GREEN SHIP TECHNOLOGIES is a Marine, Offshore & Industrial service provider established in 2009. We are based in Navi Mumbai - India and progressing to various parts of the world.

Our experienced team consists exclusively of Naval Architects; Marine engineers, Master Mariners, Technicians, Electrical / Mechanical Engineers and Computer Engineers who are well qualified with good experience in major Shipyards, Ship design offices, Marine operations, Offshore Engineering, NDT services. Electrical / Mechanical engineering fields and Software Development Fields.

GREEN SHIP TECHNOLOGIES’ reliable services are as detailed below. We have an extensive list of satisfied clients across the world. Our engineers have successfully co-operated with clients from India as well as Middle east, Far east and European countries.

- **Turkey Projects in Marine, Offshore & Defence Sectors**
- **Design Engineering Services**
  - Detailed Engineering
  - Marine Engineering
  - Offshore Engineering
- **Marine Softwares**
  - Eoloadmaster - Ship Loading Instrument
- **NDT Inspections**
- **Marine Surveys**
- **Retrofit Installations**
  - Ballast Water management systems
  - Scrubber Systems

Our Production team consists of Production Engineers, Skilled welders, Structural and Pipe Fitters, Electricians, Carpenters, riggers etc.

Our engineering capabilities include basic design and detailed analysis of ship structures/jack up rigs/ barges, heli decks and crane foundation etc. Our experienced team in Finite Element Analysis, Stability Analysis and Statutory requirements supports all projects and works closely with other disciplines to offer best quality designs to customers.

Our software Team is well experienced in various marine and industrial sectors.

Our NDT team is well experienced in marine, offshore and industrial field.

Our aim is to provide services with high measurements on quality customer satisfaction.
GREEN SHIP TECHNOLOGIES is establishing as single window Solutions for Marine, Offshore & Défense sectors for Turkey Projects including Design, Procurement and Installations.

We are capable of latest Technology Designs in Structural, Piping and Electrical Systems as per Customer Requirements including Procurement, Installation and Commissioning.

Our team Is comprised of highly skilled welders, structural fitters, electricians, pipefitters, carpenters, riggers etc under the supervisions of experienced Naval Architects, engineers and ship repair and production management teams.

We are capable of Undertaking:

- Conversions and Modifications of Ships
- Small vessel Constructions
- Structural and Piping constructions and Repairs
- Machinery and Electrical Installations
- Hull Damage Repairs
- Installation of Project Equipment

We pride ourselves on providing quality services with minimal downtime, competitive pricing and the finest workmanship. Without compromising on quality and safety, we ensure that every repair is completed ontime with in budget and to the satisfaction of our customers.
We cater to the various maintenance and repair works for ships and marine structures. We specialise in ship repair, hull repair, electrical automation and repair works. We also specialise in the repair and maintenance works for Indian Navy, Coast guard, popular Ship yards around India, private shipyards and other ship owners and managers.

### Ship Repair & Maintenance:
- Maintenance of Steel, piping and outfitting Repairs.
- We focus on multi-skilled work force and highly experienced supervision teams.
- We have well trained mechanics, welders, fitters, in our shops.
- Systems and process confirm to International quality and standard

### For Commercial Ships
- Engineering Division supporting class approval of plans and documentation.
- System modifications and repair works.
- All sorts of piping works- modifications, maintenance and repairs
- Hull repairs and superstructure repairs
  - Installation support for New Equipment as design change / Class requirements etc.

### For Defence Ship
- Experienced design and piping software engineers
- All sorts of piping works- modifications, maintenance and repairs
- Modifications, maintenance and repairs for hull and superstructure
- Engineering Division supporting class approval of plans and documentation
- Installation support for New Equipment as design change / Class requirements etc.
System Piping Repairs

- All piping jobs for SS, Cu-Ni and titanium pipe types.
- Pre-fabrication works for pipes, joints etc.
- Templating and bending of pipes
- Ventilation trunking and insulation renewals
- All maintenance works for piping systems

Outfitting Repair Works

- Repair and maintenance for ship superstructure
- All sorts of welding work required for outfitting structures.
- Maintenance and repairs for gangways, steps etc.
- Deck lifting machinery maintenance and repairs
- Reconditioning/renewal of steel or aluminium structures
- Repair and maintenance of doors, hatches etc.

Electrical Repairs

1. Electrical Troubleshooting for:
   - All types of Circuit breakers
   - Main & Emergency Switchboards
   - All Stator Panels
   - Battery Charging Systems
   - Generator, Motor, Batteries and Transformers
2. Repair works for ship electrical components
3. Design and supply of transformers, switchboards etc.
GREEN SHIP TECHNOLOGIES provides Detailed Engineering solutions to yards and industries. Our design division provides best design solutions to clients on time. Our engineers have good experience and were involved in various project around the globe.

