



November News 2018

IMarEST has informed that they were impressed with the MariEMS Course developed as part of EU Erasmus+ funded MariEMS project and the course has been recognised as an approved CPD until 2025. This is an important achievement and MariFuture would like to thank all partners in this outstanding milestone and endorsement by this prestigious professional body with Royal Charter and recognised worldwide under Washington Treaty.

MariFuture Papers Publication at International Conference

The MariEMS and ACTS Plus papers have been accepted by the IMLA Paper Committee. Both papers will also appear in MariFuture once they are presented at the IMLA conference. Both projects viz., MariEMS and ACTS Plus are EU Erasmus+ funded.

The conference will be held in Manila, Philippines on 24-25 October 2018. It should be noted that the IMLA Annual General Meeting (AGM) will be held on 24 October 2018 during the [25th IMLA Conference](#). The draft agenda of AGM is as follows:

International Maritime Lecturers' Association AGM

Date: Thursday, 25 October 2018

Time: TBC

Place: Maritime Academy of Asia and the Pacific: Kamaya Pt., Brgy. Alas-asin, Mariveles, Bataan, Philippines

Meeting called by: Honorary Chair

Attendees: [Attendee list]

Please read: Appropriate documentation as disseminated

	Call to order	Hon Sec
Meeting agenda		
Item 1		
Item 2	Welcome address	Hon Chair
Item 3	Approval or notification of previous meeting documents	Hon Sec
Item 4	Chairperson's Report:	Hon Chair
Item 5	Treasurer's Report:	Hon Treasurer
Item 6	Report by IMLA Secretariat:	
Item 7	Honorary officers restructuring:	
Item 8	Criteria for becoming a Committee member:	
Item 9	Future Conference Venues:	

The General Meeting is an opportunity for members to review the achievements of IMLA in the past year and will open the floor for discussion on the future development of the Association. As a member of IMLA, we have been invited to join this meeting.



Should you have any questions please feel free to contact me or our Honorary Secretary Prof. Clive Cole (email: clive.cole@wmu.se).

IMechE Midlands Dinner

Institution of
**MECHANICAL
ENGINEERS**

Main sponsor:



MIDLAND ENGINEERING DINNER

Friday 12th October 2018

The National Conference Centre, Solihull B92 0EJ



4.00 – 6.00 free visit to museum
6.00 – 7.00 pre-dinner reception
7.00 – 10.30 dinner
11.15 - bar closed

Please join us for the Midland Engineering Dinner, open to all our engineering colleagues. Our premier social event promoting engineering and academic excellence. An opportunity for both individuals and companies to meet, network and enjoy the occasion. There is also the opportunity to visit for free the Motorcycle Museum which celebrates many great engineering achievements.

In this the "Year of Engineering" we have the theme of "Young Engineer". Several companies will be showing their support for their future engineers with special displays in the hall.

Key note speakers from JCB and IMechE.

2018 dinner charity - Birmingham Children Hospital

Dinner Ticket Prices: Members and Guests £50 - Young Engineers £40

Dress code: Black tie or lounge suits.

Ticket includes free admission to adjacent National Motorcycle Museum

For more information on the Dinner and sponsorship opportunities

contact: Drew Taggart, IMechE Midland Chairman, midlandchair@imechenearyou.org
drew@thistlemanagement.com

To purchase tickets: <http://nearyou.imeche.org/eventdetail?id=15253>



JCB, our main sponsor for this Midland Engineering Dinner, is renowned for its construction equipment and prides itself on engineering excellence. The company enables young engineers to gain professional standards through its training programmes, apprentice scheme and Academy.



