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THE NEOTIA UNIVERSITY

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UGC Enlisted & Recognised

SOMS

ABHIJAN

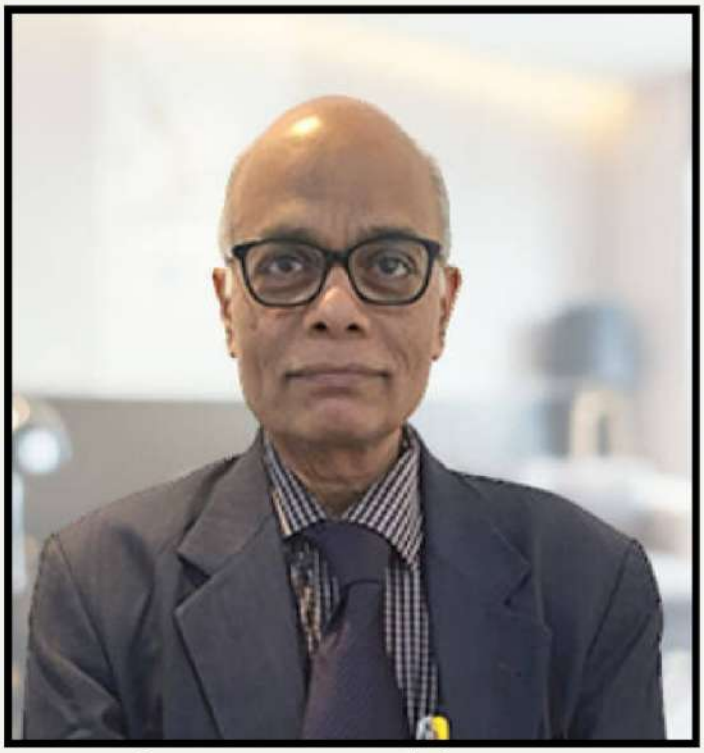
ACADEMIC AND CAMPUS DIARY

ENERGY EFFICIENCY OF MARINE OPERATIONS

MARCH 2024 VOL.-2 ISSUE-1

SCAN TO VIEW
FULL MAGAZINE

Foreword from VC



It is a great pleasure for me to put a foreword in the occasion of publication of 'Abhijan' vol. II and issue I, the e-magazine of the School of Maritime Sciences (SOMS) of our university. I learned that the theme of this issue is 'Energy Efficiency of Marine Operations'. Energy is one of the central parameters of the transportation sectors and its availability, and adaptability. Applicability plays crucial roles in the viability of transportation systems. Marine is the water transportation system and an ancient one by means of which the 'Homo sapiens, the human ancestors migrated from one part of the globe to other parts and spread over the world. The ancient muscle power used in sailing converted to machine power with time and to run the machine power there was a need for energy resources and hydrocarbon-based (HC) fuels. Till date hydrocarbon-based fuel is used in supplying power to the transportation systems. However, the HC based fuel sources has several limitations from availability to adaptability. One of the major problems in using HC-based fuel is the emission from its burning components and these are loading the environment and perturbing the ecological systems. The Indian Ocean Experiment (INDOEX) revealed that emission from marine vessels mixed with marine air and initiated the positive impact on haze layer which has direct impact to terrestorial ozone (O3) formation. A number of studies indicated that replacement of HC by hydrogen (H2) or ammonia (NH3) may lighten the load in marine air.

Use of carbon free fuel may show some light in this direction at the same time it directs the energy conservation opportunity towards the supply side. It is expected that the faculty members, students and the maritime community will address the energy conservation opportunities in the maritime sector in this issue of the e-magazine 'Abhijan'. Information on this aspect will certainly help the students, faculty members and other readers in having the latest information and activities related to the maritime transportation. On this occasion, I would like to congratulate the SOMS community of our university for their untiring efforts in developing our students to be responsible cadets.

I wish all the authors of this issue for providing relevant information for the promotion of maritime studies with reference to energy conservation opportunities in maritime sectors in reducing the load on economy and ecology.

DR. BISWAJIT GHOSH
VICE CHANCELLOR
THE NEOTIA UNIVERSITY

Director's Desk

The purpose of education is to make good human beings with skill and expertise. Enlightened human beings can be created by teachers. - (A.P.J Abdul Kalam)

A mission that aims to Educate, Enlighten & Empower has proved to be successful time & again and here in "The Neotia University" our mission is to provide an outstanding education and inspire our students to engage in both academic and extra-curricular program. ABHIJAN, the digital magazine, is one such successful programs in extra-curricular activities of the School of Maritime Studies. I am very excited to write a few lines for Abhijan which just stepped into its second year of publication. We are living in a fast changing world, a changing society, progressing at a galloping speed, with impact of science, scientific research, technological development, and globalization on our daily life being vibrant and unavoidable; so the need to be geared up for tomorrow is far greater than ever before. While there are lots of hue and cry over introduction of Artificial Intelligence in Shipping operation, we take this opportunity to throw some lights into energy efficiency in Marine Operations by new technologies or more specifically with the introduction of AI, In-order to reduce shipping's impact on climate change.

Thus, our continuous efforts will be to address the current global issues in shipping industry through SOMS signature digitized magazine "Abhijan" so that our students not only become a skilled seafarer but at the same time they remain aware of social issues and committed to contribute, as a good human being.

Wish you all the very best .

MR. PARTHA PRATIM SAHA
DIRECTOR
SCHOOL OF MARITIME STUDIES

Prologues from HOD's

MRE

It brings me great joy to pen a note from the desk of the Head of the Department of Marine Engineering at The Neotia University's School of Maritime Studies about our e-magazine 'ABHIJAN'. 'ABHIJAN' embarked on its maiden voyage in 2023, and we're now proud for our next voyage Volume-II, Issue-1. This e-magazine serves as a beacon of our cadets' creativity, showcasing art, photos, poems, stories, and comics with maritime knowledge. It highlights our cadets' brilliant minds, overflowing with ideas waiting to be shared.In today's world, we face significant challenges, such as climate change and global warming. We are dedicated to steering towards a sustainable future by exploring clean energy and advanced technologies to address these issues. This dedication is mirrored in this edition of "ABHIJAN, Vol-II, Issue-1": "Energy Efficiency of Marine Operations".

Beyond 'Abhijan', our marine engineering department is committed to developing maritime expertise and imparting essential life skills, discipline, and determination. Our cadets use these compasses to chart their professional courses confidently and embody the courage to venture into uncharted waters and the resilience to navigate through turbulent seas.

I extend my heartfelt gratitude to everyone who has joined us on this journey—our students, faculty, and readers alike. Your support and dedication fuel our voyage. Let's continue to sail together, aiming for the stars and ready to shape the future.

Here's to the enduring spirit of 'Abhijan', the adventures that await us, and the groundbreaking ideas that will emerge as we continue our voyage.

Wishing 'Abhijan' fair winds and following seas...

MR. ATANU ROY
HOD, MRE
SCHOOL OF MARITIME STUDIES

BNS

I am delighted to know that the cadets of the school of Maritime Studies are launching the 3rd edition of the digital Magazine. Needless to say, it is an exciting opportunity for all of you to showcase your talents and share your insights like the previous two publications which we have successfully done, and received appreciation from all.

This magazine will be a platform for us to express our unique perspectives experiences and interests related to the maritime world. Whether we have a passion for maritime history, cutting-edge technology, environmental conservation, or seafaring adventures, we encourage everyone for this wonderful collaborative effort.

We will be covering all kinds of topics here; like opinions and personal reflections, related to the theme of the current issue, 'Energy Efficiency of Marine Operations', and also photography related to the beauty of the sea, ships, ports and marine life through your lenses.

Also, in poetry and literature we can flow our words and tell stories which convey the message about maritime world.

This digital magazine not only serve as a platform for creative expressions but also act as a valuable resource for our departmental community and beyond.

Let's come together as a community of maritime enthusiasts to create something truly special. I look forward to seeing everyone's contribution and witness the creativity and passion that all of us can bring to this project.

Good luck!

Fair winds and following seas....

CPT. SHEKHAR CHANDRA SAHA
HOD, BNS
SCHOOL OF MARITIME STUDIES

Editor's Note

We all at the Marine School are happy that our Cadets have brought forth the first issue of their loved magazine this year whose theme is Energy Efficiency in Marine Operations. It is an expression of their awareness and responsibility towards the environment. I must heartily thank all the Cadets involved in the preparation of this issue of Abhijan. Our common belief is that a world of energy optimization is a better world for all. Efficient marine operations with energy optimization not only saves costs but it is imperative to save our oceans and our atmosphere by reducing emission footprints and paving the way for a greener future for mankind. Though international shipping has set zero carbon emission targets through the International Maritime Organization primarily based on use of alternative fuels the socio-economic and political reality is that the targets of full decarbonisation of global shipping may not be achieved as yet. It is not only going to face cost barriers but also the very impact of alternative fuel use needs much more time to be technically manageable. What remains practically possible is to make our marine crafts and their operations as efficient as we can to reduce the carbon footprint. Till we have a wider acceptance, adaptability and use of alternate power and fuel and the process of capturing carbon at sea becomes more feasible we can only keep reducing our emissions with energy optimized operations.

