gardening department has recently a new power mower to trim lawns to add to their existing tools, to wisely handle the Planning and implementation of all small scale landscaping operations and maintaining grounds.

Thirdly, The Housekeeping, "something you have to do when there is so much more you would rather do!!!", have honestly contributed in maintaining cleanliness and

of this Institute. This shall ensure to widen the knowledge of both Electro technical Officers and Graduate Mechanical Engineers, in handling the responsible tasks of repairs as well as maintenance onboard.



orderliness in the Institute .Lastly, the Catering Department with their brilliant entrepreneurial spirit and passion for food ,have proved themselves well, by Chef Mr. Fraklin D'Souza , with his 50 member team .

All these units individually have accomplished their targets with higher quality, greater job satisfaction, and higher organizational morale.

Thanks and Congrats to all their team leaders, to have motivated and directed their respective teams, in reaching their six monthly departmental goals, that adds finally in meeting GEIMS Objectives.

A Candid Revelation of the Life of a Junior Engineer Onboard a Ship

The article describes the life of a junior marine engineer and the various tasks he has to perform on board. This expose has not been written with intent to scare people by showing a different side of the professional life on board but with a purpose to depict the true nature of work at sea.

The Common Perception

The life of a merchant navy officer or personnel on board is adventurous, exciting and extremely rewarding. A marine engineer globetrotts, visits beautiful places and meets interesting people. This is true for marine engineers working on any type of ship or vessel irrespective of the people he is working for; however it is an icing on the cake if he/she happens to be on a cruise ship of any of the top 10 cruise lines, not to mention the merriment if one is on the biggest cruise ship. One might blurt out "wow," for it sounds like a script of some Bollywood movie where the protagonist has the perfect job, the perfect money, and the perfect life. But is the life of a marine officer as picturesque as it sounds? Do all the marine officers in the hierarchy level have the same kind of exciting lifestyle? Or is there a totally different side beneath the facade that is created by the over-imagination of people or by ignorant word-of-mouth misconception?

Well, the job of a marine engineer is definitely stimulating and rewarding, but with the package comes many desirable and undesirable attributes. Everything apart, it's not at all a "Bed of roses," as many people seem to think. Life on board is definitely not as glamorous as it seems or is perceived to be. It is tough for sure, and no one knows it better than the one who works on board. But as they say, "someone has to do the job" and so does life go on. All this might sound a bit over-exaggerating or over-the-top, but the fact remains that the life on board a ship is definitely way different from the life we live on land.

For now, let's take a sneak peek at the lives of the marine engineers working on board. Let's start from the bottommost level, the junior engineer, also known as the "jack of all

trades" (definitely, master of none), who lives the toughest and the most interesting life of all the engineers on board a ship.

Grass is Greener on the Other Side

A junior marine engineer after undergoing four years of arduous education and training supposes that the main part of his career is now behind him and henceforth the only thing that remains is work and play. But things are a bit different from what he thinks. He joins a shipping company and lands on board a ship only to realize that the real struggle has just begun. He realizes that there is a stark difference between the training work he did in workshops on land and the kind of work he is supposed to do on board the ship. Probably he even had a brief idea of the "to be" life on ship but instead got a bit more than expected when he came on board.

There are many incentives that come with the job of a junior marine engineer, but there are many more odd jobs that come along with it, too. Let's get into the shoes (safety shoes!) of a junior engineer and find out what he really does on board. Kindly note that there are high chances that one might end up in a state of exhaustion or fatigue.

What Do Junior Marine Engineers Really Do?

The junior marine engineer, like all other engineers on the ship, is supposed to work with his own hands. When the ship is sailing, he is supposed to keep a watch in the engine room with a senior engineer. He mainly assists the engineer in-charge of the watch in daily routine checks and other necessary maintenance work. If he is on an UMS (unmanned ship) he skips the sea watches when sailing. After a few months of thorough familiarization of the engine room he might be asked to keep watch of the engine room with the second engineer. If he is not working in shifts, he might be asked to do day work, which is like a normal eight-to-five job, not to mention the emergency hours and extra time that come along with it.

A junior engineer is always on his toes or for that matter forced to be, assisting second, third, and even fourth

engineers apart from the regular watch keeping. This means that there are no definite rest hours and the working hours are also extremely flexible. Most of the work is of practical nature, inside the engine room, which requires him to use all the requisite safety gear all the time. Junior engineer's work mainly involves in assisting the dismantling, repairing, and reassembling of faulty or stand-by machinery.

The "Know It All" Guy

On ships, it is mandatory that a fifth or junior engineer be well versed with each and every system on the ship, particularly of the engine room, for his own good and probably for the good of others as well. The first thing he is expected to know is the line diagrams (famously known as line tracing) of all the pipelines in the engine room, from fuel lines to bilge lines at the back of his hand.

Tracing, sketching, learning and mugging each and every pipe line is supposed to be the first lesson the fifth engineer is asked to undertake when he puts his foot on board. He has to keep in mind the locations of all the emergency exits and fire extinguishers in the engine room. (Senior personnel on board ships believe that a junior engineer is more prone to accidents and often moves around like "Alice in Wonderland.")

According to a written rule, a fifth engineer can take orders only from the second engineer, but unfortunately that rule is never followed and therefore he has to take orders from all the engineers. As the fifth engineer is perfectly aware of all the pipelines on ship, he is of vital importance, for example, at the time of bunkering fuel or transferring sludge into a barge etc. By default, a junior engineer is expected to assist fourth engineer in the process of bunkering and sludge discharge to the shore. He is also required to do jobs involving transferring of bilges or sludge from one tank to another and keeping a check and log of all the levels of the tanks in the engine room.