A new EU funded project

MariFuture has been informed that Erasmus + Mentor proposal has been approved by the EU. The kick-off meeting is scheduled for 4-5 December 2018 in Athens. More and detailed information will be provided about this exciting development in the November 2018 News

SIG (Special Interest Group) on Particulate Matter Filtration Flows in Automotive and Marine Applications

C4FF, the parent company of MariFuture, is now an official member of SIG (Special Interest Group) on Particulate Matter Filtration Flows in Automotive and Marine Applications which is run by UK Fluids Network. The group's activities involve, but are not limited to:

- organising 2 meetings a year
- development of resources for UK Fluids Network and wider community (knowledge base, guides to PM regulations, resources on modelling filtration flows, UK research facility and capacity database, instructional videos, tutorials)
- creating a collaboration networks and engaging both academic and industry in particulate matter flow research
- defining targets and building consortia for funding bids.

For more details of SIG, please click [here](#).

The SIG met on 20th September, 2018 at Newcastle University. Professor Reza Ziarati, founder of MariFuture gave a speech at the event. The title of the lecture was “Recent Developments in Ship Energy Efficiency - Design & Operations”. The full programme is as shown below. The next meeting of SIG is in Birmingham. Details of event will be published in the near future.





UK Fluids Network Special Interest Group on Particulate Matter Filtration Flows
in Automotive and Marine Applications

Particulate Matter Flows: marine applications

September 20th, 2018

Newcastle University

Programme

9:30 - 10:00 Registration and coffee

10:00 - 10:30 Dr Edmund Hughes (Head of Air Pollution and Energy Efficiency, Marine Environment Division of International Maritime Organization) "International Regulations for Reduction of Emissions from Ships"

10:00 - 11:00 Dr Armin Aulinger (Helmholtz-Zentrum Geesthacht, Centre for Material and of Coastal Research)

"Impact on the environment due to air emissions from ships"

11:00 - 11:15 Coffee break

11:15 - 11:45 Mr John Buckingham (BMT)

"Two stroke emissions: the complexity of defining the PM content"

11:45 - 12:15 Prof Reza Ziarati (Centre for Factories of the Future)

"Recent Developments in Ship Energy Efficiency - Design & Operations"

12:15 - 12:45 Prof Vincenzo Esposito (DTU)

"Nanofibrous materials for innovative compact flexible de-NOx SCR filters"

12:45 - 14:00 Lunch and networking

14:00 - 16:30 Tour of Newcastle University facilities at Blyth (Cavitation Tunnel and Research Vessel)

16:30 End of meeting, Coffee

Contacts

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ACTS Plus

The penultimate meeting of this EU funded project took place in Ljubljana, Slovenia on 14-16 September 2018. The final meeting is expected in March 2019 in Southampton, UK.

The first partner meeting for this approved project took place on 17-19 November 2016 in Istanbul. The second meeting took place on 30-31 March 2017 in Croatia. The third meeting took place in Varna, Bulgaria on 11-12 October 2017 at the same time as the IAMU conference. The fourth meeting of the partners was held on 18-19 April 2018 in Mallorca, Spain. The next meeting is scheduled for 13-14 September 2018 in Slovenia. Arrangements for the project Final Conference are being discussed with industry leaders. The conference is scheduled for March 2019.



Figure 1. ACTS+ Partner meeting in Slovenia - from left to right, Dr Anna (Croatia), Capt. Djani (Croatia), Tomaz (Slovenia), Capt. Guy (UK), Professor Reza (UK), Capt. Erol and Silja (representing Spain), Capt. Nikolai (Bulgaria).

The ACTS Plus paper prepared by Professor Ziarati and partners was presented at IAMU by Professor Ziarati, Capt. Mohavic (UoR) and Capt. King (SSU) after the keynote speech by the Rector of NVNA. As stated earlier a new paper is being prepared by the ACTS Plus Partners. The abstract drafted by C4FF and Spinaker with support from several partners was submitted and accepted by the editorial committee of IMLA. Croatian Partner, UoR, have agreed to produce the core of a scenario for the



paper in the next few weeks. The paper would then be finalised with support from all nominated authors/partners. This second paper is expected to be presented at the next IMLA Conference in Philippines in October 2018.

