EMship Advanced Design

MASTER
ERASMUS MUNDUS

PRESENTATION OF STUDENTS

1st Cohort

Field of interest
Seeking Career & objectives
Master Thesis key results

SAB Meeting - PARIS - 13
February 2012

Cristian José BOTTERO
Argentina
Aeronautical Engineer

EMship Advanced Design

- *Education: Universidad Nacional de la Plata, Argentina*
- *Field of interest: Structural design*
- *Seeking Career & objectives: Structural design*

Aerojoules Project: Vertical Axis Wind Turbine

Tasks:
- Turbine design
- Aerodynamic analysis
- Introduction to the structural analysis

Key results:
- Preliminary aerodynamic optimization: selection of two candidate airfoils
- Proposal of three alternative designs for blade-support interface
- Development of a simplified load estimation method for preliminary structural studies

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Rachid DAMI
Morocco
Process /Marine Engg

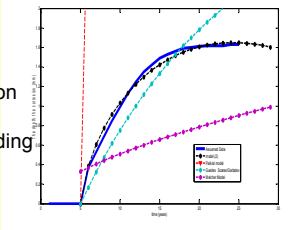
- *Education*: Univ. of Liege, ECN France,WPUT Poland.
- *Field of interest*: Ship Structure Subject to Corrosion, Hydrodynamic and Piping System
- *Seeking Career & Objectives*: Ship designer or Researcher in offshore industry

DNV

Analysis of ultimate capacity of the structural elements of single hull VLCC subject to corrosion

Tasks:
- Develop new corrosion model comparing with others models.
- ULS capacity of the tanker ship including effect of the corrosion.

Key results:
- Reducing of 5% of the section modulus.
- Reducing of 9.3% of the section area.
- Reducing of the Ultimate Bending Moment by
  - 19% in hogging
  - 16% in saggging.

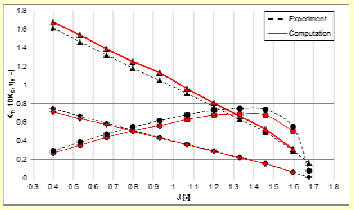


Bogdan DARIE
Romania
Naval Architect

- *Education*: “Dunărea de Jos” Univ. from Galați, Faculty of Naval Architecture
- *Field of interest*: Structure Analysis
- *Seeking Career & objectives*: Ship designer or Researcher in maritime field

Numerical simulation of the flow field around a propeller

Tasks:
- Grid generation
- Problem setup
- Results verification



Key results:
- Open water characteristics (trust, torque, efficiency)
- Pressure distribution

ICE international contract engineering
www.icedesign.info

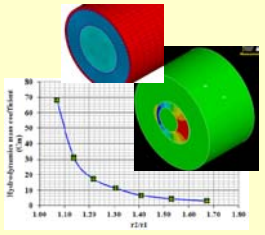
Desta Milkessa EDESSA
Ethiopian
Mechanical Eng’g and
Advanced Ship Design

- *Education*: IIT-Roorkee, Univ. of Liege , ANAST, Ecole central Nantes, Uni. Of Rostock.
- *Field of interest*: Mechanical Design and vibration, structural design and Fluid structure Interaction
- *Seeking Career & objectives*: Mechanical designer, structural designer or Related research work.

Bending Vibration Analysis of Pipes and Shafts Arranged in Fluid Filled Tubular Spaces Using FEM

Tasks:
- Acoustic fluid structure interaction finite element modeling.
- Determination of vibration characteristics of stern tube and Overboard discharge line.
- Determining added mass coefficient and propose quick and simpler formulae.

Key results:
- Acoustic FSI model
- Resonance frequency of stern tube and OVBD discharge line.
- Added mass coefficient for stern tube and OVBD discharge line.



