INDIAN NAVY

WINDFALL

A NAVAL PERIODICAL

BY NAVAL CONSTRUCTION WING OF IIT DELHI

ACTIVITIES AT NCW

MID-CAREER REFRESHER COURSE

Every year during the summer vacation of IIT, NCW conducts the Mid Career Refresher Course for Naval architect officers. As the name suggests the course is targeted at brushing up the basics of Naval architecture as well as bringing the officers up to date with the latest developments and tools in the subject. NCW faculty as well as officers from professional directorates conduct lectures for this course.

The eighth such course was conducted from 17 May- 29 May 10 at NCW. 12 officers (Cdrs and Lt Cdrs) attended this year's course. The course provided a refreshing capsule of academic fundamentals and some valuable insight on the latest technological changes. The guest lectures stimulated healthy discussions. Case studies were also presented by the participants on various topics, enriching the overall experience.

MAJOR PROJECTS

The Ship Design Exercise or Major Project in the final semester is the culmination and application of all concepts learnt by the budding warship designers at NCW. The exercise formally commenced in Dec 09 for the 2009 batch, after 6 months time for data collection and literature review.

The projects allocated for design this year were:

- Landing Helicopter Assault
- Attack Submarine with Air Independent Propulsion
- Diving Support Vessel
- SSBN
- Aircraft Carrier
- Multirole Stealth Frigate
- Fast Attack Craft

The design projects mentioned above are briefly described in the succeeding paragraphs.

Landing Helicopter Assault

Lt Vikram Singh, Lt Priyank Naithani, Lt Varun Duggal

The primary role of Landing helicopter Assault vessel is to provide airlift, command and control capabilities. It is a tool of power projection and designed to operate worldwide. Search, rescue and surveillance are its secondary roles.

AIP Attack Submarine

Lt Vijit Misra, Lt Dinesh S, Lt Vaibhav Sinha

AIP attack submarine is designed to detect and attack surface/sub surface targets in Indian Ocean region ensuring extremely stealthy

operations. The roles extend to carrying out reconnaissance and intelligence gathering, mine laying, deployment of Special Forces and deployment of mine hunting AUVs.

The propulsion system includes a fuel cell AIP capsule.

Diving Support Vessel
Lt Kuldeep Neralkar, Lt Thiagharajan, Lt Vinay S Bharamnaikar

The Diving support vessel is designed as a platform capable of supporting training/operational diving missions at sea. It will also have capability of search and rescue including submarine rescue operation. It will have complete reserve of electric power.

Aircraft Carrier
Lt Vignesh Kumar, Lt Arun K, Lt Tom D Karingada

Aircraft carrier projects air power over great distances. Sea control, reconnaissance, search and rescue, self defence against air attack, support of amphibious assault and peace-keeping missions are its few other roles. The vessel is capable of operating even at sea state 6, and can operate various types of aircraft.

SSBN
Lt Vishnu Vedantan, Lt KNVS Ganesh Karthik, Lt Subodh Rao

The submarine is capable of operating discretely in a dense ASW and EW environment and carry out attacks on surface targets with ballistic missiles even from very long ranges. It will have second strike capability in case of nuclear attack.

Multi Role Stealth Frigate
Lt S C Joshi, Lt Alexander N

A trimaran platform was designed to be capable of Anti Submarine Warfare, Anti Surface Warfare and Anti Air warfare in open oceans and within the littoral environment. It will have the ability to carry out clandestine operations and deployment of Special Forces.

Fast Attack Craft

Lt Y Hemanth Kumar, Lt Sreejesh Sivan

The primary role of the Fast Attack Craft will be to detect locate and destroy fast moving small surface crafts of terrorist engaged in covert operations off Indian sea coast/islands. It will also be engaged in policing, anti smuggling and fisheries protection in coastal waters.

MINOR PROJECTS

In order to have overall understanding of the academic courses taught at IIT Delhi and to enhance the interaction with the faculty on fundamental research, 'MINOR PROJECT' has been introduced. This assignment is graded by faculty of IIT based on the understanding of basic engineering aspects. This enables the budding Warship designers to have an insight into the practical aspects of the various engineering challenges. The various ongoing projects taken up by the officers are briefly explained below.

Helo-Ship Aerodynamic Interface

Lt Venkata Aditya, Lt Barun C Dixit

The project deals with the study of aerodynamics and flow around the hangar and helo-deck of ships to reduce turbulent wind envelopes. Various helicopter landing patterns and wind envelopes created while operations like hovering and recovering were studied. The aerodynamic forces experienced by helicopter and areas on the helo-deck where vortices and stagnation points occur, were identified. The experiment was carried out on a representative model of a hangar and helo-deck in 1:100 scale. Turbulent wind conditions through an open circuit centrifugal blower type wind tunnel (with wide angle diffusers) were created. Visualization of flow around the helo-deck with various hangar structure modifications are carried out. Optimization of hangar structure and modifications in helo landing areas to reduce turbulent wind envelopes were studied in the project.