The More He Knows the Better

Apart from the above mentioned duties, a fifth engineer is

also required to know the starting procedures of almost all machinery like diesel generators, fuel oil purifiers, fresh water generator, pumps, sewage treatment plant, boilers, refrigeration system and even the main engine. Nowadays all ships are automated and all the machinery is operated from the engine control room itself. Thus the fifth engineer is also acquainted with, and in fact the master of, starting procedures and the working of the control room console and other engine control room electronics and electrical systems.

Since the fifth engineer knows the engine room inside out, at the time of emergencies, he is expected to be extremely good at fault finding and troubleshooting!!! (As if he is the guide of the engine room who has the knowledge of every single pipe line, valves or even machinery) .At the time of emergencies he works with other engineers in repairing the broken down machinery. An emergency situation can last from two hours to forty-eight hours or even more.

Though the senior engineers relieve each other, the fifth engineer is supposed to work throughout the emergency situation. Thus he should have high level of energy and stamina, should be flexible, dexterous and able to pitch in when the situation demands. Also keep in mind that in case of emergency situations such as oil spills or leakages he is expected to clean up and remove all the traces of spilled oil from the floor plates and also from the bilges. Moreover the engine room temperature is extremely high and humid, ranging from thirty-degrees Celsius to fifty-five+ degrees Celsius. For this reason he is expected to have ability to withstand long stretches of hard work in emergency situations and also have the mental and physical capability to bear such stress.

Additional Jobs and Responsibilities

There is also heaps of paper work that the junior engineer is expected to do. He is supposed to take the readings of the main parameters from different machinery gauges and log them down neatly in the logbook. This is a routine exercise and is done at least twice a day. He is also often asked to log down all the performance tests parameters of diesel and

main engine in their respective logbooks. Chief engineer is supposed to be the in-charge of verifying and feeding in of this data but many a time fifth engineer is asked to do this job also. Other paper works such as recording and filling of all fuel oil, lub oil tanks, drain tanks etc. have to be done daily. The junior engineer should also know the starting procedure of all the emergency systems such as emergency generator, Co2 system, different types of fire extinguishers etc. He is also supposed to take an active part in the emergency drills such as fire drills, boat drills etc. He should be aware as to how to wear a life jacket. He should also know how to wear an emersion suit and oxygen mask in time of emergencies.

He should be aware of the starting procedure of lifeboats engines and also the whereabouts of the emergency equipment in the lifeboat and life raft. It's also mandatory to have knowledge of other survival techniques and equipment such as pyrotechnics, fire hoses, emergency first aid and basic idea of survival at sea.

Maintaining inventory and requisition of various lub oils, spare parts and defective machineries along with the parts to be sent for reconditioning, is the work of fourth engineer or the engineer in charge of that particular machinery. But a Fifth engineer is often asked to carry out this work too. Thus he might have to spend several long hours in the stores rummaging through different spare parts and noting down and maintaining a record of the number of requisite spares, oils and chemicals.

Some more Facts

Now though the working environment of the engineers on board a ship has improved in the recent years due to advances in automation and technology, the lifestyle pretty much remains the same. The job of a fifth engineer is demanding in both physical and mental abilities and they have to stay away from the family and social life for a considerable amount of time. The junior engineer stays on board for the longest time for he has a contract of minimum six to nine months. The job also demands working in some uncomfortable environments like repairing and maintaining

the machineries in confined spaces and refrigerated areas and thus he should be flexible enough to get adjusted with the situation.

Merchant navy personnel, as the job demands, move from one country to another, may not be able to see a few, or probably, even a single port in his whole contract.

This is for the reason that there are many responsibilities that they have to carry out when the ship is docked. Mostly, all the engineers work every single day of their full contract time, which means that there might not be a single holiday to unwind them. Also, traveling continuously and monotonous work style might make the exciting voyage boring. To add more to it, there are chances that sometimes they might have to satisfy themselves with cramped accommodations with little recreation and entertainment activities. (Lucky if your ship is provided with Internet facilities). Also, it is to note that no person on board is spared from the mighty power of nature. All the personnel on board a ship have to face all kinds of weather conditions and even have to continue working in the same.

Review:

These are some of the facts of the life of a junior engineer on board a ship. This article cannot be generalized, as the life of an engineer varies from ship to ship, but still it helps to give a general overview of the real thing. Also, they are not depicted with an aim to highlight any aspect or to scare anyone but with intent to bring it to people's notice the lifestyle of a seafarer, especially junior engineers on ship, so that the future engineers are mentally prepared as to what to expect and how to face a situation when they go onboard. However, this is not all, but a minuscule portion of duties he performs on board.



Melville A. Patrao
Engineering Faculty

Equator crossing Ceremony

'Nostalgic Reminisces of cadet sailing days'

We were on a bulk carrier, Cadet Ship, where the complement included a group of 16 cadets. Having joined the ship in Chiba, Japan, we proceeded down south towards Australia. Senior cadets were as usual making our life miserable, but we (juniors) were still enjoying our voyage in a big ship. There was some talk about crossing the equator but we thought it was no big deal although we were excited about going 'down under', for the first time.

The latitudes kept getting lower and after a few days we were told that we were about to cross the equator that day. It was announced that there would be a ceremony for those who are crossing for the first time. We all got excited about the ceremony thinking of the accompanying fanfare but we were due for a big surprise.

We were told to bring pots of various coloured paints and gather them on the boat deck for the afternoon ceremony; any queries were simply brushed aside. We had lunch as usual after which we were asked to muster on the boat deck. We were asked if we had crossed the equator before one of us replied he had done so, he was asked to produce a certificate, which he was unaware of. He was therefore asked to continue into the ceremony.