The ACTS Plus project, ACTS Plus is based on the Pareto analysis carried out as a part of the recently concluded ACTs project. The Pareto analysis showed that some of the COLREGs rules are more complicated than others and that there are situations where a number of rules apply. The paper argues the importance of continuing the ACTs project both according to the plans for its post-funding period and also by preparing a new proposal for EU funding (ACTS Plus). It is worth pointing out that as a result of the new paper a proposal was prepared by some the partners and submitted to the UK national agency.

This ACTS Plus project is led by Southampton Solent University (SSU) and coordinated by C4FF. The project started officially on 1st October 2016 and is expected to be concluded in March 2019.

University Centre Garden City

As reported in the July News the Centre Garden City was launched in June 2018. Once again congratulations to all who supported the creation of the Bahcesehir University UK www.bahecesehir.ac.uk. Several new programmes have being developed and will be introduced in the next few months The University will operate under the University Centre Garden City underpinned by the all the group's academic and industrial units. Special thanks to the management and staff members of the Centre for Factories of the Future (C4FF) and MarEdu Partnership (MarEdu). Seeking approval from the UK Government to be allowed to use the title of the 'University' and registering the University with Companies House together with obtaining the 'ac.uk' required a concentrated effort for the core project team by the founding bodies. The new University will be based in the UK. C4FF and MarEdu are both registered UK legal entities (one a limited company and the other a partnership) with many years of designing and running joint degrees including MPhil/PhDs. The respective websites can be found at www.c4ff.co.uk & www.maredu.co.uk. The University will operate through its academic partners and at its newly established business centre, Berkeley House, in Kenilworth, the heart of England, during its initial development phases. Its first Foundation Degree will be offered through the Warwickshire College Group and the Degree top-up through De Montfort University, starting in October 2019.

The long term aim of the new University is to establish a series of novel Engineering and Management programmes in collaboration with its partners in UK, Europe and worldwide.

In order to support the long-term aim of the new University, Bahcesehir University and C4FF have signed collaboration agreements with several UK colleges and universities to implement joint degree programmes and research projects; in particular Bahcesehir University supported by the C4FF signed an MoU with De Montfort University; and C4FF has signed with a group of colleges and universities in the UK and elsewhere in Europe. Furthermore, C4FF intends to continue its top-up degree programme and MPhil/PhD with De Montfort University. As such, in the coming years the new University intends to be involved in the development and implementation of several degree programmes and taking responsibility for their own quality assurance and monitoring. The new University will also be involved in the fundraising, networking and planning in order to establish first a small centre and ultimately a full University campus jointly with C4FF and MarEdu in the UK.



Figure 2. First academic board and first advisory board meeting took place at University offices, Kenilworth on 27 and 28th September respectively.

C4FF was initiated by our Chairman, Professor Ziarati in 1981, which became a UK Government initiative early in 1980s and later nominated as one of the 10 UK's innovative projects in the EU's network of innovative projects EUROTECNET in 1984. The EUROTECNET formally ended in 1996 when C4FF opted to become a limited education and research company. The following files give the sample earlier collaboration with DfEE http://www.c4ff.co.uk/References/DfEE_Reference.pdf and sample DfEE publication on C4FF's work in EUROTECNET (<http://www.c4ff.co.uk/History.aspx>).

A review of our website www.c4ff.co.uk will indicate that we have helped to establish several universities overseas and have been involved with the UK Government acting as Quality Assessors and with several Chartered professional institutions as degree programme accreditors. Our