Ship stability and parametric rolling

SLt Kokila Sajwan, SLt M.Y.V. Tejas

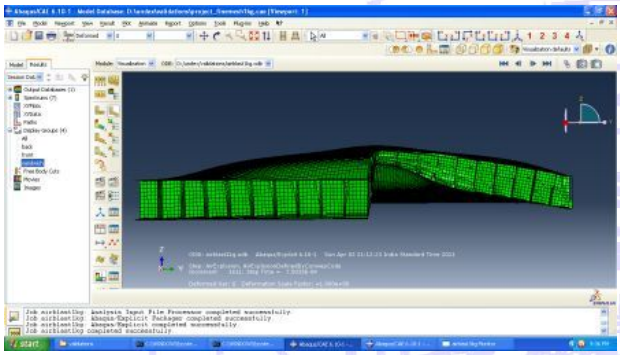
Ships at sea face numerous waves. In the case of natural rolling, it is assumed that the position of the centre of gravity and the position of metacentre remains fixed and the wave has no effect on them. In the case of parametric rolling when the ship encounters the wave it is found that the metacentre changes its position when the ship rolls. The change in metacentre depends on various wave parameters that the ship encounters. The parametric rolling is governed by Mathew equation, which has no standard general solution. The aim of the project is to model the equation using MATLAB and study the various stable and unstable responses of a ship to various sea waves and headings.

Response of a sandwich panel to an underwater explosion

Lt Abhishek Tewari, Lt Bhooshan Malpe

The response of a square honeycomb core sandwich panel to Underwater

Explosion (UNDEX) was studied using Finite Element Method (FEM) model in ABAQUS. The model was validated using the results of the explosive tests in air over such a panel for various levels of impulse load. The validated model was then used to predict the dynamic mechanical response of the sandwich panel for different levels of impulse loading and varying stand-off distances.

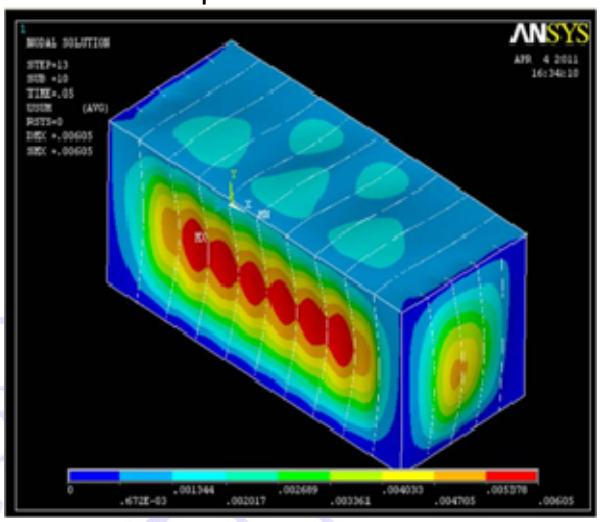


The analysis was then extended to predict the behaviour of the panel for similar impulse loadings underwater at different depths. A fluid structure interaction simulation code was used to determine the blast loads at the panel. A comparative analysis of the behaviour of the honeycomb sandwich panel was made for different materials for the honeycomb.

Analysis of response of naval ship panels subjected to air blasts

Dy Comdt R Aravind, Lt P Arvind, Lt Prasanth K

The project involves the study of side shell of vessel subjected to an air blast in proximity of the vessel. It mainly deals with the above-water structure of the vessel, particularly concentrating on the superstructure shell

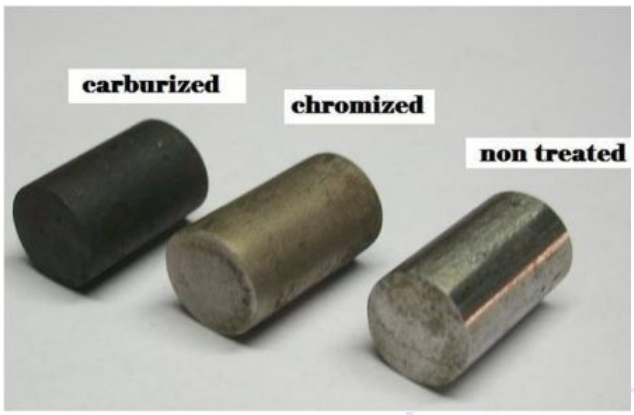


subjected to the effects of the blast. The main aim is to arrive at a better or superior design of the structure considering the various possibilities of the attack for massive destruction which exists in the present scenario. The aim is to validate the results obtained from the exercise of linear analysis and modal analysis of a similar structure using the finite element method (with ANSYS) vis-à-vis published experimental results conducted on such structures.

Study of microstructure of steel after surface treatment

Lt Vipin PG, Lt Denny Alexander & SLt Gopinath Murthy

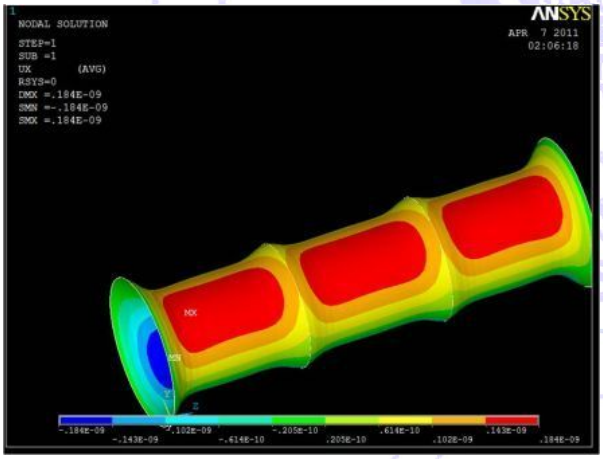
The project aims at achieving an improved method of surface treatment for steel to get better material properties. This project involves carburising and chromising of steel samples using different carburizing



and chromising mixtures. The microstructure of the steel samples will then be studied to compare the changes that have occurred. The mechanical properties of the treated steel will then be tested to evaluate the improvement in the various properties.

