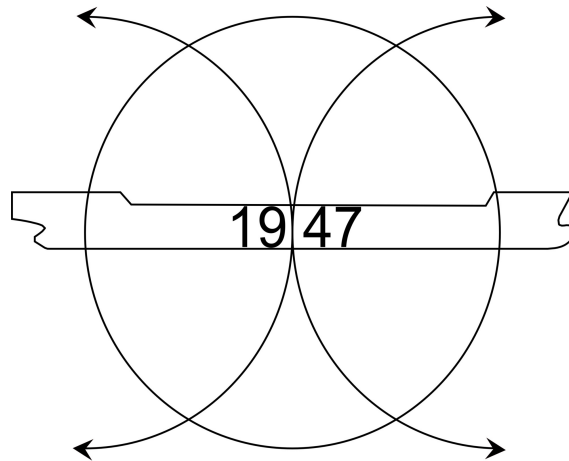


NUL-KRYDS

Annual Report 2015



NILS KOPPELS ALLÉ BYG. 403 2800 KGS. LYNGBY

CVR: 3443 9397 REG.: 1551 KONTO: 4263513843

EMAIL: NUL-KRYDS@MEK.DTU.DK WEBSITE: WWW.NUL-KRYDS.DK

Words from the President

I am very thrilled to state that 2015 has been a great year for Nul-Kryds.

In 2015 Nul-Kryds experienced an increased interest for the activities organized by the board. Nearly 200 participants have attended a Nul-Kryds event during the year, which bear the witness of a growth in the number of students at DTU with an academic interest for maritime technology. This encourages the board members to work even harder to ensure the continuity of great events in the future to maintain our fellow students' attention to the maritime industry.

For the 68th consecutive time Nul-Kryds participated in the annual Nordic Technical University Shipbuilders congress (NTHS) – this year in Helsinki, Finland. Despite the great interest among our members only 10 congress-seats were available for Nul-Kryds fellows. The congress in Helsinki gave the Danish delegation the opportunity to gather and form friendships with our like-minded Scandinavian colleagues and to build knowledge within the maritime field of Arctic operations and cruise ships. I am sure that all the Danish delegates will benefit from their new Scandinavian connections in their future work life.

In continuation of our participation in NTHS our student union were invited for the first time in more than a decade to the annual European Maritime Students' Associations' Congress (EMSAC) by the Finnish hosts. This opened for the opportunity of additional five Danish students visiting Finland, where also delegates from Germany, Scotland and the Netherlands attended. The congress proceeded successfully. I am sure that Nul-Kryds members in future EMSACs will represent Danish maritime industry all over Europe in the best possible way.

The importance for us students to meet relevant companies and their employees during our study time must be stressed. Therefore Nul-Kryds invited several companies to speak for us at DTU as well as we gratefully have been invited for company visits both inside and outside of the Danish borders. Furthermore we are pleased that former students continue to attend our different social activities. The details of these events can be found at the following pages.

At last, I would on behalf of Nul-Kryds like to express my gratitude towards all in the maritime industry, which have shown an interest for our student union during the last year. Including sponsors, foundations and the maritime section at DTU. Hardly any of our activities would have been possible without your support. Thank you.

Jacob Rebien Johannesen
President of Nul-Kryds

Contents

1	Organization	3
2	NTHS	5
3	Visit to Mecklenburger Metallguss (MMG)	6
4	Company Event	7
5	Martha Evening	8
6	EMSAC	9
7	Tech Event	10
8	Company visit at NOV Flexibles	11
9	Christmas Lunch	13
10	Plans for 2016	14

1 Organization

Resume of the General Assembly

The general assembly was held at DTU September 22nd 2015. The elected candidates are listed in the next subsection. Before the election for the Board small presentations were made by each of the previous year's board members to clarify for potential new members what duties they would have as a member of the board. No changes were made to the by-laws.

Board members

Jacob Rebien Johannesen: Elected as President. Jacob was an ordinary board member last year. In his election speech Jacob advocated for more active members from the bachelor degree, continuation of the Asia study trips and a stronger collaboration with the industry. Jacob is studying a master in Naval Architecture on his 4th year.

