RINA

The Royal Institution of Naval Architects

Sponsored by:

International.

Supported by:

Newcastle University

International Conference

EDUCATION AND PROFESSIONAL DEVELOPMENT OF ENGINEERS IN THE MARITIME INDUSTRY

7 - 8 DECEMBER 2011

NEWCASTLE UNIVERSITY, UK

EDUCATION AND PROFESSIONAL DEVELOPMEN

7 - 8 DECEMBER 2011, NE

day 1

09.00 - 09.30 **COFFEE AND REGISTRATION**

09.30 - 09.35 **Welcome speech from International Paints**

09.35 - 10.10 **KEYNOTE ADRESS : " MARINE TECHNOLOGY EDUCATION - PAST, PRESENT AND FUTURE**
R Birmingham, Professor of Newcastle University, UK

10.10 - 10.45 **COLLABORATIVE TEACHING MODULE PRESENTED BY INDUSTRIAL VISITING PROFESSORS**
Prof WB Oliver , Newcastle University, UK
In 1993 the Royal Academy of Engineering launched its initiative to sponsor Visiting Professorships in Principles of Engineering Design. After several years of interaction with University staff and students, the NU scheme decided to harness the collective firepower of the VPs into a single collaborative venture. The objective of the course is to provide students with an appreciation of the techniques and methodologies by which professional engineers manage engineering projects and deliver against the key drivers of cost, time and quality. The greatest uptake has been from Marine Technology, Mechanical and Chemical Engineering. This paper discusses the topics taught on this course, which includes a team project. The students are encouraged to consider all aspects of the technical and business case for delivering a multi-disciplined engineered programme.

10.45 - 11.15 **COFFEE**

11.15 - 11.50 **PROFESSIONAL CAREER DEVELOPMENT IN SAIPEM LIMITED**
R Harrison, Dr. P Lai and V McCarthy, Saipem Ltd, UK
Saipem Ltd is at the forefront of project management and providing engineering solutions for large, complex and challenging projects. These projects often involve a diverse range of professional skills and require engineers to develop capabilities outside of their education / discipline. In this paper, we will describe the approach that Saipem Limited has adopted to plug the skills gap, by implementing a range of training opportunities to enable graduates to take responsible and key roles in our business. We will present how our structured training schemes are tightly connected together and provide the opportunities our engineers require to reach their aspirations and also meet the company objective for key staff roles and sustainability. The paper will be concluded by presenting the advantages, present achievement and continual improvement of these schemes.

11.50 - 12.25 **TWO YEAR FAST-TRACK PROJECT MANAGEMENT DEVELOPMENT PROGRAMME IN SAIPEM LIMITED**
V McCarthy, H Thomas, Saipem Ltd, UK
Saipem is fully committed to future technological challenges in design, construction and operations. In addition to the talented and experienced engineering workforce required to succeed in this challenge, it is recognised that trained and suitably experienced personnel are also required in project and engineering management roles.With this in mind, a 2 year fast-track project management development programme was established to allow young engineers, having completed Saipem Limited's graduate training scheme and gained some project experience, to develop their management skills and experience in a controlled way. This paper presents an introduction to the structured programme, including aspects of on-job training in the role of assistant project manager; targeted courses in hard and soft skills; reading material and seminars; and a simulated project exercise running for the duration of the programme.

12.25 - 12.45 **A GRADUATE'S VIEW : " 'EDUCATION, THE ROUTE TO INDUSTRY'**
R Chaplin, BAE Systems, UK

1 **LUNCH**
2.45 - 13.45

13.45 - 14.20 **THREE-IN-ONE EDUCATION CONCEPT, AN INDONESIA AND I.T.S. EXPERIENCE**
I Ketut Aria Pria Utama and T Wuruk Pribadi
Institut Teknologi Sepuluh Nopember (ITS), Surabaya - Indonesia
Higher education institutions in Indonesia apply the so-called three-in-one education concept. It consists of learning, research, and public service activities. The last item links with public services carried out by lecturers to neighborhood area, government, industries, and other sectors. In particular case, ITS under a service unit known as Student Advisory Centre (SAC), in conjunction with industrial sectors manage co-operative education programme which involves students hence they can learn industrial and management processess. In case of maritime technology, the development of National Ship Design and Engineering Centre (NASDEC), a unique collaboration between ITS and Ministry of Industrial Affairs, which employs students and young graduates in ship design process, building inspection, and project management, has made ITS as the resource university in maritime technology in Indonesia.

