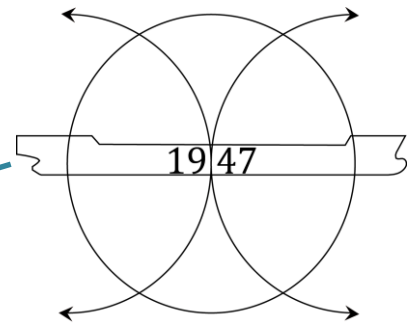


# Nul-Kryds

The association of maritime  
engineering students at DTU



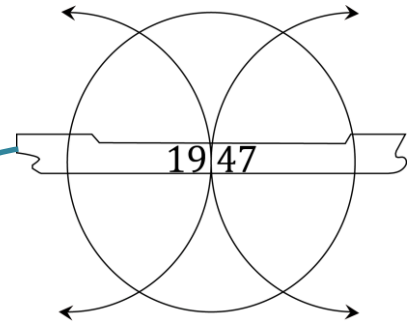
The association of maritime engineering students at DTU

# Annual Report

## Nul-Kryds 2012

# Nul-Kryds

The association of maritime engineering students at DTU



## Word from the president

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2012 has been a great year for Nul-Kryds.

We have followed up on our goal to increase our contact with the industry by having two company presentations at DTU and a visit at NOV Flexibles production facilities in Kalundborg.

The 65<sup>th</sup> annual NTHS congress was hosted by the Norwegian delegation. The congress was in all aspects a great success and a great experience for the participating naval architect students. The Norwegian delegation had arranged a week full of interesting company visits and social gatherings with great opportunities to form friendships and network across the five Nordic participating delegations. I am convinced that these friendships will be a great strength in future projects by the former NTHS participants.

It is my hope that the sponsoring companies will also benefit from the corporation with Nul-Kryds.

In 2013 it is our turn to host the 66th NTHS congress here in Denmark and we hope that we can make it one to remember. The planning has started and we are well on our way to a preliminary program of the congress.

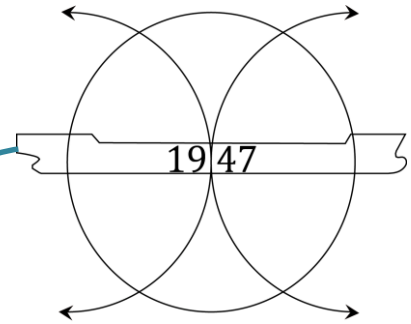
I would like to finish off by thanking all of our sponsors, as hardly any of our activities would be possible without them. All the contributions from all the sponsoring companies really means a lot to us.

The following report is intended to give an overview of the last year of Nul-Kryds activities.

Thor Peter Andersen  
President of Nul-Kryds

# Nul-Kryds

The association of maritime engineering students at DTU

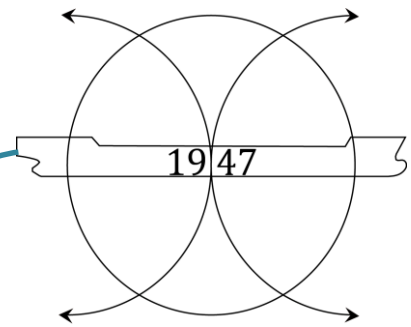


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# Nul-Kryds

The association of maritime engineering students at DTU



## Organization and focus

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### Board members

Elections for Q1 and Q2 took place on general assembly 26.10.2011

Elections for Q3 and Q4 took place on general assembly 04.10.2012

	Board: Q1 and Q2	Board: Q3 and Q4
<i>President:</i>	Thor Peter Andersen	Thor Peter Andersen
<i>Vice president:</i>	Aleksander Hamdan	Lasse Normann de Boer
<i>Treasurer:</i>	Sune Thonesen	Sune Thonesen
<i>Board member:</i>	Lasse Normann de Boer	Drude Hundevadt
<i>Board member:</i>	Mathias N. Rasmussen	Niclas Oddur Niclasen
<i>First substitute member:</i>	Pablo Esquivel de Pablo	Aleksander Hamdan
<i>Second substitute member:</i>	Drude Hundevadt	Jacob Frøhlich

### Focus of Nul-Kryds 2012

As a students' organization at DTU the foremost focus of Nul-Kryds will always be to create a great study environment for the people studying maritime engineering at DTU. Apart from our traditional events, as NTHS participation, Paper Boat Competition and Martha evening, the focuses this year have been revolving around becoming more visible in professional and academic context.

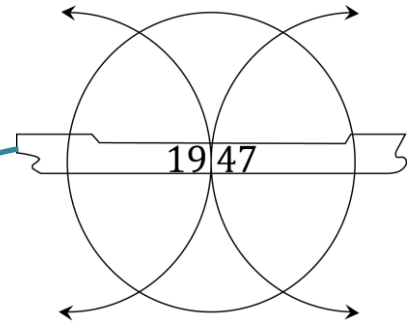
**Strengthen the professional environment at DTU:** By hosting company events and participating in planning of a meeting with RINA, we aim to give the maritime engineering students at DTU a sense of the network existing in the maritime field.

**Increase knowledge of maritime engineering outside Nul-Kryds:** In cooperation with World Careers and the department of Fluid Mechanics, Coastal and Maritime Engineering at DTU, we have participated in Tech Events for both engineering students in various fields and high-school students. The aim for Nul-Kryds have not only been to "recruit" new maritime engineering students, but also to promote the existence of Nul-Kryds, as many students at DTU do not know what we do.

**Initial planning of NTHS 2013:** As Nul-Kryds is hosting the traditional NTHS congress for Nordic maritime engineering students, the planning of this event have affected Nul-Kryds in the last quarters of 2012, and will govern the first parts 2013 even more.