Soon we saw a figure emerge from the accommodation he was dressed like a king. At first we did not recognise the person dressed funnily with a paper crown, a cape and a trident in his hand. Then we saw that he was our immigration officer (trainee purser). He came and sat down on a makeshift throne and announced that he was the "King Neptune".

We were still overawed by the situation when suddenly a group of seniors descended on us with paintbrushes and gumboots in their hand. We were asked to prostrate before 'King Neptune'. The boots were filled with seawater and we were told to drink it, just imagine seawater in a dirty, smelly gumboot. One boy drank some and spat it out he was forcefully fed some more! I pretended that I have taken a mouthful and swallowed air and escaped, but I could not escape what was to follow!

The painting session started by painting our right side green and the left side red. Then all our hair and other parts were painted various colours. The chemicals in the paint were stinging us. Some were shouting to be spared but everything fell into deaf ears.

We were wearing our overalls, but they made sure that the paints soaked through. We were all looking like grotesque colourful aliens from another world. The so-called 'King Neptune' was rollicking in laughter and then it was our turn! We all walked together and before he could react we hugged him with all our might, his uniform under the costume was completely ruined!

Then the ceremony ended. It took us a few hours of concentrated effort with stinging chemicals to cleanse our bodies. Then the decks where the event took place had to be cleaned. Some of the paint continued to adorn our bodies like permanent tattoos for some days.

The next day there was another ceremony where we were presented with the Equator crossing certificate signed by 'King Neptune', which we made sure to keep preserved!



Capt. Ravi Shankar
Naut. faculty

Tratak - Candle Flame Meditation

TRATAK

During our waking hours, our minds are usually filled with thoughts, good and bad. The mind has a tendency to stay in a state of disturbance and we have a propensity for being distracted easily. This leaves us feeling scattered and fragmented and unable to cope with situations that need focus. We are constantly being bombarded by thoughts and may feel out of control. It comes as no surprise that, with all the thoughts that invade the mind, our minds drift and wanders and cannot stay still for longer than a few moments. As a result, we experience stress, memory loss and lack of concentration. We are unable to feel and experience the PRESENT MOMENT.

We can enhance our power of concentration and strengthen our memory by an ancient meditation technique called Tratak. Its benefits bring an end to the mind's distractions, enhances our ability to concentrate, increases the power of memory and brings the mind into a state of supreme awareness, attention and focus.

What is TRATAK?

Tratak is an ideal meditation technique. With continuous practice, you will witness an increase in your alertness, confidence level, stability in thoughts, and an ability to control situations that were previously difficult. You may also notice an improvement in your eyesight. Tratak is very helpful in improving mental clarity and capacity. People of all ages will benefit, especially students who need to concentrate on their studies. Children in India are started with this meditation technique at an early age, but children that are not supervised should not practice this method. Regular meditation techniques may be difficult to master if you are extremely stressed, worried or agitated. But Tratak is different in that you gaze at a focal point, usually a candle flame that captures your sight. The eyes control the thought process, and focusing on a candle flame that is steady has tremendous and powerful benefits. Changes in our consciousness level occur through gazing steadily at the glowing flame. To attain a deep state of meditation, the level of energy in the mind must be elevated and single-pointed.



Concentration is the first stage of meditation. Tratak induces and magnifies this single pointedness.

How does Tratak sadhana affect us?

The flow of thoughts in our brain is an on-going process. Due to this, 80 per cent of our energy is wasted and our central nerve system loses its balance. But when we attain tratak sadhana, gradually we start experiencing peace of mind, and thereafter we start getting rid of unwanted thoughts. With this process we start gaining more and more energy. And a time comes when we are able to perform an unusual feat.

But what is tratak sadhana? It is defined as focusing your attention with concentration on a point or on the flame of a lamp continuously, without blinking.

Three types of tratak sadhana

- (a) Inner tratak Sadhana
- (b) Middle tratak sadhana
- (c) Outer tratak sadhana



Inner tratak sadhana is closing the eyes and focusing your attention on the middle of your forehead, where Lord Shiva's third eye is located. In the beginning you may feel some pain or heat in your head but do not worry, as it will normalise gradually. Try to keep your entire attention on this point.

Benefits: With this yogic action you can hypnotise any person who is very far from you. It will also help in building your confidence, intelligence and patience. It will even take away negative thoughts and desires from your mind and will give you peace.

In Middle tratak sadhana, focus your eyes and attention on either the flame of a lamp (which is lit by the oil of black sesame) or on a crystal shivlinga. If you get a burning sensation in your eyes, close your eyes for some time and then again repeat this kriya (process). For this kriya, keep the lamp or shivlinga at a distance of 20 inches at eye level so that there is no strain or pressure on your neck.

Benefits: Improves concentration, memory and mental power. Besides, you get foresight, hypnotic and spiritual power. It also increases your working efficiency and the ability to read others' mind.

Outer tartak sadhna can be performed at anytime of the day or night, by focusing your eyes and attention on any object like the sun, moon, and stars. Those who have weak eyesight cannot perform this.

Benefits: Helps in getting rid of mental disorders and improves motivational power and foresight.

Do suksham pranayam before practising tratak because this sadhana requires mental peace. If your mind is not peaceful or comfortable, you cannot be successful. With suksham pranayama you can control your mind.

Rules of suksham pranayama:

Sit in sukhasan without any body movement and take in and release long deep breaths slowly. This has to be done for 21 days regularly for 15 minutes a day. It will be better to start trarak sadhana after this.

