International Conference on Marine Design

3-4 September 2014, Coventry, UK

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reduce the likelihood for human errors. In the Cyclades project, a web-based framework is being developed that aims to make the existing information (i.e., guidelines, tools and methodologies) regarding UCD more accessible to those who are designing and ordering equipment and ship workshops. This paper provides insight into how a piece of equipment will be designed using human centered information that will be retrievable from the framework.

14.00-14.30  AN INDUSTRIAL DESIGN APPROACH IN THE DEVELOPMENT OF A HARBOUR TUG CONSOLE
Bart Smit, Damen, NETHERLANDS. This paper describes the full design case of a redesigned bridge console, suitable for different types and sizes of DAMEN tugs to enhance a safe and comfortable working environment for its users. The Industrial Design approach for this design case started off by identifying a design engineering team (board and customer), and also allowed an iterative process of qualitative research methodologies the desires, needs, wishes and demands of the users were collected. The ideation phase lead to multiple ideas which were tested and validated according to customers requirements. The project was prototyped in a short time frame in small samples of rapid prototyping and full scale mock-ups to be tested with users to optimise the design. Finally the product was built and installed on a DAMEN tug to be used permanently. This design was specifically focused towards human factors in ship design in order to improve working procedures and safety on board the vessel.

14.30-15.00  CREATING A NEW DISTINCTIVE IDENTITIY FOR A RANGE OF OFFSHORE VESSELS USING AN INDUSTRIAL DESIGN APPROACH
Marnix de Monchy, Damen, NETHERLANDS. In the car industry the user and owner of the vessel tend to identify themselves more and more with the vessel they work with. From an Industrial Design point of view this new offshore range was designed with the user as the focus, how the user interacts with the vessel and how the vessel interacts with the user. Designing a new design process lead to a new and unique design approach. This paper presents this new design process.

15.00-15.30  SMALL PASSENGER CRAFT AND WATER TAXIS: AESTHETIC AND FUNCTIONAL DESIGN ASPECTS OF MARINE DESIGN. 
A.Nazarov, A.Jabtanom, N.Charatsidis, Albatross Marine Design, THAILAND. Paper presents retrospective of problems involved in design and styling of small passenger boats, intended for inland and coastal transportation. Different conceptual and structural design approaches and techniques are selected. The system is based on graph theory and fuzzy logic. Generated, evaluated and ranked considering various factors affecting module division planning and their uncertainties. Based on the evaluation, some of the 'preferable' block division plans can be selected. The system is based on graph theory and fuzzy logic.

15.30-16.00  COFFEE

16.00-16.30  SHIP BLOCK DIVISION PLANNING CONSIDERING UNCERTAINTIES AT EARLY DESIGN STAGES
Ajay Asok Kumar, ClassNK, JAPAN, Kazuhiro Aoyama, University of Tokyo, JAPAN. Block division planning is an important stage in the manufacturing design of ship hull structure and systems. Due to current design practices and difficulties associated with capturing the design intent, block division planning is often done in a very simplistic manner. Continuing on the theme of block division planning, this paper presents a new block division planning system for the management of these uncertainties in the Information at an early design stage. Using the system various block division plans can be generated, evaluated and ranked considering various factors affecting module division planning and their uncertainties. Based on the evaluation, some of the ‘preferable’ block division plans can be selected. The system is based on graph theory and fuzzy logic.

16.30-17.00  VESSEL FIT OUT COST REDUCTION USING DIGITAL TECHNOLOGY AND MODULARITY
Jules Morgan, KPM-Marine, UK. Inspired by WW2 Liberty ship design and air craft interiors Sea-Ka-mo® has been designed and developed for fast fitting using modular standard cut outs, and each of the inboard structural arrangements, outfitting arrangements, material availability etc., must be considered simultaneously. At an early design stage, detailed information on these factors or constraints might not be available. However, the idea is to allow the engineer to design the block division planning intuitively. In this paper, a block division planning system is proposed for the management of these uncertainties in the Information at an early design stage. Using the system various block division plans can be generated, evaluated and ranked considering various factors affecting module division planning and their uncertainties. Based on the evaluation, some of the ‘preferable’ block division plans can be selected. The system is based on graph theory and fuzzy logic.

17.00-17.30  DESIGN DEVELOPMENT AND CONSTRUCTION OF 65’ CATAMARAN YACHT
A.Jabtanom, T.Phirmmart, A.Nazarov, Albatross Marine Design, THAILAND. Paper presents case study of 65’ power catamaran design project. Design process is refined from hand sketching through CAD modeling to full-size prototyping and production. Interaction of naval architecture and systems development is highlighted. Interior configuration is an important aspect in power catamaran design, having to be fitted in hours rather than weeks. The interior of a vessel can be changed to another use within a short time. The concept of a modular system allows for quick change over of interior configuration, allowing use of natural materials and traditional decorations where cultural knowledge is the key to create “Asian look”. Solar-assisted concept is realized thorough extensive use of polar panels, without impact of daily fashion fluctuations. Valuable insight on Asian interior styling is provided, and the architecture of the craft is made without extremes, to provide attractiveness and practicality. The project was built and installed on a DAMEN tug to be used permanently.