Interestingly one may read here about sustainable maritime operations, methods of opitimising energy use and about efficient ship designs.

Readers will be treated to some enjoyable literary pieces here too. Also our appreciation goes for the Cadets of TNU on their recent awards and recognitions from the maritime world.

Happy reading !

MR. TAMAL MUKHERJEE
MRE(FACULTY)

Note from the Coordinator

Welcome to the new "Abhijan" edition - VolumeII, Issue I, proudly presented by the School of Maritime Studies (SOMS) at The Neotia University. In this issue, we focus on the important topic of "Energy Efficiency of Marine Operations," exploring new ideas and insights in the maritime field.

As the coordinator of this e-magazine, I'm excited to share a collection of articles, research papers, and expert opinions that discuss sustainable practices and progress in the industry. I extend my heartfelt thanks to all the contributors who have submitted their artistic works, adding a fresh perspective to this edition. Our contributors, including respected faculty members and enthusiastic students, have collaborated to offer various perspectives on the challenges and opportunities related to improving energy efficiency in marine operations.

From advanced technologies to eco-friendly practices, this issue aims to inspire discussions and raise awareness about the significance of responsible maritime practices. We believe that by promoting a better understanding of energy efficiency, we can contribute to a more sustainable and environmentally conscious future for the maritime industry.

I want to express my gratitude to all the contributors for their dedication and thought-provoking submissions. Special thanks also go to the members of the editorial board and the editor-in-chief, for their continuous efforts to publish it on time. I hope this edition of "Abhijan" sparks curiosity, encourages discussions, and leads us toward a greener and more efficient maritime world.

Happy reading!

ANIRBAN MAITY
COORDINATOR,
"ABHIJAN"

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CADET TAMAL CHANDRA DEY
(MRE,2nd Yr)

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CAMPUS REPORT

NAVIGATING TOWARDS SUSTAINABILITY

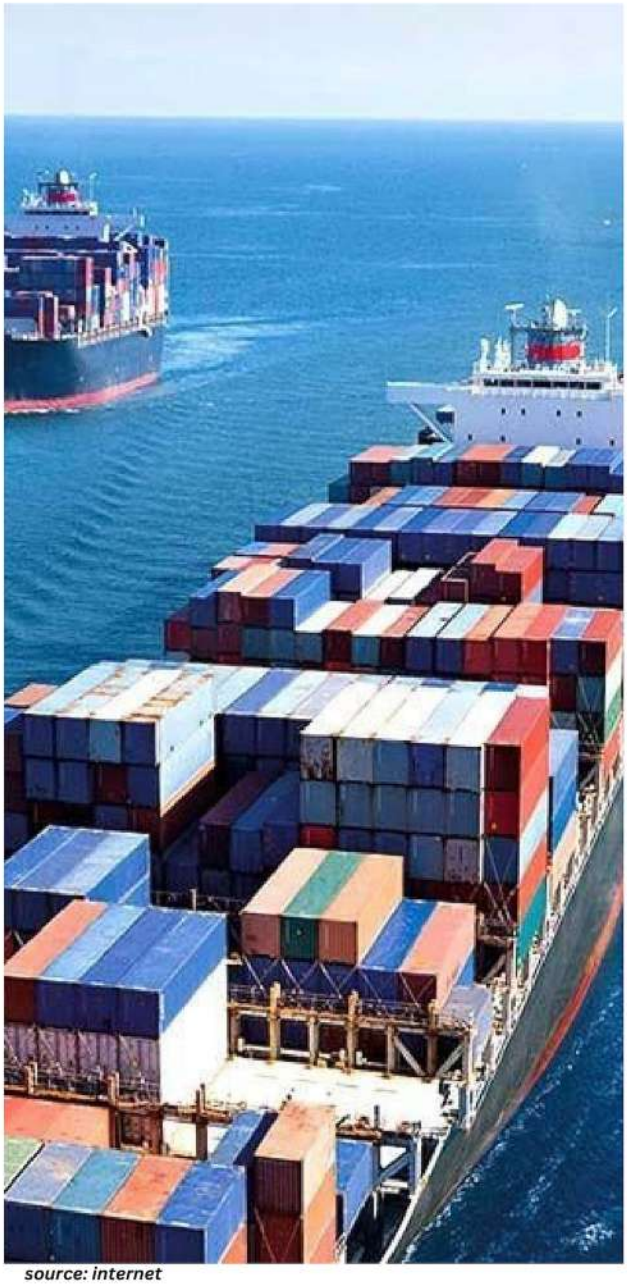
source: internet

By: Cdt Binet Kumar Mishra
4th year MRE

In an era marked by a growing awareness of environmental sustainability, the maritime industry is steering towards a transformative journey in enhancing the energy efficiency of marine operations. From cutting-edge technologies to strategic operational practices, efforts are underway to minimize the environmental impact while maintaining the vital role that maritime transportation plays in global trade.

As the maritime industry continues to navigate towards a more sustainable future, one key aspect that cannot be overlooked is the importance of energy efficiency in ship operation. With the rising concerns over climate change and the need to reduce greenhouse gas emissions, energy management plays a crucial role in achieving the goals.The transport sector is under considerable pressure to increase fuel efficiency. While CO2 emissions are falling in many other sectors, transport emissions are expected to rise in the future. Shipping currently accounts for about 3% of global anthropogenic CO2 emissions, but its share is expected to grow as a result of increased transportation, in combination with difficulties in implementing effective fuel efficiency measures and replacing fossil fuels.

The key to achieving maximum energy efficiency in ship operation goes beyond the mere adoption of new technologies. It requires a comprehensive approach that includes efficient management and control strategies, continuous monitoring and analysis of energy consumption, and regular training and awareness programs for the crew." In summary, achieving energy efficiency in ship operation requires a combination of advanced technologies and effective management practices.



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These measures can help to reduce fuel consumption and greenhouse gas emissions, while also improving operational performance and cost-effectiveness. Additionally, collaboration between stakeholders, such as ship owners, operators, classification societies, and regulatory bodies, is crucial in promoting and implementing energy efficiency measures throughout the maritime industry." In recent years, there has been a growing recognition of the need for energy efficiency in ship operation. This recognition is driven by factors such as rising fuel costs, stricter environmental regulations, and the industry's commitment to sustainable practices. "As a result, there has been an increased focus on research and development of energy-saving technologies and strategies specifically tailored for ship operation. Furthermore, the implementation of these energy-efficient solutions should involve the empowerment of workers who operate the machines and work on the ship.

To address these issues, the industry is embracing energy-efficient technologies and operational strategies.

Advanced Propulsion Systems: One of the key areas of innovation is the development of advanced propulsion systems. Technologies such as LNG (Liquefied Natural Gas) engines, hybrid propulsion, and fuel cells are being explored to reduce reliance on traditional marine fuels. LNG, in particular, is gaining traction due to its lower emissions compared to conventional fuels. Optimized Hull Designs: Ship designers are focusing on optimizing hull shapes to reduce drag and improve hydrodynamic efficiency. This includes the use of bulbous bows, streamlined hulls, and air lubrication systems to minimize resistance in the water, thereby enhancing fuel efficiency.

Energy Recovery Systems: The implementation of energy recovery systems, such as waste heat recovery and regenerative systems, is becoming more prevalent. These systems capture and reuse energy that would otherwise be lost during various ship operations, further reducing fuel consumption.

Operational Strategies:Weather Routing and Voyage Optimization: Leveraging advanced weather routing systems and voyage optimization tools enables ship operators to plan routes that capitalize on favorable weather conditions and ocean currents. This helps reduce fuel consumption and minimize the overall environmental impact

Slow Steaming: Adjusting vessel speed through the practice of "slow steaming" is a proven method to achieve significant fuel savings.

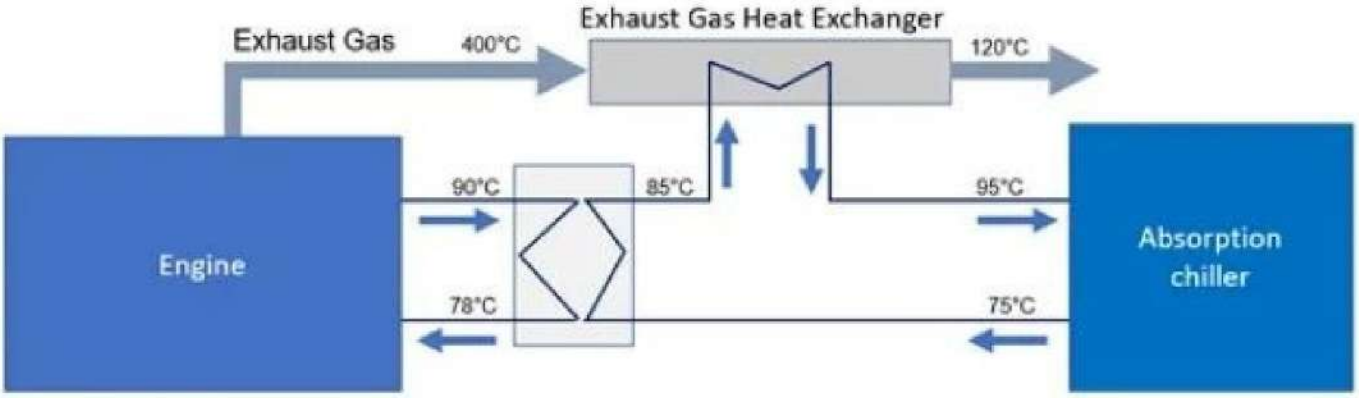
While this approach may extend voyage times, it allows ships to operate more efficiently and economically

.