Margus KANA
Estonia
Civil Eng

- *Education*: Tallinn University of Technology
- *Field of interest*: Offshore construction
- *Seeking Career & objectives*: Working in offshore wind park or harbor

Performance Indicators and Methods to Compare Various Transport Modes

Tasks:
- Comparison of various transport modes in the frame of cost, environmental impact and time
- Develop methodology to evaluate these parameters
- Find the main factors affecting these parameters

Key results:
- Ro-Pax ships are not always environmentally friendly
- If CO_2 tax will be applied, sea transport is much more affected compared to other transport modes

Marko KATALINIĆ
Croatia

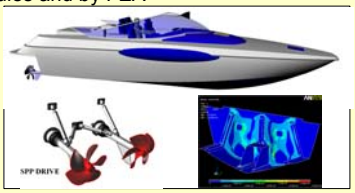
Naval Architect

- *Education*: Master of Naval Architecture
- *Field of interest*: Ship Design, Hydro/Aerodynamics
- *Seeking Career & objectives*: Ship, small craft or sailboat designer. Hydro/aerodynamics researcher. Composite production engineer.

Structural Design of a High Speed Motor Yacht in GRP by Rules and direct FEM analysis

Tasks:
- Development of a 55 knot yacht based on Fast Patrol Vessel
- General arrangement and exterior redesign
- Hydrodynamics and propulsion
- Structural design by Rules and by FEA

Key results:
- Lamination scheme and schedule optimization
- SPP drive implementation
- FEA of composites



Ivan KLARIĆ
Croatia

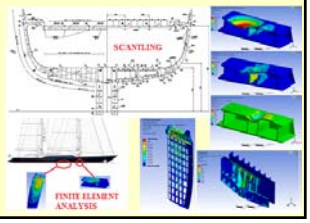
Naval Architect

- *Education*: EMSHIP, University of
- *Field of interest*: Structure, Stability calculations Seakeeping, Hydro – structure interactions
- *Seeking Career & objectives*: Structure designer, Production, Researcher in shipbuilding and offshore industry

Structure design of a sailing yacht hull by rules and direct method

Tasks:
- Scantling of the main frame for the sailing yacht
- Finite element analysis
- Keel – Hull structure connection - verification of the models according to the rules

Key results:
- Influence of the mesh on the results
- Maximum deflection of the keel
- Maximum stresses compared with rules requirements



Jimmy LUKMAN
Indonesia

Naval Engineer

- *Education*: St. Petersburg Marine Tech. Univ
- *Field of interest*: Ship Hydrodynamics
- *Seeking career & objectives*: Surveyor or Researcher in offshore industry

The application of dual-fuel technology in inland waterway tankers

Tasks:
- Reviewing the green propulsion technology
- Reviewing the typical design of inland tankers
- Proposing new design for green inland tankers

Key results:
- The future fuel of the future is dual-fuel engine
- Future design of inland tankers is the combination of dual-fuel technology, diesel-electric propulsion system and hybrid-azipod drive

Akram MADI
Palestine

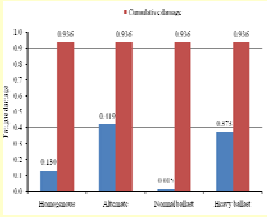
Marine Structural Eng

- *Education*: MSc Univ. of Science and Technology (NTNU), Norway
- *Field of interest*: Marine structure and hydrodynamic
- *Seeking Career & objectives*: Ship or Offshore Structural & Naval architect

Fatigue Strength Assessment for Bulk Carrier According to CSR

Tasks:
- Develop global FEM according to CSR-BC for the three midship cargo holds
- Develop submodels for hopper inner bottom Knuckle and longitudinal-web frame end connection to evaluate the stress concentration factors
- Assess the cumulative fatigue damage for hopper-IB knuckle

Key results:
- SCF for hopper-IB knuckle from direct FEM is double the CSR value
- SCF for longitud-web frame depend on load combination



Martin MARKULIN
Croatia

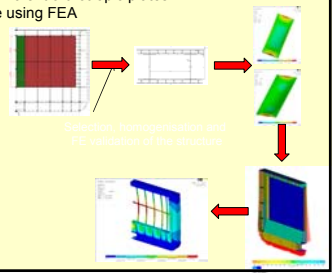
Naval Architect

- *Education*: Univ. of Zagreb, FSB (FMENA)
- *Field of interest*: Ship design
- *Seeking Career & objectives*: Structural activities on medium-sized ships for special purposes or yachts

Structural Design of Transverse Bulkhead of a Handymax Bulk Carrier Built in Steel Sandwich Panels