# Nul-Kryds

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## NTHS 2012 in Norway

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### Intro

NTHS in 2012 was arranged by NTNU in Trondheim from Monday 16<sup>th</sup> April to Friday 20<sup>st</sup> April.

From Denmark 10 students attended and these were:

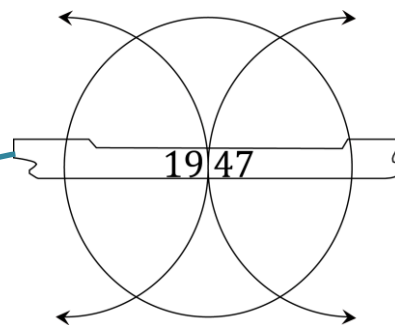


*The Danish delegation on the ferry from Copenhagen to Oslo*

*From left A. Hamdan, N. Purup, P. Esquivelde de Pablo, L. de Boer, S. Thonesen, M. Rasmussen, T. Andersen, T. Sonne, J. Hansen and C. Nielsen.*

# Nul-Kryds

The association of maritime engineering students at DTU



## Schedule of the Week

<b>Monday</b>	Det Norske Veritas & Bureau Veritas
<b>Tuesday</b>	Rolls-Royce
<b>Wednesday</b>	Ulstein Group & STX OSV
<b>Thursday</b>	Kværner Verdel & Bergen Group Fosen
<b>Friday</b>	MarinTEK, NTNU & Banquet

## Participants

### NTNU delegation, Norway

Magnus Lande	Anna Makrygiannis
Eirik Berg	Eirin Stangeland
Daniel Nordås	Jostein Follestad
Yngvild Slettevold	Andreas Bergstad
Tine Louise Trøen	Andreas Orsten

### DTU delegation, Denmark

Thor Peter Andersen	Aleksander Hamdan
Sune Thonesen	Mathias Nyman Rasmussen
Lasse Normann de Boer	Pablo Esquivel de Pablo
Thit Brask Sonne	Nikolaj Bach Purup
Christian Simon Nielsen	Jonas Ertmann Hansen

### HUT delegation, Finland

Markus Juhani Tompuri	Sami Arto Olavi Nyysönen
Karoline Mali Neumann	Miia Puranen
Visa Ilmari Kauntola	Sara Gilsanz Martín
Reino Külaots	Oliver Parmasto
Victor Johan Grönroos	Anders Jan Ingvald Mård

### KTH delegation, Sweden

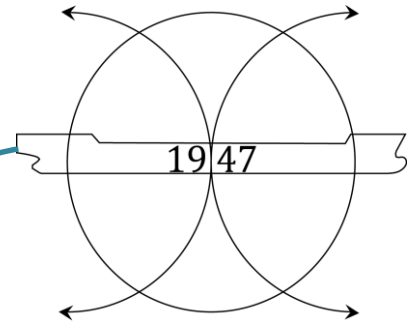
Marlén Lock	Philippe Ghawi
Ebba Djurberg	Magnus Nordgren
Karl Blomberg	Patrick Ringman
Marcus Eriksson	Marcus Gustafsson
Mattias Johansson	Jonas Danielsson

### CTH delegation, Sweden

Per Nordqvist	Robert Eriksson
Mathias Broman	Mikael Carlsson
Djan Eirik Djavit	Erik Strande
Jonas Boström	Mattias Frösing
Filip Bergbom Wallin	Kristoffer Krossøy

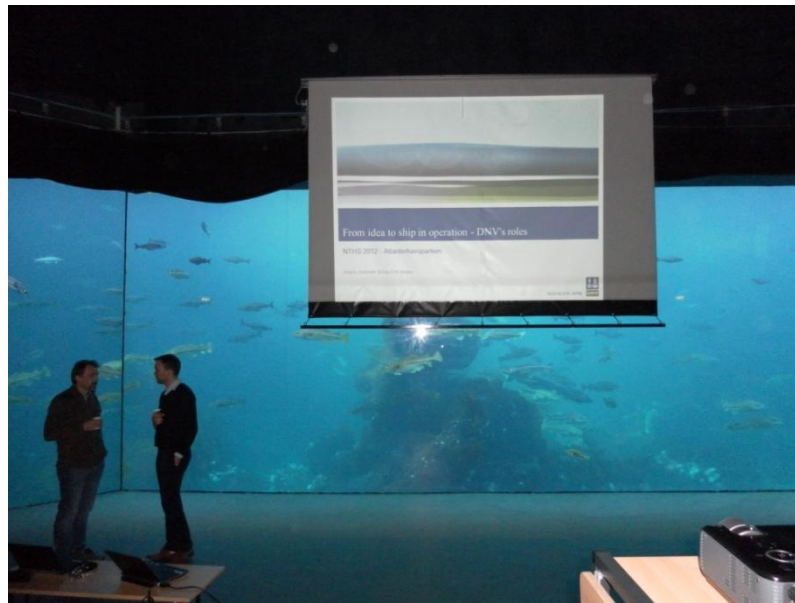
# Nul-Kryds

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## Monday 16<sup>th</sup> April 2012

Though impressed by the beautiful Norwegian nature, we were all flabbergasted by the location of the first presentation of the conference. Det Norske Veritas had invited us to "Atlanterhavsparken Ålesund" where the back wall of their conference room consisted of a 4 million liter saltwater fish tank.



*Figur 1: Det Norske Veritas presentation*

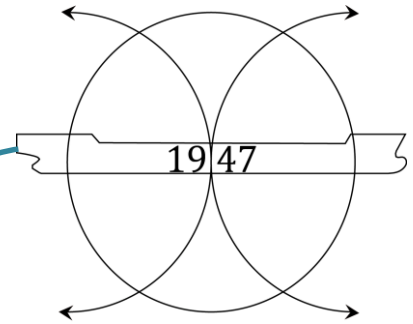
The first part of the presentation was about the spawn of classification societies at Lloyds Coffee House in London in 1760 and the subsequent realization that human lives could be saved by this type of organization.