Trim Optimization: Proper trim optimization ensures that a ship maintains its ideal balance, reducing resistance and improving overall fuel efficiency. Real-time monitoring and adjustment of trim during operations can lead to substantial energy savings.

source: internet

HOW MARITIME WASTE ENERGY RECOVERY WORKS



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BY- CDT. TAMAL CHANDRA DEY & CDT. PRATYAY SARKAR
2ND YEAR MRE

INTRODUCTION:

For a long time , the burning of fuel in internal combustion engines has been the main way for ships to obtain propulsion and electrical energy. The shipping company is going through two challenges: rising operating costs due to gas shortages, and environmental issues due to gasoline burning. The use of waste heat is a common topic for all of humanity. The main sources of waste heat on ships: diesel engine exhaust, boiler smoke, cylinder liner cooling water, etc. The exhaust temperature of low-speed two-stroke diesel engine is around 320°C ~ 350°C, and the exhaust temperature of medium-speed four-stroke diesel engine is around 350～380°C; auxiliary boiler output temperature is around 150-250°C; the compressed air temperature is around one hundred twenty～150°C, occasionally up to 200°C; the diesel engine cooling water temperature is around eighty～90°C. The effective use of this part of the waste heat is important for reducing transportation costs , energy saving and reducing ship emissions.

WHAT IS WASTE ENERGY?

It would be fantastic to have an engine, a generator, or even a procedure where all the power we installed would be converted into useful energy, but unfortunately that's not how physics works. In reality, it is not possible to convert all input power into work due to certain properties like entropy. Chemical energy is converted into mechanical and thermal energy during the entire time of fuel combustion. The first sets the engine pistons in motion, the second leaves through exhaust gas as waste heat. But waste heat does not mean that energy needs to be wasted.

METHODS OF ENERGY RECOVERY :- Basically, there are approaches in which thermal strength can be obtained from the waste heat of a diesel engine:

1) **Engine cooling machine** - Marine diesel engines need to be cooled to prevent accidents. High engine temperatures lead to all kinds of problems that include thermal expansion that causes seizing or excessive thermal and mechanical stress that damages the pump seal. While smaller engines are air-cooled, most marine diesels are water- or oil-cooled. These coolants are constantly circulating in a closed cooling device with a secondary device that takes heat away from the number one unit to prevent overheating. The secondary coolant can be seawater or air, but it can additionally be a freshwater device that uses the heat for various functions.

2) **Engine exhaust gases:** Exhaust fuel temperatures range from approximately 300°C to 500°C depending on engine layout and load. That's a significant amount of energy that can be used in a variety of ways. The most commonly used method to achieve better waste strength is the use of a specially designed heat exchanger.

HOW TO UTILISE WASTE ENERGY:- There are many ways to use recovered thermal energy along with steam turbine generators, economisers, turbo chargers and freshwater mills -

1) **Economiser-** It is a heat exchanger that is installed on the stack of a boiler. It is designed to recover heat that would otherwise be wasted. The Economiser transfers heat from the exhaust gases to the boiler feed water which helps to preheat the water before it enters the boiler.

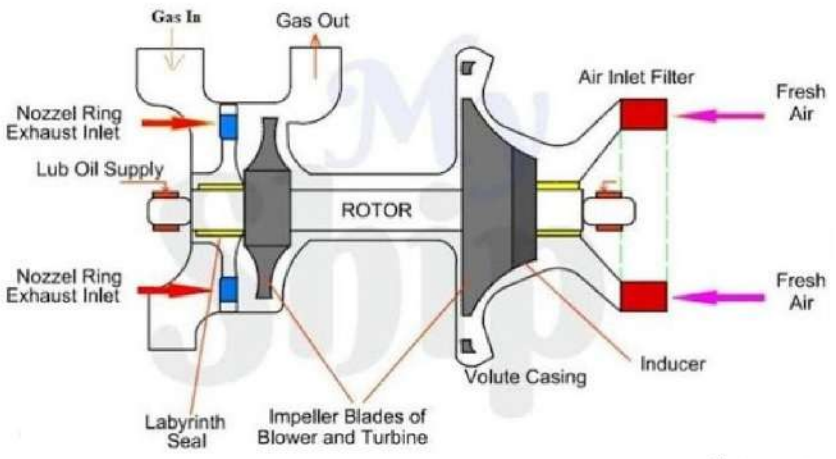
2) **Heating equipment** - Heaters inside air handling equipment or blowers for heating technical spaces use electric or water-powered coils. The latter are the best for using thermal energy from waste heat.

3) **Absorption chiller** - Like heating things up, waste heat can also be used to cool things. A good example is an absorption chiller. These coolers require a heat supply for their working purpose and are specifically designed to use waste heat as a source of electricity.

4)**Turbo charger** - An exhaust gas turbocharger uses the exhaust gases from the engine with a certain amount of power to enter the turbine and expand to work. The power generated by the exhaust gas turbine is used to pressurise the compressor, which rotates coaxially with the turbine, and the compressed air is sent to the cylinder after cooling. The exhaust gas turbine and compressor are generally fitted as a single unit and are referred to as exhaust gases turbochargers. The design of the exhaust gas turbocharger is a simple, reliable working, well-known design . The engines with exhaust gas turbocharging system, can improve the energy by 30% to 50%, and reduce fuel consumption by about 5%, contributes to the increase of the overall electric power output of the engine , economic performance and emissions quality and therefore widely used.

CONCLUSION :-

There is a large capacity of waste energy that can be used in many ways. Various sources of power must be kept at hand, en route, as this source of power is best to have when the vessels have their engines running. Nevertheless, ships are more often meant to travel from area to area, so waste energy is mostly available.



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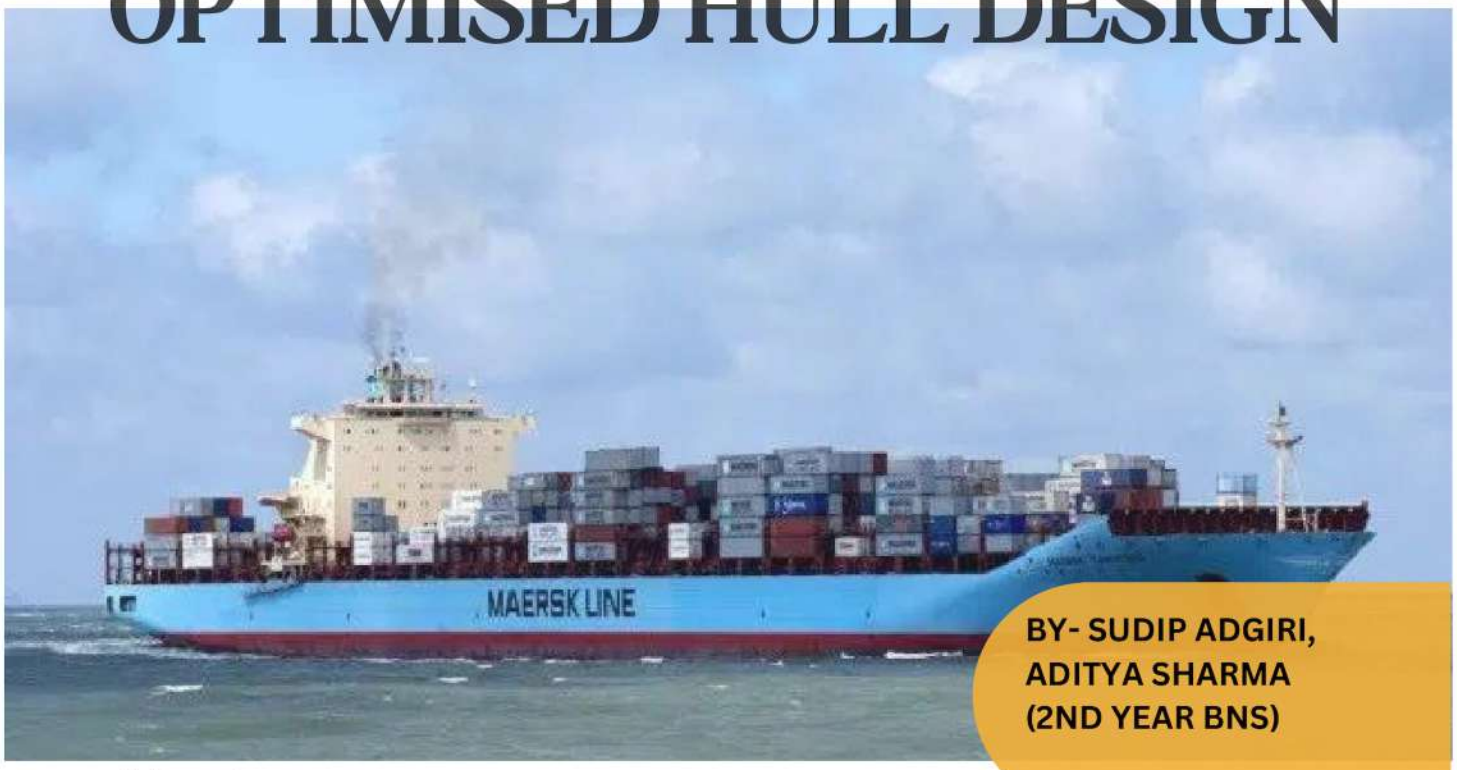
OPTIMISED HULL DESIGN