14.20 - 14.55 **INTERDISCIPLINARY RESEARCH COLLEGIUM IN ADVANCED MARITIME SYSTEMS DESIGN**
M C Franklin , The Lloyd's Register Educational Trust, Professors R A Shenoi, P A Wilson ,S R Turnock, and Dr. D A Hudson ,University of Southampton, UK
The education of naval architects, marine engineers and others who are the active contributors to the ship design processes is heavily focussed on engineering fundamentals, often aligned with traditional university course constraints.This paper describes the concept of a research collegium whose aim is to provide an environment where young people in their formative post-graduate years can learn and work in a small, mixed discipline group drawn from the maritime community to develop their skills whilst completing a project in advanced ship design. The brief that initiates each project sets challenging user requirements which encourage each team to develop an imaginative solution, using their individual knowledge and experience, together with learning derived from teaching which form a common element of the early part of the collegium.

14.55 - 15.30 **COFFEE**

15.30 - 16.05 **SUSTAINING THE UNITED KINGDOM'S NAVAL DEFENCE INDUSTRY: THE DEVELOPMENT OF THE UK NAVAL ENGINEERING, SCIENCE AND TECHNOLOGY (UKNEST) FORUM**
K Gravil, UKNEST, uk
UK Naval Engineering Science and Technology, UKNEST, is a collective of major UK naval engineering companies. Established in 2005, it aims to provide a forum for the UK's Professional Naval Engineering, Science and Technology community to address issues of common concern, fostering specific professional development needs and giving a focal point for interaction with and influencing the wider Government and Industrial community. This paper will describe the history, structure and organisation of UKNEST, showing how it has fostered links with governmental agencies, companies involved with naval defence, educational establishments and younger professionals. This paper will also present UKNEST's notable achievements over the past 6 years and the impacts these have had. It will also illustrate the activities UKNEST is currently involved in, and what UKNEST holds for the future of the Naval Engineering Science and Technology industry in the UK.

16.05 - 16.40 **INDUSTRY'S CURRENT AND FUTURE REQUIREMENTS FOR PROFESSIONAL SKILLS**
N V Aher, GL Noble Denton, Saudi Arabia
Maritime Professionals work in Shipyards, Owner's Representative, Class Society, Design Consultancy (Independent & as a Company) and everybody have different and important role to play where everybody is linked and dependant on each other. Therefore the co-ordination, communication, sharing information plays important role towards reaching goal.The main concern with the present workforce in industry is lack of operational experience for design people and lack of design experience for operators. Naval Architects and Marine Engineers are mainly working in the industry whereas Mechanical, Electrical & Control Engineers are supporting industry as a helping hand.Many small design consultancy still work with one or two men show and where it lacks with the professional experience of Marine, Mechanical & Control Engineers. Whereas most of the shipyards operate with multi discipline team and these people mainly focus towards production and not into the innovative solutions or designs for future.Therefore there shall be mix and match in industry where team comprises of Marine Engineers with operational experience, Naval Architect, Mechanical, Electrical, Control Engineers, Software Engineers and the industry can grow much faster.