Ship Design

Our design team is experienced with following marine software's:

- Aveva
- Cadamatic
- Ship Constructor
- PDMS

Basic Ship Design

We have capabilities to carry out basic design as detailed below.

- Hull form design and optimization
- Technical specifications
- General arrangement
- Hydrostatics & stability calculations
- Main scantling computations
- Structural design
- Machinery & Piping system design
- Electrical design
Detail Design & Production Drawings

We have expertise to carry out Detail Design & Production Drawings as per yard specific requirements.

Structural
Our Structural Detail Design capabilities:
- 3D Model
- Surface creation
- Shell Development
- Pin Jig information
- Bending templates
- Building Strategy
- Structural production drawings
- Flat Panels
- Minor Assemblies
- Nesting
- Profile Sketches
- Part Lists

Outfitting & Machinery Design

Our Outfitting & Machinery Detail Design capabilities
- 3D Model
- Pipe Arrangement Drawings
- Vent Arrangement Drawings
- Pipe & Vent Spools
- Layout Drawings
- Installation Drawings
- 3D view drawings
- Penetration drawings
- Part lists
- Penetration lists
- Pipe Support drawings
- Equipment foundation drawings

Electrical

Our Electrical Detail Design Capabilities:
Our Structural Detail Design capabilities:
- 3D Model
- Cable Tray Arrangement drawings
- Cable Scheduling
- Penetration drawing
Our main objective is to deliver the best possible design solutions to owners and shipyards on time.

Our design divisions main area of expertise comprises in handling the basic design and generating detail production drawing for shipyard.

We are also experienced in handling conversion works for many offshore vessels and seismic vessels.

**Apart from creating ship designs, our design division is also fully prepared to carry out specific naval architectural tasks such as:**

- FMEA (Failure Modes and Effect Analysis)
- Intact and Damage Stability Calculations
- Statutory Plans and Manuals etc.
We offer both complex design of vessels as well as individual design stages such as initial, contractual, classification and detailed design.

**Initial and Contractual Design**

The documentation in the initial and contractual stage includes drawings and calculations used for describing general characteristics of the vessel; speed, capacity, fuel consumption, etc. The most important documents prepared at this stage include:
- General arrangement plan
- Technical specification
- Tank plan
- Light ship calculation

**Preparation of Booklets and Manuals**

The documentation includes drawings and calculations used to gain the approval of the Classification Society. Documents prepared at this stage includes:
- Intact and damage stability booklets
- Inclining Experiment report
- P&A manuals
- Longitudinal strength calculation
- Sea fastening calculation etc.

We closely cooperate with major class societies such as DNV, GL, ABS, BV, IRS and others.

**Detailed Design**

Detailed documentation includes drawings and other documents indispensable for prefabricating and assembling the vessel (lifting documentation of hull, isometric drawings of piping installations, etc.). Usually at the detailed design stage the 3D model of the vessel is prepared.
GREEN SHIP TECHNOLOGIES offshore engineering division provides various supports for oil & gas industry. Our lead engineers are having good experience in oil & gas industry and were involved in various projects around the globe.

**Compliance for SPS/ MODU Codes**
- Compliance studies and consultation for certification requirements.
- Modification studies for compliance requirements with commercial and operational optimization.

**Self-Elevating Mobile Offshore Drilling Unit Services**
- MODU Stability Analysis
- Inclining experiment and report
- Dead Weight Survey
- Marine Operational Manual
- Structural Installation and FEM Analysis
- Heli deck Analysis
- Piping and Electrical Modification

**Mooring and Motion Analysis**
- Analysis for all types of vessels with all kinds of design parameters
- Analysis as per applicable codes
- User friendly reports for operational requirements

**Cable Lay Analysis**
- Analysis for all types of vessels with all kinds of design parameters.
- Static and Dynamic Analysis.
- User friendly reports for Operational Requirements.
**Pipe Lay Analysis**
- Pipe Lay Analysis as per project design requirements
- Static and Dynamic Analysis
- User friendly reports for Operational Requirements

**Installation and Modification Studies**
- Turnkey studies with support of Structural, Mechanical, Electrical Engineering capabilities
- Basic design and Detailed Engineering drawing
- Optimized designs for Commercial and operational feasibilities

**Structural & Stability Analysis**
- Structural Analysis of various installations and equipment through FEM Analysis
- Structural checks for various operational parameters
- Stability Analysis as per design requirements

**Towage, Transportation and Sea fastening studies**
- Detailed analyse for all kinds of marine Transportation as per Codes and Practices of marine warranty requirements
- Towing plans and sea fastening designs
- Assistance for Warranty surveys
EcoLoadMaster Software is an instrument for Intact & Damage stability, and longitudinal strength calculation. Software is class approved.
The high performance Ship Loading Software can be provided for any type of cargo ships, i.e. Oil / Chemical tankers, Bulk carriers, Cement carriers, General cargo ships.