BY- SUDIP ADGIRI,
ADITYA SHARMA
(2ND YEAR BNS)

source: internet

INTRODUCTION - GETTING THE TERMINOLOGY STRAIGHT

The term "hull optimization" is widely used and in many cases misused. The term "improvement" would often be more appropriate than "optimization". Muddy terminology creates confusion. We should clarify the terminology. We therefore distinguish the following design approaches: • Simulation-based design Simulation-based design commonly used in industry. Usually less than 10 variants are generated and evaluated by more or less sophisticated simulations. Human experts look at the details of the simulation (eg pressure distribution in critical areas) and derive recommendations for design changes. CFD (Computational Fluid Dynamics) techniques are used for hydrodynamic design. This currently standard design procedure is used by many design offices and model tanks around the world, but we often see that significant improvements are possible beyond this approach.

Optimization-

Optimization looks at thousands or even tens of thousands of designs and uses an optimization algorithm to find the best design. For many modern optimization problems,

Nowadays, genetic algorithms (GAs) or related evolutionary optimization algorithms are the preferred choice. GAs are significantly less efficient than older gradient ones

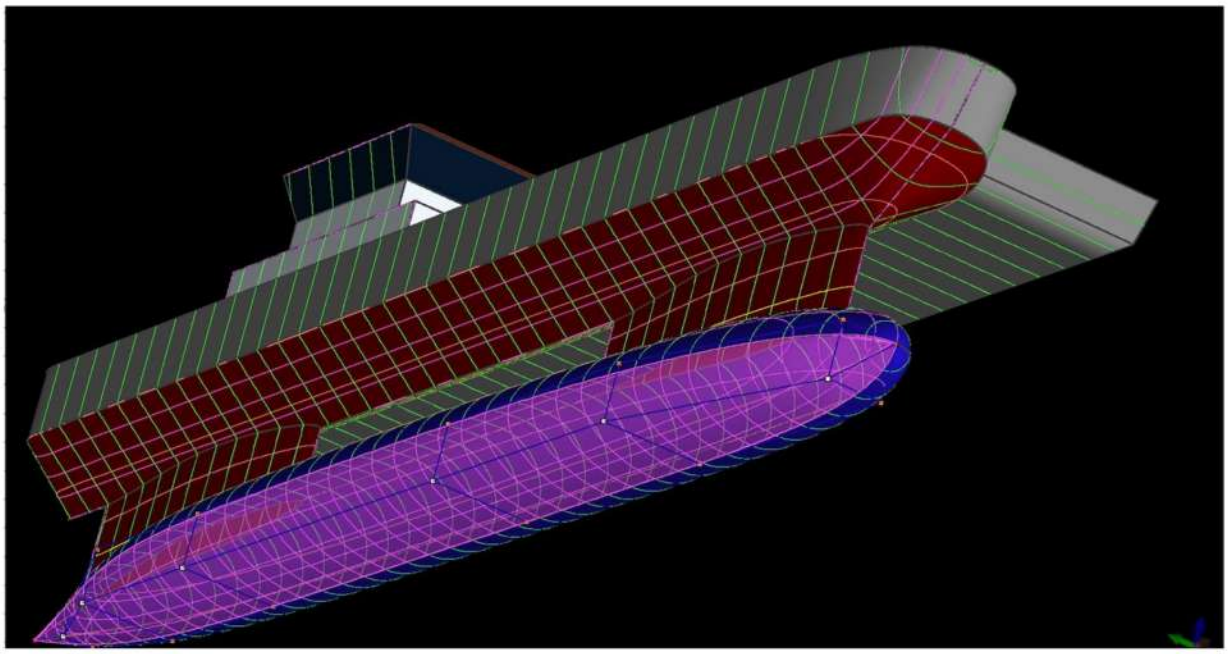
search algorithms. However, they are easily parallelized and robust to global searches

optima, i.e. they do not get stuck at a local optimum. (Single-objective) optimization is in

theory mathematically a well-posed problem. However objective and all limitations must be expressed as mathematical functions. In practice, it is not simple .

• Multi-objective optimization

Optimizing for multiple objectives is, strictly speaking, nonsense.



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- **HULL OPTIMISATION**

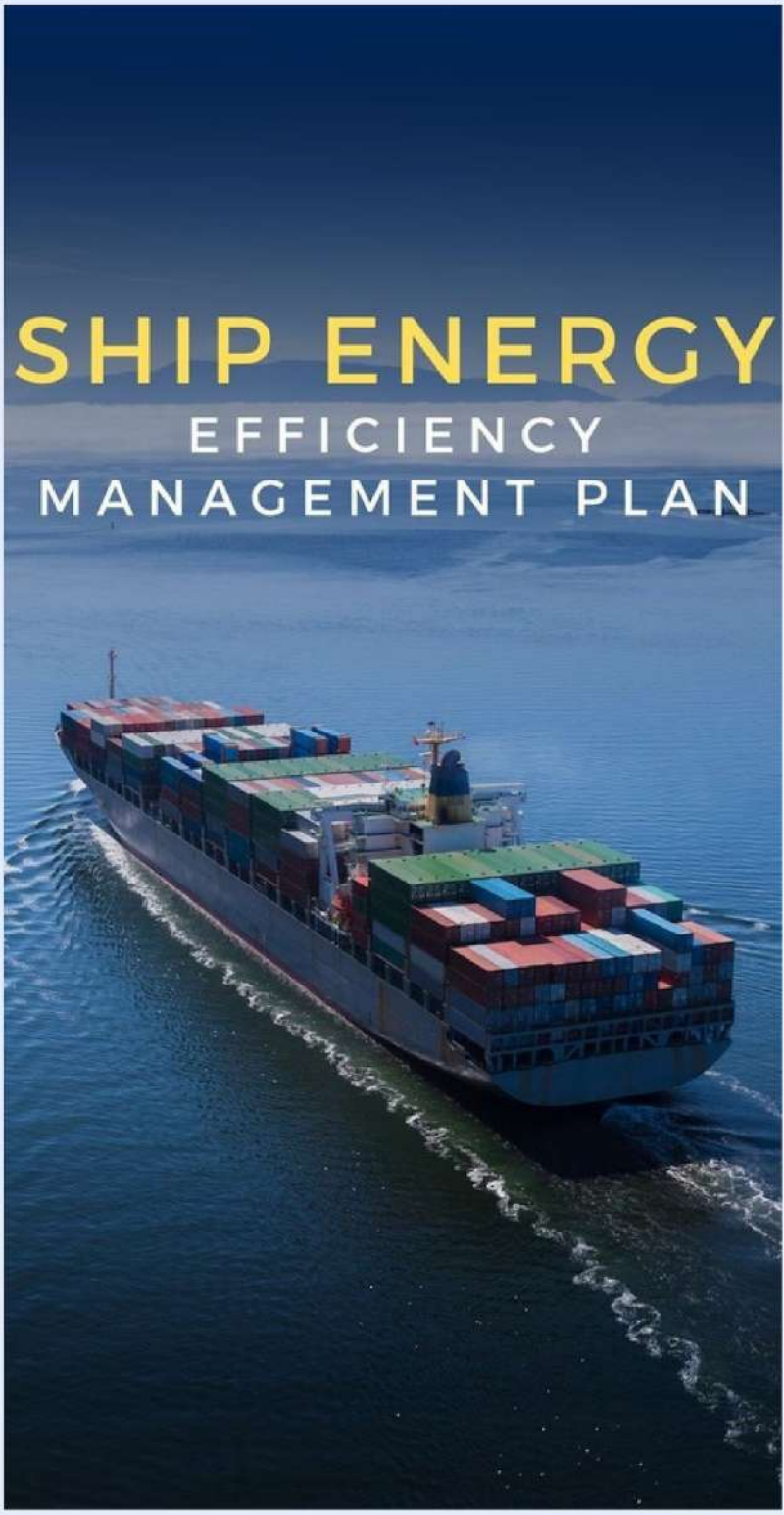
A typical optimization project starts with a good design, ideally the main dimensions are determined in a concept exploration study. Then the hull optimization fine tunes vessel performance. A large container ship project (14,000 TEU carrier) in 2013 used more than 60 free parameters to reduce fuel consumption as much as possible, taking into account the hydrodynamic performance requirements, the specific fuel oil consumption of the respective engines and the ship owner's specific operating profile for combinations of speed and draft. More than 35,000 body shape variations were investigated. For final verification, model tests in the Hamburg Ship Model Basin confirmed CFD predictions of a 4% improvement. In a project for the Latin American Navy, the hull for the new OPV (offshore patrol vessel) the design has been optimized for power requirements with representative operation in mind profile (six combinations of speed and draft). The restrictions came in the form of several hard points for hull and lower thresholds for initial stability (KM values). total, 14,000 design variants were considered. Total energy requirements were reduced by more than 20%. The unusually high savings can be partly explained by this longer ship replacement cycles in many smaller navies (sometimes exceeding 30 flight). Such great savings are also found in very unusual designs where designers they have no intuitive knowledge or basic geometry.

