



EWH CHAPTER OF THE YEAR COMPETITION REPORT

Chapter/University Name: The Technical University of Denmark

Date: July 15th 2015

The Engineering World Health Chapter at the Technical University of Denmark (EWH DTU, www.ewh.dtu.dk) was founded in October 2013. EWH DTU is a registered voluntary association in Denmark (VAT: DK26911249) with 54 active student members from DTU. The organisational membership fee is \$10 pr semester. It is the goal of our chapter is give EWH a strong foundation in Denmark and from here we work continuously to contribute to the work of the organisation.

The highest authority of the organisation is the yearly general assembly in October, where all active members have the right to vote. Changes in the EWH DTU Articles of Association (available in Danish at <http://www.ewh.dtu.dk/EWH-DTU/Vedtaegter>) can be passed at the general assembly only. Furthermore, the general assembly tasks are: presentation of yearly report of the board, accounts summary for the past year, budget for the coming year and election of a new board. All board members are up for election at each general assembly.

The current board of EWH DTU, elected at the general assembly of october 8th 2015 consists of:

President - David Kovacs

Vice President - Louise Nielsen

Treasurer - Mikkel Makussen

Head of Education Group - Andreas Nexmann

Head of Abroad Group - Caroline Harder Hovgesen

Head of Project Group -

Martin Guul

PR representatives - Carita

Hedegaard-Knudesn, Tine

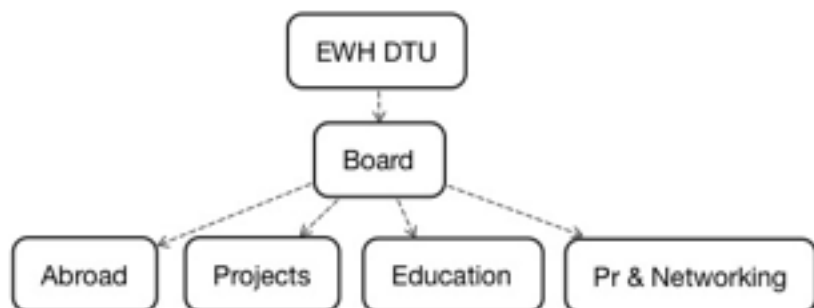
Holmbæk Petersen and Seira

Hissabu

This board leads projects and activities in four groups:

Abroad, Projects, Education
and PR & Networking.

Activities of the EWH DTU groups are detailed further in following sections.





PROGRAMS/PROJECTS DESCRIPTION

The board of EWH DTU leads activities in our four students groups: Abroad, Projects, Education and PR & Networking. We are yet to follow through with design projects and STEM activities; these are future goals of our chapter (see section “EWH chapter feedback”). We have not built any of the EWH kits at our home university, however 10 EWH DTU students built a USB-charger kit and an “electrical dice kit” as a part of preparing for the EWH Summer Institutes. The following details our activities in the four EWH DTU groups:

Abroad - 19 student members

Summer Institute Participation: in 2014 the EWH DTU chapter had six student participants; five in Tanzania and one in Rwanda. In January 2015 we had 1 student participant in Guatemala Winter Institute and currently five of our members are a part of the 2015 Tanzania Summer Institute. All students that go abroad are a part of the of our joint fundraising process. Upon own wish, students can receive academic credit at DTU by completing a 5-10 page experience report about their work with EWH, which is to be submitted to our faculty advisor Kaj-Åge Henneberg. (Upon request, example copies of these reports can be forwarded to EWH.)

Projects - 35 student members

Our group as arranged repair workshops with Danish NGO Global Medical aid. We have organised an entire storage hall for GMA to make sure that donation arrive with all parts available. We have also created inventories for GMA; an example of this is attached in the appendix.

EWH DTU has conducted repair workshops with equipment, that is the property of EWH DTU (donated by Global Medical Aid): 2 anaesthesia machines and 5 infusionpumps (4 broken, 1 fully working).

In addition to our collaboration with Global Medical Aid, our students have assisted private donations of medical equipment to Nepal by a Danish family by creating





detailed and comprehensive inventories, collecting manuals and assessing the needs of the hospital that this family sought to help in Nepal.