Det Norske Veritas was founded in 1864 and now operates in 100 countries. It is naturally a very dominant classification society in Norway, but plays a major role worldwide as well where they for instance have been hired to investigate the Deepwater Horizon accident.

We were presented with some of the problems a ship owner faces when ordering new vessels and how DNV can assist in this process. Our hosts showed us a project they are currently working on – the fishing vessel "Catchy", which was optimized in both operational and energy saving aspects. This illustrated the flexibility of DNV and how a modern classification society can also play the role of an innovative ship designer.

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*Figur 2 Bureau Veritas presentation*

Later that day, Bureau Veritas had offered to meet us in the homely surroundings of the banqueting room in our hostel in Ålesund.

Bureau Veritas is worldwide considerably larger than DNV, but in Norway there is of course a high competition between the two organizations. BV is mainly competing on prices, but also in flexibility. For example, we were told about how the organization performs onboard surveys on offshore vessels in order to avoid stoppages.

The participants of the congress had clearly spent the lunch break reflecting on what had been said at DNV and therefore the BV presentation ended with a highly interesting round of questions where many topics were discussed. Our host's knowledge was impressively wide-ranging and thus the presentation ended as one of the most informative in the entire congress.

## **Tuesday 17<sup>th</sup> April 2012**

Tuesday we went to the Rolls-Royce training centre. After a quick bus ride for about 30 minutes we arrived at 9.00 at the newly build Rolls-Royce training facilities. In this new centre customers are able to get courses in various maritime disciplines related to hand-over of new vessels, technical familiarization of Rolls-Royce products and anchor-handling operations. While we visited a group of machine-officers from the Hungarian navy were there to do training on a propulsion system which they had recently purchased.

The day started with a short presentation of the company and their different career possibilities for a naval architect. This was followed by five technical presentations by different groups within Rolls Royce.

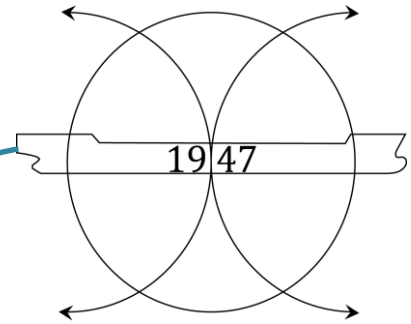
The first presentation was made by the Propulsion R&T department from Ulsteinvik. They covered various topics, but mostly focused on DP(dynamic positioning) and IPOS (integrated performance and operations system).

After this Thorger Torgersen from the ship design department held a presentation about the various ship types designed by Rolls-Royce. Most of the ships are designed with an integrated approach where Rolls-Royce supply most of the parts. Thorger



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Torgersen went through all parts of the design process all the way from concept, detail design, contract, delivery, warranty, service and enhancements.

The third presentations covered DP. A programmer who worked with this explained a lot of technical details about the software behind DP and some of the features offered exclusively by Rolls Royce.

Following this a engineer named Odd Jacobsen went through Rolls-Royce' work in the area of active heave-compensated systems. Covered some of the technical specifications of the RR cranes and the reverse ship motion system they are equipped with. He also talked about some of the advantages of using fibre-ropes instead of regular wires and which special demands this puts on the heave compensated cranes.

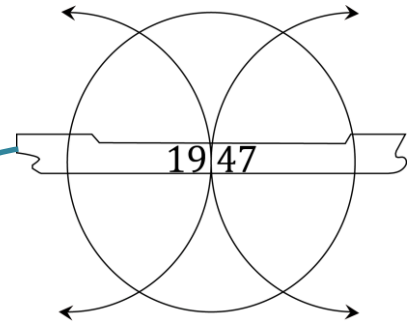
The last presentation was made by Reidar Skarbævik and the topic was Rolls-Royce's new draglink crane. This new concept will be capable of covering a much larger lifting area compared to standard cranes and at the same time have a much larger volumetric capacity.

After a morning busy with presentations we headed out for a quick sandwich before the afternoon tour of the training facilities. On this tour we had a look at the impressive new building with a large propulsion showroom, ship operations simulators and engine control room simulator. After this we said goodbye to the staff at RR training centre and headed for the hotel.

Tuesday evening we were going to stay at a hotel about 30 minutes from Rolls Royce on the other side of the fjord. Rolls Royce had prepared a little surprise for the transportation. We were taken to the harbour where two 2x500 hp powerboats were waiting for us. These took us for a magnificent ride across the fjord with almost 50 knots, where we had a chance to see the famous Atlantic Paffin (Lunder) and seals.

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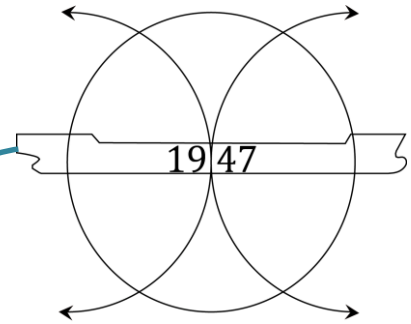


*Figur 3 Boat ride from RR to the hotel*

The night was spent on an Italian restaurant nearby the hotel where the yearly tradition of telling naval anecdotes was followed. The Danish anecdote this year had some of the topics that newer grow old, as why the Norwegians have taken the Danish oil, why Finnish people drink so much and why Skåne is no more Danish territory.

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## Wednesday 18<sup>th</sup> April 2012

The day started by packing our luggage, because at the end of the day we should be in Trondheim.