Matilde Hvarregaard Andersen: Elected as Vice President. Matilde was an ordinary board member last year. In her speech Matilde focused on the fact that she has the same focus areas as Jacob and that she simply wants to expand the scope by including more company visits to e.g. yards. Matilde is studying a master in Naval Architecture and graduates in the fall 2016.

Frey Callesen: Elected as Treasurer. Frey was a treasurer in the last board period as well. He would like to continue his good work and strive to keep the accounts transparent. Frey is studying a master in Naval Architecture on his 4th year.

Philip Holt: Elected as first ordinary board member. This is his first period in the Nul-Kryds board. He argued that he had contacts in the industry from his time as a marine engineer cadet in the offshore industry. And that he would be able to use his organizational skills learned from his time as a treasurer in the Danish high-school union. Philip studies a bachelor in Naval Architecture on his second year.

Christoffer Sigshøj: Elected as second ordinary board member. This is his first time as a member of the Nul-Kryds board. Christoffer argued that he had good experience with the Nul-Kryds spirit since he has participated in many of the past events. He could help out with contacting the industry and making company visits as well. Christoffer is studying a master in Naval Architecture on his 5th year.

Franz Hastrup-Nielsen: Elected as first substitute board member. A novice in the Nul-Kryds Board. Franz has participated in many of the previous year's Nul-Kryds events and enjoyed it so he wants to pay back by offering to take on some of the work load. Franz is currently writing his thesis and graduates with a master in Naval Architecture this summer.

Mikkel Borup: Elected as second substitute board member. A novice in the Nul-Kryds Board. Mikkel is on his last semester of the civil engineering bachelor. He wants to contribute with his knowledge within construction available to the Nul-Kryds members and hopes to attract more students with a similar background as his to the union.

