

# LIGHT HOUSE

R.L. INSTITUTE OF NAUTICAL SCIENCES

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## Japanese trio joins forces on development of rigid sails

Madan Kanagaraj - GME

Japanese companies Tsuneishi Shipbuilding, Mitsui E&S Shipbuilding, and Akishima Laboratories have joined forces on rigid sails as a new device for energy saving.

### Tsuneishi Shipbuilding

As informed, the rigid sail is an auxiliary propulsion device that generates propulsive force and saves energy using wind as natural energy.

According to Tsuneishi, the device can be installed on existing vessels with minimal modification. The companies are now working on commercializing the technology. They will work on the shape, arrangement, and control system of the rigid sail.

Specifically, Tsuneishi Shipbuilding will coordinate the entire development project and design and manufacture the equipment.

Meanwhile, Mitsui E&S Shipbuilding will study the control system and sail shape, and Akishima Laboratories will



carry out performance evaluation using fluid analysis (CFD analysis) and other methods on the developed rigid sail.

The plan is to install the device on an actual vessel in 2026 and commercialize it in 2027. The project is part of Tsuneishi's effort to further contribute to greenhouse gas (GHG) emissions reduction through

innovative technology.

To remind, last month, Tsuneishi Shipbuilding, together with NYK Line and other partners, signed a memorandum of understanding (MoU) to develop the 'world's first' biomass-fueled ship (bioship) and the technology that could power it.

Under the MoU, the partners will initially conduct research to develop the new shipping technology, an onboard biomass fuel plant, which would be required to power a bioship.

Last year, Tsuneishi Shipbuilding and Mitsui E&S Shipbuilding, together with Mitsui O.S.K. Lines (MOL), received approval in principle for an ammonia-fueled liquefied gas carrier design. The vessel is a mid-size ammonia/LPG carrier equipped with a main engine that can run on ammonia, which emits no CO2 during combustion, according to the partners.

Courtesy: world maritime news

## Dedicated cable repair and installation vessel enters the market

Sreesha Udupa - GME

The Netherlands-headquartered N-Sea and its partner Neptune Marine Service have launched what is said to be the first dedicated cable repair and installation vessel.

Neptune Marine recently converted the existing anchored barge NP-459 into a dedicated cable repair DP2 vessel, named Curo, with a 50t off shore knuckle-boom crane.

The launch took place last week at the Neptune Ship Yard in Hardinxveld-Giesendam, the Netherlands.

The vessel will be available from mid-June for cable repair and installation pro-

jects and will be sailing for its first inter-array replacement project in Germany in the coming two weeks.

According to N-Sea, Curo is equipped with an innovative cable repair spread including a dual basket carousel, to repair and replace HVAC and HVDC inter-array cables, export cables and interconnectors. Due to the combination of its eight-point mooring system and DP2 capabilities, the vessel can operate year-round in both very shallow (beachable) and deep-water conditions.

N-Sea recently made a number of moves to strengthen its fleet and subsea activities.



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### LIGHTHOUSE

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Namely, the Dutch company in November 2023 entered into an agreement with Rederij Groen to long-term charter the 4-WINDS vessel and extended its long-term charter agreement with Braveheart Marine for the Braveheart Spirit vessel.

Then in January N-Sea announced

it had chartered the hybrid, fuel-efficient survey and remotely operated vehicle (ROV) support vessel Geo Ranger and entered into an agreement with Rederij Groen to long-term charter the modern offshore support vessel Aquarius-G.

Courtesy: world maritime news

**The world's leading exhibition and conference for maritime electrification, decarbonization and GHG reduction**

**Vinay Kumar Taranath Shettigar - GME**



Taking place at the Amsterdam RAI in the Netherlands, June 18, 19 & 20, the event will host over 200 exhibitors, including industry leaders such as ABB, Rolls-Royce Solutions, Volvo Penta, Wärtsilä, Zinus and Speedgoat. Alongside the exhibition is a world-leading conference featuring over 40 speakers, plus a separate conference on autonomous ship technology.