Tasks:
- Selection and analysis of the most favourable design layout
- Transfer of sandwich panels to equivalent orthotropic plates
- Investigation of structural response using FEA

Key results:
- Favourable weight reduction
- Improvement of existing homogenisation formulation
- Reduction of finite element number
- Acceptable structural response
- Room for additional improvements



Yohannes Tekle MUHABIE
Ethiopian

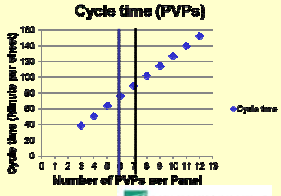
Industrial Eng'g, Ship desing

- *Education*: Univ. of Liege , Ecole central Nantes, Uni. Of Rostock, Addis Ababa Univ.
- *Field of interest*: Production Simulation, System Development, Optimization
- *Seeking Career & objectives*: System Engineer, Researcher in offshore Industry, Rule development .

"Modeling & Simulation of a Production line (Panel line) in Shipbuilding Industry using Tecnomatix Plant Simulation 9.0"

Tasks:
- Data Synthesis and Analysis
- Modeling and Simulation of the production line
- Investigate the effect of adding a new work station.
- Integrating MS office with Plant Simulation software

Key results:
- Work station designed
- Profile welding is the bottlneck
- Maximum number of PVPs for container (6) and Tanker ships(4)



Ngoc-Do NGUYEN
Vietnam

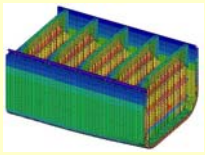
Naval Architect

- *Education*: Ecole Centrale Paris, Master EMSHIP
- *Field of interest*: Wind Energy, Offshore
- *Seeking Career & objectives*: Structure Engineer in wind or offshore industry

Torsional hull girder response of containerships– feasible with Cargo Hold models?

Tasks:
- Research project in container ships'structure in the framework of Common Structural Rules of IACS
- Analysis of torsional effects on container ships in different loading conditions
- Preparation of FE models and strength analyses of container ships using POSEIDON software

Key results:
- Current set of boundary conditions in HCSR: not give good results for all the load cases of containerships



Zsolt PAPP
Romania

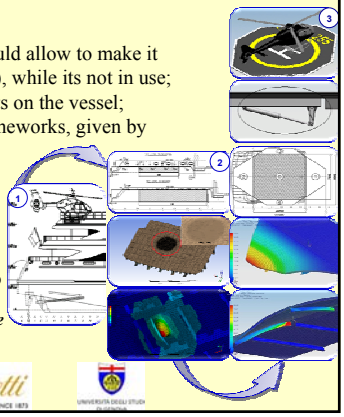
Mechatronical Eng.

- *Education*: Transilvania Univ. of Brasov
- *Field of interest*: Design and Technical Area
- *Seeking Career & objectives*: Ship designer or Mechanical engineer

Design of a hoistable helicopter platform for 60 m yacht

Tasks:
- Design a mechanism which could allow to make it ***foldable*** and ***hidden*** (hoistable), while its not in use;
- Considering ***aesthetical*** impacts on the vessel;
- Applying direct regulatory frameworks, given by ***structural and safety rules.***

Key results:
- Aluminum extrusion profiles: **high structural strength, light weight up to 50%.**
- foldable mechanism solutions: ***simple construction, easily fitted.***



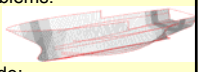
Krzysztof PATALONG
Poland

Transport Eng./ Naval Arch.

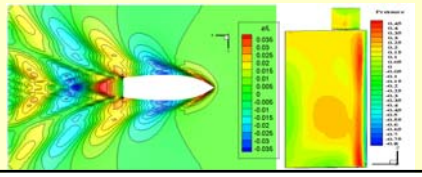
- *Education*: „EMSHIP" Erasmus Mundus Master Course in Advanced Ship Design
- *Field of interest*: Ship Production/Ships in Service
- *Seeking Career & objectives*: Field engineer (Classification Society, Shipowner, etc.).

Standard Manoeuvres Simulation of a Fishing Vessel

Tasks:
- Investigation of ship performances for an unusual hullform;
- Simulation based on non-linear model + Validation;
- CFD approach for manoeuvring prediction problems.