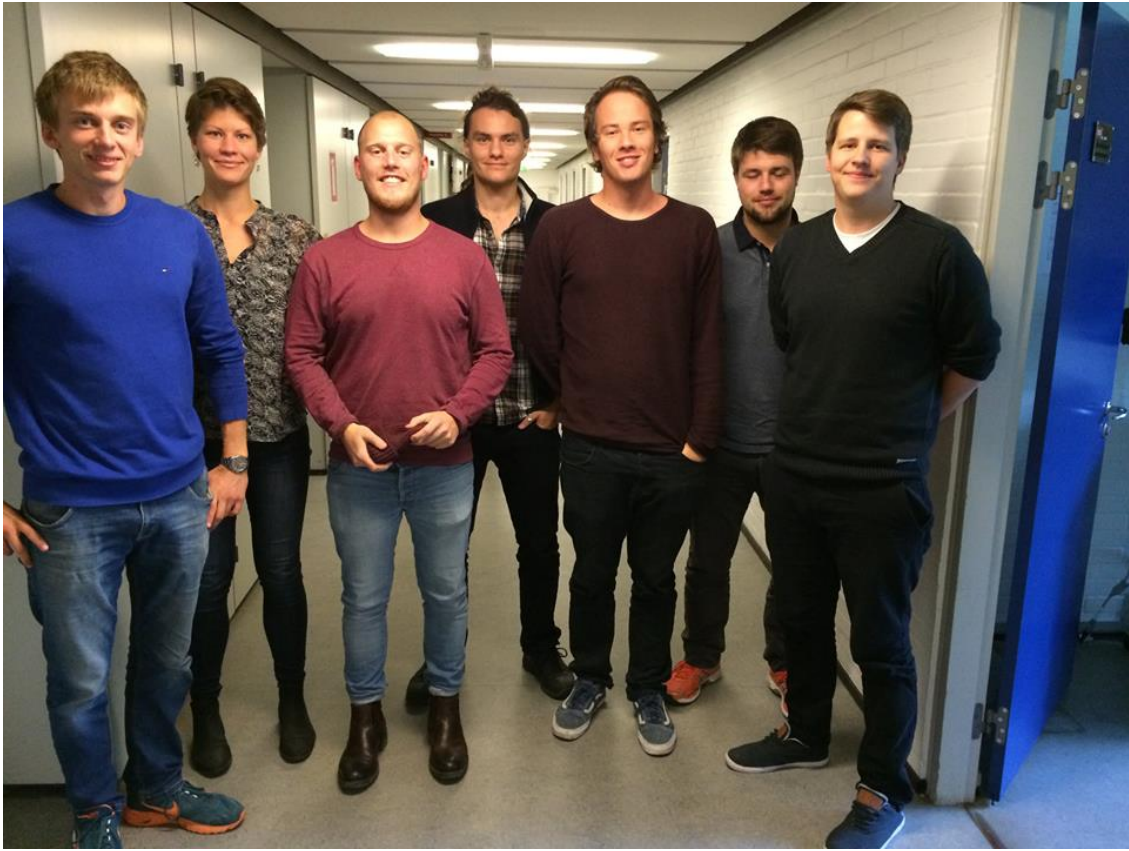


Figure 1: The new Nul-Kryds board. From left to right: Franz, Matilde, Mikkel, Philip, Christoffer, Frey and Jacob.

2 NTHS

The 68th annual Nordic Technical Universities Shipbuilders (NTHS) congress was held in Finland in 2015. The Finnish delegation from Aalto University had a well- assorted schedule planned for the participants. Driving through Finland's Western and Southern coasts we got to see everything they had to offer within maritime technology. Amongst others were very interesting experiences within construction of specialized maritime vessel including huge cruise ships, icebreakers and even leading scientific test-facilities such as ice towing tanks.

Besides seeing their best shipyards there was also time to meet and make acquaintances among other naval architects, whether it was company representatives or perhaps future colleagues participating in the congress.

The companies visited were: Meyer Turku Shipyards: making cruise vessels. Steerprop Ltd and Rolls Royce: making popped propulsion solutions. Wärtsilä – engines production. NAPA – Maritime design software. Archtech - Helsinki shipyard. Aker Arctic with their interesting ice towing tank. ABB: making marine solutions. We got presentations at Aalto university on the latest research/news. Last but not least Deltamarin, Almaco, Evac and Turku Shipyard Repair invited us for a launch and presented their companies.

Like the tradition dictates the banquet was held the last evening in a lovely setting. We were all sailed to an old coastal defense island just outside Helsinki where we dined inside a huge cellar. The banquet was very festive and surely new friendships were made over the nice food and good wine.

A full overview of the NTHS congress can be found in the separate report on our webpage: www.nul-kryds.dk



Figure 2: The Danish delegates and old-timers dressed up for the festive NTHS-banquet.

3 Visit to Mecklenburger Metallguss (MMG)

Two rental mini-buses were filled with students at 5 o'clock in the evening at DTU and subsequently headed for Gedser to catch the ferry to Rostock. On the ferry we got a tour on the bridge where the captain explained the difficulties of navigating in this busy strait and the technologies that had been tested on the ship during its lifetime. The tour continued to the engine room where the Diesel Electric plants in the ship were presented to us. Towards the end of the tour we went up onto the bridge again to see the ship berthing. Everyone assembled at the mini-buses, where we continued our trip to MMG.

We arrived at MMG, where we were greeted in the conference room with beverages and a nice presentation of the technical projects MMG had been involved in. After a round of questions, we were split in two groups and the tour continued at the production facilities. Here we were presented to the casting process, where several tons of molten copper alloys is poured into massive molds. The tour continued on to the processing facilities where the propellers are provided with precise holes so that they can be mounted on a ship and ground to fit the specific geometries provided by the designers. To meet the geometry specifications of the designers, advanced 3D scanners were used to compare the computer 3D model with the actual propeller blade in the factory. The tour was concluded in the factory canteen, where casual small talk was possible. Good byes were said and the mini-buses full of students headed to back to Denmark and DTU.