This is a global event for suppliers and engineers of electric and hybrid and autonomous marine systems to meet and discuss a more sustainable future and the technologies that will make it happen. Throughout the event, there will be plenty of networking opportunities to meet new suppliers and reconnect with industry peers.

Fast-track your fleet's move to more sustainable operations by attending the world's leading event for marine electrification, decarbonization, hybridization, future fuels, shore charging and low-carbon shipping solutions. Entrance to the exhibition is FREE of charge – just visit the event website to register for your entry pass: Electric

& Hybrid Marine Expo Europe 2024 | Home (electricandhybridmarineworldexpo.com)

The show is ideal for companies ranging from small regional ferry fleet operators keen to reduce costs, through to international shipowners and operators wanting to learn more about tomorrow's propulsion solutions, as well as boat builders and engine makers concerned about the latest emissions legislation. The event brings together R&D experts and engineers from across the marine sector, providing one of the best networking opportunities of the year.

The three-day conference program (for which rates apply) will bring together attendees from around the world to listen to over 40 expert maritime engineering and academic speakers from organizations including DNV, GE Power Conversion, Port of Amsterdam, Polish Register of Shipping, Rolls-Royce, the Maersk McKinney Moller Center for Zero Carbon Shipping, Wärtsilä Marine, Shell Marine and Vard Group.

Key highlights include a



presentation from Elias Boletis, chair of the CIMAC Working Group 10. The working group provides a link between shipowners and the equipment manufacturers for the marine sector, and Elias's presentation – The challenges to ship owners in the decarbonization process, and the responsibilities of equipment manufacturers – will unpick questions about the drivers of technological progress toward decarbonization in the marine sector.

Are they pulled along by demand from shipowners or pushed forward by equipment manufacturers? What are the implications of either approach? Which would be best and should either do more of the same, less or something entirely different? This is a must-see presentation for any shipowner, OEM or equipment manufacturer who wants to understand how the technology enters the market and is applied to shipping.

Another feature of the show is an area for autonomous ship technology, which has its own conference program where ship designers, classification societies, fleet owners, naval architects, research organizations and equipment suppliers will discuss the developments needed to make autonomous operation a reality and improve efficiency.

The expo will also host the revamped Electric & Hybrid Marine Awards, with a host of categories to better reflect the scale of innovation across the maritime propulsion industry.

#### EXHIBITOR NEWS

At this year's expo, Volta Future will present a revolutionary e-outboard with 222kW (300hp) continuous power and



**At this year's expo, Volta Future will present a revolutionary e-outboard with 222kW (300hp) continuous power and 790Nm. The next-gen e-outboard is called iWOP, which stands for invisible waterline outboard power-drive.**

790Nm. The next-gen e-outboard is called iWOP, which stands for invisible waterline outboard power-drive.

The housing of the iWOP is much more compact than classic outboard housings and contains two specially developed, high-performance electric motors together with a directly cooled double inverter. Unlike other outboards on the market, the iWOP can be mounted not only on boats with transom (outboard) but also on boats with (normally) inboards instead of the sterndrive, enabling the provision of a bathing platform instead of an engine housing.

EPTechnologies will showcase solid-state batteries, which the company says represent a significant advance in battery technology. Unlike traditional lithium-ion batteries, which use liquid electrolytes,

solid-state batteries do not. This fundamental difference enhances safety, cycle life and overall performance. They can be overcharged, heated to extreme values and even punctured with a projectile with no ill effects.

This opens new possibilities for applications. For instance, EPTechnologies can develop batteries equipped with a hardware override switch to bypass all electronic control systems if necessary. As overcharge, over-discharge, short circuits and similar issues have minimal impact other than reducing battery life, users can be assured of accessing the power they need, regardless of the situation.

At Autonomous Ship Expo, Wavefront Systems will present its new Vigilant 600 forward-looking sonar (FLS). Complementing the company's Vigilant 1000 and 1500 systems, it allows autonomous surface and subsurface vessels to transform their underwater situational information.