**Introduction**

Our EcoLoadMaster is windows based software, developed to meet the latest IMO requirements for calculations on intact and damage stability conditions.
- High productivity & performance
- Integrated loading condition browser
- Extensible & adaptable interface
- User friendly and convenient

**Longitudinal Strength**

Advanced diagrams and load indicators have been developed in distribution of loads and keep loading conditions well within the permissible strength limits.

**Intact Stability calculations**

Righting arm calculations for each angle of heel are based on the varying trim mode as for a freely floating ship which changes trim depending on the actual longitudinal equilibrium.

**Damage stability calculations**

Analysis of damage stability of the ship for loading conditions defined by the user with predefined damage cases in accordance to Res. MEPC.248 (66) in the MARPOL convention, Res. MSC.369 (93) in the IBC/BCH Code and Res. MSC.370 (93) in the IGC Code.

**Advantages of EcoLoad Master includes:**

- Intact Stability Calculations
- Damage Stability Assessment for varying loading conditions with predefined damage cases
- Longitudinal strength calculation
- High accuracy in free surface moment calculation which ensures more accurate calculation
- Delivery/ Easy Installation, Fully loaded with advanced features for tailor made requirements
Simplified - EcoLoadMaster- Ship Loading Instrument

ON BOARD STABILITY ASSISTANCE FOR SMALL AND MEDIUM VESSELS

We provide on Board Stability Software for all type of small, medium, and big vessels for Master Assistance in loading with Regular OR specific Operating Parameters.

- Container vessels
- General Cargo Vessels
- Small tankers
- Offshore Support Vessels
- Passenger Vessels
- Offshore Construction barges
- Oil Rigs
- Anchor Handling Tugs
- Tugs
- Ro-Ro Vessels

Vessel Specific Loading Criteria, Towing, Anchor Handling Criteria can be handled at Owners' and Manager's Office Also.

Emergency Response Services

24/7 SUPPORT FOR ACCIDENT ASSISTANCE AND SALVAGE OPERATIONS

We have a Team of Experienced Chief Engineers Master Marines and Naval Architects with Experience in damage Assessment, Repairing, Towing, Single Voyage Operation etc.

By having sufficient database of Vessel in office, we can provide Real Time Assistance in Intact Stability, Damage Stability, Structural Assessments for any accidents and intended Salvage Operation.

Documentation requirements for Warranty Surveys and Class Surveyor will be provided.
Marine & Industrial NDT Inspections

GREEN SHIP TECHNOLOGIES Marine & Industrial NDT inspection division is having highly skilled engineers and technicians and our unparalleled range of facilities offer complete solutions to meet all industrial needs.

Rope Access Services

Rope access is swiftly becoming a preferred method of carrying out inspections, tests and maintenance in various industries across the globe. We have a qualified and experienced personnel are professionally trained and certified by IRATA, and operate under the guidelines of the IRATA International Code of Practice.

- NDT Services
- UT Gauging Services
- Cleaning & Repair Services

Thickness Measurement Inspection

- Approved by Major Classification Societies
- Riding Squad with CDC and Onboard Reporting
- In-house Engineering, Naval Architecture & NDT Support
- Latest intrinsically safe and through coating equipment.
- Exclusive inspection team for marine and offshore sectors.
- Online Reporting and Data Management System.

Services Offered In Marine Division:

- Hull UTM survey for all types of ships, boats and barges
- CAP, CAS, URS, Intermediate, Special and Annual Surveys
- Class Entry/Renewal Surveys
- Steel Estimation, Repair plan and Dry Dock Specifications
- Pre Purchase Hull Inspection.
- Rafting Surveys
- Visual Inspection & Close-up survey
- Steel inspection for repair supervision
- Pipeline inspection
- Coating inspections and calculations
- Scaffolding and Steel Estimations

Services Offered In Offshore Division:

- Hull and Leg inspection as per class/client requirement
- Pipeline Gauging
- Periodical Surveys For Offshore Unit
- Steel Renewal Sequence Plan For Refurbishment/ Repair Projects
- Steel Supervision During Refurbishment, Repairs And Conversions
- Periodical Corrosion Monitoring Of Pipelines
- Structural Integrity Survey Of platforms and rigs
- Condition Assessment Survey-Structural And Coating

www.greenshiptech.com
NDT INSPECTIONS

NDT Techniques

We offer optimized NDT inspections system to meet industrial needs and our field services are in constant demand worldwide.