Figure 3: The students lined up in front some large fixed-pitch propellers.

4 Company Event

Each year a company event is arranged where the students of Nul-Kryds get an opportunity to meet the industry. It is a tradition that the event has an overall theme and this year was no different. “Nul-Kryds President’s Tour” was the theme and the four presentations were all carried out by former Nul-Kryds presidents.

The presentations gave a great insight into the transition from the hard study life at DTU to the working life in the “real world”. We were all introduced to some of the exciting and interesting projects that the former presidents are part of in the industry. Furthermore the students gained a great insight into what is expected of them when they graduate and get to work.

The following presentations were carried out:

- Lasse Norman de Boer, Odense Maritime Technology
- Thor Peter Andersen, Odense Maritime Technology
- Mathias Nymann Rasmussen, DFDS
- Christian Råe Holm, Force Technology

5 Martha Evening

The last year did, as tradition requires, feature the very important event of Martha evening. The event was held the 2nd Saturday in June. As always the Martha evening is an important social event, which gives all of the Nul-Kryds members a rare opportunity to get to know one another away from the daily studies at the Technical University of Denmark.

The evening began with a casual meet and greets session to greet old familiar faces but also to get to know the names and faces of new members of the Nul-Kryds student organization. Hereafter the real event started; the display of the good old Danish movie 'SS Martha'. True to tradition this meant the intake of a great deal of schnapps and beers in between. The movie did of course have English subtitles for the sake of our international students. After the movie the feast continued in the courtyard with music, a good roasted suckling pig and a lot of conversations of what we all have in common interest – the maritime industry. To get ready for the dance floor a small relay was held, which included stretchers, beers and a lot of teamwork.

In total everybody had a good evening together with many both old and new like-minded. The picture below indicates just how great an ambiance there is at the Martha evening.



Figure 4: The nice weather allowed us to enjoy the well-cooked dinner outside.

6 EMSAC

For the first time in more than a decade the Nul-Kryds delegates participated in EMSAC. EMSAC is an abbreviation for European Maritime Students Associations Congress and this year the congress were held in Helsinki, Finland. During the congress 5 Nul-Kryds delegates had the chance to meet students from all over Europe, work together on challenging case studies and get to know some of the Finnish maritime industry.

During the week each Nul-Kryds delegate was accommodated by a Finnish host together with a participant from one of the other European universities. Our Finnish hosts had prepared a very nice program for the week. The schedule of the week included multiple Finnish-traditional sauna events, which ensured great socialization between the delegations. As we were in Finland, ice and Arctic were obviously the main theme for the company visits. The first visit was at Arctech Helsinki Shipyard Inc. Here the delegates had the chance to inspect the first build LNG driven icebreaker which is supposed to operate for the Russian government. Next we visited ABB Marine who enlightened us in design and production of Azipod propulsion. Furthermore we were invited by Aker Arctic to see and learn about ship design and model testing for ships in icy waters and NAPA showed us the opportunities for improved ship design in their own software. The Finnish host had also arranged a guest lecturer by Dr. Kai Levander in Creative ship design. Kai Levander was one of the lead Naval Architects that designed Oasis of the Seas – the world’s largest cruise ship. Marioff HI-FOG, which designs ship fire protection systems, carried out the last company presentation before DeltaMarin challenged us with a case study. Here we should work across nationalities on optimizing the fuel consumption of a Ro-Pax vessel with given specifications. The case required technological knowledge, financial insight and teamwork from the delegates. At last a winner of the case competition was found which ended a great week.

It has been decided that Nul-Kryds if possible should participate in EMSAC 2016 as well.



Figure 5: The EMSAC delegates lined up in front of the worlds first LNG powered icebreaker at Arctech Helsinki Shipyard.

7 Tech Event

On October 1st 2015 Nul-Kryds once again assisted World Career's annual recruitment campaign held at DTU Tech Event. The purpose of the event is to attract new engineering students to the field of maritime technology and to ensure that there is awareness amongst the students that this field still exists in Denmark.