ENERGY EFFICIENCY IN MARINE OPERATIONS

To alleviate climate change due to multi-national shipping, the International Maritime Organization (IMO) requires ship-owners and ship technical managers to enhance the energy efficiency of vessel's operations. In this article we will discuss about how the energy efficiency is affected by passage planning and execution. To mitigate climate change from maritime transport, the United Nation's(UN's) International Maritime Organization(IMO) requires ship-owners and ship technical managers to continuously improve the energy efficiency of their vessel's operations. Since 2013, the IMO has needed ship-owners and ship technical managers to carry ship energy efficiency operation plans(SEEMP) on-board their vessels, detailing how they and their crews manage energy efficiency in the planning and execution of vessel passages.

In 2018, the IMO adopted an initial greenhouse gas (GHG) abatement strategy, aiming to lower " CO2 emissions per transport- work, as an average across multi-national shipping, by at least 40% by 2030, pursuing efforts toward 70% by 2050 compared to 2008. It's necessary to introduce an annual operational carbon intensity indicator CII by the vessel owners. The CII measures individual vessel's annual or annual CO2 emissions divided by total transport work, and ship-owners and ship technical managers are anticipated to continuously ameliorate performance regarding this metric. The two most common definitions of energy efficiency for ship operations are the Annual Efficiency Ratio and the Energy efficiency operational Indicator. Both the AER and EEOI divide a boat's annual CO2 emissions by a measure of annual transport work. The EEOI uses actual cargoes carried × the distances traveled for the calculation of transport work, whereas the AER relies on a vessel's nominal cargo capacity (deadweight) × the distances traveled.

Energy efficiency scholars distinguish between technological and operational energy measures. Technological measures such as Flettner rotors, propeller boss cap fins, and main engine de-ratings bear capital expenses by ship owners. Operational measures don't require major investment but concentrates on advanced passage execution, including speed reduction, weather routing, trim optimization, auto-pilot optimization, engine optimization, reduced ballasting, port- call optimization, and just- in- time arrival in port.



source: internet

By-Cdt Harsh Singh
2nd year BNS

source: internet

For tankers and dry bulkers, passage planning starts with chartering opinions made by shipping company's chartering managers, who generally aim to maximize earnings and minimize passage costs(including fuel costs). The charter parties, which chartering managers negotiate with charterers, determine passage planning and influence energy efficiency. The speed reduction measure is considered(by shipping managers) as the most important measure that could affect the energy efficiency of vessels. Recently, it is found that speed reduction — combined with new ship technologies and bettered network designs had enabled container shipping to reduce CO2 emissions per unit of transport work by 53% in 2007 – 2016.

Chartering managers aimed to maximize the utilization of ship's cargo capacities and the time spent under laden conditions. Such conditions had a positive impact on energy efficiency, lowering emissions per unit of transport work. These technical (EEXI) and operational (CII)

conditions were espoused in June 2021 as a short- term measure under the initial IMO GHG Strategy framework for implementation before 1 January 2023. Under the EEXI framework, all existing vessels of 400 GT and over are needed to calculate their attained Energy efficiency existing Ship index(EEXI), which reflects the" technical" or" design" efficiency of the ship. Vessels also have to reach a" required EEXI", equivalent to needed EEDI level for 2022, therefore creating a position- playing field among the line.

The Ship Energy Efficiency Management Plan provides a practical approach for ship operators and ship management companies to manage operations and line efficiency performance over time using the Energy Efficiency Operational Indicator(EEOI) as a monitoring tool.

CRUCIAL FEATURES OF SHIP ENERGY EFFICIENCY OPERATION PLAN ARE AS FOLLOWS:

- **BROADER COMMERCIAL ENERGY OPERATION POLICY**

As said before, SEEMP needs to be enforced on an individual ship position. Still, a company operating multiple vessels must have a further comprehensive energy operation policy for all vessels in its ownership, which will act as a base to form the SEEMP for an individual type of ship

- **IMPROVEMENT OF SHIP EFFICIENCY**

The primary objective of the SEEMP is to ameliorate the overall operating efficiency of the ship on a long run enforcing correct and optimized styles for energy and energy saving

- **REDUCTION OF ENERGY CONSUMPTION**

Any shipdriver will be happy to save further cost on the stroked engine used as ship-energy. A critical function of the SEEMP is to apply styles which can correct the use of waste energy consumption of the ship as it leads to a reduction in air pollution and energy cost, which is one of the significant operating cost of the vessel.

- **A DROP IN GHG EMISSIONS FROM THE SHIP**

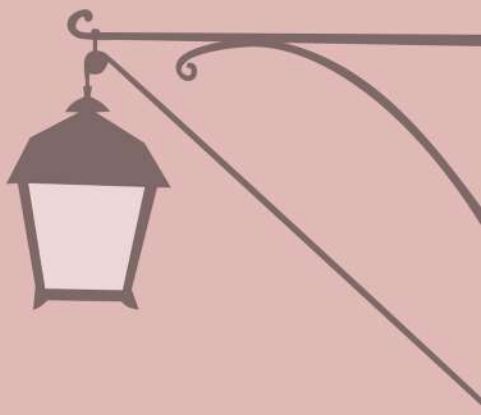
SEEMP do emphasis on reduction of greenhouse gas emissions from vessels by furnishing styles for reducing the energy consumption and using indispensable energy which causes lower GHG emissions. However, Energy efficiency experts have set up that cost-effective measures are under utilized in ship-operations. They have concluded that complexed decision making between operators, charterers sometimes hamper improvement of energy efficiency in ship operations.

Yet, new ways are being tested to improve the energy efficiency of marine operations to use as low energies and coffers as possible to save our planet for the forthcoming generations.

LITERARY CORNER

The Silent Street

BY- Cdt. Pratyay Sarkar
(2nd Year, MRE)



The street is quiet,
Silent and dark as jungle.
Cold as a dead,
Which reminds me of a greedy and sad head.
No one here in this nature's fair
Because all are busy in their life's affair.
Little drops of rain,
Which I guess will not give you strain.
Less tyres are rolling down the street, And it definitely provides nature a tasty treat.
Overall it's a sight to behold,
Before our daily life problems get our hold.....

The Ocean's Mystery

BY- Cdt. Sanjok Tamang
(1st Year, MRE)

Beneath the moonlit veil of night,
The ocean sighs, a mystic sight.
A being vast, with secrets deep,
In liquid realms, its mysteries keep.

Whispers carried on the tide,
Of tales untold, where shadows hide.
A labyrinth of currents, dark and wide,
Where ancient secrets silently bide.