The provision of real-time navigational and obstacle avoidance data to onboard or remotely controlled systems enables safer operations in unfamiliar or dynamic environments by dramatically reducing the risk of collisions or grounding. Patented technology capable of depth-finding at ranges ahead of the vehicle in excess of 20 times the prevailing water depth, combined with real-time data on poorly charted seabed features and water column obstacles, enables reactive navigational autonomy.

**Courtesy:** The opinions, beliefs, and viewpoints expressed in this article do not necessarily reflect the opinions of Offshore-Energy.biz

## Contact of Container ship Dali with the Francis Scott Key Bridge and Subsequent Bridge Collapse

M.Muthu Kumar, Senior Faculty

On March 26, 2024, about 0129 eastern daylight time, the 947-foot-long Singapore-flagged cargo vessel (containership) Dali was transiting out of Baltimore Harbor in Baltimore, Maryland, when it experienced a loss of electrical power and propulsion and struck the southern pier supporting the central truss spans of the Francis Scott Key Bridge (Key Bridge). A portion of the bridge subsequently collapsed into the river, and portions of the deck and the truss spans collapsed on to the vessel's forward deck. A seven-person road maintenance crew employed by Brawner Builders—which was contracted by the Maryland Transportation Authority (MDTA)—and one inspector employed by Eborn Enterprises, Inc., a sub consultant to the MDTA, were on the bridge



■ The Dali, with portions of the collapsed Key Bridge across its forward deck and in the Patapsco River, on March 28.

when the vessel struck it. The inspector escaped unharmed, and one of the construction crew members survived with serious injuries. The bodies of the six fatally injured construction crew members have been recovered. One of the 23 persons aboard the *Dali* was injured.

The US Coast Guard classified this accident as a major marine casualty. The National Transportation Safety Board (NTSB), according to its Memorandum of Understanding with the Coast Guard, is the lead federal agency for the safety investigation and in response to the accident, traveled to Baltimore.

The *Dali*'s route on March 26, between the first blackout, and the *Dali* striking pier no. 17 of the Key Bridge. The location and approximate size of two of the bridge's "dolphins," sheet pile and concrete structures protecting the bridge's piers, are labeled in the lower right.

## Dali

### Background and Specifications

The *Dali*, a 947-foot-long, steel-hulled general cargo vessel (containership), was built by HD Hyundai Heavy Industries Co., Ltd. in 2015. The vessel's draft on departure was 39.9 feet fore and aft, with a cargo of 4,680 containers (56,675 metric tons of containerized cargo). The ship and cargo displaced 112,383 metric tons as loaded at departure.

Singapore-based Grace Ocean Private Limited, the vessel's owner, owns 55 ships—a mix of container ships (including *Dali*), bulk carriers, and tankers. As of March 26, Singapore-based Synergy Marine Group, the vessel manager who provided the crew and operated the vessel for the owner, managed 55 ships under Panama, Marshall Islands, Hong Kong, Liberia, and Singapore flags, including the *Dali*. The vessel was classed by Class NK, one of several nongovernmental classification societies that establish and maintain standards for the construction and operation of ships. Through construction and later periodic surveys, classification societies confirm a vessel meets the class's technical rules.

### US Port Calls in March 2024

Since arriving from Sri Lanka to the United States on March 19, the ship had made two other US port calls (Newark, New Jersey, from March 19 until March 21, and Norfolk, Virginia, from March 22 to March 23). On March 23, at 0236, the *Dali* moored at the Seagirt Marine Terminal in Baltimore Harbor.

### Electrical Power Loss on Previous Day

On March 2, about 10 hours before leaving Baltimore, the *Dali* experienced a blackout (loss of electrical power to the HV and LV buses) during in-port maintenance. While working on the diesel engine exhaust scrubber system for the diesel

# “ The *Dali*, with portions of the collapsed Key Bridge across its forward deck and in the Patapsco River, on March 28. ”

engine driving the only online generator (generator no. 2), a crew member mistakenly closed an inline engine exhaust damper. Closure of this damper effectively blocked the engine's cylinder exhaust gases from traveling up its stack and out of the vessel, causing the engine to stall. When the system detected a loss of power, generator no. 3 automatically started and connected to the HV bus.