involvement with major awarding bodies such as Pearsons/Edexcel/BTEC goes back to some thirty five years, offering degrees, HNDs and so forth – see for example www.maredu.co.uk and letters of commendation from colleges and universities in ‘About Us’ in the C4FF’s website. We have supported and are supporting British universities in several joint PhD programmes as supervisors or advisors and run joint degree modules with universities in the UK and elsewhere in Europe. We have initiated and supported several major European/global platforms; see for instance www.marifuture.org and www.manufuture.org. The former is still being coordinated by us. Our Centres have developed many e-learning courses with some given the award of ‘Best in Europe’ by the EU, and many are accredited by universities or institutions such as IMarEST. We are the initiator of the CDT (now just referred to as DT) A-levels and ran the first CDT teacher training course in the UK with support from the Welsh Office. Our history (<http://www.c4ff.co.uk/History.aspx>) lists the awards given to us and the work we have done with many colleges and universities in the UK. Recently we have established a network of people and organisations supporting STEM in schools (see our website: www.inspire-group.org) and are in the process of establishing a national Centre for it in our newly acquired building in Kenilworth.

Having worked with Turkey in recent years, see our sample partnership with them www.maredu.co.uk, and having helped to establish several institutions including two universities in Turkey (Dogus <http://www.dogus.edu.tr/en/> and Piri Reis <https://www.pirireis.edu.tr/EN>), we have decided to establish a private university in the UK in order to expand on the joint programmes and research projects we currently carrying out in partnership with several universities in the UK, Turkey and elsewhere in Europe and worldwide.

It is worth noting that several organisation and universities have already established an office at the group’s Business Centre, Berkeley House, in Kenilworth, and this has led to several funded and prestigious education and research projects. Examples of these projects can be found at www.marifuture.org.

Professor Dr Reza Ziarati - Group Chairman

Year of Efficient Ship

The ‘Year of Efficient Ship’ continues in 2018 due to the importance in making our members and partners aware of the impact of toxic pollutants from shipping and vast array of means available to reduce the amount of and the impact of these harmful emissions. To this end, we will be continuing our publication of a development paper on the subject of ship energy management in the coming months. To support ‘The Year of efficient Ship’ There were several major events in recent months, notably several keynote speeches given by the MariFuture Founder, Professor Dr Reza Ziarati at the International Propeller Club, Genoa, Italy; at Johnson Matthey Technology Centre, Reading, UK; and the MariEMS’ final conference. In April the fourth ACTS Plus partner meetings took place on 22-23 April in Mallorca, Spain and on 24-25 May the third partner meeting for Career Comeback Support Program for Women project met in Poland. The final partner meeting and conference for MariLANG took place on 7-9 July in Elsfleth, Germany.

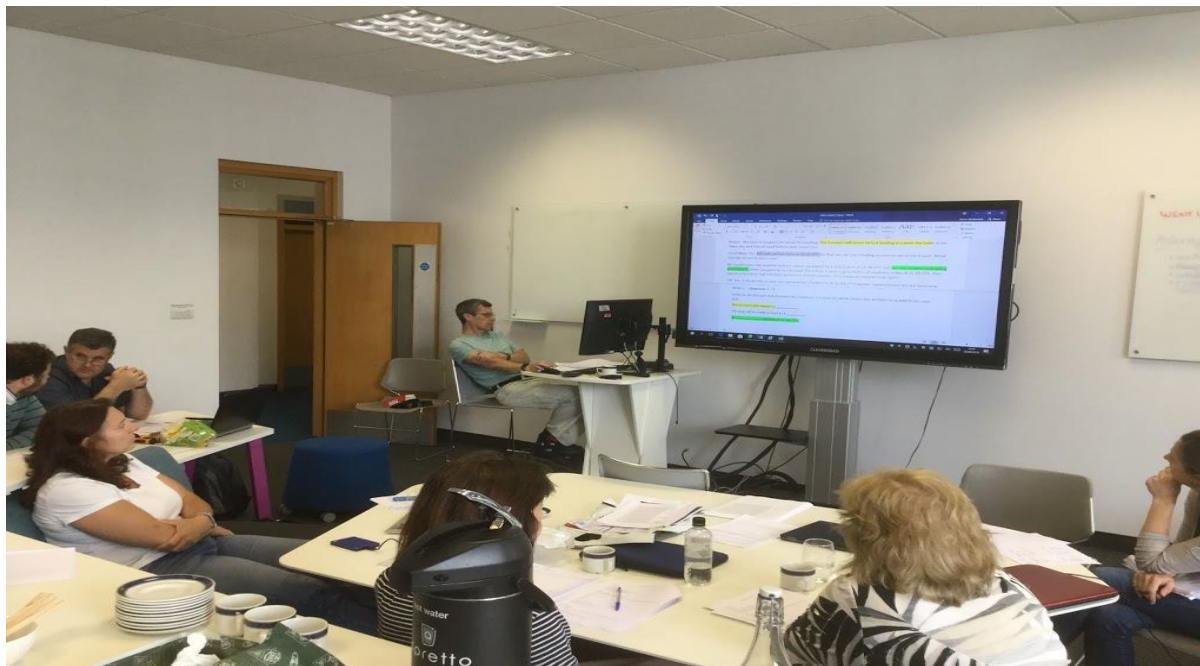
Several other meetings were held to consolidate the success of acquiring the parcel of land from the Warwick District Council for the C4FF/MarEdu supported new university and for the C4FF’s STEM partnership the UK. C4FF’s business centre (Berkeley House) has already allocated another larger