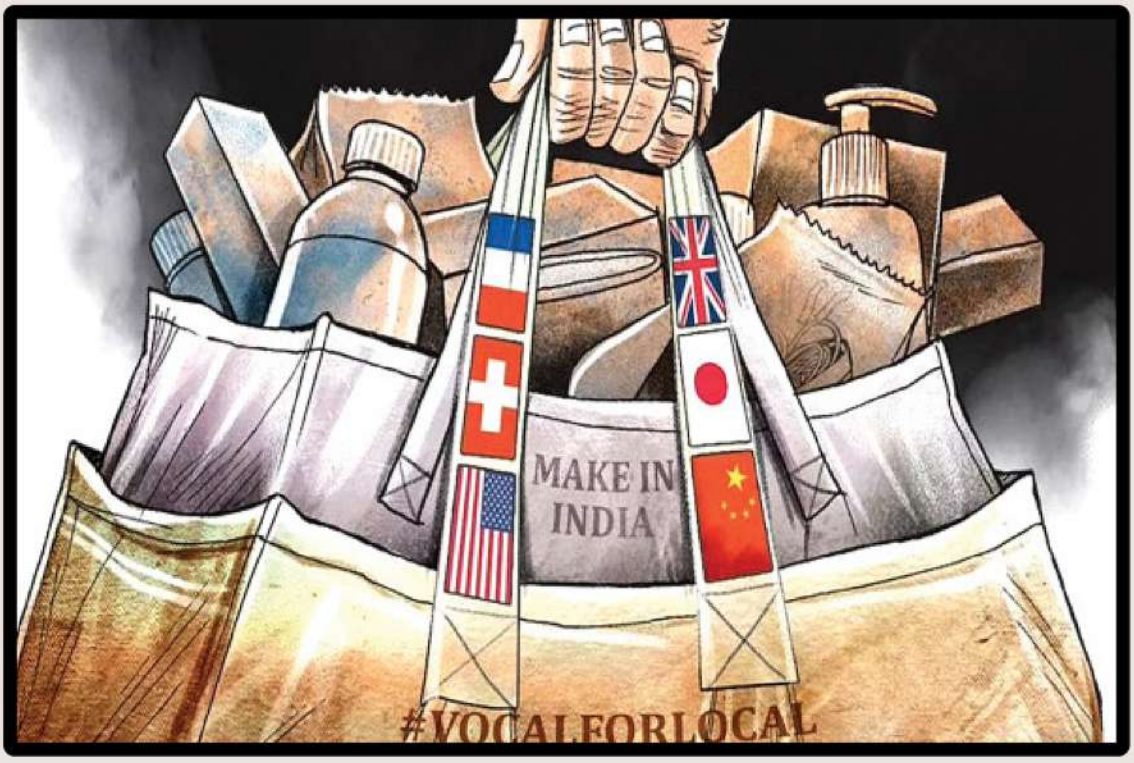
Midnight tides weave a cosmic dance,
The ocean's secrets in a mystic trance.
Hidden treasures in the abyss,
Guarded by waves, sealed with seals.

Mermaids' whispers and sailors' lore,
Echo through waves from shore to shore.
In the heart of the deep, a silent plea,
The ocean, a keeper of mystery.

नया साल और पुरानी यादें

By- Subham Bhairagi
(1st year ,BNS)

जिन्दगी का एक और वर्ष कम हो चला,
कुछ पुरानी यादें पीछे छोड चला...
कुछ ख्वाइशे दिल मे रह जाती हैं...
कुछ बिन मांगे मिल जाती हैं...
कुछ छोड कर चले गये...
कुछ नये जुडेंगे इस सफर मे...
कुछ मुझसे बहुत खफा हैं...
कुछ मुझसे बहुत खुश हैं...
कुछ मुझे मिल के भूल गये...
कुछ मुझे आज भी याद करते हैं...
कुछ शायद अनजान हैं...
कुछ शायद परेशान हैं...
कुछ को मेरा इंतजार हैं...
कुछ का मुझे इंतजार हैं...
कुछ सही हैं...
कुछ गलत भी हैं...
कोई गलती तो माफ कीजिये और
कुछ अच्छा लगे तो याद कीजिये ।



INDIA'S SELF RELIANCE IN ALL ASPECTS

By- Bhupati Kiran Kumar
(1st Year, BNS)

India's journey towards self - reliance is deeply rooted in its history and has evolved as a key national aspiration. The concept of self - reliance, or " Atmanirbharta," gained prominence with India's first Prime Minister, Jawaharlal Nehru, and has since been a guiding principle for the country's development.

Economic self - reliance has been a focal point, with initiatives like the Green Revolution and the White Revolution transforming agriculture and dairy sectiors, reducing dependence on imports.

In recent times, the "Make in India" campaign has aimed to bolster domestic manufacturing,

encouraging the production of goods within the country and reducing reliance on foreigns markets.

India strides in science and technology have furthered self - reliance, exemplified by achievements in space exploration with organizations like ISRO gaining global recognition. The "Digital India" initiative has also played a pivotal role, fostering technological advancements and reducing dependence on foreign technologies.

In the defense sector, there has been a push for indigenous development and production of weapons and equipment through initiatives like "Make in India for defense."This not only strengthens national security but also reduces dependence on external sources for military hardware

The emphasis on renewable energy sources, such as solar and wind power, aligns with the goal of energy self-sufficiency, minimizing reliance on fossil fuels and contributing to a sustainable future. India's commitment to the Paris Agreement reflects its determination to address climate change Cultural and educational self-reliance is another facet of India's journey.

The promotion of traditional arts, languages, and educational systems fosters a sense of cultural autonomy. Efforts to enhance educational infrastructure and research capabilities contribute to intellectual self reliance Despite these achievements, challenges persist, including the need for continuous innovation, infrastructure development, and overcoming socio-economic disparities. Additionally, global interdependence remains a reality, requiring a balanced approach that combines self-reliance with international collaboration.

In conclusion, India's pursuit of self-reliance encompasses economic, technological,

defense, energy, cultural, and educational dimensions.

The journey towards Atmanirbharta is an ongoing process, marked by achievements and challenges alike.

As India navigates this path, the balance between and global cooperation will be crucial for sustainable growth and development.

Ramesh Babu and Monkeys

By: Cdt. Tamal Ch. Dey
(2nd Year, MRE)

It was a month of summer. Ramesh Babu's duty was given to the innermost part of the jungle. The jungle itself was a big one with its enormous eucalyptus trees. The locals used to earn their livelihood by cutting and selling the woods of the trees. Other than the trees, the jungle was highly populated by monkeys.

Ramesh Babu was a medium heighted person with big belly and a long round moustache like a Rajput king. His main job was to look after the transportation and transaction of the logs. Though he was a kind-hearted person, he was short tempered. He used to spend his whole day in the jungle. Only for one day or two he used to go out to the village with his Jeep.

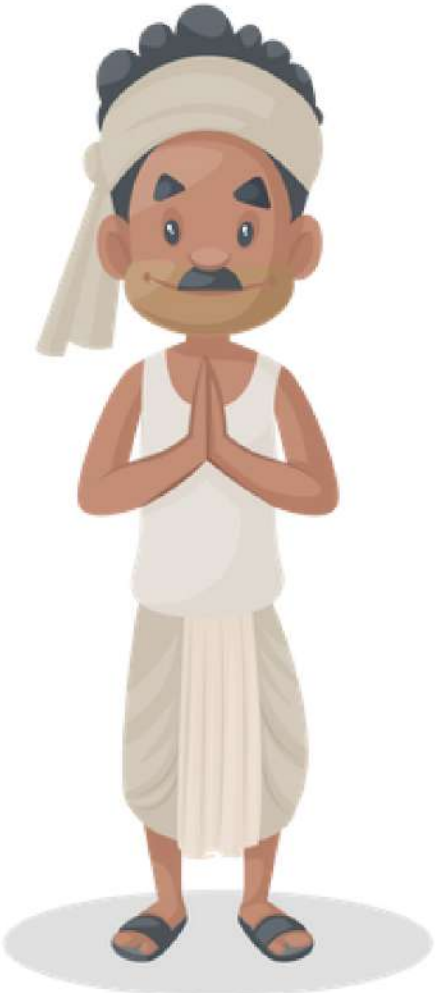
One day Ramesh Babu was having his lunch near his tent. Suddenly a big monkey appeared before him from the bushes. He was constantly looking at Ramesh Babu's food. Seeing this Ramesh Babu offered him a piece of Paratha. The monkey quickly grabbed the Paratha and disappeared among the trees. From that day whenever Ramesh Babu used to have lunch ,the monkey appeared and he was offered a bit of food by Ramesh Babu.

One day something terrible happened. Some workers had done a big mistake which angered Ramesh Babu. Even during the lunch time he was so heated up that he completely ate the food all alone. Though the monkey was present there, Ramesh Babu didn't pay any attention to him.

Next day something unusual happened. When Ramesh Babu came to have his lunch ,his tiffin suddenly disappeared from the table. Astonished he ordered another plate. This time he carefully sat beside the table and tried to take the first morsel when again his plate disappeared. This time he had seen who was the culprit. It was that same monkey whom he used to offer his food. This greatly angered Ramesh Babu.he wanted to teach that monkey a lesson .

Next day he ordered the cook to make parathas with extra chillies and spices. Then he placed those red hot Parathas on his dinning table and quickly ran back to his tent. No sooner did he placed the tiffin, it was stolen by the monkey. Within few minutes there was a lot of hustle and commotion. All the monkeys were jumping and running from tree to tree. As if the whole jungle was on fire. The noise lasted for half an hour. Then everything was silent. Ramesh Babu couldn't hold his laughter. He thought that he had taught the monkeys a good lesson for stealing his food.