Vessel power was restored when crew members manually closed HR2 and LR2.

Generator no. 3 continued to run for a short period, but insufficient fuel pressure.

Caused its speed to decrease, and its breaker (DGR3) opened; a second blackout (another loss of electrical power to the HV and LV buses) occurred. In the meantime, the crew had reopened generator no. 2's engine exhaust damper, and the generator automatically restarted and then connected to the HV bus when DGR2 closed.

While recovering from this second blackout, the crews switched the bus configuration to use breakers HR1 and LR1 and the bus's associated transformer (TR1) instead of breakers HR2 and LR2, which had been in use for several months. TR1 and its associated breakers, HR1 and LR1, were in use when the ship departed on March 26.

The first in-port blackout was caused

by the mechanical blocking of the online generator's exhaust gas stack. The second blackout in port was related to insufficient fuel pressure for the online generator. During both of the electrical power-loss events, the online generators' breakers (DGR2 and DGR3) to the HV bus opened before the HR2 or LR2 breakers opened. During the recovery, the crew put TR1 online to feed the LV bus because TR2 had reportedly been in use for several months.

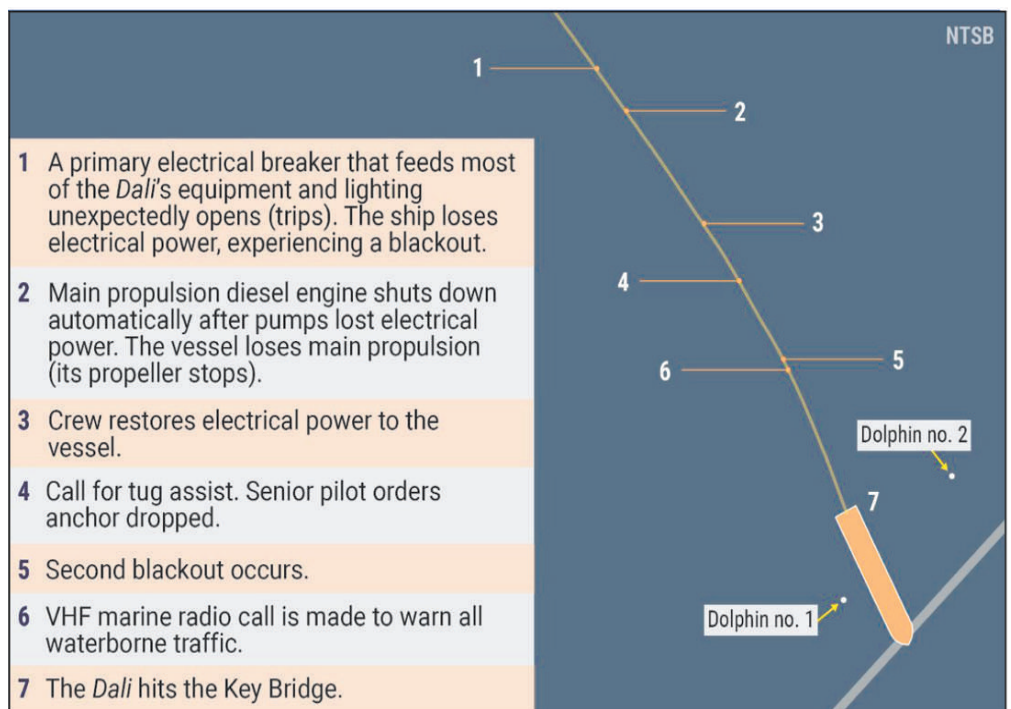
The first vessel blackout after departure on March 26 occurred when the HR1 and LR1 breakers opened unexpectedly.