After eating a nice breakfast at the hotel, we went to visit the Ulstein Group in Ulsteinvik, the bus trip was short, as we could see the yard from the hotel.

At the yard we got a presentation of the Ulstein Group and what ships they have constructed throughout the last 10 years. The Ulstein group consists of a yard and a design office, which are located in Ulsteinvik. The design office is known for the patented X-bow design. The presenter was one of the lead designers of the X-bow, and he made a presentation of 157 slides in 30 min! After this short and interesting



*Figure 4, Newbuilding at Ulstein yard*

presentation we went out to see the yard facilities, and the two PSV newbuildings that were being constructed. We got a guided tour of one of them, Polarcus Adira, to see the inside of the structure.

After a quick lunch we headed to STX OSV in Søvik. This yard has also specialized in **Offshore Supply Vessels**. Here they also had two newbuildings ongoing and we went straight to one of them after a presentation of the company and yard. This yard uses a design that performs well in the average wave spectrum, while the X-bow works fine in heavy weather conditions that you might only experience a few times a year.

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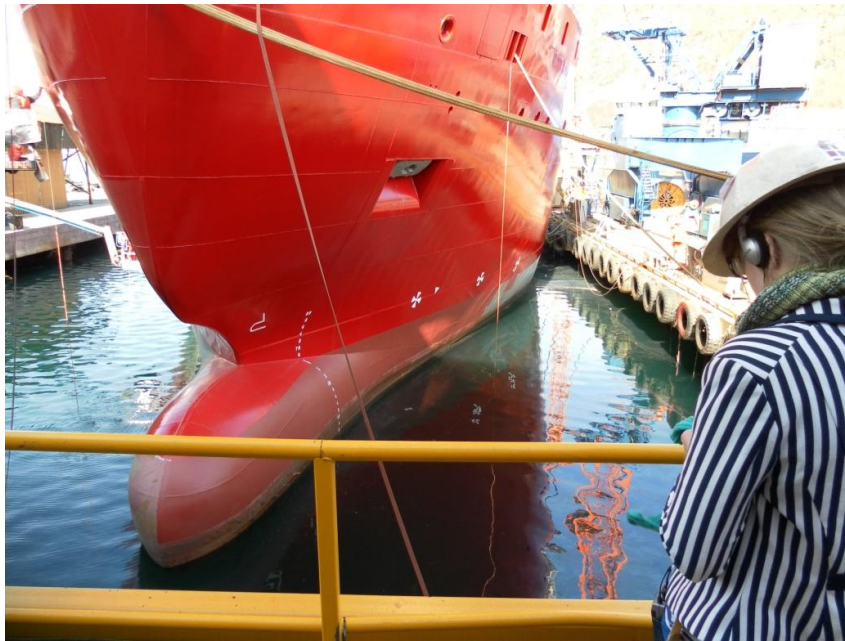
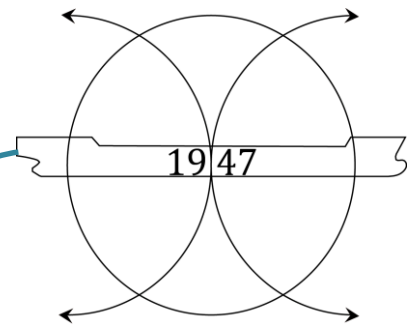


Figure 5, A Danish girl looks at the bow of Skandi Bergen at STX OSV

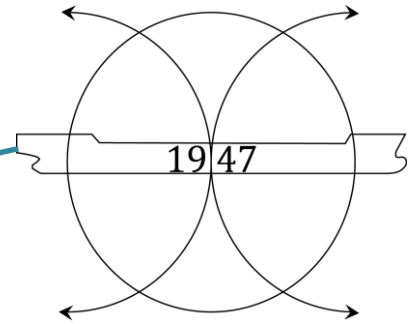
After some cheese and ham sandwiches and some merchandise effects, we went on an 8 hour bus ride to Trondheim.



Figur 6, The Danish delegation, from left: Christian, Aleksander, Sune, Pablo, Thit, Lasse, Thor, Mathias, Nikolaj and Jonas

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We had to cross the Norwegian mountains to get to Trondheim, on the way we had a nice reindeer meal and nice views of the Norwegian nature.

## Thursday 19<sup>th</sup> April 2012

After few hours of sleeping in the hostel, we went to visit Kværner in Verdal, a town 90 km northwest of Trondheim. As an example of the local gastronomy, delicious ham&cheese sandwiches were provided on the bus and also at the company.

Kværner is a worldwide group with fabrication yards in several countries. The yard in Verdal is specialized in jackets for offshore industry. During the visit we could see some structures for offshore wind farms including one huge jacket, where an electrical substation will be placed.



Figure 7: Kværner yard in Verdal.

The main knowledge of this company is about the welding of pipes in a wide range of sizes. In order to save time and production costs, the raw material comes from The Netherlands with the final shape. As they need to handle enormous structures, they have a good collection of heavy lift cranes. Those are necessary during the whole process, especially in the end, when the structure is embarked on a barge.

After the visit, we had a trip around the fjord of Trondheim, heading to Fosen. The bus trip was around two hours of up and down in the beautiful mountain scenery of Norway.

Once in Fosen, we visit Bergen Group. This shipyard is specialized in supply vessels and ferries. We had a quick introduction to the company and then they gave us a tour of the shipyard in small groups. This way, it was easy to ask questions to the guide-engineer. The hospitality was also important for Bergen Group, and they delighted us with a regional recipe of ham&cheese sandwiches. As seen in the picture below ( figure 8.) three ships were under construction or maintenance during our visit. Our tour included the ship in the dry dock.