For tratak sadhana:

1. Sit on a blanket in sukhasna or sidhasna and keep back, neck and spine straight.
2. Keep negative thoughts and lust away from your mind.
3. Do tratak with dedication, patience and concentration.
4. Always practise in a closed room and be by yourself.
5. It is effective if practised at a fixed place and time.
6. Out of the three ways of practising tratak, choose the one with which you feel comfortable.
7. Try to spend more or equal time in this sadhana as you spend on the first day.

8. Leave all addictions.
9. Those suffering from tuberculosis, heart diseases, leprosy and eye diseases should not practise tratak.
10. While practising, do not move your body. Sit like a statue.
11. Practice after taking bath and wear loose clothes, preferably white.
12. Choose any one of three kriyas and practice it continuously for three months.

My Experience on Tratak:

Yoga has helped me a lot to improve my personality as well as my health. In such a hectic and long schedule of the day, I was not able to find a single minute to relax, resulting to tiredness, stress and lack of concentration in my studies. Thanks to our physical training instructor Mr.Pardesi, who introduced Tratak in P.T programme, where, I learnt the techniques of tratak and practiced it. It helped me not only to improve my concentration level, and memory but also to reduce the growing stress.



Santokh Singh
201208GME22.



Your queries will be answered by
Yoga/Physical Training Instructor
Mr. Amit Pardeshi
editorchronicle@geims.in

Great Moments...

Marine Engineering & Research Institute- IMU Mumbai Campus in collaboration with the sponsors M/s Castrol India Ltd., Mumbai, organized a Technical Paper Competition for Marine Engineering students for Maharashtra Region on the theme "safe, secure and efficient Shipping on clean oceans on 5 Oct 2012.

Out of 16 paper presentations seven were short-listed and from them two groups from GME 21 were selected for final presentation. The topic, DNV'S TRIALITY VLCC was presented by Cdt. T GURAV ROHAN PRAKASH KAVISKAR & Cdt. TUSHAR SHIRISH, stood third and were awarded a certificate and a cash prize of 10000/-.

The second group, Cdt. Nirmal Kumar and Cdt. Umesh A Ravate of GME21 got consolation prize, on the topic, 'Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (EEDI & SEEMP)', enveloped with a certificate and a cash reward of 4000/-. Every presentation had a time limit of 15minutes.

Congrats!!! To these winners of GME 21 Batch, who have not only explored the selected topics thoroughly within a short period of time, but also presented them with excellent communication skills, that were mentioned to be an unrivaled feature, by all judges. Hoping to hear more of such efforts by our future GME successors of GEIMS!
(The text of the presentation can be seen on page 23).

GME-21- 'On an Impressive Ship Visit'

Finally the day arrived, GME21 batch went on a ship visit at "Indira Docks at dockyard road" on 23rd Oct. 2012. Mr. Rajeev M Wad and Mr. Nilesh Supe accompanied our batch of 40 cadets. To witness several ships, was truly an exciting experience.

Around 7.00 A.M, 40cadets of GME 21 batch left GEIMS by bus and reached around 11 A.M at the gate of Mumbai port

trust, where stringent inspection was applied by the port security force. After entering the port, we saw different ships loading and unloading different types of cargo.

After seeking the permission, we got a chance to climb the gangway of a bulk carrier called 'VISHWA MALHAR belonging to SCI'. Initially, we were divided into two groups, and then were escorted to the deck and to the accommodation. We went all round the deck from forward to aft & port to Starboard and monitored various machineries and equipments that we were well informed during our classes such as free fall life boat, life buoy, mooring winches and ropes, different International shore connections, hatch covers (Sliding type), grab, Deck cranes, cargo holds, windlass, sounding pipes, hawse pipe, spurling pipe, fire main line and many more.

The experience of seeing all these equipment was commendable, following which we were lead to the accommodation. From there, we visited several sections of accommodation and then we moved to Navigation Bridge. Honestly speaking, 'A make believe world for us had turned out to be a reality'!!!!

However, our wish to explore the machinery space was turned down, on account of an audit carried out on this newly built one-year-old ship. To familiarize with the real time experience shared by the crewmembers, we decided to climb down the gangway and walk further to visit the lock gate and the dry dock.

After spending several hours at port, finally we had to depart as it was getting late for us to leave for the Institute...



Nirmal Kumar
(201203GME21)

My Mother – I miss you...

Away from you	On the other side,
I am living here	I see you in a coat,
Missing you a lot,	Looking as if ...
When you are not near.	You are waiting for a boat!!!
So far,	And to reduce the distance,
You are away from me	Created by the sea,
Can in any way,	This is separating
"YOU", I can see??	You and me...
I know one day...	I am waiting for you,
You might come,	And will wait till the end...
Everyone tells me,	Gazing at the picture
Even the Moon and the Sun.	That you had sent.
I love you now,	When I try to sleep at night,
And I loved you then,	You come near me...
Please tell me this,	Near to my sight.
You are coming when???	I know that someday
As I stand,	You'll come home soon
Near to the shore,	And we'll be together again
Waves says hello,	In the month of June!!
With a vey huge roar!!!	



Cdt. Rakshit D. Kapoor
TNOC20120227

Why Students Fail!!!

A Year consists of 365 days.
 8 hours of sleep everyday = 122days.
 So, Remaining no. of days = 243days.
 No. of Sundays in a year = 52days.
 Now, left over days = 191days.
 Summer vacation excluding Sundays =70days.
 Hence, Outstanding days = 121days.
 Autumn and winter holidays excluding Sundays = -40days.
 Consequently, days left behind = 81days.
 4 hours daily for activities = -60days.
 (breakfast, lunch, dinner etc)
 And so, remaining days = 21days.
 The days required for giving exams = 20days.
 Therefore, the days left for study = 1 day only.