The NTSB is still investigating the electrical configuration following the first in-port blackout and potential impacts on the events during the accident voyage.

## Francis Scott Key Bridge Background

The Francis Scott Key Bridge was owned and operated by MDTA and was opened to traffic on March 23, 1977, and carried Maryland 695 over the Patapsco River, running from Baltimore to Dundalk, Maryland. The approximately 9,087-foot-long, steel and concrete bridge was comprised of a continuous steel through-truss located over the river's navigation channel; the north and south approaches of the bridge consisted of multi beam plate girder spans (see figure 10). The continuous through-truss main spans of the bridge had a total length of about 2,643 feet and consisted of a 1,200-foot-long main span and two 721.5-foot-long back spans. The main span's navigation vertical clearance was 185 feet, and its navigation horizontal clearance (between the supporting piers) was about 1,100 feet.

**courtesy:** based on preliminary investigation by USCG.





### About Chidambaranar Port

V.O. Chidambaranar Port is located in Thoothukudi, Tamil Nadu, and is one of the 13 major ports in India. It was declared to be a major port on 11th July, 1974. It is the second largest port in Tamil Nadu and the third largest container terminal in India. V.O. Chidambaranar Port is an artificial port which is the third international port in Tamil Nadu and is the second all-weather port. The VOC Port, in Thoothukudi, has surpassed the cargo target set by the Ministry of Ports, Shipping and Waterways. During the 2022-23 fiscal year, the port handled 38.04 million tonnes of cargo, a growth of 11.50% over the previous year's performance of 34.12 million tonnes. Of the total cargo handled, 28.60 million tonnes were imports, 8.95 million tonnes were exports, and 0.49 million tonnes were transshipment. It has services to USA, China, Europe, Sri Lanka and Mediterranean countries. The Station Commander, Coast Guard Station Thoothukudi is located at V.O. Chidambaranar Port Authority, Tamil Nadu under the operational and administrative control of the Commander, Coast Guard Region (East), Chennai. The Coast Guard Station at V.O. Chidambaranar Port was commissioned on 25th April, 1991 by Vice-Admiral SW Lakhar, NM, VSM, the then Director General Coast Guard. The Station Commander is responsible for Coast Guard operations in this area of jurisdiction in Gulf of Mannar.

We started our journey from R. L. Institute of Nautical Sciences to V.O. Chidambaranar Port, under the guidance of Mr.P.Veerakumar, Faculty, Mr.Jothikrishnan, Instructor and Mr.Ramasamy, OIC on 16th May, 2024 at 09:00 hrs. Twenty five students from ETO and three staff members visited the port. The bus reached V.O. Chidambaranar Port around 12:00 hrs. Then students had lunch from 12:00hrs to 13:00hrs.

We completed the visit at around 16:30hrs. In the evening we gathered lot of information from the Chief engineer and had a wonderful learning experience by getting feedback from the officials. The bus started from Tuticorin around 17:30 hrs and reached R. L. Institute of Nautical Sciences at 20:30 hrs.

The visit was really beneficial and gave us a good learning experience. The staff and students were thankful to the V.O. Chidambaranar Port Authority and R. L. Institute of Nautical Sciences for granting the permission to successfully complete the educational tour.



■ Cadets of ETO with Mr.P.Veera kumar, faculty; Mr.Jothi Krishnan, Instructor and Mr. Ramasamy, OIC posing in front of the ship MV.DORIC WARRIOR.



■ Second Engineer demonstrating the technical aspects of the engine to our cadets.





■ Capt.Thiru Murthy, Senior Faculty & Head Placement Cell, Capt.Gnana Edison Raj, Principal, Capt.Pradeep Kale, MD, V Ships, Capt.Pramod Dhyani, EX CEO, Great Eastern Company and Faculty Members in our Board Room.