EWH DTU has a list of Projects for global health (in contribution to the EWH “Projects that Matter” list): A list of projects based on our students experiences at the Summer Institute. We are expecting to have students working with Projects that Matter and/or EWH DTU Projects for Global Health in the coming academic year. (This list can be forwarded to EWH upon request).

Education (17 members)

EWH DTU has created a Specialty Course in AC circuits with ECG amplifier: This course was uniquely put together by faculty advisor at EWH DTU, Kaj-Åge Henneberg in order to prepare students for Summer Institutes, and to let other students with and interest in EWH acquire relevant knowledge, as described by our faculty advisor Kaj-Åge Henneberg in the appendix. The course was completed for the first time in the fall of 2015 with 9 participants, and received great feedback from our students.

In addition to this course, EWH DTU will teach 15 day full time course based on Dr. Malkins “Medical Instrumentation in the Developing World” as a part of the coming Summer Institute in Nepal. The course will be taught by Kaj-Åge Henneberg and labs will be prepared by EWH alumni and the education group of the chapter. The DTU administration has set aside USD 8800 specifically for the purpose of curriculum development, namely lab exercises, for this course.

PR and Networking (13 student members).

EWH DTU participates in a range of events and fairs. in 2015 we participated in the DSE messe (<http://studerende.dk/dse-produkt/lyngbymessen/>), Medicobazar (<http://www.medico-innovation.dk/aktiviteter-2/medico-bazar-2013/>) and 2 yearly event for coming Biomedical Engineering Students (see photos in the first page of the appendix).

Biomedical engineering at DTU is organised in collaboration with the faculty of health sciences at the University of Copenhagen and according two yearly information sessions are held for all interested students. EWH DTU is represented at these events.





EWHD DTU has published an article about working at hospitals in the developing world in collaboration with neurosurgeon Michal Kosteljanetz titled “Challenges Working in Resource Poor Hospitals” (this can be shared with EWH upon request).

EWHD DTU updates a blog at our website: <http://www.ewh.dtu.dk/Blog>.

EWHD DTU writes a yearly news letter about our activities. It is our goal to publish this newsletter more frequently in the future. An example copy is presented in the appendix section.

Future activities:

Besides continuing our current activities, we wish to initiate design projects for the developing world at our university. See more under “EWH chapter feedback”.

ORGANIZATIONAL ACTIVITIES

Chapter Structure and Statistics

Once the board is elected by the general assembly, the board has monthly meetings at every first Tuesday of each month, except for July, August and January. At these 9 yearly meetings on average 7 board members were present. The board has a quorum if at least 66% of board members are present at the meeting. At each meeting one member is chosen to be conductor of speech and one as reporter and a summary of each meeting is sent to our student members. The number of members of each of our groups is indicated by the description of these and 70-90 percent of the groups members attend our meetings; however the number of attendants is reduced significantly in exam periods to about 30%.

Fundraising approaches

A part of the EWH DTU Abroad group activities is fundraising for student chapters. During our two years of existence we have sent more 150 applications to 90 different foundations and companies. Through this we have received financial support from companies, foundations and EWH financial aid, and thereby we have *fully* funded 10 EWH DTU students to participate in the EWH Summer Institutes.

Other chapter activities:

Ben Fleishman in 2014, DTU library: Engineering World Health in the developing world.





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Lectures in course “Introduction to clinical Practice at Hospitals” - by Professor Højgaard

1. Ethics of international Development
2. EWH in Africa - working in a developing country hospital
3. Discussion in class about the evidence based approach to improve health care - in developing countries and in the Western World.

One times a year we have an information event for all interested students at DTU.

EWB CHAPTER FEEDBACK.

Our chapter is in need guidance and support for design projects. Currently we do not have much resource for a projects in a field that is not traditionally a part of the BME program at DTU, however. It is a specific goal of our chapter — and a wish of our students — to conduct design projects for developing country hospitals, and our students will feel more confident taking on such a project if they know support is available from EWH.