16.40 - **EVENING DRINKS RECEPTION**

day 2

9.00 - 9.30 **COFFEE AND REGISTRATION**

9.30 - 10.05 **MULTI-DISCIPLINARY EDUCATION PROGRAM ON CRUISE SHIP DESIGN**
J Romanoff,P Kujala, M Ahola and H Remes,Aalto University, Finland
This paper presents the multi-disciplinary international education program for cruise ship design at Aalto University. The program aims to educate professionals who master technology, economics and design and artistic factors in cruise ship design. The program is based on modular structure where the student can direct the curriculum towards his/her own specialization field. The program uses Problem-Based-Learning concept, emphasizes group work in multi-disciplinary research teams and life-long-learning, and is strongly linked to industry. In the end of the studies the program offers opportunity for the most promising students to participate on three inter-linked Master's thesis program where the students investigate a common research question from three different perspectives, i.e. technology, economics and arts/design. The experiences on the program have been extremely positive from academia and industry. The program is presently mainly intended to education on Master's level and is developed further, aiming for Doctoral education.

10.05 - 10.40 **TEACHING NAVAL ARCHITECTURE: FOSTERING GRADUATE KNOWLEDGE AND UNDERSTANDING**
PN Wright, Newcastle University and KW Hutchinson, Babcock International Group, UK
This paper will provide an outline of the current curruculum, course structure and key learning outcomes in the undergraduate teaching of Naval Architecture and Ship Design at Newcastle University to both BEng and MEng level. This will include the role of accreditation of such programmes by RINA either independently or on behalf of the Engineering Council. It will also examine how generic graduate skill are fosterd at Unicersity as well as the possible implications of current changes to higher education in 2012. Recent trends in the intrnationalisation of both undergraduate and postgraduate coursses will also be examined. The paper will also compare the different routes of achieving the academic requirements for subsequent registration with the EC. Finally the paper will provide some thoughts on how beneficial industrial experience while at University can be and how importatn the susequent formative initial industrial development phase is on graduating and the need for comprehensive initial professional industry training schemes to meet and foster these needs.

10.40 - 11.00 **A GRADUATE'S VIEW**
E Beckett, Lloyd's Register, UK

11.00 - 11.30 **COFFEE**

11.30 - 12.05 **RECRUITMENT: HAS THE FUTURE ARRIVED?**
R Wast - Graduate Resourcing Advisor, BP, UK
W Kelly - Naval Architect, Technical Authority, BP Shipping, UK
As the demand for professional engineers in the marine industry continues to grow, this paper explores BP Shipping's graduate recruitment model. This is how BP Shipping defines what constitutes a 'good' candidate from both a technical and personal perspective; what it believes the qualities are a candidate needs to demonstrate to work, develop and succeed in both a large multinational company and the wider marine industry.The paper also looks broadly at the academic courses on offer from both UK and international academic institutions. Furthermore, it looks briefly into personal development, again aligning with business requirements, but described purely from an observational perspective. Finally, comparisons are made between BP Shipping candidate requirements and the courses, and offers suggestions on how the potential employers and academic institutions can work together to produce highly driven and motivated, technically competent professional engineers for the future of the marine industry

12.05 - 12.40 **OUR STAND AND DELIVERY**
M Heywood, BMT Defence Services, UK
This paper looks at the question of how well our needs and requirements are met by the graduates and apprentices we eventually employ. The paper provides an employer's view of the skills, traits and experience expected in graduates and apprentices and compares this aspirational list to the reality of experiences during interviews and subsequent employment. The paper also takes the experiences of recent BMT employees both at graduate and apprentice levels and examines how they feel their education prepared them for the skill demands placed on them by industry.
This examination will look at both the technical and non-technical skills to determine, in our view whether the full education package prior to joining industry is meeting the expectations.