Key results:
- Rudder design and hydrodynamic evaluation;
- Validation of the accuracy of the simulation code;
- Hydrodynamic forces computed on the hull and rudder.



Patrick PLOÉ
France

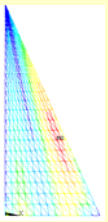
Material engineer, Naval Architecte

- Education: Univ. of Poitiers , School of Architecture Nantes.
- Field of interest: Composite material, Yacht and small craft design
- Seeking Career & objectives: Small craft designer

Scantling of sailing yacht mast and sail deformation simulation using Finite Elements

Tasks:
- *Modeling sails with finite elements*
- *Finite elements analysis of a mast*
- *Data processing*

Key results:
- *Simulation of a sail deformation*
- *Mast FEA*



Huggo SENA
Brazil

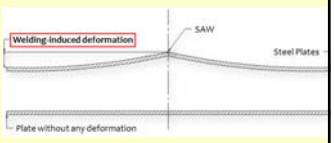
Production Engineer

- *Education*: Federal University of Amazonas
- *Field of interest*: Ship construction and Engineering
- *Seeking Career & objectives*: Construction and Processes in shipyard.

Analysis and prediction of welding deformations of ship panels in prefabrication process

Tasks:
- Analysis of the process in the shipyard and factor definition.
- Modeling of the problem (deformation) to build the design of experiment (DoE)
- Statistical analysis of the data available

Key results:
- Numerical equation based on statistical fundaments
- Prediction of the welding deformation in ship panel



Tomasz SIEREK
Poland

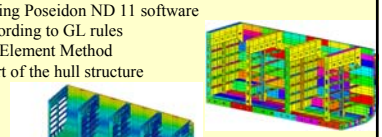
Comparative Analysis of Hull Structural Strength of a Bulk Carrier 70 000 TDW using various Finite Elements Codes

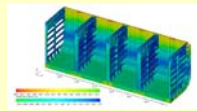
Wafaa SOUADJI
Algeria
Naval Architect

- *Education*: USTO in Algeria, Univ. of Liege in Belgium , ECN in France, ZUT-Szczecin in Poland
- *Field of interest*: Ship Structural Design
- *Seeking Career & objectives*: Naval Architect, Marine Surveyor.

Structural design of a containership approximately 3100 TEU according to the concept of general ship design B-178

Tasks:
- Structural concept of one complete cargo hold located at midship
- Modeling the hull structure using Poseidon ND 11 software
- Scantling of hull structure according to GL rules
- Strength analysis using Finite Element Method
- Three-D visualisation of a part of the hull structure using Tribon software.





Key results:
- Reaching an adequate hull structural scantling against the selected load cases.

Ryohei SUGIMOTO
Japan
Naval Architect

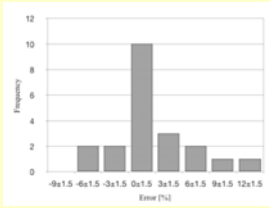
- *Education*: Osaka Univ. , NAOE
- *Field of interest*: Motor yacht design
- *Seeking Career & objectives*:

  Any job as a naval architect related to motor yachts

Weight estimation of custom motor yachts in the range between 45 and 65 meters length

Tasks:
- Develop the lightship weight estimation method
- Develop the const estimation method
- Regression analysis using a number of numerals

Key results:
- LSW estimation method: mean error of 1.1 % with standard deviation of 3.9 %
- Cost estimation method for several components were developed



VU Minh Tuan
Vietnam
Coastal Engineering

- *Education*: National Univ. of Civil Engineering
- *Field of interest*: Offshore structure
- *Seeking Career & objectives*: Researcher in offshore industry

Numerical Simulation of the 3D flow around Junctures

Tasks:
- Simulate the 3D flow around junctures at Re=3,900 and Re=1,000,000
- Find the mechanism of junction flow
- Uncover the effect of inclined cylinder on the junction flow
- Reveals the origin of noise and vibration in keel-hull of ship

Key results:
- Successful in simulation
- Drag force can reduce by inclining the strut
- Small curvature cause large pressure