APPENDIX - PHOTOS, TABLES, SCHEMATICS AND ADDITIONAL MATERIAL



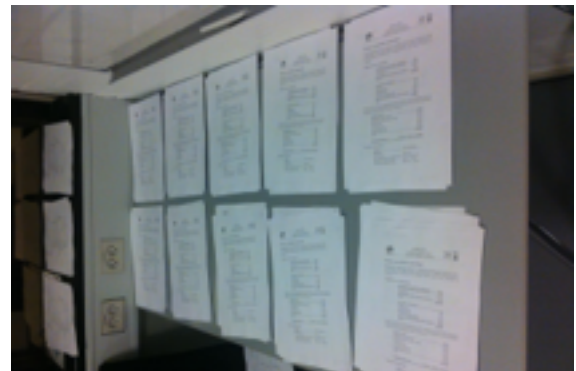
EWH at "Åbent Hus" Propective students information event at DTU.



EWH student programs manager Ben Fleishman presenting about EWH at DTU.



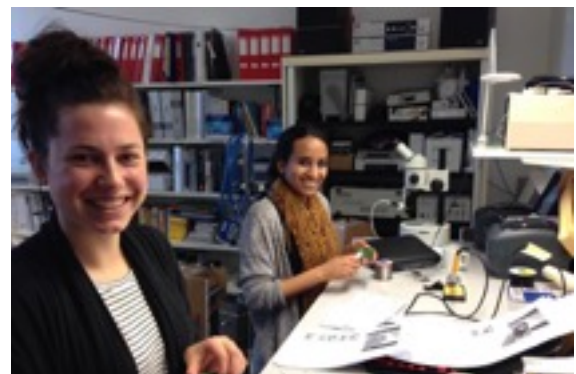
EWH at DSE technology fair at DTU.



EWH foundation application prior to send off, 2014.



EWH DTU donation of LEGO bricks at St. Judes School in Usa River Tanzania.



EWH DTU training of students prior to Summer institute at the university hospital of Copenhagen



Inventory at Global Medical Aid in Farum



Prepared in collaboration the EWH DTU Project team: Andreas Nexmann, Rana, Hilal, Catrine, Sunniva, Rasmus, Julie and Daniel

07.03.2015

Ryttermarken 13, Falck A/S

Denmark

EWH-#	Equipment type	Manufacturer	Model	Serial Number	Status	Issue	Notes/ Description	Image
1	Patient warming system	Euromediq	Thermo-Safe IN150-T	150TC120700 2	Not Tested	Unknown	Missing cables, missing blanket Voltage: 220-240V	
2	Patient warming system	Euromediq	IN-300	2001PN16223 2	Not Tested	Unknown	Missing cables and blanket Voltage 220-240V	
3	Patient warming system	Euromediq	IN-300	300B1112023	Not Tested	Unknown	Pad connection, but missing power cable. Missing blanket. See	
4	Nose clips	WelchAllyn	REF 100680		Not Tested	Unknown	Nose clips, nose clamp pads spiropfct	
5	Pro 4000 Thermometer	Braun - WelchAllyn	6021	11115148494	Not Tested	Unknown	With few plastic ear plugs	
6	Disposable moutpieces adult	WelckAllyn	REF 56121		Not Tested	Unknown	(3x5) bags with 100 in each	
7	Patient warming system	Euromediq	IN150-T	150TC130101 2	Not Tested	Unknown	With power cable. Voltage 220-240V	
8	Warmin blanket (electric)	Innomediq	IM-60BM	6035B1111002	Not Tested	Unknown	Baby	
9	Warmin blanket (electric)	innomediq	IM65BK	6570B120500 4	Not Tested	Unknown	Baby	

Example page of EWH DTU inventory for Global Medical aid.



General Assembly of EWH DTU on October 8th, December 2015.



EWH DTU students arriving in Tanzania in the Summer of 2015.



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Danmarks
Tekniske
Universitet



EWH DTU Nyhedsbrev
2. udgave
November 2014.

LEGO uden grænser

LEGO er kendt for at berige kreativitet og fantasi gennem leg hos børn i alle aldre, men LEGO er meget mere end det. I sommeren 2014 var seks studerende fra EWH DTU udsendt til EWH summer institute. Sommer institute foregår blandt andet i Tanzania, og de studerende medbragte 27 kg LEGO doneret hertil af LEGO Foundation. Dette betyder uendeligt meget for børnene, for hvilke legetøj ikke er

en selvfølge. Endvidere har den i øjeblikket eneste pædiatriske neurolog i Tanzania, Marieke Dekker, modtaget 9 kg LEGO gennem EWH DTU. Marieke benytter LEGO i sit arbejde til at teste finmotorisk og kognitiv funktion hos børn med neurologiske lidelser. EWH DTU er meget taknemmelige over samarbejdet med LEGO, og det er berigende at følge Mariekes brug af LEGO i hendes kliniske profession.