Here, this last day left is used for birthdays, which falls only once in a year, when no one would desire to study right!!!. With the given simple calculation ,we can afford to justify those boys who fail , apart from their poor preparation !!!!!



Cdt. Siddharth. N. Yadav
201208TNOC 78.

Congrats!!



Mrs Shilpa Nitin Bhandurje, Electrical Faculty, of our Institute has successfully completed her M.Tech (Electronics and Telecommunication) in First Division. She has done her post graduation from Sinhagad Institute of Technology, Lonavala, where she took her admission in the academic year 2011-2012.

the cadets in motivating their talents and their subject knowledge but also in upgrading the quest for quality objective of our Institution.



Our Electrical Supervisor, **Mr. Nilesh Supe**, a diligent, loyal & skilled employee working since the foundation of GEIMS Lonavala, has successfully completed his B.Tech (Electronics) in First Division. He graduated from MIT, Pune in the academic year 2011-2012.

Our Institute is proud to have faculty of such high caliber and interest amongst us which would facilitate not only

Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (EEDI & SEEMP)

Total emission by the ship operations is steadily growing. CO2 emissions by the ship are 3.3% of total world's emission. Significant increase predicted – 200 - 300% by 2050 in the absence of regulations. So action has to taken to reduce the emission and protect the environment. IMO is aiming to reduce air pollution with its MARPOL Annex VI regulations.

Mandatory measures to reduce air pollution from international shipping were adopted by Parties to MARPOL Annex VI represented in the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO), when it met for its 62nd session from 11 to 15 July 2011 at IMO Headquarters in London, representing the first ever mandatory global greenhouse gas reduction regime for an international industry sector.

The amendments to MARPOL Annex VI Regulations for the prevention of air pollution from ships, a new chapter 4 to Annex VI on Regulations on energy efficiency for ships to make mandatory the Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

The regulations apply to all ships of 400 gross tonnage and above except passenger ships, steam ships, any vessel with diesel-electric, turbine or hybrid propulsion system This regulation is expected to enter into force on 1 January 2013.

Measures to Increase Energy efficiency:

Technical measures - EEDI- A Design Index applies only to new ships from 1st Jan. 2013

Operational Measures - EEOI and SEEMP, applies to all ships in operation

Market Based Instruments - Carbon price on shipping, ETS (Emission Trading)



EEDI (Energy Efficiency Design Index)

The EEDI will be the new benchmarking tool for the shipping industry. It will help to control CO2 emissions, smaller the EEDI values make the ship more energy efficient with help of newer energy efficient devices and technologies.

$EEDI = \frac{CO_2 \text{ produced from ship} - CO_2 \text{ saved}}{\text{Ship Capacity} * \text{speed}}$

EEDI Verification Scheme:

Ships will be required to have an International Energy Efficiency Certificate (IEEC). So each ship will need to have verification of the 'attained' EEDI value at both the design stage (pre verification) and the build stage prior to delivery (final verification) for getting IEEC. This process ensures that the EEDI value for the ship is less than the value required by the baseline (reference line) for that ship type and size as given by IMO.

EEDI Reduction Measure:

- Optimized hull dimensions and form
- Lightweight construction
- Hull air lubrication system
- Engine efficiency improvement
- Waste heat recovery
- Gas fuelled (LNG)
- Hybrid electric power and propulsion concepts
- Reducing on-board power demand
- Variable speed drive for pumps, fans, etc.

- Wind power
- Solar power

SEEMP (Ship energy efficiency management plan):

The purpose of a SEEMP is to establish a mechanism for a company and/or a ship to improve the energy efficiency of a ship's operation. SEEMP seeks to improve a ship's energy efficiency through four steps: planning, implementation, monitoring, and self-evaluation and improvement.

SEEMP Related measure:

- Engine tuning and monitoring
- Hull condition
- Propeller condition
- Voyage execution
- Weather routing
- Propeller upgrade and aft body flow devices and many more

Significance Of EEDI & SEEMP:

The introduction of the EEDI for all new ships will mean that between 45 and 50 million tonnes of CO₂ will be removed from the atmosphere annually by 2020, compared with "business as usual" and depending on the growth in world trade. For 2030, the reduction will be between 180 and 240 million tonnes annually and fuel cost saving around \$20 billion. The results of the study indicate that SEEMP measures (mainly operational) have an effect mostly in the



medium term (e.g. 2020) whilst EEDI measures (technical) should have significant impact on the long term (e.g., 2030-2050) as fleet renewal takes place and new technologies are adopted.

To achieve EEDI and SEEMP there are various Challenges in front of Shipyards, Owners, recognized Organization (Classification Societies) and lastly for Charterers / Insurers.

Conclusion:

Implementation of EEDI and SEEMP has lots of crippling problems, but IMO is considering EEDI because IMO feels under great pressure to do something about CO₂ emissions. The Easiest way to reduce EEDI by reducing Design speed. But Problem for fast moving ships like containers ships. Implementation is not feasible for small ships (<400 GT) as if now due to technical and commercial reason. Around 70% reduction in CO₂ emission from ship has been expected by implementing these regulations. Any how these regulations will be in force from 1st January 2013.

Acknowledgements:

Our sincere thanks to our Institute, MERI Mumbai, Our Principal & Head, Mr. Ajoy Chatterjee, Vice Principal, Capt. Philip John, Course Coordinator, Mr. Rajeev Wad, and all other Engg. faculty, to have given us the platform to express our technical knowhow on the subject selected for the technical competition. Finally our sincere gratitude to our soft skills trainer Mrs. Meena Ravi Shankar who has educated us with all the necessary norms of presentation skills.