17.30-  GENERAL DISCUSSION & DRINKS RECEPTION

This represents a preliminary program.
This represents a preliminary programme and may be subject to change.

3-4 September 2014, Coventry, UK

Marine Design

TALY

Those of slower larger vessels. The aims of the design project presented in this paper, was to

C Bastien and S McCartan, Coventry University, UK, D Boote, T Colaianni, T Pais, University of

negotiations. The logistics role of the vessel gives the cruising passengers and business travellers a

Patrick Couser, Bentley Systems France, Grégory Pelard, CNIM, FRANCE.

11.30-12.00

DEVELOPMENT OF A PARAMETRIC MODEL FOR ANALYSING

Vivek Kumar, University of Genoa, ITALY, Guido Penco, Baglietto Shipyards, ITALY, Dario Boote,

10.00-10.30

CONCEPT DESIGN SYNTHESIS OF AN OFFSHORE WIND TURBINE

Patrick Couser, Bentley Systems France, Grégory Pelard, CNIM, FRANCE. Europe is the world leader

in offshore wind power with forecasts predicting accelerating growth for at least the next ten

years. The sites for new wind installations are moving further offshore and into deeper water.

Prevention of infrastructure to support operations and maintenance is paramount to the viability of

these wind farms; this requires vessels capable of both transporting personnel and equipment to the

installations and then providing a stable platform from which maintenance tasks can be performed.

Waves, wind and sea conditions are prevalent on each occasion, therefore the operations that have

been undertaken using numerical simulation tools. The numerical simulation permits a greater range

of design parameters to be quickly investigated at relatively low cost (compared with physical model
testing), but with enough detail to clearly identify the potential of different solutions, as well as

classifying which design parameters have the most significant influence. A review the

methodology and numerical tools used is given as well as the resulting conceptual design.

10.30-11.00

COFFEE

11.00-11.30

DEVELOPMENT OF INTERIOR DESIGN STRATEGIES AS AN INTEGRAL

PART OF THE PASSIVE DESIGN PHILOSOPHY FOR PASSENGER

VESSELS OPERATING WITHIN THE MEDITERRANEAN

S McCartan and C Kivell, Coventry University, UK. This paper presents a study that focuses on the

needs for a naval arch designer in terms of navigating them, or in narrow spaces, such as

rooms and reflection, room geometry and glazing type were varied in accordance with natural lighting

principles, in an effort to maximize daylight utilization and reduce electrical loads. Thermal

contributions of solar gain and the impacts of varying occupant densities were considered simultaneously in

the overall energy assessment. A series of interior design proposals are presented that adopt these strategies to identify the potential gains and barriers to their implementation. Analysis of the results shows the potential of an integrative design process driven by daylight optimization to reduce energy consumption and predict energy savings for a range of ship itinerary's operating in the Mediterranean are discussed.

11.30-12.00

DEVELOPMENT OF A PARAMETRIC MODEL FOR ANALYSING

TEMPERATURE EFFECTS OF SOLAR RADIATION ON YACHTS

This paper presents a study that focuses on the needs for a naval arch designer in terms of navigating them, or in narrow spaces, such as cabins, or even in spaces like the galley, where the lighting, and reflection, room geometry and glazing type were varied in accordance with natural lighting principles, in an effort to maximize daylight utilization and reduce electrical loads. Thermal contributions of solar gain and the impacts of varying occupant densities were considered simultaneously in the overall energy assessment. A series of interior design proposals are presented that adopt these strategies to identify the potential gains and barriers to their implementation. Analysis of the results shows the potential of an integrative design process driven by daylight optimization to reduce energy consumption and predict energy savings for a range of ship itinerary's operating in the Mediterranean are discussed.

12.00-13.00

LUNCH

13.00-13.30

DESIGN-DRIVEN INNOVATION: NEXT GENERATION HIGH SPEED

PASSERELLE SUPER-PLANE CONCEPT FOR NAVAL ARCHITECTS

S McCartan, B Verheijden and P Crotsy, Coventry University, UK, J Roy, BMT Nigel Gee, UK

This paper reports on a transatlantic superliner design concept, which engages in Design-Driven

Innovation and which will significantly affect how passengers travel, and that will impact on a number of other industries. The transport of people and goods is a key component of all modern civilisation. There is also a need to ensure that the transport sector operates in an environmentally sustainable manner. There is a range of high speed transport concepts that have been developed using advanced technologies from the aviation and automotive industries, but the cost and environmental impact of many of these concepts is prohibitive due to the high fuel consumption and high emissions of these systems. This paper will present a high speed prototype that will be able to travel at speeds in excess of 200 knots, with a fuel economy that is significantly better than current high speed transport systems.