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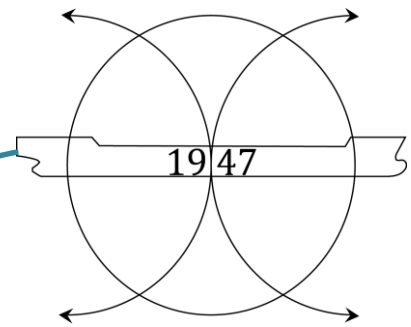


Figure 8: Bergen Group shipyard in Fosen.

We left the shipyard in a hurry because we had to cross the fjord on a ferry. The bus driver managed to drive us as fast as possible and we got on the ferry in the last minute.

That night the Norwegian delegation arranged the dinner in Samfundet, the student association in Trondheim. This round building was managed by student volunteers and several student associations have a small bar inside the building.

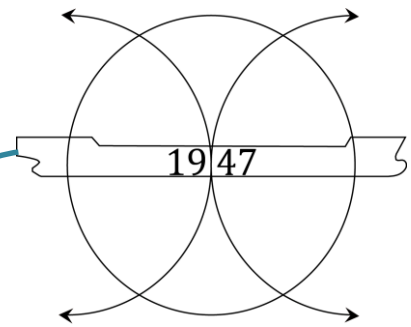
## Friday 20<sup>st</sup> April 2012

On the last official day of the conference we were taken to the marine department of Norges Teknisk-Naturvidenskabelige Universitet (NTNU). A representative from HR presented us with the campus facilities and the visions for the department. NTNU is located in Trondheim, the most popular student city in Norway with a vibrant and international student environment. It hosts a total of 20.000 students dispersed over seven different campuses.

Afterwards we were introduced to Marintek, also located at the NTNU campus. The company has a large ocean tank, a towing tank and a number of other test facilities, including facilities for analyzing sloshing and cavitation. Marintek cooperates closely with the university and students can for instance use Marintek facilities for their project works. The Marintek representative told us about their concept “ocean space”, a concept which builds on the fact that 70% of the face of the earth is covered

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in water, which provides us nearly unlimited possibilities if investigated properly. Afterwards we were given a tour of the impressive tank facilities.

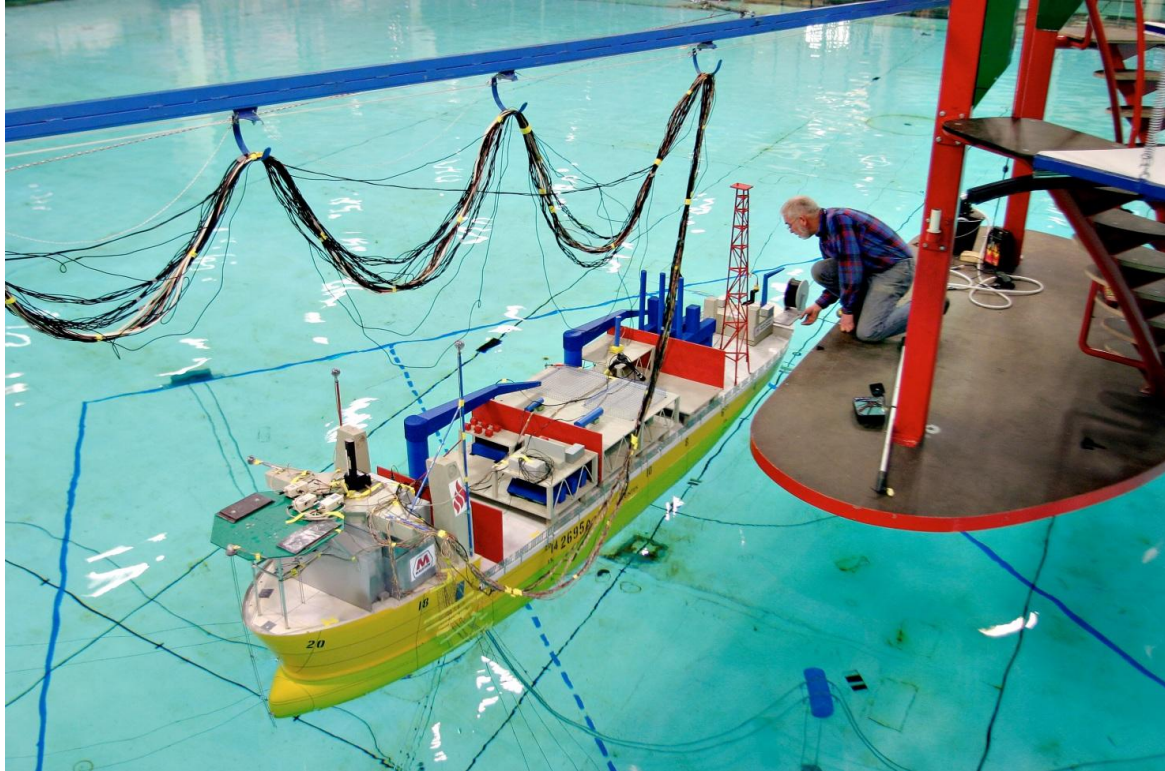


Figure 9, The ocean tank.

The final presentation of the day was given by a representative from the Norwegian student organization Mannhullet. Mannhullet is the shipbuilding student society and has many subgroups i.e. a choir, an outdoor club and a sailing club. They are responsible for a number of social activities throughout the year, such as concerts, trekking trips, and the infamous, yearly cabaret.