12.40 - 13.45 **LUNCH**

13.45 - 14.20 **BRIDGING THE SKILLS GAP**
N Desty, Matchtech, UK
To provide a bridge between the Education and Industry presentations by providing an overview of the marine market as a whole detailing trends, skills shortages, projects (current and future) and the challenges presenting the industry.The paper and presentation will cover the following areas:Market Trends ~ Current and future requirements for professional skills ~ Skills Shortages/ Challenges-5 year look ahead (Projects ~ Rival Industries (Nuclear/ Oil and Gas?) ~ UK and Overseas market ~ International developments/ challenges ~ Visas and Permits- where we are now ~ What can be done to address the above challenges

14.20 - 14.55 **MANAGING A GRADUATE TRIAINING PROGRAMME**
J. Burton, Lloyd's Register, UK

14.55 - 15.30 **COFFEE**

15.30 - 16.05 **CHANGES TO PROGRAM CONTENT AND SEQUENCE AT THE UNITED STATES MERCHANT MARINE ACADEMY**
J Tuttle, US Merchant Marine Academy, USA
The paper will describe the process to assess changes to program content and sequence at the United States Merchant Marine Academy that resulted in recommendations to place more emphasis on fundamentals than the current curriculum and changes to course sequencing and sea year scheduling to better prepare midshipmen prior to graduation.A committee was formed to; benchmark current practices at other maritime academies and colleges and universities, with marine engineering programs as to courses course content and sequencing; review current Marine Engineering Department offerings to identify shortfalls with the current curriculums and the sequencing; in consultation with our stakeholders develop a list of required objectives and topics for the engineering majors and categorize them by course and sequence; develop an implementation plan.

16.05 - 16.40 **AN INNNOVATIVE MULTI-DISCIIPLINARY PROGRAMME TO FOSTER MARITIME ENGINEEERING STUDENTS' COMPLEX PROBLEM SOLVING SKILLS THROUGH PRACTICAL ACTIVITIES AT SEA**
Assoc. Proof. G Thomas, Mr P Furness & Dr T Gaston
Australian Maritime College, University of Tasmania, Australia
To address th requirement for students' complex cross-disciplinary problem solving skills we have created a unique programme of teaching and learning voyages for Bachelor of Engineering (BE) maritime engineering students on the Australian Maritime College's vessel Bluefin. These voyages provide a powerful learning experience for students by providing the environment to solve a large range of practical problems, which all link closely with their theoretical classroom learning. The engineering teaching and learning voyages consist of the following key components:
• Real engineering problems, each with a strong practical work component. • Use of cross-discipline projects from the fields of marine ecology and fisheries technology. • Students working on their projects in teams of three or four members. • Living and working aboard a vessel with crew, academics and classmates. • A strong focus on development and assessment of generic graduate attributes.

16.40 - **GENERAL DISCUSSION**

International Conference

EDUCATION AND PROFESSIONAL DEVELOPMENT OF ENGINEERS IN THE MARITIME INDUSTRY

7-8 DECEMBER 2011
NEWCASTLE UNIVERSITY, UK

To register, simply complete all sections of this form and return it with your payment to:
The Conference Department, RINA, 10 Upper Belgrave Street, London, SW1X 8BQ.
TEL: +44 (0)20 7201 2401
FAX: +44 (0)20 7259 5912
E-MAIL: conference@rina.org.uk

TITLE (Dr, Mr, Eur Ing):

NAME (as it should appear on name badge):

POSITION:

COMPANY (as it should appear on name badge):

INVOICE ADDRESS:

POSTCODE:
COUNTRY:
TELEPHONE:
FAX:
E-MAIL:

CONTACT MAILING ADDRESS (if different)**:**

POSTCODE:
COUNTRY:
TELEPHONE:
FAX:
E-MAIL:

PLEASE INDICATE YOUR PREFERRED METHOD OF PAYMENT:

I enclose a cheque for: (made payable to RINA) £

Please send me an invoice for : £

Bank Transfer details enclosed for: £

Please debit my credit card by: £

Card Number: (Visa/Amex/Mastercard)

Expiry Date: **Signature:**

REGISTRATION FEE (Inc VAT*)	**By 07/11/2011**	**After 07/11/2011**
RINA MEMBERS:	**£240**	**£270**
NON-MEMBERS:	**£270**	**£300**
CONCESSIONS: *(Retired/Students etc.)*	**£120**	**£120**
PRINCIPAL AUTHOR	**£120**	**£120**
ADDITIONAL AUTHOR	**£240**	**£240**

The registration fee includes printed conference papers, lunch, refreshments, reception, a CD of the papers and presentations after the conference, and VAT

CONFERENCE PAPERS
Delegates will receive a copy of the conference CD-ROM which will include the presentations, this will be posted out around 8 weeks after the conference.