Deputy Director (I/C) Mr. Rajeeva Prakesh, Marine Engineering & Research Institute, IMU (A Central University, Govt. of India), awarded memento to Mrs. Meena Ravi Shankar, H.R & Soft Skills faculty, GEIMS.

DNV's Triality Vlcc

Introduction

Gas will become the dominant fuel for merchant ships. By 2020, the majority of owners will order ships that can operate on liquefied natural gas (LNG). The shipping industry's contribution to the reduction of greenhouse gas emissions is a hot topic these days. More energy efficient propulsion, new fuels, new hull forms and modified operating procedures are all part of the solution. Developed through a DNV innovation project, Triality -- as its name indicates fulfills three main goals: it is environmentally superior to a conventional crude oil tanker, its new solutions are feasible and based on well known technology, and it is financially attractive compared to conventional crude oil tankers operating on heavy fuel oil.

Significance

In August 2009, DNV started an internal fast track innovation project. The task was to develop a concept VLCC which was environmentally superior to and more economical than conventional VLCC designs. The following special features were identified:

- 1) LNG fuel for propulsion and auxiliary power. VLCCs currently use Heavy Fuel Oil.
- 2) No need for water ballast.
- 3) Use of low-temperature LNG for recovering Volatile Organic Compounds (VOCs).

The name Triality refers to the three points above as these were the three main objectives of the DNV innovation project. Triality is defined as "three united, state of being three."

The Present Scenario Of The Topic

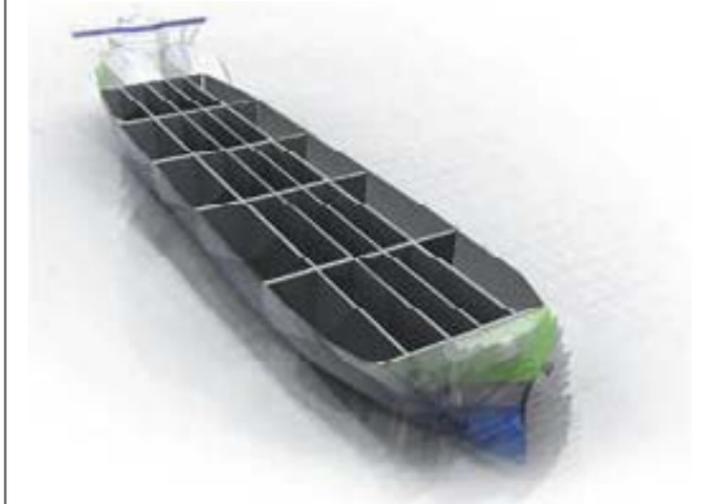
1. Natural Gas Fuelled VLCC

Liquefied natural gas (LNG) has already proven viable as a ship fuel. LNG is more prominently used as a fuel on gas carriers and a few others which are primarily small ships involved in local trade and a lot more are on the way. Although LNG as a fuel is no longer a novel technology,

some new solutions are necessary when introducing LNG in large VLCCs in international spot trade. The Triality overcame these difficulties with the help of below mentioned innovations:

- 2 stroke slow speed main engines. (300 bar pressure gas, dual fuel)
- Low pressure dual fuel auxiliary engines. (or pure gas fuelled)
- Triple fuel boilers. (Natural gas, fuel oil, VOC)
- MGO as pilot and backup fuel.
- No heavy fuel oil installations.
- Fulfils ECA requirements also at low load.

2. The Ballast Free Ship

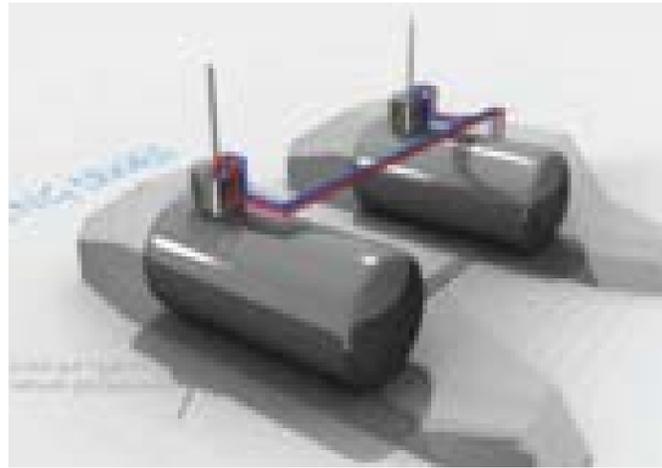


A conventional VLCC uses ballast water in unloaded transit condition to obtain a fully submerged propeller and enough forward draft to avoid bottom slamming. During cargo operations, ballast water is used to reduce bending moments and compensate for trim and heel. A tanker's ballast operations give rise to two main unwanted effects:

- Ballast water contains organisms that can cause damage when released to foreign ecosystems.
- Additional fuel is needed to transport the ballast water

Triality's tank arrangement and hull shape eliminate the need for ballast in its operations.

3. Recovery of Volatile Organic Compounds. (VOC's)



One of Triality's main features is the recovery of VOCs, which are collected in separate tanks and used as fuel for auxiliary boilers producing steam for the cargo pumps. The low-temperature LNG can also be used for purposes other than the recovery of VOCs. The cooling of scavenging air to the engines to improve engine efficiency, engine cooling, air conditioning and the operation of freezers and fridges are all purposes which will improve energy efficiency and are assumed to be cost effective.