parcel of the land to be used for the coordination of the STEM centre and the new University planned activities.

MariLANG Project

The final training week took place in Southampton on 18-22 June. The partners successfully completed the training to become certified in Language Test Standard Setting.





The final partner meeting and conference took place in Elsfleth, Germany on 7-9 July, hosted by Jade Hochschule the coordinator of the Mari LANG project.

The MariLANG project intends to develop a Maritime English training programme based on the EU funded SeaTALK learning materials and the EU funded MarTEL assessments, both of which are compliant with the IMO Maritime English Model (3.17). It is worth mentioning that partners from both SeaTALK and MarTEL were involved in the 2015 revision of the IMO Maritime English Model Course through the International Maritime Lecturers Association (IMLA). The funding of MariLANG is very good news as it will complete the process started with MarTEL establishing a Maritime English assessment system, followed by SeaTALK seeking material for it, in conclusion MariLANG will develop an actual training programme for Maritime English which will include the three new categories defined in the revised model course: Electro-Technical Officers, GMDSS radio operators, and Personnel providing direct service to passengers in passenger spaces on passenger ships.



Career Comeback Support Program for Women (CCSP-W)

The project started in September 2016. The partners have met in Istanbul, Kenilworth and Paris. The fourth partner meeting took place in Poland on 24-25 May. The next meeting will take place in Paris, France on 18-19 October 2018.

The project is progressing well and is being implemented as outlined in the proposal.

In the Career Comeback Support programme for Women (CCSP-W) project, the aim is to increase the awareness of contemporary business environment for unemployed women who had work experience previously, and also encouraging them to get back into the workforce by providing an



Online and mobile platforms as well as its relevant curriculum. In this project, there are three objectives:

- 1) All types of job opportunities that would allow women to have flexibility and ease them return to work life will be allocated in a single platform. This part of study will assist with the career-planning phase of women to see available options for them in detail so that they can allocate types of jobs based on their interests and skills;
- 2) Those potential entrepreneur women who would like to run their own business will be assisted by networking and knowledge base tools that are going to be provided. Correspondingly, this study aims to introduce funding opportunities that are available to entrepreneurs in general and also specific to women to re-enter the workforce;
- 3) An Online platform in their own languages with a mobile platform will be provided to woman returnees to adapt them to the social business era considering possible opportunities and necessities in the new business world.