Buckling Analysis of Submarine

SLt Vishak Sashidharan, SLt Suharsh Singh

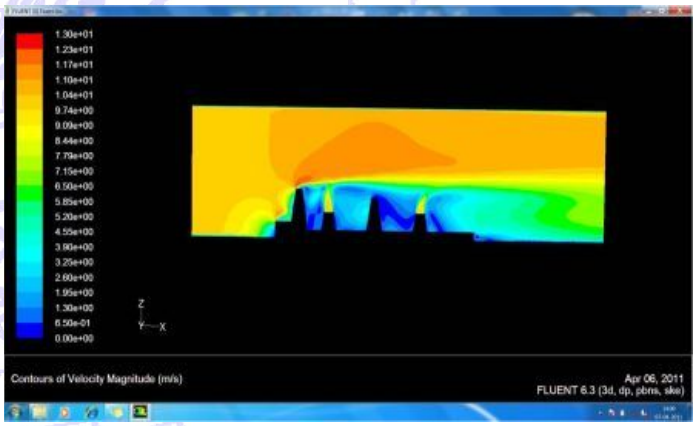


The design of submarines for deep sea has many challenges. The greatest challenge is its buckling strength against the crushing pressures of the ocean depth. The problem lies in the fact that there are no theoretical solutions for such complex geometry. To further complicate the problem, the out-of-roundness of the cylindrical hull due to manufacturing tolerances as well as material nonlinearity must also be considered. The project involved the use of Finite Element Analysis to analyse the given submarine pressure hull structure and find its buckling strength for different OOR magnitudes.

Effect of flow conditions at ship funnel exhaust on the smoke dispersion characteristics

Lt Prashanth Prabhakar, Slt Digvijay Singh Ranawat

The project is an exercise to study the effect of the presence of swirl, peripheral cooling air jet, and funnel geometry on the exhaust smoke dispersion. The project involves both the wind tunnel experiments and the CFD study.

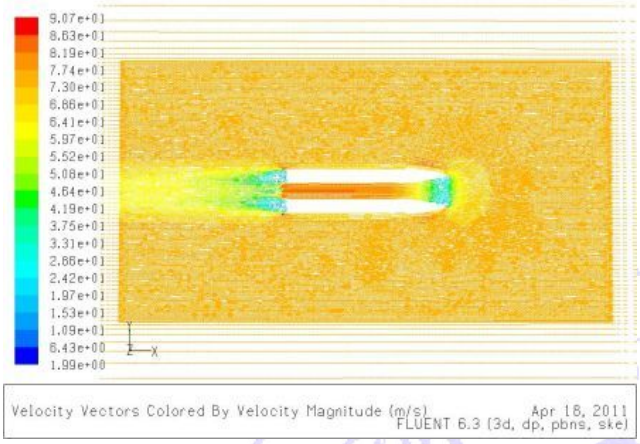


Shape optimization of catamaran Hull Using Computational Fluid Dynamics

SLt Y.S.Prasad, SLt Pranshu Malik

The project aims at optimizing the Catamaran Hull Shape using the Computational Fluid Dynamics Software FLUENT. Catamaran demi

hull spacing is one of the important aspects of Catamaran Hull Parameters.



This Project aims at studying the flow around catamaran hull at different hull spacing.

Volume of Fluid (VOF) method of solving multiphase flows is used for solving any ship flow problems in Fluent

Novel Design of Solar Collector and pneumatic tracking system

Lt Jithin Joshi, Lt Aneesh S S

The project aims at development and fabrication of a prototype solar collector, using arrays of Fresnel mirrors.

The novelty in the design lies in the alignment of the apparatus in the North south orientation rather than the conventional polar axis. The other innovation involves the use of a twin pipe half insulated to receive the reflected sunlight and the setup expects to achieve very high temperatures and steam generation which can be used to feed a boiler for further distillation. This collector can be produced on a larger scale to aid in power generation or distilled water production by this very simple and inexpensive method. The only adjustment that is required is to crank the mirror by 5 degrees every 40 minutes. On a larger scale, a gear arrangement can be timed to give this pulsed crank simultaneously to the entire array. The movement of the mirror is achieved by a weight attached to the gear and placed on a bellow from which air is leaked proportionate to the rotation required.

EXTERNAL LECTURES

A unique feature of the DIIT course is the schedule of External Lectures on Wednesday afternoons. Officers from various professional directorates of IHQ MoD (Navy) are invited to NCW to deliver specialist lectures. These lectures complement the courses in warship design and submarine design, providing invaluable insight into the various aspects of Naval operations, planning, design, production, construction, maintenance and budgeting.

The following external lectures have been delivered at NCW:

- Naval Combat Tactics
- Submarine Operations
- Submarine Staff Requirements
- Submarine Weapon Systems and Sonars
- Submarine Navigation and Communication System
- Habitability of Submarines
- Submarine Fire Fighting, Escape & Rescue Systems
- Propulsion Plants and Auxiliary Machinaries of Submarines
- Electrical Machineries of Submarines
- Design of Pressure Hull Joints & Penetrations of Submarines
- Submarine Construction & Systems
- Warship Construction Contracts
- Paints and Painting of Vessels In Indian Navy
- Formulation of Staff Requirements for Surface Warships
- Mission Profiles of Ships / Submarines
- Conceptual Design & Feasibility Studies of Warships
- Deck Machinery & Fittings of Warships
- Detailed Design and Production of Warships
- Medium and High Speed Diesel Engines for Naval Applications
- Marine Gas Turbines
- Electrical Power Systems of Warships
- Motors & Generators Used on Board Warships
- Ancillary Plants and Systems of Warships

SPORTS ACTIVITIES

The training imparted at the IIT, being one of the premier academic institutions in India, is undoubtedly academically strenuous. But for the overall training of an officer exposure to sports and adventure activities is crucial. It builds team spirit and esprit de corps among the officers.