Aditional copies of the conference papers will also be for sale after the event in both print and CD ROM versions. If you would like to order copies, please fill in the relevant sections.

I am unable to attend the conference, please reserve me _____ set(s) of Conference proceedings

Papers @ **£105** (members) ☐ **£125** (non-members) ☐

CD ROM **£105** (members) ☐ **£125** (non-members) ☐

For a full list of the Institution's Conference papers, CD-ROM's and other technical publications please contact Billy Allen, Bookshop Assistant on +44 (0)20 7235 4622 or via e-mail at: publications@rina.org.uk

PAYMENTS
Payment must be made in pounds sterling by Eurocheque, cheque drawn on a bank with a UK branch address, credit card (VISA/Amex/Mastercard) or bank transfer. Please note RINA requires payment before the conference date.
Account Name: The Royal Institution of Naval Architects;
Account Number: 10042127; **Account Code:** 160016
Bank Address: Royal Bank of Scotland PLC, Belgravia Branch, 24 Grosvenor Place, London, SW1X 7HP, UK.
IBAN No: GB14RBOS16001610042127
SWIFT No: RBOSGB2L

*VAT: Under UK Customs and Excise regulations delegates from all countries are required to pay VAT on any course taking place in the UK. Delegates from outside the UK may be entitled to reclaim this cost.

VENUE
The Venue for the conference is Rooms 2.21 & 2.22 The Research Beehive, Old Library, Newcastle University, Newcastle Upon Tyne, NE1 7RU.

EVENING DRINKS RECEPTION
Following the end of day one (7 December 2011), delegates are invited to attend an evening drinks reception at the conference venue.

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

CONTINUING PROFESSIONAL DEVELOPMENT
RINA Certificates of Attendance will be issued at the event, which contributes towards the Institution's Continuing Professional Development Scheme. For further details regarding the scheme please contact Giuseppe Gigantesco, Director, Professional Affairs on Tel: +44 (0)20 7235 4622 or e-mail: membership@rina.org.uk

STUDENT SPONSORSHIP
A number of sponsored places at this conference are available for Student Members of RINA. For more information, please contact Yuen Yee Pang, Professional Affairs, RINA on Tel: +44 (0)20 7235 4622 or e-mail:ypang@rina.org.uk.

PROMOTIONAL OPPORTUNITIES
Why not use this conference to promote your company's products and services? It provides an excellent opportunity to increase your profile and to network with a highly focused audience. We offer a number of cost effective options, including various conference sponsorship packages, exhibition space and literature distribution. If you are interested in any of these promotional opportunities please contact the Conference Organiser to discuss your individual requirements.

CANCELLATION CHARGES
The following charges will be made in the event of cancellation: £100 if received by 23/11/2011 and £200 thereafter. Cancellations received within 24 hours of the event, or in the case of non-attendance will not be refunded. Delegates may be substituted; this must be sent in writing and confirmed with the Conference Organiser.

DATA PROTECTION
Personal data is gathered in accordance with the Data Protection Act 1998. Your details may be passed to other companies who wish to communicate with you offers related to your business activities. Please tick the box below where appropriate:

☐ Please do not pass my information to any third party.

☐ I wish to receive email notification of future RINA events or publications

If you have any questions regarding this or any other RINA event please contact, Amber Williams, Conference Organiser, on:

Tel: +44 (0)20 7201 2401 Fax: +44 (0)20 7259 5912
E-Mail: lwhelan@rina.org.uk www.rina.org.uk/events