## Banquet

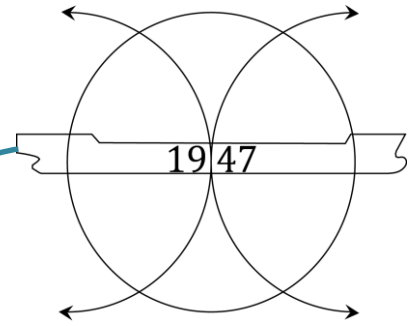
The traditional Banquet the last day was held at Tron Hotel just across the street where we stayed. We got some champagne before the dinner started. Then we had great three-course dinner. During the banquet presents from the participating delegations were given to the hosting delegation. The Danish delegation gave a porthole that can be opened and inside there is mirror. Others gave, for example, a model of an oil production platform.

It was decided that the Drukkenbolt should be Markus Tompuri from Finland, because he maintained pleasurable attitude in addition to virtuous behaviour throughout the congress.

The last thing that happens during the banquet is the presidential ceremony, where the next coming president for NTHS is given the helmet and the anchor. This year it

# Nul-Kryds

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is was the Danish president, Thor Andersen, because Nul-kryds is hosting the 66<sup>th</sup> NTHS congress in Denmark in 2013.

The evening ended in NTNU's bar, Mannhulet, where a local band played some nice songs, and everyone could say goodbye to each other. The next day the airplane to Copenhagen left Trondheim with 30 NTHS participants, since some delegations were having a stop-over in Copenhagen.

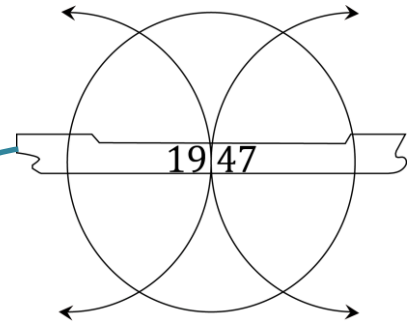


Figure 10, The delegation from Nul-kryds at the Banquet  
Seen from left: Nikolaj, Thit, Aleksander, Christian, Thor, Mathias, Jonas, Sune, Lasse and Pablo



# Nul-Kryds

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## Classic Nul-Kryds Events

Some events in Nul-Kryds are yearly recurring traditions. The participation in NTHS is one of those, and the annual NTHS report describes this congress in detail. Internally in Nul-Kryds, various events and competitions are held every year, with participation from both present and former student members of Nul-Kryds.

### Paper Boat Competition and 65<sup>th</sup> anniversary party

The Paper Boat Competition event has passed the magical 10-year repetition line, and as such qualify as a classic. This year, it was combined with the Nul-Kryds 65<sup>th</sup> anniversary.

Seven paper ship builders competed in the Paper Boat Competition 2012, all living up to the strict rules and regulations:

- ☞ The lightweight boat must be less than 10.00 grams
- ☞ The ratio of length to breadth must be larger than 2
- ☞ The midship section coefficient must be less than 0.95 for all draughts
- ☞ The half angle of entrance of the bow must be less than 30° at all draughts



*Nul-Kryds President Thor Andersen presents the winners of the Paper Boat Competition 2012. From left: Veli-Pekka Kåla, Niels Hvid, Thor Andersen and Aleksander Hamdan*

The sea trials included ships sinking due to structural failures, material failures, stability failures or simply lack of coating.

The competition was fierce, for all other ranks than the winner. Niels Hvid's ship design proved superior to everyone, with an impressive deadweight to lightweight ratio of over 185.

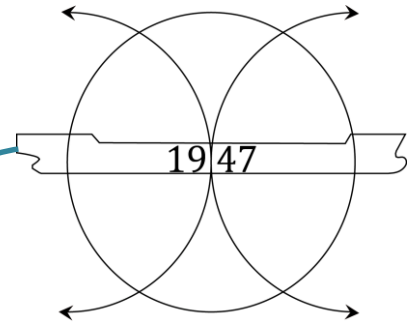
Our Finnish guest and former DTU student Veli-Pekka Kåla took the second place, while substitute board member Aleksander Hamdan grabbed the third place.

The competition ended with a celebration of the 65<sup>th</sup> anniversary of Nul-Kryds. Some beers and a magnificent birthday cake provided the setting for a nice party. The party was also attended by several alumni members of Nul-Kryds.



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## Martha Evening and Christmas Lunch

The two most traditional social events Nul-Kryds is hosting is the Martha evening and the Christmas lunch. Both present and former members are welcome at these events, usually hosted in June and November, respectively. Thus, these events serve the purpose of making friendships and connections between former and present members of Nul-Kryds and thereby between the maritime industry and the students.

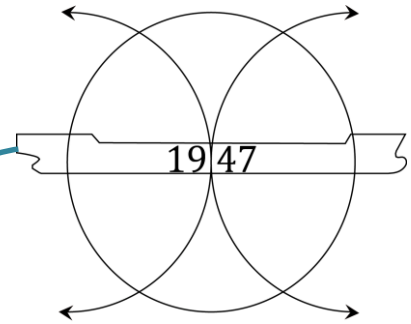
A tradition of visitors from the other NTHS delegations at our Martha evening is starting to form. Around five NTHS participants have participated at each of the last couple of summer parties. This is a great way to keep the connections established at the NTHS congress. These social gatherings also serve as a great opportunity to get to know the relatively large amount of exchange students studying maritime engineering here at DTU.

The Christmas lunch is a more or less traditional Danish Christmas lunch where we usually are around one third former members and two thirds present Nul-Kryds members. This combination of participants provides a great opportunity for all to expand ones network, both social and professional.

At the Martha Evening it is tradition to watch the good old SS Martha movie, of course with English subtitles, and barbequing at DTU. Both of these events went very well this year.

# Nul-Kryds

The association of maritime engineering students at DTU



## Focus: Professional Environment at DTU

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The main purpose of Nul-Kryds is to provide a social and professional network for maritime engineering students at DTU. A continuous goal is to provide opportunities for students at DTU to meet actors in the maritime field, both associations and companies.