The event is comprised of two parts: half of the time is spent in the conference room listening to presentations from relevant companies such as ABS. The other half of the time is spent in networking sessions with representatives from various companies from the industry. Many companies were present.

This year the participating members from the Nul-Kryds board primarily represented DTU in the networking session. Our main purpose was to guide the interested students to the study lines and show them was courses to take when. However we also used our personal experience with the industry, including student jobs, sailing aid and study trips to abroad to guide the students. We had very positive feedback and felt that we could really guide the students.



Figure 6: Board members Matilde and Mikkel are representing Nul-Kryds and DTU at the Tech Event arranged by Det Blaa Danmark. Photo from Det Blaa Danmark



Figure 7: Three presentations were held for the students in order to give them insight into the maritime industry. The board members were amongst the listeners. Photo from Det Blaa Danmark.

8 Company visit at NOV Flexibles

On Wednesday the 18th of November approximately 20 students active in Nul-Kryds visited NOV-Flexibles, former NKT-Flexibles. Bus transportation had been arranged by NOV-Flexibles first from DTU to the headquarters in Brøndby including the test and development departments. After a short breakfast two technical presentations were given. First the general challenges regarding the connection of deep-water production platforms to the well-head were presented along with the solutions offered by NOV. Next current development projects were presented with a special focus on composite materials. Following the presentations were an exciting tour in the metallurgical laboratory, where research now also where conducted within plastics and composites, and test center were given. The test center can only be described as a great place for engineers with a tendency to wanting hands-on experience. Watching the flexibility achieved in the pipes despite their large dimensions was impressive.

During the bus trip to the production facilities in Kalundborg safety instructions and an introduction to NOV as a global company in general were given. First the delegation went to watch the manufacturing of the inner and outer metal casing, the quiet impressive continuous cast of the gas-tight plastic membranes etc. Yet again the flexibility of the pipes were underlined as they were rolled on 300 tons' reels. Finally, different stages of end-fitting mounting were observed before the delegation finished an interesting day for which we want yet again to thank NOV.



Figure 8: The heavy pipe drums with impressed students for scale.

9 Christmas Lunch

The annual Christmas in Nul-Kryds was held in the Kampsax Bar at DTU. This cozy location set a perfect scene for the evening to come. Beers snaps and food had been bought and prepared in advance to accommodate the needs of the hungry and thirsty participants.

In preparation to the evening the Nul-Kryds board had prepared the Kampsax Bar in nautical fashion, with relics from previous NTHS's and a nicely made long table.

The evening started casually with Danish doughnuts, glögg and catching up with fellow and former students. As the evening progressed and everyone had showed up, traditional Danish Christmas buffet was served together with snaps and beer ad libitum.

After the buffet people had time for playing drinking games and miniature soccer, before proceeding with ris-ala-mande. As tradition dictates, this included the chase for the almond present, which this year was a precious bottle of Gammel Dansk.

The evening proceeded as usual, with plenty of beer, good company and maritime music.



Figure 9: The well-cooked dinner is enjoyed in great company.

10 Plans for 2016

Even though the year is barely started the board of Nul-Kryds already has a range of activities in the pipeline for 2016 for the benefit of our members. Some of them will be mentioned in this section.

As per tradition the annual NTHS will be held in the spring. This year is the 69th edition of congress and it will take place in and around Stockholm, Sweden. The workload for Nul-Kryds includes ensuring enough funding to send 10 members off and in keeping with tradition get hold of a heavy maritime gift for the hosts.

Nul-Kryds is also currently working together with the maritime section at DTU towards re-establishing the student Asia excursion. Last excursion went to Busan, Korea, in 2014. Currently, we are in the initial planning-phase with the aim of a one-week trip to Singapore in the autumn of 2016.

The board is aiming for making more social activities in 2016 to ensure a good study environment for our members. One of the new initiatives, which are planned, is to throw a sauna party as learned from our Finnish NTHS friends.

Thanks to our sponsors



KARSTENSENS SKIBSVÆRFT A/S



DNV·GL