Project Day time

Several meetings have taken place to consolidate the Turkish consortium and it is hoped that partnership will be concluded during this month. The project concerns further development of the Industry 4.0 concept which describes an important technological advancement driving automation and data exchange in the manufacturing environment to provide smart production with its efficiency improvements, while setting the requirements and needs for necessary and essential tools to specifically enable the change. In smart production, improvements and adjustments to the production processes can be achieved with effective Internet of Things (IoT) tools that analyse and manage the sensor-collected data using Predictive Maintenance (PdM) techniques. PdM is a right-on-time maintenance strategy designed to determine the condition of in-service equipment to help predicting and deciding when maintenance actions should be performed. Maintenance tasks are performed only when warranted, leading to cost savings over routine or time-based preventive maintenance. The basis for PdM is the Condition-based Maintenance (CBM) concept. CBM techniques are already used in many industrial manufacturing areas, and the techniques include e.g. vibration analysis, lubricant contaminant analysis, and process performance monitoring, using information fusion techniques with multi-parameter measurements.

This project with a consortium of 45 partners, meets the three challenges by deriving requirements from 14 industrial use cases in various industries, ranging from telecommunications to medical systems imaging to automotive assembly lines, and to shipping industry. The project results will be widely disseminated to support digitizing European industry at large, which will benefit from efficient predictive maintenance techniques, with the project partners providing the enabler solutions to the market. The



consortium is innovative in combining machine learning, Blockchain, simulations and modelling in order to achieve predictive maintenance. A unique feature of the projects is the integration of 14 industrial use cases in various fields within the same consortium to spread achieved learning widely in industry.

OPTIMUM

Several discussions has taken place after the first face-to-face meeting of this EUREKA ITEA multi-million EUR project took place in Germany on 12-13 March 2018; the 2nd meeting of the project team was held at University of Rostock in Warnemünde, Germany on 25th & 26th of June.

The proposed project aims to support innovative concepts for engineering, commissioning, control and supervision of smart manufacturing and material handling. It will be in line with European, National and international initiatives towards digital manufacturing, closely related to on-going activities in working groups around the German initiative Industry 4.0. Taking the results from ongoing architectural, component and ontology discussions, OPTIMUM's major goals are: improvement of the aspects of distributed control, adaptation of (I)IoT technologies to real industrial needs, enhancement of control and applications by context and location awareness as well as application design and common-model based 3D engineering and supervision.

There over 20 major industrial partners supporting this project.



Figure 3 Professor Ziarati , flanked by Dr Anja Fischer, OPTIMUM Project Manager, and Dr Basak Akdemir, BAU, and members of the OPTIMUM project at their kick-off meeting, Wetter, Germany

UniBus

The next meeting of UniBus will be organised by C4FF in Kenilworth, UK on 1-2 November 2018.