13.30-14.00

CRASH COMPATIBILITY IN THE DESIGN OF A TRIMARAN HIGH SPEED

CRUISE LOGISTICS FERRY (CLF)

C Bastien and S McCartan, Coventry University, UK, D Boote, T Colaianni, T Pais, University of

Genoa, ITALY. Crash in high speed vessels has more in common with automotive accidents than

those of slower larger vessels. The aims of the design project presented in this paper, was to
develop a computer simulation model to predict, in the event of a 40knv crash of the CLF with

both larger vessels and harbour structures, the structural damage, the post-crash flooding and
the predicted injuries to ship crew and passengers throughout the vessel, for two distinctive bow

14.00-14.30

COASTAL PATROL INTERCEPTOR FOR WEST AFRICA

S de Ligneres, Chapuis, S McCarthy, University of Coventry, UK, T Dobkins, ST Research, UK, J Nili,

Trident Marine Ltd, UK, L Campbell, Larne Campbell Design, UK.

This paper presents a coastal patrol and intercepter concept developed using a User Centred Design

approach. The vessel is based on a high speed trimaran platform, with an aluminium hull and

composite superstructure. The outriggers provide improved stability in high sea states over a conventional planing hull. It will provide coastal patrol for fishery protection and piracy in the Gulf of Guinea. Several coastal patrol interceptors will operate from several ports along the coast to maximise operational range. The vessel exterior has an aggressive and sleek geometric design language, inspired by stealth aircraft and vessels. This gives the vessel a specific visual presence in the field of operation to help communicate its function.

14.00-15.00

DEVELOPMENT OF A UNIURAL DESIGN 3DFT SAILING BOAT

R. Lubbingham, D. McCartan, EBDIG-IRC, Coventry University, UK. There are currently over 10

million disabled people in the UK, of which over 35,000 have learnt to sail through RYA Sailability

schemes. They currently sail in a range of boats from single-handers to 3 man keel boats. These

boats can be raced competitively in the dinghy and Olympic class. This paper presents a racing yacht

concept that has been developed using the principles of Universal Design, to enable disabled people

and the ageing population to enjoy the excitement and challenge of close racing, without the issues

that these vessels would experience in land yachting. The vessel will enable dark coloured hulls, and still obtain excellent aesthetics. It contains an analytical study to optimally negate the detrimental effects of wind, but hold and filter water within their membranes. This rain water is collected to

15.00-15.30

COFFEE & GENERAL DISCUSSION

15.30-16.00

ROUGH LUCKE HOUSEBOAT COMMUNITY PROPOSAL FOR THE ROYAL

DOCKS IN LONDON

N Cho, B Verheijden and T Nelson, EBDIG-IRC, Coventry University, UK. Future luxury values will be less about materialism and more about a personal experience. This paper presents a houseboat community proposal of sustainable luxury houseboats for 2030, based on the growing movement of Rough Luxe. Passive Design is implemented through the use of louvres and natural ventilation, to reduce energy consumption. A focus is placed on the reduction of energy consumption from supply.

16.00-16.30

DEVELOPMENT OF AN ONLINE LEARNING PLATFORM AND CPD

MATERIAL FOR NAVAL ARCHITECTS AND PROJECT MANAGERS

N Cho, EBDIG-IRC, Coventry University, UK. There are currently over 10

million disabled people in the UK, of which over 35,000 have learnt to sail through RYA Sailability

schemes. They currently sail in a range of boats from single-handers to 3 man keel boats. These

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16.30-17.00

IMPLEMENTATION OF ECVETS INTO EBDIG-WFVS COURSE S

Sezal Isik and R Ziarati, Piri Reis University, TURKEY

This paper presents educational and pedagogical development process behind an e-learning platform that is used to transfer design innovation from the interior design and leisure marine industry, as well as Human Factors Integration from the automotive and aerospace sectors, into Wind Farm Support Vessels and associated mothership design. This is achieved through the development of a networking framework and three one day courses: WFSV design; WFSV mothership design; Human Factors Integration (HFI). The HFI course content is transferable to the Oil & Gas industry. The main impact of these courses will be: greater understanding and awareness of the needs of the wind farm vessel industry and the market potential for ship builders; better trained commercial maritime industry staff who are more aware of emerging technologies and technology standardised qualifications for Wind Farm Support Vessels. In attempting to achieve these aims, this paper discusses the benefits of peer tutoring in a design online learning environment.

17.00-17.30

MARINE DESIGN LEXICON PRESENTATION & DISCUSSION

17.30-

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EXHIBITION & WINE RECEPTION
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Marine Design
3-4 September 2014, Coventry, UK

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VENUE
The Venue for the conference is: Coventry University, Priory St, Coventry CV1 5FB

EVENING DRINKS RECEPTION
Following the end of day one (03/09/14), delegates are invited to attend an evening drinks reception at the conference venue. Delegates will also be able to attend a wine reception at the end of day two (04/09/14), celebrating the 30th anniversary of boat design at Coventry University.

ACCOMMODATION
Upon registration you will be provided with details of a hotel booking service offering reduced rate accommodation for conference participants.

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