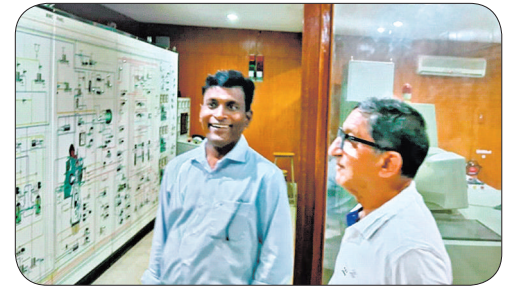
RLINS received the guests from V Ships and Great Eastern Shipping Company on 31st May-2024 at 3. pm. They visited our campus as part of their personal interest. In the course of their visit they had a glimpse of all the facilities available in our campus including Ship-in –campus, Simulation ,swimming pool and other infrastructures Capt.Thirumurthy ,Senior faculty & Head Placement Cell accompanied them and explained the unique features of institute which has a good track record of offering quality education to our cadets.

As part of the programme ,the visiting members had a pep talk at the board room where in Capt.Pradeep Kale ,MD ,V Ships

shared some of his experience he had in his career and also discussed in general about the job of the seafarers. The session was very interactive and also inspiring for our faculty members.

During the discussion Capt.Pradeep Kale shared his valuable thoughts and emphasised that some measures have to be taken for the growth trajectory of the institution.He insisted upon the quality of the faculty members who only can send good students with right attitude.

Mean while he requested Capt.Thirumurthy to have a good plan to meet many shipping companies in future . He also assured that he will support in getting



■ Capt.Pramod Dhyani, and Capt.Thiru Murthy, Senior Faculty & Head Placement Cell, having a glimpse of Simulation room.

prospective shipping companies for the placement opportunities of our cadets.

## Impact of positive workplace culture on well-being, productivity, and employee retention

### Valli kumar Alagan-GME

Fostering a positive workplace culture in India is not just beneficial—it's an imperative. The advantages are beyond measurement, priceless, you may say.

In today's hyper-competitive business environment, cultivating a positive workplace culture is essential for survival and success. Happy, engaged employees are the foundation of high performance and innovation. Companies that prioritise a supportive work environment don't just see incremental improvements; they experience transformative changes in morale, productivity, and retention—all of which directly impact the

bottom line. This isn't just good HR practice; it's a strategic advantage that propels companies ahead of the competition.

Workplace culture, which embodies the values, beliefs, and behaviours that shape an organization's identity and guide its interactions, is critical. According to Deloitte, 94% of executives and 88% of employees believe that a distinct corporate culture is vital to business success. A positive culture enhances employee satisfaction and accommodates various work styles, enabling everyone to work in ways that best suit their strengths and preferences. Recent

SHRM research indicates that 64% of Indian workers are likely to stay with their employers if provided with a good organisational culture. By making employees feel connected and valued, a positive culture significantly reduces turnover.

### Dissecting India's Current Workplace Scenario

India is currently experiencing a severe workplace burnout crisis, as indicated in a McKinsey Health Institute survey done in 2023 found that 59% of employees reported burnout symptoms, the highest globally. Young workers and non-managers are



particularly affected, with 62% experiencing workplace exhaustion. This critical situation demands immediate and strategic intervention from business leaders, in the form of prioritisation of mental health, creating supportive work environments, and a framework for proactively addressing burnout.

Today's employees expect a holistic and personalised working condition, which balances seamlessly with their personal lives, aspirations, and unique circumstances, be it distance from the workplace, or having to support ageing elders at home. Furthermore, a diverse and inclusive work environment is also highly valued, ensuring that all employees feel respected and valued. Additionally, opportunities for professional growth, transparent communication, and recognition of achievements are key to meeting the evolving needs of the Indian workforce. The idea is that work-life can no longer come at the expense of one's overall sense of well-being and achievement. Below are some holistic approaches to elevate employee well-being in Indian organisations:

#### Tackling Stress: Strategies for Boosting Well-being in Indian Workplaces

In India, workplace well-being is increasingly recognised as crucial, with 42% of employees experiencing high stress levels. Companies can alleviate this by promoting mental health awareness through regular workshops, training, and Employee Assistance Programs (EAPs) that offer confidential counselling services. Offering flexible working conditions, such as remote work options and flexible hours, helps employees balance their personal and professional lives. Additionally, fostering supportive environments involves implementing comprehensive wellness programs, establishing open communication channels, and actively encouraging regular peer-to-peer interactions. In today's digital age, where employees often spend their days immersed in screens and devices, these personal connections are crucial for building a sense of community and well-being within the workplace.