- At IIT, there are excellent facilities for sports activities like basketball, volleyball, squash, badminton and hockey. These facilities are put to good use by the officers in the evening after the academic sessions. At weekends the morning sessions are used for sports activity. Apart from this, the officers also organize matches with other department students frequently.

- The first year student officers plunged into the inter-hostel sports activities at IIT with the customary zeal.

- Lt Vipin P.G won the Silver Medal in Squash tournament at Inter IIT Sports Meet.

- Lt Prashanth Prabhakar won the Bronze Medal in Football for IIT Delhi at Inter IIT Sports meet held at IIT Delhi.

- Lt Jithin Joshi represented Volleyball team of IIT Delhi at Inter IIT Sports Meet.

Volleyball match by NCW officers

- SLt Balaji Kumar represented Hockey team of IIT Delhi at UDHGOSH Sports Meet at IIT Kanpur

- Lt Venkata Aditya, SLt Y.S Prasad, SLt Suharsh Singh and SLt D.S.Ranawat were part of their hostel water polo team.

- SLt Vishak and SLt Gopinath were part of the Inter-hostel Football team.

- Lt Barun Dixit, Lt P.Arvind and SLt Pranshu Malik represented their hostel in Institute athletics event.

- SLt Gopinath represented Jwalamukhi hostel in badminton

- Lt Abhishek Tewari represented Kumaon hostel in Weight Lifting.

- SLt M.Y.V. Tejas and SLt Gopinath Represented Hostel Volley Ball Team at Inter Hostel Sports Meet.

Basketball match by NCW officers

ADVENTURE ACTIVITIES

A white water river rafting expedition was organized for the officers of NCW from 15th to 17th April 2011. It was conducted on the river Ganga while being camped at a river beach in Kudiyala. The rafting expedition was carried out in two sessions and covered more than 30kms. The rafting experience on the Ganges turned out to be a very thrilling and exciting one for all the officers.

The first day started off with a rafting expedition of 12 km. This stretch includes rapids like the 'Roller coaster' and the 'Golf course' which are grade 3 rapids. For those who wanted more of the icy cold Ganges, 'cliff jumping' was also conducted. The day ended with a campfire followed by dinner.

The second day saw us covering about 22 kms on the raft. This stretch introduced us to rapids like 'The wall', 'Three Blind Mice' etc which are grade 4+ rapids. This stretch also gave us the opportunity to body surf on the Ganges and experience the force of the river first hand. In the evening games like volleyball and football were organised on the beach which saw all the officers participating with full vigour and enthusiasm.

On the third day rock climbing and rappelling was organised in the morning. It was an exhausting but exciting exercise which tested the physical fitness of all the officers.

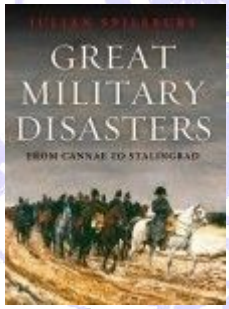
NCW LIBRARY UPDATE

The modest library at NCW has one of the best collections of books, papers, journals and reports on Naval Architecture and Ship Technology. Some recent additions to the NCW library on technical subjects are as follows:

- **Stability and safety of ships (Risk of capsizing)** – V. L. Belenky

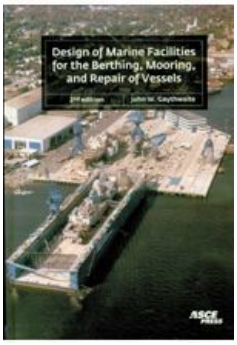
- **Fundamentals of ship acoustics** – Harrison T Loeser

Great Military Disasters – *Julian Spilsbury*



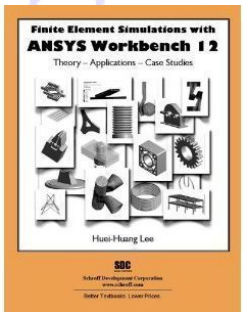
Great Military Disasters tells the dramatic stories behind the world's most calamitous conflicts. From the French army's failure to understand the impact of new technology at Crecy to Hitler's blatant overconfidence at Stalingrad, military historian Julian Spilsbury provides thrilling accounts of each disaster, covering exactly what went wrong, how and why. Of course, a disastrous outcome for one side meant victory for another, so as well as exploring the reasons the conflict ended in disaster, Great Military Disasters also reveals the key to victory.

Design of Marine Facilities for the Berthing, Mooring and Repair of vessels - *John W Gaythwaite*



This valuable handbook for practicing engineers covers the design of marine structures for the berthing, mooring, and repair of vessels, including piers, wharves, bulkheads, quay walls, dolphins, dry docks, floating docks, and various ancillary structures. Descriptions of vessel characteristics, dry dock types, and inspection, as well as assessment of existing facilities are all incorporated in this comprehensive marine facilities reference.

Finite Element Simulations with ANSYS Workbench 12 – *Kent Lawrence*



Finite Element Simulations with ANSYS Workbench 12 is a comprehensive and easy to understand workbook. It utilizes step-by-step instructions to help guide readers to learn finite element simulations. Twenty seven cases are used throughout the book. Many of these cases are industrial or research projects the reader builds from scratch. An accompanying DVD contains all the files readers may need if they have trouble.

STUDENTS' SECTION

Delhi Traffic guide

Lt Denny Alexander

Delhi's traffic condition can be summarised as chaotic, unruly and of course deadly. For someone new to the city, driving in Delhi can turn into a nightmare. Here are some tips that would help one deal with the chaotic traffic that infests our capital city.