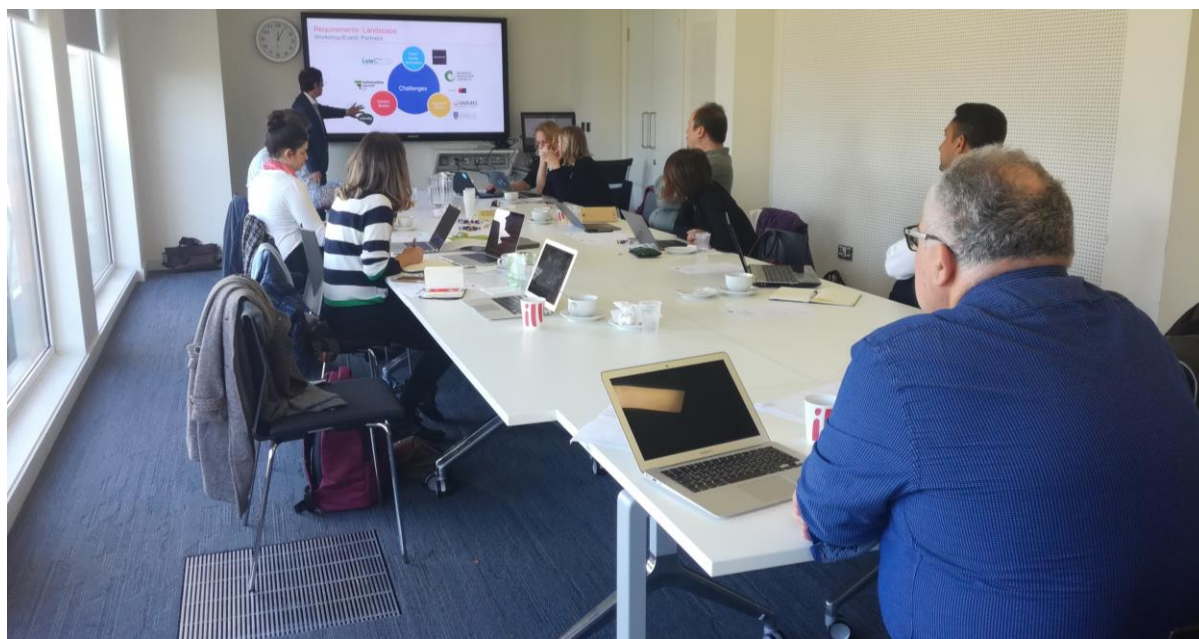




Figure 4. UniBus Project Partner meeting in London

The project is progressing well. The project started in September 2017 and had its first partner meeting in Istanbul Turkey in November 2017. The second meeting of the project partners took place on 26-27 April in London. The project intends to improve the quality and relevance of higher education through the creation of opportunities for the two worlds of academia and business to come together particularly regionally. The HEIs and VET providers should be centres of excellence in what they teach and to do this they must develop all staff and prepare their students for the world of work. They must work with and support businesses, for which they are preparing the young people as future employees and customers of the businesses' products and services. It has to be realised that the interests which business has in wishing to establish or improve links with academia are different from those of the academia, and may not always be compatible. The educationalists can aspire to be altruistic; business people can only afford to be altruistic when they have made more than enough money for the maintenance and development of their businesses. This is not a moral judgement – it is a pragmatic one. Academia needs the industry to support it in the development of its programmes so that they can identify and respond to the needs of industry and commerce. It needs industry to seek funds to progressively develop its laboratories, and it needs industry to develop its staff members. Industry needs academia to improve the quality of its employees, present and future; it needs academia for technological progress useful to business, and to better the management of its business; it needs academia for the formation of its future customers, and so of demands for its products and services (Ziarati, 2016).

With regard to the horizontal priorities the projects aims to promote open and innovative education, mainly for adult and young people, embedded in the digital era in the cloud environment. The intention is to develop basic and transversal skills such as entrepreneurship and digital skills so that students could support industry in the challenges it is facing, looking at what is already being done well and should therefore be further developed or supported; and what is being done not well enough, or badly, and therefore needs to be changed, stopped, or replaced by something new. It is



also to create new things. A depository of student projects and industry's suggestions for projects could help both industry and academia and this is one area which they can build their future collaborations. The project is expected to be concluded in August 2020.

IMLA 2018

A new paper on MariEMS is being prepared for presentation at the next IMLA Conference in Philippines. MariFuture presented two papers at the IAMU 2017. The first paper related to Avoiding Collision at Sea – Pareto Analysis and was presented early in the opening day of the conference on 11 October 2017. The second paper, Maritime Ship Efficiency Energy Management was presented on 13th conference early in the morning. Both papers were well received. Several participants expressed interest to work with the MariFuture partners in initiating new proposals. More information on these developments will be given in May 2018 news.

Professor Ziarati, C4FF, with support from the MariEMS partners presented a lecture at the Johnson Matthey Technology Centre on 15th February 2018. The lecture highlighted the importance of digital twinning in product development and maintenance. The lecture summary is presented as the February 2018 Article on MariFuture.

A new paper is being prepared by the ACTS Plus Partners. The abstract drafted by C4FF and Spinaker with support from several partners was submitted and accepted by the editorial committee of IMLA. Croatian Partner, UoR, have agreed to produce the core of a scenario for the paper in the next few weeks. The paper would then be finalised with support from all nominated authors/partners. This second paper is expected to be presented at the next IMLA Conference in Philippines in October 2018.