Conclusion:

Triality- The Benefits And Profitability

The emissions reductions gained from switching to natural gas as fuel are first of all an impressive 94% reduction in SOx and particles emissions since LNG are sulphur-free. Natural gas, which mainly contains methane, has less carbon per energy content than oil fuels and therefore emits less CO2 when burned. The Triality design solutions implemented for the entire VLCC fleet would result in a 33% reduction in CO2 emissions. Triality is wider and longer than a conventional VLCC, but still consumes less energy. This is due mainly to its reduced wet hull surface and consequently lower frictional resistance, but also to its improved hull shape (lower block coefficient). The financial analysis shows that Triality; is more profitable than the conventional VLCC except in the low oil price scenario.

Acknowledgment:

Our sincere thanks to GEIMS, Principal & Head , Ajoy Chatterjee, Vice Principal , Capt. Philip John, Course Coordinator, Mr. Rajeev Wad and Soft Skills trainer , Mrs. Meena Ravi Shankar, to have helped us to make this project a grand success.



Pick And Place Wireless Robot

Introduction:

The pick and place robot is a microcontroller based mechatronic system that detects the object, picks that object from source location and places at desired location. For detection of object, infrared sensors are used which detect presence of object as the transmitter to receiver path for infrared sensor is interrupted by placed object. As soon as robot senses presence of object, it moves towards object, picks it with end effectors, and moves along way gantry and finally place it on destination.

If another object causes interrupt, it again does the same job. Micro controller controls the whole process.

Project Overview:

Through this project" submitted for the B.Tech. Degree, our team tried to develop a very efficient, simple and cost effective mechanism of the pick and place robot which can be used to transfer any object from one point to another, and that can be controlled wirelessly. Gripping any shape of the object is very difficult because every gripper is designed to hold a particular shape of the object. Hence this project consists of a mechanism that consists of two fingers.

The robot used the concept of 'degree of freedom' and 'RF technology' so the hand is able to reach and pick object from different points wirelessly. The project encompasses all design areas required to make a hand able to move and pick an object, including Mechanical design analysis, Electronic Printed Circuit Board design, and software control and gripping algorithms. Degrees of freedom (DOF) are actually the set of independent displacements and/or rotations that specify completely the displaced or deformed position and orientation of the body or system. This is a fundamental concept relating to systems of moving bodies in mechanical engineering, aeronautical engineering, robotics, structural engineering, etc.

Features Of The Mechanical Design:

- i) Two motors for running the wheels of the robot.
- ii) Two motors for the movement of robotic arm.
- iii) Movement of jaw open and close and up and down.

- iv) Wireless remote for the controlling.
- v) Rectangular metal box on the top.
- vi) A Belt around wheels, in order to save on the usage of hardware.

Top View:



Applications:

Military applications: Surveillance device to pull out casualties. Also it can be used to transport objects just on a click of a button

Industrial applications: Loading of objects, Serving security purposes, Surveillance and reaching places out of human reach.

Advantages:

Wireless Simple design, Reliable, Easy up gradation, organized control, fully wireless controlled, Rechargeable Battery operated, 4 wheel drive mechanism, 360 degree rotation and fully motorized controlled system

Conclusion:

This project helps in many ways to the society as, loading of objects, serving security purposes, Surveillance, reaching places out of human reach and reducing Human labour a lot.

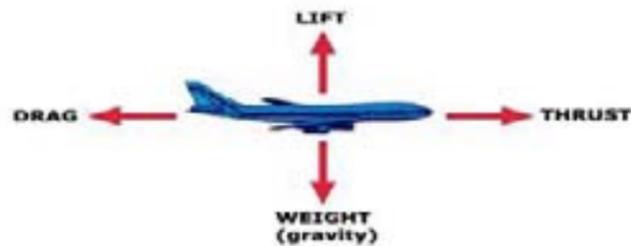


Shitanshu Bhusan
201208GM33-GME 22

How an Aeroplane flies?

An aircraft is a vehicle that is able to fly by gaining support from the air, or, in general, the atmosphere of a planet. It counters the force of gravity by using either static lift or by using the dynamic lift of an airfoil, or in a few cases the downward thrust from jet engines.

LIFT FORCE: The wing of aircraft is designed in such a way that when it is moving at a high speed, the motion/velocity of air at top and bottom of wing surface will be different. Due to this difference in velocity at upper and lower surface the pressure difference is created around the flow field, which is nothing but wing of aircraft. The pressure will be low at upper surface and high at lower surface and it makes the aircraft to lift or fly in the air. This force is created is called as lift force.



DRAG FORCE: As the airplane moves through the air, there is another aerodynamic force present. The air resists the motion of the aircraft and the resistance force is called drag. Drag is directed along and opposed to the flight direction. Like lift, there are many factors that affect the magnitude of the drag force including the shape of the aircraft, the “stickiness” of the air, and the velocity of the aircraft. Like lift, we collect all of the individual components’ drags and combine them into a single aircraft drag magnitude. And like lift, drag acts through the aircraft center of pressure.

THRUST: To overcome drag, airplanes use a propulsion system to generate a force called thrust. The direction of the thrust force depends on how the engines are attached to the aircraft. In the figure shown above, two turbine engines are located under the wings, parallel to the body, with thrust acting along the body centerline. On some aircraft, such as

the Harrier, the thrust direction can be varied to help the airplane take off in a very short distance. The magnitude of the thrust depends on many factors associated with the propulsion system including the type of engine, the number of engines, and the throttle setting

WEIGHT: Weight is a force that is always directed toward the center of the earth. The magnitude of the weight depends on the mass of all the airplane parts, plus the amount of fuel, plus any payload on board (people, baggage, freight, etc.). The weight is distributed throughout the airplane. But we can often think of it as collected and acting through a single point called the center of gravity.