1. 'Drive on the left side of the road' – is a rule that is applicable to all the drivers on the road except you. You are free to drive on any side depending on your convenience. As far as possible try to drive through the centre of the road.
2. Overtaking can be done at any time you like. On sounding the horn once, the vehicle in front of you is supposed to move to the left, slow down and allow you to go ahead with a courteous smile. If the person fails to do so you should sound your horn continuously, forcing your way to his right and give him a look that means 'you deaf or what'.
3. When faced with a red signal on a traffic island use your judgement. Traffic lights are meant for slow-witted people. You being more intelligent than the rest of the drivers can appreciate the traffic situation in front of you in much better way than the traffic lights. And hence it gives you all the rights to jump the red signal.
4. When the traffic is stuck or very slow moving and you are getting bored there is an interesting game you can play. It is called 'Changing Lanes'. The aim of the game is to NOT stay in a single lane for more than 10m distance. This is a multiplayer game and you will find enough people competing with you.
5. If you are driving after 10 pm in Delhi be sure to gulp down some 'Spirits'. This will bring you to the same level as the rest of the 'post 10 pm traffic' in Delhi.
6. It is customary for a new vehicle in Delhi to get a 'new pinch' from the fellow drivers. It will show up on your vehicle as a dent, scratch or a broken tail-lamp. It is a sign that you have been accepted into the Delhi traffic fraternity.
7. Adorn your vehicle with stickers like Press, Advocate, Doctor, High court judge etc. This will help you in dealing with the petty nuisances created by the traffic police. Try to put the same sticker on the front and back side of the vehicle. If you have already stuck different stickers you can always argue that you are an advocate and your wife is a doctor...etc.

Paradox of our Times

Lt Bhooshan Malpe

Today we have bigger homes yet smaller families.
More convenience, but less leisure time.
We have more degrees, but less common sense,
More knowledge; but less judgement.
We have more experts, but more problems too,
More medicines, but less good health.
We spend too recklessly
Laugh too little.
Drive too fast.
Get too angry too quickly
Stay up too late.
Read too little.
Watch TV too much
And are less considerate.
We have multiplied our possessions,
But have reduced our values.
We talk too much,
Love too little and lie too often.
We have learned how to make a living,
But not a life.
We have added years to life,
But not life to years.
We have taller buildings,
But shorter tempers.
Wider roads, but narrower viewpoints.
We spend more, but have less.
We buy more, yet enjoy it less.
We have been all the way to moon and back,
But have trouble crossing the road to meet our neighbours.
We've conquered our outer space,
But not explored our inner space yet.
We've split the atom,
But not our prejudice.
We write more, learn less.....
Plan more, but accomplish less.
We have learned to rush, But not to wait.
We have higher incomes, But lower morals.
We are long on quantity, But less in quality.
These are the times of fast food & slow digestion.
Tall men and short character,
More leisure but less fun
More kinds of food –But less nutrition.
Two incomes – But more divorces.
Nicer houses -but broken homes.
That's why I propose that as of today you do not keep anything for special occasions,
Because every day you live is a special occasion.
Search for knowledge, read more,
Sit and admire the view without paying attention to your needs
Spend more time with your family and friends,
Eat your favourite food and visit places you love.
Life is moments of enjoyment and not just about surviving.
Lets remove phrases like "one of these days", "someday" and
"Not now" from your vocabulary.
Let's tell our families and friends how much we love them.
Do not delay anything that adds
Laughter and joy to your life.
Every day, every hour and every minutes is special.
As you do not know if they will be your last.

The Barometer problem

Dy Comdt R Aravind

The best question has many answers. I am reminded of the story about a student who protested when his answer was marked wrong in a physics test at a University. The question was

"Describe how to determine the height of a skyscraper with a barometer."

The student replied:"You tie a long piece of string to the neck of the barometer, and then lower the barometer from the roof of the skyscraper to the ground. The length of the string plus the length of the barometer will equal the height of the building." This highly original answer so incensed the examiner that the student was failed immediately. The student appealed on the grounds that his answer was indisputably correct, and the university appointed an independent arbiter to decide the case. The arbiter judged that the answer was indeed correct, but did not display any noticeable knowledge of physics. To resolve the problem it was decided to call the student in and allow him six minutes in which to provide a verbal answer that showed at least a minimal familiarity with the basic principles of physics. For five minutes the student sat in silence, forehead creased in thought. The arbiter reminded him that time was running out, to which the student replied that he had several extremely relevant answers, but couldn't make up his mind which to use.
On being advised to hurry up the student replied as follows:
"Firstly, you could take the barometer up to the roof of the skyscraper, drop it over the edge, and measure the time it takes to reach the ground. The height of the building can then be worked out from the formula H = 0.5g x t squared. But bad luck on the barometer."

"Or if the sun is shining you could measure the height of the barometer, then set it on end and measure the length of its shadow. Then you measure the length of the skyscraper's shadow, and thereafter it is a simple matter of proportional arithmetic to work out the height of the skyscraper."

"But if you wanted to be highly scientific about it, you could tie a short piece of string to the barometer and swing it like a pendulum, first at ground level and then on the roof of the skyscraper. The height is worked out by the difference in the gravitational restoring force, measured in terms of the time period, T =2 pi sqr root (l /g)."

"Or if the skyscraper has an outside emergency staircase, it would be easier to walk up it and mark off the height of the skyscraper in barometer lengths, then add them up." "If you merely wanted to be boring and orthodox about it, of course, you could use the barometer to measure the air pressure on the roof of the skyscraper and on the ground, and convert the difference in millibars into feet to give the height of the building."