Mød EWH DTU...

Hvis du er interesseret i at møde EWH DTU og høre mere om organisationen, så kan du finde os til:

- Medicobazaren
- Åbent hus (Panum/DTU)
- DSE Messe

Vi har været med i løbet af 2014 og planlægger også at deltage fremover. Derudover er vores mål at komme ud til nye studerende under rusturer samt til fagaftener.

Næste gang, du kan møde os, er ved **Åbent Hus** på DTU torsdag d. 6. november, hvor vi vil dele stand med Medicin og Teknologi. Her kan du høre mere om de forskellige underudvalg og aktiviteter samt få svar på alle de spørgsmål, du måtte have.



Er du forhindret i at deltage til disse arrangementer, er du til enhver tid velkommen til at kontakte os på bestyrelsen@ewh.dtu.dk. Derudover kan du læse mere om organisationen på vores hjemmeside ewh.dtu.dk.



Hjemvendt fra Rwanda med praktisk erfaring og et nyt perspektiv på studiet

Emil Munthe, Medicin & Teknologistuderende (8. semester)

I år brugte jeg min sommerferie på et provinshospital i den nordlige del af Rwanda, godt klædt på efter fire uger med kurset "Engineering in the Developing World" udbudt af Texas A&M i samarbejde med Engineering World Health. Kurset gav mig og 18 amerikanere et indblik i, hvorledes udstyr kan fejlfindes ved brug af simple metoder. Desuden fik vi en viden om testning af udstyret, der kan foretages i felten før brug på patienter. Som hvid på et afrikansk hospital havde alle tillid til, at man vidste, hvad man lavede. Vi fik derfor ansvar fra første dag på hospitalet. Her husker jeg tydeligt første gang, hvor jeg returnerede en nyrepareret oxygenkoncentrator til akutmodtagelsen. Lægen på afdelingen valgte, uden at stille mig nogle spørgsmål eller teste apparatet, at koble maskinen til sin patient! Foruden at være enormt kulturelt spændende, har vi gjort en kæmpe forskel på et vigtigt hospital i Rwanda. Jeg har selv lært meget, der kan overføres direkte til mit studie og senere karriere. Særligt har jeg fået et stort indblik i forskellen mellem godt og dårligt design af medikoteknisk udstyr, både hvad angår brugervenlighed, service og reparation. Jeg kan varmt anbefale alle ingeniørstuderende med interesse for international sundhed at tage afsted på Engineering World Health Summer Institute.



EWH DTU

EWU DTU er en lokal afdeling på DTU af den internationale non-profit organisation Engineering World Health.

Foreningen er stiftet 1 september 2013 af studerende på DTU og har i dag 30 medlemmer. Formålet med EWH DTU er at igangsætte initiativer der varetager EWH's interesser og gør studerende opmærksom på udviklingslandes medicotekniske problemstillinger.

EWH DTU er en fantastisk mulighed for studerende for at få praktisk erfaring, lave frivilligt arbejde, og se ingeniøropgaver i et helt nyt perspektiv.



"Det har været en stor fornøjelse at følge, hvordan de unge studenter fra EWH DTU på kort tid har etableret en række af tiltag, som vil kunne forbedre behandlingen for patienterne i de dele af verden, hvor livet kan være sværest, når en sygdom rammer. Jeg støtter organisationen på alle mulige måder og jeg opfordrer alle andre til at gøre det samme."

Professor Liselotte Højgaard

Kontakt

Website:
www.ewh.dtu.dk
www.ewh.org

Generelle spørgsmål:
bestyrelsen@ewh.dtu.dk

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Kasserer@ewh.dtu.dk

Adresse:
EWH DTU
Anker Engelundsvej 1, Bygn. 101 E
2800 Kgs. Lyngby



Summer Institute

EWH's Summer Institute program involverer tre destinationer: Nicaragua, Rwanda og Tanzania.