Applications

Our NDT services include inspection of both metallic and non-metallic (polymer and composite) components and structures. According to requirements, NDT can be undertaken during production, post-production, in-service and following repair. Our NDT inspection facilities and expertise are also a key component of our failure investigation service and can provide key test data as part of a fitness for service or risk-based inspection procedure.

Third Party Inspection: We can provide highly experienced and qualified personnel to undertake third party oversight in all NDT inspections areas. Our expertise includes:

- Ultrasonic Flaw Detection (UFD)
- Magnetic Particle Inspection (MPI)
- Liquid Penetrant Test (LPT)
- Infrared Thermography
- Visual Inspection
- Leak Testing (LT)
- EDDY Current Test (ECT)

Noise Level Survey

We offer Noise level measurement surveys as per IMO Res. A. 468 (XII). Level of noise is measured in following areas:

- Control room
- Propulsion machinery
- Turbocharger
- Radar & room
- Reduction gear
- Top propulsion machinery
- Non-specified workspaces
- Serveries & Pantries
- Auxiliary diesel engines &
- Turbo generators
- Mess room & Cabins
- Accommodation & Other spaces
- Navigating bridge wings
- Workshops

Thermography Survey

We offer Quantitative and Qualitative thermography survey in Marine & Industrial sector:

- Identification of surface heat variations by capturing thermo grams.
- Can detect abnormally hot, blocked or overloaded electrical systems.
- Allows us to see these invisible thermal signatures of impending damage before the damage occurs.
- Identification of slightest heat variation and hot spots.

Electrical Applications:  Mechanical Applications:
- Fuses and Motor Controllers
- Transformers and drives
- Switchboards
- Earth faults
- Circulating currents
- Laminations
- High voltage overhead distribution lines
- Motors
- Pumps
- Heat exchangers
- Bearings
- Gear boxes
- Drive belts

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GREEN SHIP TECHNOLOGIES provides extensive range of surveys undertaken by Highly Experienced and Qualified Professionals.

Flag and Classification Surveys
Flag inspection to the requirement of various flags and classification surveys.

ISM Consultancy
Other than external audits, we can arrange Internal Audits and ISM consultancy services.

Pre-Purchase Surveys
Detailed inspection of vessels for prospective buyers and detailed reporting with photographs, documents etc.

On/Off Hire Surveys
Vessel's verification before and after hire period to assess the status of the vessel in detail with photos and evidences and all types of condition assessment surveys for Insurers, as per request.

Draft Surveys
Draft surveys for assessment of Cargo, Light weight, Displacement etc.

Damage Surveys
Damage assessment surveys for Recognized organizations, other authorities & owners.

Bunker Surveys
Bunker surveys to assess quantity of Bunker on board.

Towage Surveys
Towage approval surveys for assessment of towage.

Vessel feasibility inspection for Projects Operation Demolition Voyages etc.
Specific inspections and reporting for vessel’s suitability to projects, operations, demolition voyages etc.
Specific assessment is made in addition to general assessments.
DETAILED ENGINEERING & INSTALLATION ASSISTANCE

Requirements:

Ballast Water Management Convention, 2004 is a treaty adopted by International Maritime Organisation (IMO) in order to prevent the spread of potentially harmful aquatic organisms and pathogens in ships’ ballast water.

From 8th September 2017, the very date on which Treaty came into force globally, ships must manage their ballast water so that aquatic organisms and pathogens are removed or rendered harmless before ballast water is released to new location.

Ships of GRT>400 must comply with D1 and D2 as per Convention requirements. D1 relates to Ballast Water Exchange and D2 specifies the maximum amount of viable organisms to be discharged thru (ie: thru approved Ballast Water Treatment Plants)

Services provided by Green Ship Technologies:

We have Very good team of Naval Architects, Marine Engineers, 3D Scanning Experts, Design Software Experts, Piping and Electrical engineers who are Well Experienced and can Provide Complete Design Solutions and Installation Assistance.

D2 Compliance Dates:

1) Vessel Inspections for feasibility of installations.
2) 3D Laser Scanning.
3) Detailed Design and Engineering Drawings for Class Approval and Client Approval.
4) Installation Assistance at Shipyard OR in Ports.
Detailed Engineering & Installation Assistance:

Requirements:

International Maritime Organisation (IMO) require ships to reduce their Sulphur Oxide Emission in certain waters in the world.
From 2015, the allowable Sox emission in SECA Areas (Sox Emission Controlled areas) can not exceed 0.1%.
From 2020, a Global 0.5% SOx cap will apply world wide.

Type of the Systems:

- OPEN LOOP SYSTEM
- CLOSED LOOP SYSTEM
- HYBRID SYSTEM

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