But since we are constantly being exhorted to exercise independence of mind and apply scientific methods, undoubtedly the best way would be to knock on the janitor's door and say to him “If you would like a nice new barometer, I will give you this one if you tell me the height of this Skyscraper”.

Quotable Quotes

Lt Abhishek Tewari

If you can imagine it, you can create it. If you dream it, you can become it.

William Arthur Ward

You see things; and you say, "Why?" But I dream things that never were; and I say, "Why not?"

George Bernard Shaw

You can never cross the ocean unless you have the courage to lose sight of the shore.

Christopher Columbus

Whether you think you can or think you can't, you're right.

Henry Ford

To live is the rarest thing in the world. Most people exist, that is all.

Oscar Wilde

The only man who never makes a mistake is the man who never does anything.

Theodore Roosevelt

Never be afraid to try, remember...
Amateurs built the ark.
Professionals built the Titanic.

Author Unknown

If you are going through hell, keep going.

Winston Churchill

The ultimate measure of a man is not where he stands in moments of comfort, but where he stands at times of challenge and controversy.

Martin Luther King Jr.

Facts of life

SLt M Gopinath

- One woman brings you into this world crying and the other ensures that you continue to do so for the rest of your life.

- There was this guy who told his woman that he loved her so much that he would go through hell for her .They got married and now he is going through hell.

- Getting married is very much like going to the restaurant with friends. You order what you want, but when you see what the other person has you wish you had ordered that.

- Girlfriends are like chocolates, tastes good any time. Lovers are like pizzas, hot and spicy, eaten frequently. Wives are like daal rice, eaten when there is no choice.

- There is a way of transferring funds that is even faster than electronic banking. It is called marriage.

- It is funny when people discuss love marriage v/s arranged. Its like asking someone “which one is better- suicide or being murdered”.

Motivating your men

SLt MYV Tejas

Knowing how to motivate employees can mean the difference between a thriving business and a failing one. Since a large percentage of people would rather be doing something else other than their current work, motivating them can be quite the challenge. This isn't an impossible task however. This article will give you a few ideas on how you can help increasing productivity in the workplace in order to improve your bottom line.

As you may know, there are different types of employees. Not everyone will be motivated the same way. For some people, a bonus can do the trick. For others, more money won't really do much at all and if it does, it will only be temporary. The first step to knowing how to motivate your employees is to realize that everyone works for a reason. Sometimes it's just for a pay check but many times, it's more than that.

For some people, all it takes is a, "Hey, thanks for doing such a great job on that last project." For others it may take a public recognition such as receiving an award for something in front of their co-workers. Some people can get these things and will still be unmotivated to work. For them, becoming motivated could mean having to really feel that what they do is making a difference, that they are somehow responsible for the success of the company.

As you can see, with so many different styles, figuring out how to motivate employees in the workplace can be difficult. Fortunately, there are many things you can do to figure out people's motivation style is. This can be done by doing things like having them take a survey or even having a one on one talk with them to find out what their goals and purpose of working at the company is.

Many employers will think that giving more money will do the job. This will work but many times, it's just temporary. The examples above are about how to motivate employees without money and can be much more effective. Realize very few people are actually lazy. You may see someone who just doesn't want to do anything but that doesn't mean they are a lazy person. It may just mean that they don't see the purpose of working hard. These people merely lack a strong enough goal or a reason. Figuring out how to motivate lazy employees can be as simple as asking them what will motivate them. Give them a reason to be productive. Remember, a pay check may not be enough.

Knowing how to motivate employees can be tough but it's something that you will have to figure out. There are a lot of different books and programs to help deal with this challenge. You can even hire a motivational speaker or even a company to come in a find out what motivates your employees for you so you don't have to.

Tickle your funny bone

Lt Vipin P G

Which is the best Service??

A soldier, a sailor, and an airman got into a fight about which service is best. The fight was so heated, that they killed each other.

Soon, they found themselves in Heaven. They see Narad Muni walk by and ask, “Which Branch of Service is the best?”

Narad Muni replied, “I can't answer that. But, I will ask God (Vishnu) what He thinks the next time I see Him.”

Sometime later, the three see Narad Muni again and ask him if he was able to find the answer.

Suddenly, an eagle landed on Narad Muni’s shoulder. The eagle was carrying a note in its beak. Narad opened the note and read it out loud to the three fellows: “Gentlemen: All the Branches of the Service are ‘Honourable and Noble’. Each one of you has served your country well. Be proud of that.

(signed)
Vishnu, Indian Navy (Retd)

Why do you want to join the Navy

Having passed the enlistment physical, Raju was asked by the doctor, “Why do you want to join the Navy, son?”

“My father said it'd be a good idea, sir.”

“Oh? And what does your father do?”

“He's in the Army, sir.”

A Navy Tradition

Not sure how it ever got started, but a tradition in the Navy is all of the pilots dance with the Wing Commander's wife. I walked over at a dance once and asked if she'd like to dance and she said, “I don't dance with a child.”

I smiled, bowed, and replied, “Oh! I'm sorry. If I'd known your condition, I wouldn't have asked.”

Rounds ...

OOD was cutting through the Sailor’s quarters of his ship one day and happened upon a sailor reading a magazine with his feet up on the small table in front of him.

“Sailor! Do you put your feet up on the furniture at home?” the officer demanded.

“No, sir, but we don't land airplanes on the roof either.”

PROMOTIONS

The following trainee officers shipped their new stripes in past one year:

- Lt P Naithani
- Lt Venkata Aditya
- Lt Barun C Dixit
- Lt Vipin P G
- Lt Denny Alexander
- Lt Jithin Joshi
- Lt Abhishek K Tewari
- Lt Rajesh R
- Lt P Arvind
- Lt Bhooshan Malpe
- Lt Aneesh S S
- Lt Prashanth P
- Lt Prasanth K

GALLERY

This section is a tongue-in-cheek introduction to the batch that passed out in Dec 10.