Medicinsk udstyr som står ubrugt hen i udviklingslande er et enormt uudnyttet potentiale. Derfor udsender EWH DTU ingeniør-studerende til ressourcer svage områder, hvor de skal sikre, at det donerede udstyr bliver brugt og vedligeholdt korrekt på de lokale hospitaler.

Opholdet består af én måneds introduktion og laboratorie undervisning i medicoteknisk udstyr og i det lokale sprog. Efterfølgende vil de studerende blive tilknyttet et lokalt hospital, hvor de den følgende måned vil arbejde med reparation og vedligeholdelse af udstyr. EWH DTU vil hjælpe de studerende med at blive udsendt, samt at tilbyde ekstra undervisning til de studerende, således at de bliver godt rustet til at komme af sted.

Workshop

EWH DTU's Workshop er skabt for alle DTU's studerende. I samarbejde med DTU vil vi skabe projekter som skal være med til at gøre sundhedspleje globalt tilgængeligt.

Repair workshop: Doneret medicoteknisk udstyr tjekkes og klargøres inden det sendes med de studerende på Summer Institute.

Ide workshop: Udvikling af lavteknologiske hjælpemidler, der kan indsendes til EWH's "DesignCompetition".

Workshop gruppen er meget interesseret i nye samarbejdsparter og kan kontaktes på workshop@ewh.dtu.dk

Projekter kan påbegyndes fra efterårs-semesteret 2014.



"It is the perfect opportunity to combine my passion of helping people in fragile environments, while developing my skills as a biomedical engineer."

Charlotte Mikkelsen
Optaget på EWH SI 2014
(Tanzania)

Undervisning

Som forberedelse til de studerende der skal udsendes, samt for at oplyse omkring udfordringerne omkring medicoteknisk udstyr i udviklingslande, har EWH DTU et stærkt fokus på undervisning ved DTU og KU.

De studerende, der skal udsendes tager et specialt kursus i forbindelse med udsendelsen. Der udarbejdes to rapporter i kurset som skal belyse forholdene på hospitaler i udviklingslande og sammenligne disse med Vestlige hospitals forhold.

PR og Networking

Networking og PR gruppen er ansvarlig for EWH DTU's hjemmeside (www.ewh.dtu.dk) samt for gruppens kommunikation ud ad til. Derudover står gruppen for at skabe arrangementer for EWH DTU's medlemmer.



Said about us:

Its been a great pleasure to follow how the students from EWH DTU have initiated a number of projects, that will improve patient treatment in those parts of the world where life can be hardest, when disease strikes. I support the organization in every way and I encourage everyone to do the same. – Prof. Liselotte Højgaard, MD DMSc Chair of the Danish National Research Foundation Professor , University of Copenhagen , Faculty of Health and Medical Sciences, Adj. Professor DTU, Technical University of Denmark. Head of Department of Clinical Physiology, Nuclear Medicine & PET, Rigshospitalet

We are proud, that engineering students at The Technical University of Denmark (DTU) are able to transform the knowledge they acquire at DTU to the benefit of developing countries around the world so effectively. The students show up with creativity, dedication and the will to make a true difference, while DTU in collaboration with the University of Copenhagen contributes with scientific education in advanced technologies in our collaborative biomedical engineering program. This is how we can truly help improve the lives of citizens in some of the worlds most resource poor regions. – PhD Martin Vigild, Dean of Bachelor students and student environment at the Technical of Denmark.

Kaj-Åge Henneberg, Faculty advisor of EWH DTU about [Specialty Course in AC circuits with ECG amplifier](#)

“Due to a major engagement in activities with EWH, an acute need has proven necessary, for students to acquire practical experience with construction and repair of electrical circuits. Nothing gives more substance for ones education, that immediately being able to use learned skills outside the University walls. We don't have the ressources to provide courses that are exclusively EWH oriented, but we will to the furthest extent possible customise the biomedical engineering undergraduate study program in such a way, that our courses include practical experience, while giving students the necessary competencies to participate in EWH activities With this objective we are currently working to establish a course, that gives students the opportunity to have practical experience with construction and repair of electrical circuits. In 2015 we will expect to have such a course as a selectable technological specialisation course. Provided the sufficient interest among students, the course will run first time as a specialty course in the spring semester of 2015.”