PIC

ANGLE OF ATTACK: The air passes over the wing and is bent down. The bending of the air is the action. The reaction is the lift on the wing. The lift of a wing is proportional to the amount of air diverted (angle of attack) down per second times, the downward velocity of that air. The angle of which aerofoil is bent is called angle of attack. The lift coefficient of a fixed-wing aircraft varies uniquely with angle of attack. Increasing angle of attack is associated with increasing lift coefficient up to the maximum lift coefficient, after which lift coefficient decreases. The angle at which the lift force starts decreasing, that angle is called critical angle of attack.

For flying the aircraft in the air the aircraft has to overcome various forces, which are drag force, weight, or gravity force etc. So the amount of lift force has to be greater than the gravity force and for moving forward the thrust force (which is provided by the engine by burning fuel) has to be greater than the drag force. Lift and gravity forces are vertical forces and thrust and drag forces are the horizontal forces. Now I think you would have got little idea about why the aero plane first runs at very high speed on runway before flying or taking off!!!



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Social Engineering: weakest link in the security chain.

There is a saying in India “Atithi Devo Bhava” it is in regards of “Code of Conduct” in Hindu Society, which means “Treat your guests as god”, but still who would like to share their sensitive information like banking accounts details, their investments details with such gods? We always lock our homes, vehicles & our files, which shows “Vulnerability is obvious”.

Locks are made for people like you and me but not for those who can easily pick them off.

Every human is born with an inner drive to explore the nature, our surroundings. Everyone now has an intense curiosity to learn about the world and to prove him or herself. But very few people follow this inner urge, and let accomplish things that others believe cannot be done.

Humans are vulnerable; they are open to temptation, persuasion, and censure and thus form the weakest link in the security chain. People can build strong firewalls, the most advanced encryption for data and credentials but no one can make such application which can handle the outside intrusions like attack by social engineers that rely heavily on human interaction and involves tricking other people to break normal security procedures. These attacks are nearly based on human emotions like excitement, anger, curiosity & greed. Social engineering attacks can only be controlled by the awareness & knowledge of how to handle the important data or an asset.

There are lots of cases we can see around which were claimed as robbery done by just having a short conversation, such an incident has further professionally developed as an “Art of Deception”. It needs no weapons and you may surrender your entire asset to any person. Like most of the time in greed of getting lottery of endless dollars many people simply surrenders their sensitive banking details which finally turn their banking accounts to the empty pots. Many of us have a habit of writing down our passwords on a sheet of paper or maintain Ms word or an excel file for it, also many of us use common passwords for almost every

applications we use, even though these kind of data or the files can unleash your whole set of passwords which are meant to keep your belongings secure.

We also use cracked or pirated applications; which make our system more apt to a security bug. Attackers take advantage of such systems and may plunder the sensitive information from it, or may manage to make such application as their bots to steal the information from someone else’s system. Social engineers & hackers are always in search of such people as targets who can help them to get access from the social networking sites, corporate parties.

With the help of social engineering techniques recorded so far such as phishing, pretexting, diversion theft & tailgating or the term that is very common, piggybacking makes the social engineers well heeled once the access is granted and it becomes an effortless activity for them to break the application level security links. Due to such fraudulent cases most of the organisations develop their application policy so that it won’t allow installing non-standard application than the tested ones.

Because the world of science is a world of causes, not of purposes, it cannot answer the “why” question. WHY SOCIAL ENGINEERING EXISTS???... The human world cannot be adequately described in terms of causes without purposes and means without ends, so there is only one way to protect yourself and your organisation from such attack and that is “Never ever share any details about you or your organization to any unknown or unidentified person”.



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'Passing Out Ceremony', of GME XIX, on 02.04.2012, presided by the Chief Guest, Mr. H.S.Gandhi, Area Manager, DNV India, Principal & Head, Mr. Ajoy Chatterjee, Vice Principal, Capt. Philip John and Staff.



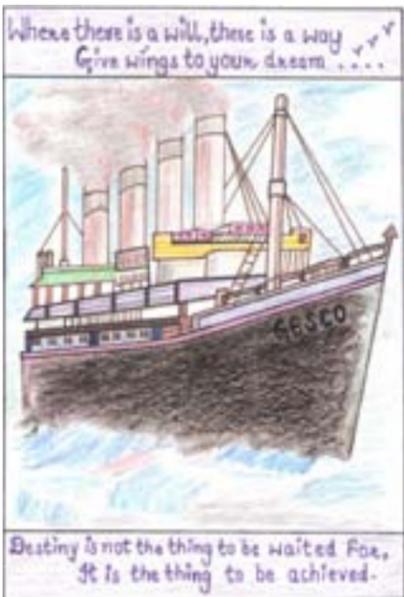
Cdt. Santokh Singh
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Cdt: Shitanshu Bhushan
GME 22- 20120833



'Passing Out Event', of GME XX, on 05.07.2012, chaired by the Chief Guest Capt. L.K.Panda, Principal Officer and Chairman Of Western Academic Council, Mercantile Marine Department, Mumbai, Principal & Head, Mr. Ajoy Chatterjee, Vice Principal, Capt. Philip John and faculty.



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'Passing Out Phenomenon', of TNOX XII on 13.07.2012, the Chief Guest Capt. H.Subramaniam, Principal Emeritus, L.B.S College of Advanced Maritime Studies & Research, Mumbai, Principal & Head, Mr. Ajoy Chatterjee, Vice Principal, Capt. Philip John and Staff.