#### Empathy at the Workplace

Empathy is a cornerstone of a positive workplace culture. When leaders and colleagues demonstrate empathy, they create an environment where employees feel understood and valued. This emotional support can significantly enhance job satisfaction and reduce stress. A study by the Indian Journal of Industrial Relations shows that employees who feel valued and supported are more motivated and perform better.

#### The Importance of Positive Workplace Culture in the Digital Age

In the digital age, where AI technologies



### ■ The Impact of Positive Workplace Culture on Well-being, Productivity, and Employee Retention.

**“The idea is that work-life can no longer come at the expense of one's overall sense of well-being and achievement. Below are some holistic approaches to elevate employee well-being in Indian organisations**

are increasingly integrated into work, a positive workplace culture is more crucial than ever. The rapid pace of technological change can cause uncertainty and anxiety amongst employees, who worry about automation and job displacement. In such transitional times, a supportive and empathetic culture offers stability and reassurance, providing the psychological safety and security employees need to navigate change confidently. This environment helps employees adapt to new technologies while maintaining their engagement and motivation.

#### Building Resilience and Fostering Hope in the Workplace

Resilience is an important character trait that a positive workplace culture can nurture. In an environment where employees are encouraged to learn from failures and persist through challenges, resilience becomes a natural outcome. Moreover, a positive culture instils a sense of hope in employees, giving them confidence in their future with the company. Hope is crucial for maintaining morale and motivation,

especially in times of uncertainty.

#### Fuelling Success: How Positive Workplace Culture Drives Productivity

##### ADVERTISEMENT

A positive workplace culture significantly enhances productivity by fostering high employee engagement, leading to increased motivation and commitment. It encourages collaboration and open communication, which improve problem-solving and innovation. Valuing and recognising employees boosts job satisfaction, reducing absenteeism and turnover. A supportive environment minimises stress and burnout, allowing employees to maintain consistent productivity.

#### Key Strategies for Fostering a Positive Workplace Culture

Cultivating a positive workplace culture requires a multifaceted approach, beginning with effective leadership and transparent communication. Regular feedback, recognition, and open dialogues are crucial for building trust and a sense of belonging amongst employees.

Inclusivity & Innovation go hand in hand. By implementing policies that prioritise gender equality, inclusivity, and diversity, organisations can greatly improve employee satisfaction and retention while fostering heightened engagement and enriched workplace experience.

Investing in professional development through training and development programs demonstrates a commitment to employees' futures, as highlighted by a report from O.C. Tanner's 2024 Global Culture Report, integrating recognition into everyday employee experiences significantly increases the likelihood of fostering a culture that enhances employees' sense of belonging, motivation for great work and desire to stay with the organisation.

Courtesy: India today/education today



# BLOOD DONATION CAMP

R.L Institute of Nautical Sciences organised Blood Donation Camp in co-ordination and with the Meenakshi Mission

Hospitals, Madurai on 31st May-2024 at our premises. Many of our cadets enthusiastically participated and donated blood. RLINS is

one of the institutes which contributes every year for the noble cause of helping the poor and needy.



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- After 36 Months of Sea time appear for 2nd mate NCV/MEO Class IV NCV. Then sail as a III officer/IV-Engineer

# R.L. INSTITUTE OF NAUTICAL SCIENCES

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T.V.R. Nagar, Aruppukkottai Road,

MADURAI-625 022

Phone : 7397788618

email : [admission@rlins.in](mailto:admission@rlins.in) / [rlins@rlins.in](mailto:rlins@rlins.in)