### Company presentations in Nul-kryds

During 2012 Nul-kryds held two company evening presentations, where Danish companies working in the maritime sector was invited to give presentations about different subjects that a maritime engineer can work with. This gives the students at DTU the opportunity to see what kind of jobs there are in the maritime sector.

In February, J. Lauritzen and Odense Maritime Technology came by Nul-Kryds. The representative from J.Lauritzen gave a presentation about Dan Swift, how the idea of the ship came up, why not a newbuilding was chosen, and the challenges an engineer and ship owner can meet with a rebuilding. A former president of Nul-Kryds in 1962 showed up with his colleague from OMT, to give a presentation about the new frigates. They spoke about what they have learned from the Absalon-class support ships, design changes, and what challenges an engineer can meet when designing a navy ship.

In November Nul-Kryds had its second company evening presentations, where OSK-Shiptech, Lloyd's Register ODS and NOV-Flexibles were invited to give presentations about: "What can a young engineer work with?"

The OSK-Shiptech representatives told about the different interesting project they have worked until recently. One of the projects was about a wind turbine installation vessel, where they performed hydrodynamic, stability and strength analysis.

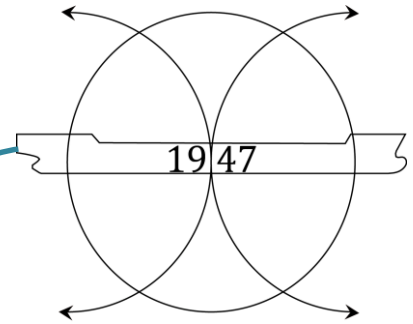
LR-ODS presented an ongoing project about a mega yacht, which will be build within a few years. The presentation was about how to build up the FEM model, the strength analysis and how to predict the vibrations onboard the luxury yacht.

With the presentation from NOV-Flexibles the students could hear that there are different challenges when designing pipes for the oil sector. The flexible oil pipes has to be designed individually to the given task, as one sea can be warm and another cold, so the pipes needing insulation.

The student members in Nul-Kryds are always interested in hearing about interesting projects in the maritime sector, and Nul-Kryds can be contacted for an agreement.

# Nul-Kryds

The association of maritime engineering students at DTU



## Meeting with RINA

In the end of October Hans Otto Holmegaard and DTU presented a possibility for students at DTU to have a visit from RINA headquarters. About 15 maritime engineering students participated in the lunch meeting, both active and not-so-active members of Nul-Kryds.

After an interesting introduction to the Royal Institute of Naval Architects, nearly all students (and present members of the staff) signed up for membership in RINA. A decision that for some will result in interesting congresses and courses, and for all gives the opportunity to read the Naval Architect and other publications by RINA.



## Visit at Pacific Orca

Nul-Kryds' trip to Kvæsthusmolen in Copenhagen was a small trip for interested members. The world's largest windmill installation ship was open for public a Saturday in October, same day as the Paper Boat Competition.

In spite of a long queue (to get off the ship!) it was an impressive sight, and gave the participants a show of a different kind of ship.

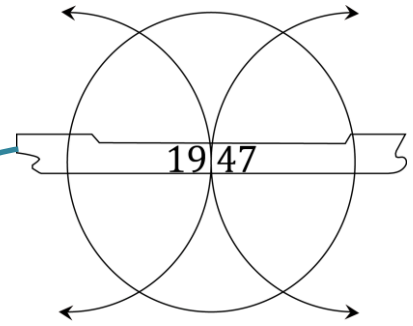
*"It's about half the length of the container ship I was sailing on for three weeks – and a little broader"*

- Thor Andersen, President of Nul-Kryds



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## Trip to NOV - Flexibles

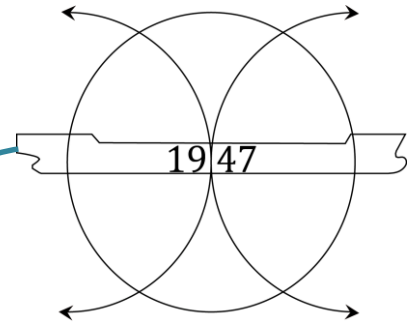
In the spring 2012 a former member of Nul-kryds, who is now working at NOV - Flexibles, invited Nul-Kryds on a trip to their offices in Brøndby and their factory in Kalundborg. Nul-Kryds provided the guests and NOV - Flexibles the bus. The trip started from DTU with a short bus ride to Brøndby, where we got a tour around the facilities in Brøndby.

After a short safety briefing in Kalundborg, we went for a tour around the factory. The tour was interesting as we saw the production line from start to end. The guide for the NOV -Flexibles was interesting to listen to, and made a good job of keeping us interesting in flexible pipes.



# Nul-Kryds

The association of maritime engineering students at DTU



## Focus: Maritime Engineering outside Nul-Kryds

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### Tech Events

In 2012 Nul-Kryds participated in the planning and execution of two recruitment- and information days, the so-called Tech Events. The events were carried out in cooperation with the section for Fluid Mechanics, Coastal and Maritime Engineering at DTU and the recruitment campaign; World Careers.

The purpose of the events is to increase general awareness of the technical side of the maritime industry and thereby the interest in education within this area. Nul-Kryds realizes that increasing the number of students interested in maritime technology is important for maintaining a high quality education and the future existence of the association.

The first of the events took place on the 22. of march 2012. About 90 DTU students from a wide range of study tracks participated. The day was a great success and it was therefore decided to repeat the event.

The second event was held late November. Again, a lot of DTU students as well as a few high school students participated. Both events took place at Force Technology in Lyngby and included breakfast, lunch and drinks.

During the events the students got the opportunity to meet representatives from the industry and hear about the working life of a naval architect and maritime engineer. At the second event a small fair was held, where the students could meet a range of maritime companies and discuss possible student jobs and projects.