Lt Dinesh S

The Hard Rock fan of the course. The person who has proved that size doesn't matter, only attitude matters. And the attitude is inversely proportional to the size. Belongs to the elite group of 'Royal Enfield' riders of the 18th course.

Lt Vikram Singh

The most studious officer in the 18th course. Proud representative of the Indian Navy in the Republic Day parade. Overall topper of the course.

Lt K Vignesh Kumar

Wizard of words and wisdom (at times!). Got the best project while designing the Aircraft Carrier which India has been trying for the last 30 years. The other member of the 'Royal Enfield' gang whose bike may be mistaken for a Pizza Hut delivery boy's.

Lt Kuldeep Neralkar

The singer: and not just any singer, the 'Himesh' of the course. After a full year of struggle could manage to get a moustache just before December. Won accolades for his exploits in 'Eastern Nights' in IITD.

Lt KNVS Ganesh Karthik

'Men are back'. The Michael Schumacher of the course. Has mistaken his SX4 for a Ferrari. The only officer who never faced any hiccups in Annual Medicals due to the 'size zero figure'.

Lt S Thiagharajan

The only officer who has distinction of having a pillow and a blanket in his classroom locker. The owner of a Royal Enfield who left the gang for unknown personal reasons.

Lt Vijit Misra

The only officer who managed to stay hale and healthy despite the hostel food. Never took 'No' for an answer and never gave Don't Know as an answer. Esteemed customer at the 'Batra's Hair care' .

Lt Arun K

The artist behind the acclaimed carrier project. Lived with the motto 'Drink Delhi Dry'. And of course the President of IIT Delhi Malayali Association.

Lt E Vishnu Vedantam

Quizmaster of IIT Quizzing club. The **Gentleman** of the course. True supporter of unified Andhra and proved it by visiting Andhra Bhawan regularly (for food only).

Lt S C Joshi

A soft spoken and a very polite officer. A very talented dancer. Has created a huge profit for his 'Telecom Operator'.

Lt Y Hemanth Kumar

The 'Land Lord' of the course who owns a villa in Gurgaon. Socialist social networker, 24/7 online on Facebook, known for 'instant' updates of his mundane day-to-day activities.

Lt Vaibhav Sinha

The only officer who could be seen running around the campus in the evenings. An avid user of the Gym in Student Activity Centre. Is always seen sporting a beaming smile.

Lt Priyank Naithani

'Simple living, high(?) thinking'. Very calm and cool officer. And its still a mystery if he got a degree of DIIT from Delhi or Dehradun.

Lt Varun Duggal

The guiding light for the juniors during the Rendezvous. It was very difficult to find him inside the campus but could be easily spotted in a and around the malls and DU campuses.

Lt Tom D Karingada

A heavy duty 'Gymmer' with a perfectly fit and athletic body. Was a famous figure at the football field too. Belongs to the fraternity of 'Mallus' sharing the same blood group- C_2H_5OH.

Lt Alexander Ngangom

As one might have guessed he is of course a football player. Bought an i20 and since then has been busy driving it in and out of the garage.

Lt Sreejesh Sivan

One of the fastest brains in the course. Was also a great long distance runner. Is a very soft-spoken person and great lover of 'Mallu' food.

Lt Subodh Rao

A very good football player. A fun loving and jovial person. Always gets what he want and ended up owning only automatic SUV of the course.

Lt Vinay Bharamanaikar

The lean mean machine of the course. A very silent personality who managed to sail through the IIT phase with minimum 'noise signature'

NEWS CLIPPINGS

Source: www.naval-technology.com

South Korean Navy Launches New Frigate

The South Korean Navy has launched a new frigate, the Incheon, at the Hyundai Heavy Industries shipyard in Ulsan, Seoul, in a bid to boost its deterrence.

The 114m-long, 2,300t frigate is capable of cruising at speeds of 30knots while accommodating a crew of 140 and an anti-submarine helicopter. The frigate is armed with anti-ship and anti-aircraft rolling airframe missiles, a 3D radar system and a Torpedo acoustic countermeasure to fight enemy torpedo attacks.

The $232m frigate will be the lead ship of 20 new frigates to be built by 2020 under a naval project, code-named FFX. The new frigate is expected to enter service with the navy in mid-2013 after undergoing six months of testing

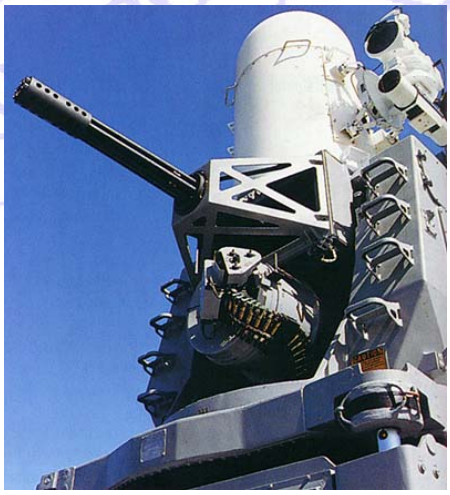
UK Navy Seeks MK15 Phalanx CIWS from US

The US Defence Security Cooperation Agency has notified Congress of a potential sale of MK15 Phalanx close-in weapon systems (CIWS) and associated equipment to the UK.

The MK15 Phalanx CIWS upgrades will be used onboard the UK's naval combatants and auxiliaries for close-in ship self defence against air and surface threats.