That night Ramesh Babu was returning to the village with his four officials. The whole jungle was pitch dark. Except for the headlights of the jeep made the dusty path visible. Suddenly the jeep stopped. Everyone was surprised. A chain of monkeys was blocking the road. The driver blowed his horn continuously to move the monkeys away. But rather than getting away the monkeys started marching towards the jeep. Seeing such a horrific scene everyone jumped out of the jeep and started running. Everyone escaped but Ramesh Babu was captured by the monkeys. Two monkeys held his hand tightly while the other two held his legs. Then that big monkey appeared. His eyes and face was red with anger. At first he tightly slapped Ramesh Babu. Out of pain when Ramesh Babu opened his mouth,the monkey tried to put those parathas into his mouth. Forcibly he was trying to put all parathas at a time. Whenever Ramesh Babu tried to vomit the parathas out, the monkey would slap his face. He continued slapping until Ramesh Babu had finished the parathas. Unable to bear the pain of this situation, Ramesh Babu lost his consciousness and fell down. Later in the morning he was picked up by his officials and admitted to the hospital. From that day Ramesh Babu and never touched a single paratha, nor did he ever return to the jungle.



CAMPUS REPORT

JULY-DECEMBER 2023

AUGUST 2023

Celebration of 77th Independence Day

26th National Exhibition held at Salt lake

Celebration of World Maritime Day on 28th September 2023

Blood Donation Camp by "Ajantrik"

Technical Paper Presentation at IMU, Kolkata

AWARD AND RECOGNITION

Cdt. Ankush Pal (4th Year,MRE)
Cdt. Debajyoti Dutta (4th Year,MRE)
Cdt. Mohit Kr. Naik (3rd Year,MRE)

Cdt. Nasir Hussain Ansari
(3rd Year, BNS)

Cdt. Binet Kr. Mishra
(4th Year, MRE)

Cdt. Binet Kr. Mishra (4th Year, MRE)
Cdt. Souvik Mondal (3rd Year, MRE)
Cdt. Najeeb Ahmed (3rd Year, MRE)

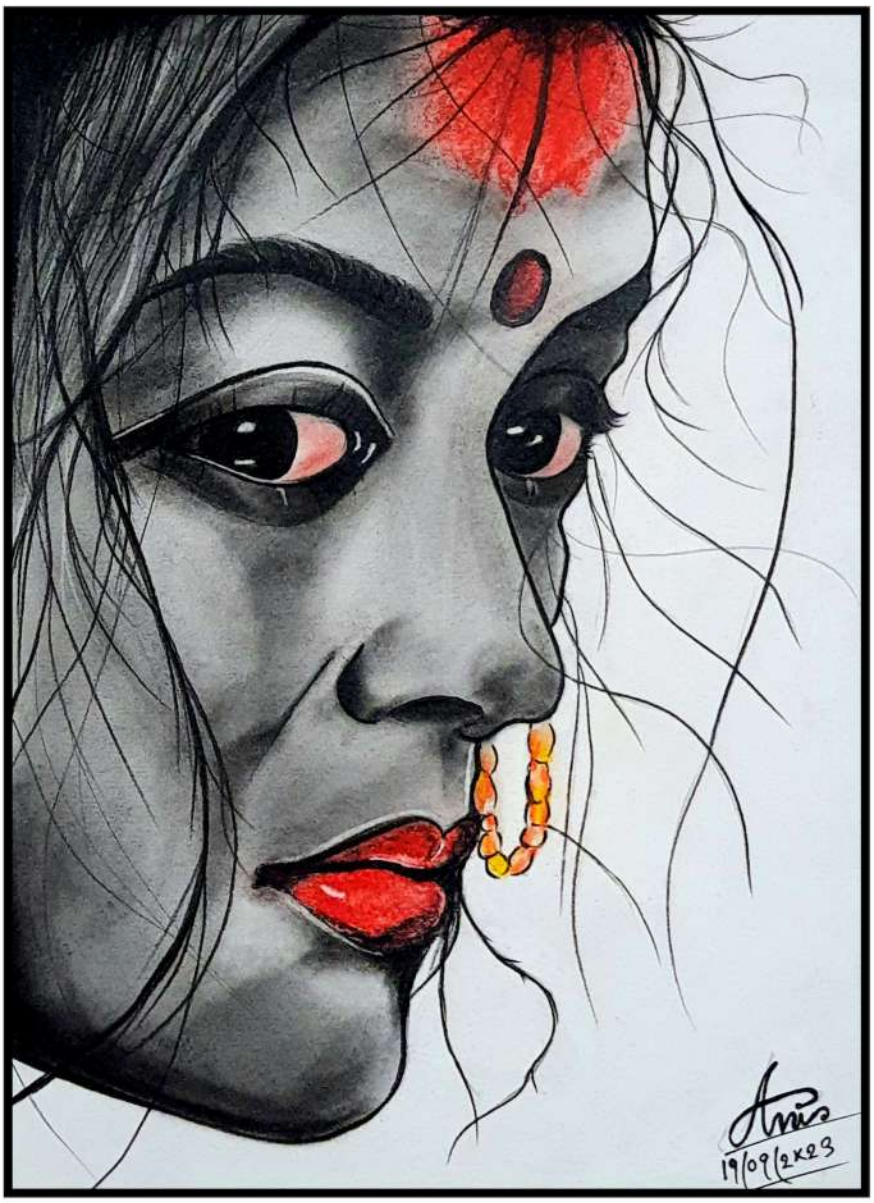
Cdt. Vicky kr Saw
(3rd Year,BNS)

Cdt. Ankush Pal
(4th Year,MRE)

FROM THE BRUSHES OF SOMS

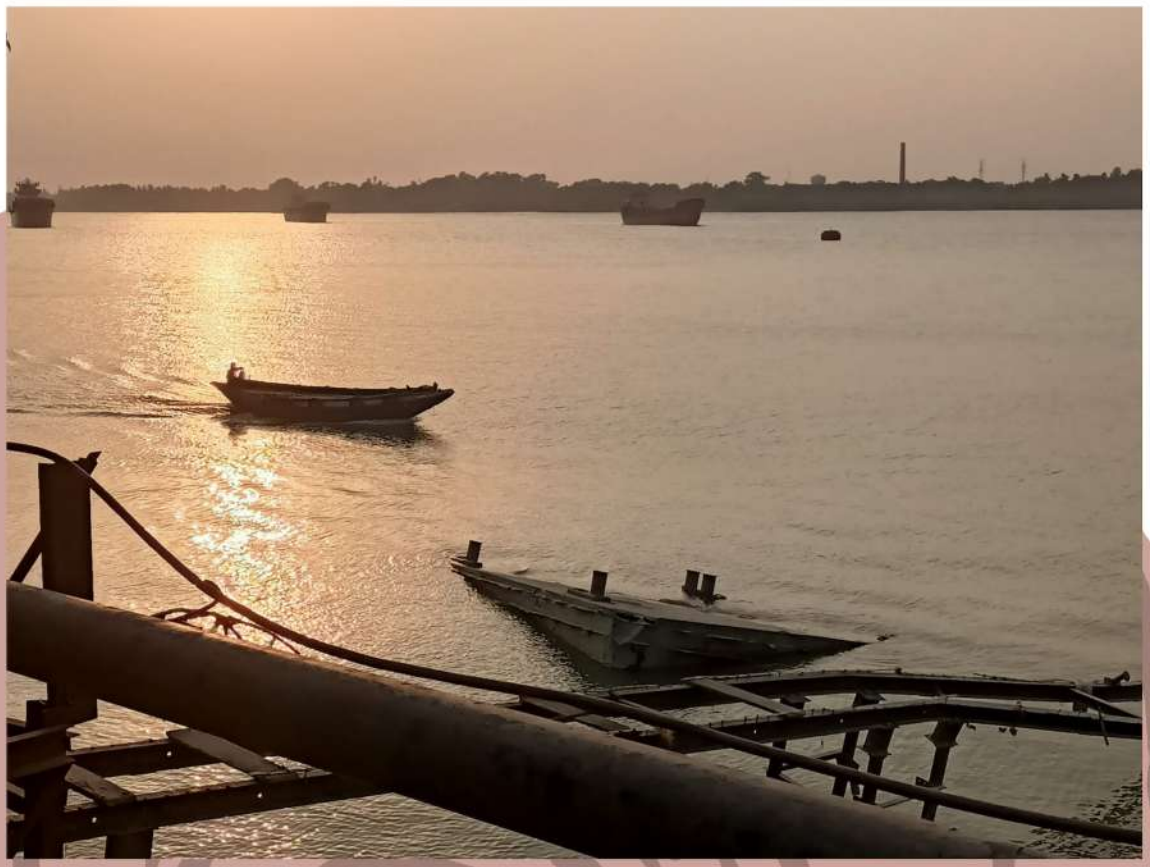
BY- Cdt. DEBADRITA SARDAR,
(2ND YEAR ,BNS)

BY- Cdt. NANDA GOPAL NANDI
(1ST YEAR , BNS)



By: Cdt. Anirban Pal
(1st Year, BNS)

FROM LENS OF SOMS



By: Cdt. Sami Alam Siddique
(1st Year, BNS)

By: Cdt. Anirban Pal
(1st Year, BNS)

By: Cdt. SK. Ramij Raja
(1st Year BNS)