MariEMS

The final report was submitted to UK NA at the end of May. Full accreditation documents were submitted to IMarEST. The partners have been notified that both the submission to UK NA and to IMarEST have been successful. The UK NA is expected to review and assess the final report in the next two months. IMarEST has informed the project lead that the documents are being presented to its accreditation committee in the near future. We are expected a positive outcome from both organizations.

The MariEMS final Conference took place in 22nd March 2018 in Istanbul. The event was very successful and it was reported that some 60 people took place in proceedings. The keynote speeches we given by Professor Ziarati, Chairman of C4FF, Mr Markku Mylly, the President of EMSA and Dr Sualp Urkmez, the CEO of Adiks Ship Yard and Furtran.

Keynote Presentations:



Figure 5. Professor Reza Ziarati, Chairman, C4FF and Founder, MariFuture giving the keynote speech at the MariEMS Conference, 22nd March 2018, Istanbul, Turkey



Figure 6. Mr Markku Mylly; President of EMSA presenting at the MariEMS conference, 22nd March 2018, Istanbul, Turkey



Figure 7 Dr Sualp Urkmez, President of Turk Deniz Egitim Vakfi (TUDEV) presenting at the MariEMS Conference, 22nd March 2018, Istanbul, Turkey



It was reported that all Chapters (excluding 13 and 14) have been reviewed and revised and texts borrowed from the IMO TTT course has been highlighted in the MariEMS 36 chapters which were based on the 8 modules of the IMO TTT course.

As reported earlier the 36 chapters were disassembled and reassembled by combining several topic areas and transformed into 14 new chapters. Partners were asked to review these chapters and comment on the changes necessary. Partners were also given tasks to prepare summaries for each of the chapters assigned to them and also prepare some quizzes. The summaries and quizzes are primarily for updating seafarers on ship energy efficiency subject matters and the 14 chapters have more demanding questions that are intended for cadet ship energy education and training. The more demanding question concerns for instance calculating EEDI for new ships and EEOI for existing ships in the market place. The course manual now includes a course of nominal 60 hours for cadets and a 3 to 5 days course for updating existing seafarers. Both options in the course manual are now ECVET compliant. The draft MoUs were finalised and signed between two of collaborating institutions for ECVET compliance. The process of seeking accreditation from a major internationally recognised professional institution with Royal Charter has also started. The accreditation documents consisting of the course manual and the sample quality manual for it together with the quality manuals of the maritime universities involved plus teaching/training staff CVs were sent to IMarEST as advised by them. It is pertinent to note that the maritime universities are recognised awarding bodies in themselves. The course was piloted in Spain as reported earlier and the outcome was successful. MariEMS partners have held several presentations to date and intend to participate in the EU Maritime Day and the IMO Congress in the near future. They also participated on Cruises and learnt a great deal about Cruise ship and systems they have in place to reduce their energy consumption to a minimum.



Learning about Cruising in Ocean - On board Rhapsody of the Seas, Professor Reza Ziarati (General Coordinator, MarEdu), Capt. Juan Luis Caranti (Royal Caribbean) and Mrs Ziarati (Director, C4FF)

Two papers have already been written and one presented at the prestigious International Association of Maritime Universities. The second one is expected to be presented at the International Maritime Lecturers Association (IMLA), a further journal paper on technical aspects of



the project. Some 20 papers already published by MariFuture on various chapters of MariEMS learning material see for example (http://www.marifuture.org/Reports/Development-Papers/ADP_03_2018_MARIFUTURE.pdf). Some of these publications have lead to new papers, articles and provided material for presentation at the multiplier events and new proposals.

MariEMS' online Course and Book have now been finalised and will be available for circulation soon.

A summary of all the projects can be found in www.marifuture.org. For further information about MariFuture please refer to the MariFuture website.

Dr Martin Ziarati