The upgrades will provide enhanced electro-optical and radio frequency close-in detection, tracking and engagement capabilities over the existing phalanx systems.

Raytheon Systems will be the prime contractor.



Danish Frigates to Receive Terma Radar Systems

The Danish Defence Acquisition and Logistics Organisation has signed a contract with Terma for the delivery of radar systems for the Danish Navy's three new Iver Huitfeldt Class frigates. The scanter 6000 naval surveillance radar will be used for surveillance and rescue assignments at sea, and to encounter asymmetric threats such as terror and pirate attacks.

The radar is capable of detecting small targets under severe weather and can guide a helicopter to safe landing.

The 140m-long Iver Huitfeldt Class frigates consist of seven decks, including a helicopter landing deck and hangar, and will enter operational service with the navy in 2013 for national and international assignments. Terma's radar is also installed on the US Navy's Stiletto vessel and will be installed as part of the French offshore patrol vessel programme, Hermes.

Hydroid Delivers AUVs to Royal Norwegian Navy

Hydroid has delivered two Remus 100 autonomous underwater vehicles (AUVs) to the Royal Norwegian Navy (RNoN) to further enhance its shallow water mine countermeasure capability.

The Remus 100 is a compact, lightweight AUV designed for operation in coastal areas up to 100m in depth.

The vehicle can be configured to fit a range of standard and/or customer-specified sensors and system options to meet unique autonomous mission requirements.

The AUVs can be used in hydrographical surveys, harbour security operations, debris field mapping, scientific sampling and mapping.

ACTIVITIES AT IIT DELHI

OPEN HOUSE 2011

IIT Delhi is one of the premier institutes of engineering and technology in the country. The student and faculty here are constantly engaged in developing innovative technology and cutting edge research. Open house, conducted every year by IIT Delhi, is a one day event dedicated to provide an insight into path-breaking research work, student projects and the numerous advanced facilities and laboratories available in IIT Delhi.

The 7th Open House held this year, called the i2Tech 2011, was special as it is also part of the Golden Jubilee year celebration of the institution. This year the Open House showcased its best innovations carried out over the past 50 years. More than 1000 IIT students presented around 400 projects this year.

Continuing the tradition of last six years, this year too, i^2tech promised to be a real treat to the eyes of the connoisseurs by presenting finest of the projects. Engineering students from other colleges in the city, wide-eyed schoolchildren and inquisitive families turned up in large numbers for the show. The projects on display varied from simple page turning machine for the physically challenged to sophisticated underwater surveillance system.

Lt Jithin Joshi and Lt Aneesh S S had designed the ***Tracking System for the linear fresnel mirror solar collector*** which went on to win the 2nd best project for this year's Open House. Their project aimed at generating steam by tracking the sun and focussing its energy at a target using Fresnel mirrors. The steam thus produced is cheaper and environmentally friendly.

FAREWELL

The student officers of the 2009 -10 batch successfully completed their DIIT(NC) course in Dec 10. Sri Paramanandhan Gold Medal of The Chief of Naval Staff for Best Academic Performance in DIIT (NC) Course was awarded to Lt Vikram Singh. Cmde Garg Silver Medal of The Vice Chief of Naval Staff for Best Project and Dissertation in DIIT (NC) Course was awarded to Lt Arun K, Lt Vignesh and Lt Tom K.

Rear Admiral Dinkar Sharma ACOM (D&R) was the chief guest. He presented awards and mementos to the passing out officers. The Admiral later gave an inspiring address to the trainee officers of NCW.

The following officers passed out after successful completion of DIIT(NC) course at IIT Delhi

- Lt Vikram Singh
- Lt K Vignesh Kumar
- Lt Kuldeep M Neralkar
- Lt KNVS Ganesh Karthik
- Lt S Thiagharajan
- Lt Vijit Misra
- Lt E Vishnu Vedantan
- Lt Shrikant C Joshi
- Lt Y Hemanth Kumar
- Lt Arun K
- Lt Dinesh S
- Lt Priyank Naithani
- Lt Vaibhav Sinha
- Lt Varun Duggal
- Lt Tom D Karingada
- Lt Sreejesh Sivan
- Lt Subodh N Rao
- Lt Alexander N
- Lt Vinay S Bharmnaikar

From L-R: (First Row): Lt E Vishnu, Lt Kuldeep M Neralkar, Lt Y Hemanth Kumar, Lt Vikram singh, Lt Cdr S K Rao, Capt V K Satyam, Lt Cdr V S Swaminathan, Lt Arun K, Lt Vijit Misra, Lt Sreejesh Sivan, Lt Vignesh Kumar

(Second Row) : Lt Vaibhav Sinha, Lt Shrikant Joshi, Lt Tom Karingada, Lt Priyank Naithani, Lt Vinay S B, Lt S Thiagharajan, Lt Varun Duggal, Lt Subodh Rao, Lt Dinesh S, SLt Kokila Sajwan, Lt Alexander D N, Lt KNVSG Karthik, Dy Cmdt R Aravind, SLt Balaji Kumar, SLt V Y Tejas, SLt Digvijay Ranawat, SLt Barun C Dixit

(Third Row) : SLt Prashanth Prabhakar, SLt Vishak Sashidharan, SLt Denny Alexander, SLt Jithin Joshi, SLt Aneesh S S, SLt Bhooshan Malpe, SLt,Suharsh Singh, SLt Shreesh Bajpai, SLt Gopinath Murthy, SLt Shiva Prasad Y, SLt Prasanth K, SLt Vipin P G, SLt Abhishek Tewari, SLt P Arvind, SLt Pranshu Malik, SLt Venkata Aditya, SLt Rajesh R