By : Mr. Subir Basu
(Faculty, MRE)

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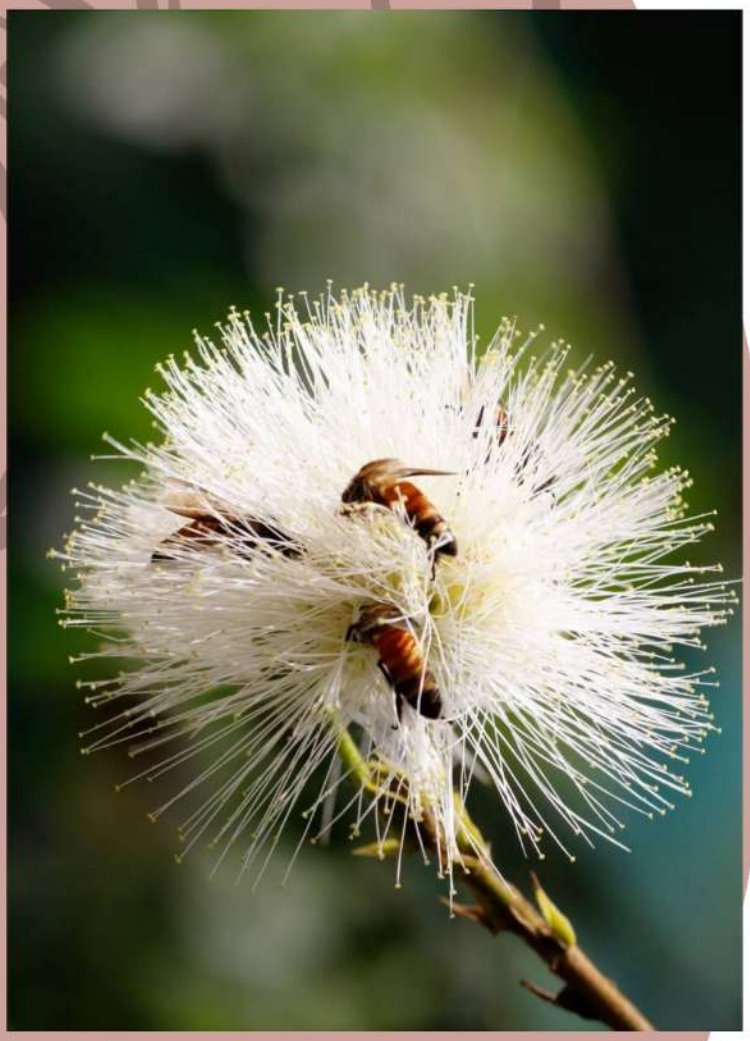
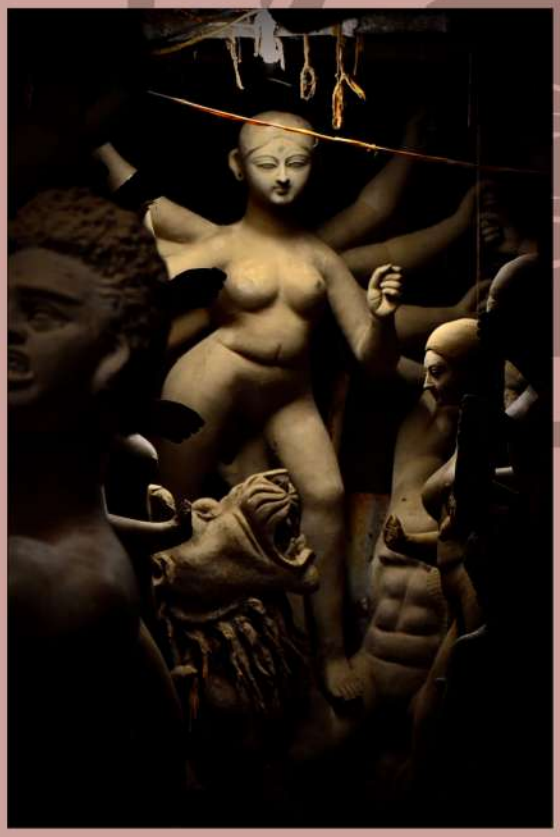
(Faculty, MRE)



"To gather memories, capture moments..."

By : Mr. Subir Basu
(Faculty, MRE)



By: Cdt. Rishav Mukherjee
(2nd Year, MRE)

By: Cdt. Rishav Mukherjee
(2nd Year, MRE)

By: Cdt. Alekhya Dash
(2nd Year, BNS)

OUR STRENGTH OUR FAMILY

THE FEW THE PROUD

4th Yr MRE(2020-2024)

3rd Yr MRE(2021-2025)

3rd Yr BNS(2021-2024)

2nd Yr BNS(2022-2025)

2nd Yr MRE(2022-2026)

1st Yr BNS(2023-2026)

1st Yr MRE(2023-2027)

LEGEND- BUILDING

A. ADMINISTRATIVE BLOCK

1. ADMINISTRATIVE BUILDING (G + V)

B. ACADEMICS BLOCK

2. SCHOLASTIC BUILDING - 1 (G + III)
3. SCHOLASTIC BUILDING - 2 (G + II)
4. SCHOLASTIC BUILDING - 3 (G + III)
5. SCHOLASTIC BUILDING - 4 (G + III)
6. SCHOLASTIC BUILDING - 5 (G + III)
7. WORKSHOP BUILDING
8. NEW WORKSHOP BUILDING
9. NEW PHARMACY BUILDING (G + III)
10. PHARMACY BUILDING (G + III)
11. SHIP IN CAMPUS (G + III)

C. AGRICULTURE & FISHERY SCIENCE BLOCK

12. POLY HOUSE & NET HOUSE
13. FISHERY SCIENCE PROJECT AREA - 1
14. AGRICULTURE PROJECT AREA - 1
15. FISHERY SCIENCE PROJECT AREA - 2
16. AGRICULTURE PROJECT AREA - 2
17. FISHERY SCIENCE PROJECT AREA - 3
18. AGRICULTURE PROJECT AREA - 3
19. FISHERY SCIENCE PROJECT AREA - 4
20. AGRICULTURE PROJECT AREA - 4
21. AGRICULTURE PROJECT AREA - 5
22. FISHERY SCIENCE PROJECT AREA - 5
23. FISHERY SCIENCE PROJECT AREA - 6
24. AGRICULTURE PROJECT AREA - 6
25. MUSHROOM UNIT
26. FIELD LAB
27. STORE HOUSE
28. SERICULTURE UNIT
29. THRESHING FLOOR
30. BIO GAS PLANT
31. CATTLE SHED
32. VERMI COMPOST PIT
33. BIO FERTILIZER PLANT

D. RESIDENTIAL BLOCK

34. BOY'S HOSTEL - 1 & 2 (G + III)
35. BOY'S HOSTEL - 1 & 2 (G + III)
36. BOY'S HOSTEL - 1 & 2 (G + III)
37. OLD STAFF QUARTERS (G + III)
38. NEW STAFF QUARTERS (G + III)
39. NEW STAFF QUARTERS (G + III)
40. DIRECTOR'S RESIDENCE (G + I)
41. OLD STAFF QUARTERS (G + III)
42. GIRL'S HOSTEL - 3 (G + II)

E. UTILITY & SERVICES BLOCK

43. ELECTRICAL ROOM
44. PUMP ROOM

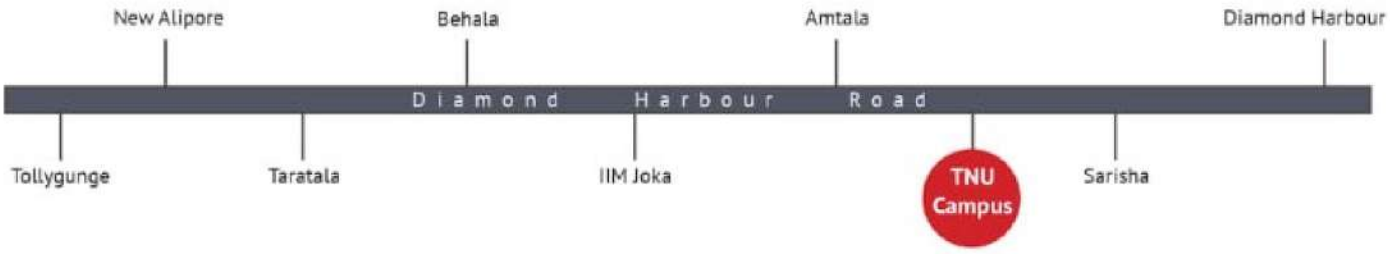
F. RECREATIONAL BLOCK

45. FOOTBALL GROUND
46. CRICKET GROUND
47. SWIMMING POOL
48. MULTI PURPOSE HALL
49. BASKETBALL COURT (3 NOS.)

G. HEALTH BLOCK

50. MEDICAL UNIT

admadcommunications@gmail.com



AmbujaNeotia

THE NEOTIA UNIVERSITY

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