As both events were a success a new one will be planned for 2013.

A video from the first of the events can be seen on youtube:

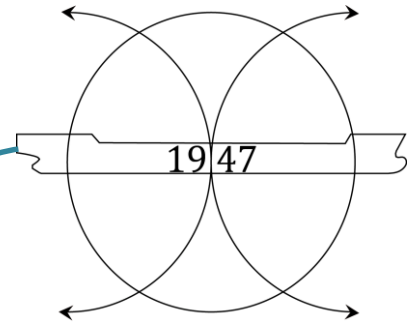
<http://www.youtube.com/watch?v=O-wLLky7i7c>

Additional information about the Tech Event 2013 can be found on the World Careers homepage:

[www.worldcareers.dk](http://www.worldcareers.dk)

# Nul-Kryds

The association of maritime engineering students at DTU



## Focus: Initial NTHS 2013 planning

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As Nul-Kryds is hosting Nordiske Tekniske Højskolars Skibsbyggerkongress, the NTHS congress, in 2013, the preparations began in the middle of 2012. A NTHS planning group was appointed in October.

The NTHS group will be the Danish delegation at the congress in April 2013, apart from planning the congress.

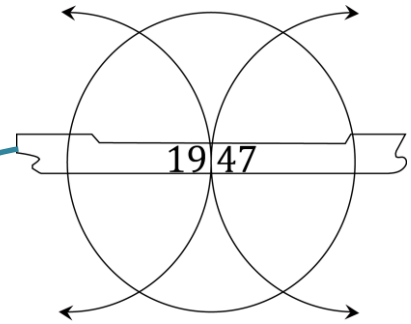
The initial planning consisted mostly of getting a clear idea of the when and where, as well as contacting relevant companies, with respect to both visits and sponsorships.

### NTHS planning group

- ☞ Thor Peter Andersen, co-ordinator
- ☞ Aleksander Hamdan
- ☞ Christian Simon Nielsen
- ☞ Drude Hundevadt
- ☞ Henrik Mikkelsen (until January 2013, due to student exchange)
- ☞ Hongran Li
- ☞ Jacob Frölich
- ☞ Jonas Ertmann Hansen
- ☞ Lasse Normann de Boer
- ☞ Mathias Nyman Rasmussen
- ☞ Niclas Oddur Niclasen
- ☞ Sune Thonesen
- ☞ Thit Brask Sonne

# Nul-Kryds

The association of maritime engineering students at DTU



## Projects in Nul-Kryds

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### Hydrodynamic analysis of a new concept (Versabuoy) for a floating platform

By: B.Sc. Drude Hundevadt & B.Sc. Niclas Oddur Niclasen

This paper examines a floating platform based on the Versabuoy-concept developed by Versabuoy International, LLC. A mathematical model has been developed in Matlab. The mathematical model computes two different types of longcrested waves: Airy waves and stochastic waves. The motions of a Versabuoy platform during a specific time-interval is then calculated, when the platform is placed with a  $0^\circ$  angle on the wave direction.

A JONSWAP spectrum has been used to calculate these specters based on statistical wave data from the Gulf of Mexico. Under influence of a standard spectrum (the most observed spectrum) the platform shows exceptional good behavior, especially in the heave direction. A motion of only 10 cm is calculated at a wave height of 1.68 m.

Another spectrum for which data is analyzed is based on the longest observed wave period ( $T = 20.4$  s). As the platform has a heave natural oscillation period close to this wave period, the heave motions increase drastically. Low damping result in a heave motion approximately three times as big as the wave height.

Start: Primo February 2012

End: Ultimo June 2012

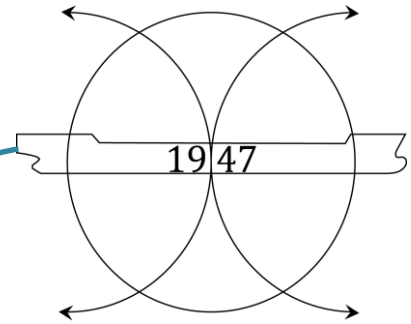
### Sailing internships DFDS

In July 2012, four maritime engineering students had the pleasure of spending two weeks as interns aboard DFDS vessels. The experience was very educational giving a good insight into the daily routines aboard a vessel in service. All facilities and working areas, from engine to bridge, kitchen to deck, were made accessible for the students to learn, ask questions and take part in the work. It is an experience recommendable for any maritime engineering student, as it gives an insight and understanding, which cannot be achieved from a classroom.



# Nul-Kryds

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## Nul-Kryds in 2013

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For Nul-Kryds, 2013 will be a year focusing on the NTHS congress. The congress itself will take place in the middle of April, and the planning will be the main event in Nul-Kryds. A NTHS report will be published after the congress, and be sent to all interested in the maritime industry

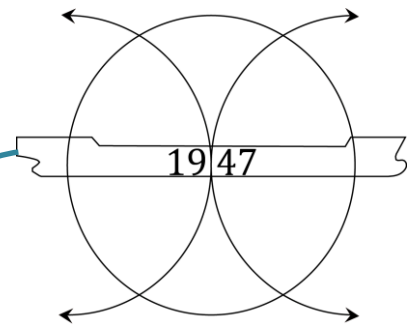
As in 2012, the autumn semester in Nul-Kryds will aim at creating more events concerning networking in the industry. A recurrence of the successful company events is taking place in the autumn semester.

Furthermore, Nul-Kryds will participate in the planning of a one-week study trip to Singapore, where the maritime students at DTU will have the possibility to experience some of the big new-building yards in Asia.

Another plan for 2013 is to continue our participation in the Tech Events hosted by World Careers. This planning process is already on-going.

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## Sponsors

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