

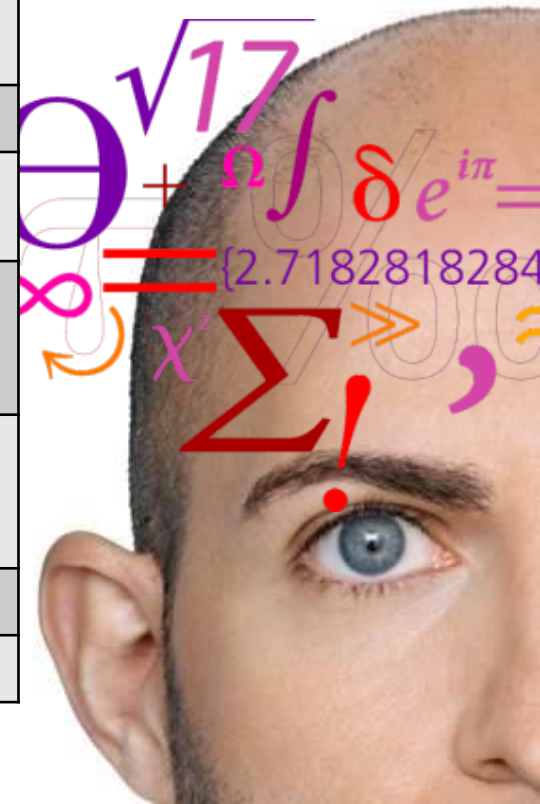
On track for a career – It's a global business!



On track for a career

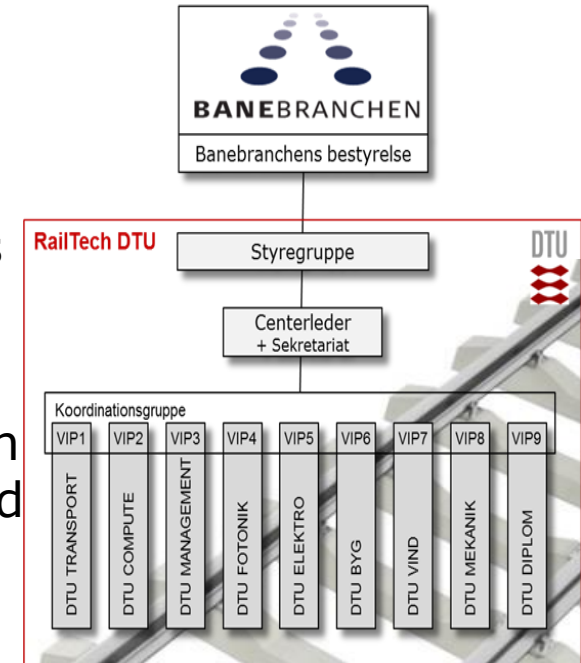
– It's a global business!

Program:	
Introduction	Henrik Sylvan, RailTech DTU
How to build an international Railway career?	Malik Kleist, Bombardier
From Denmark to Germany	Martin Rene Hansen, Siemens
From Skaarup Imcase Swiss partner Furrer+Frey	Michael Rietmann, Furrer+Frey
To work in Denmark for a global company – across borders	Rikke Holm Christensen, Rambøll
Working with signalling systems without actually doing it...	Matias Sevel Rasmussen, Metroselskabet
Summary/Q&A	Henrik Sylvan, RailTech DTU
Networking	Pizza/beer served



RailTech DTU

- A virtual centre for railway technology
- Involvement from all relevant disciplines across departments at DTU
- Cross-departmental projects and cooperation on railways in education, research, consultancy and innovation
- Anchored at the Department of Transport
- One point of entry for the industry to DTU's programs and research competences



Expanding business!

- The Railway was not kept well during many years
- But EU goals settled
 - Double the railway market share
 - Tripple the size of HSR network
 - Sustainable mobility
 - Solutions to congestion
- Mobility for a faster moving world
 - Metro
 - Lightrail
 - Fast regional
 - High speed long distance

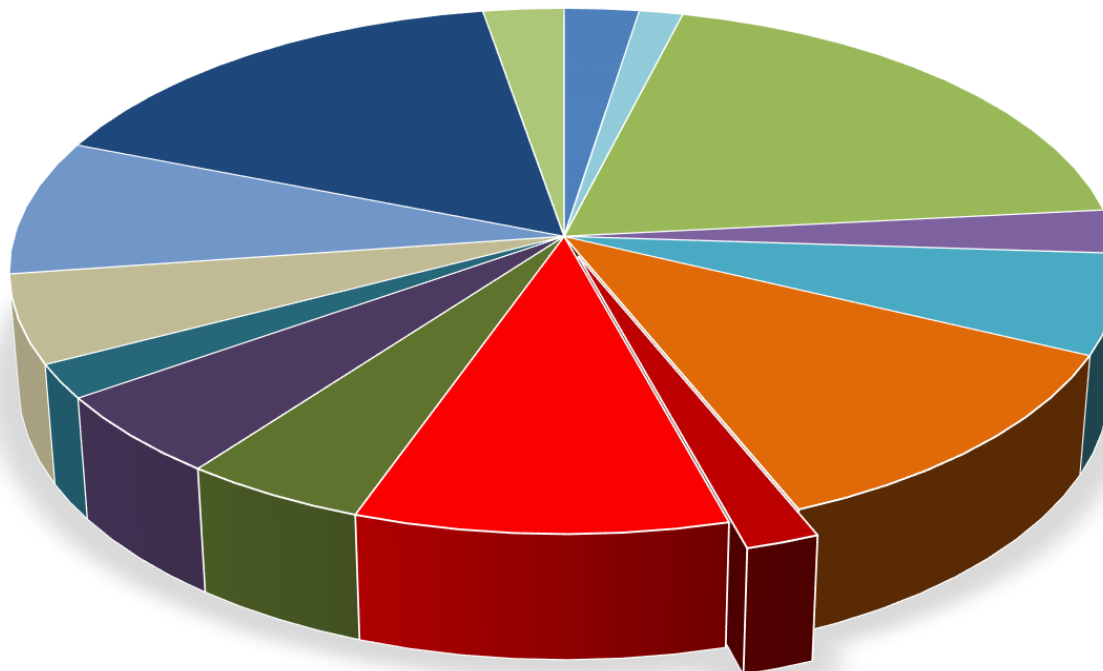


Expanding business

- More job opportunities

GDP (total production value)

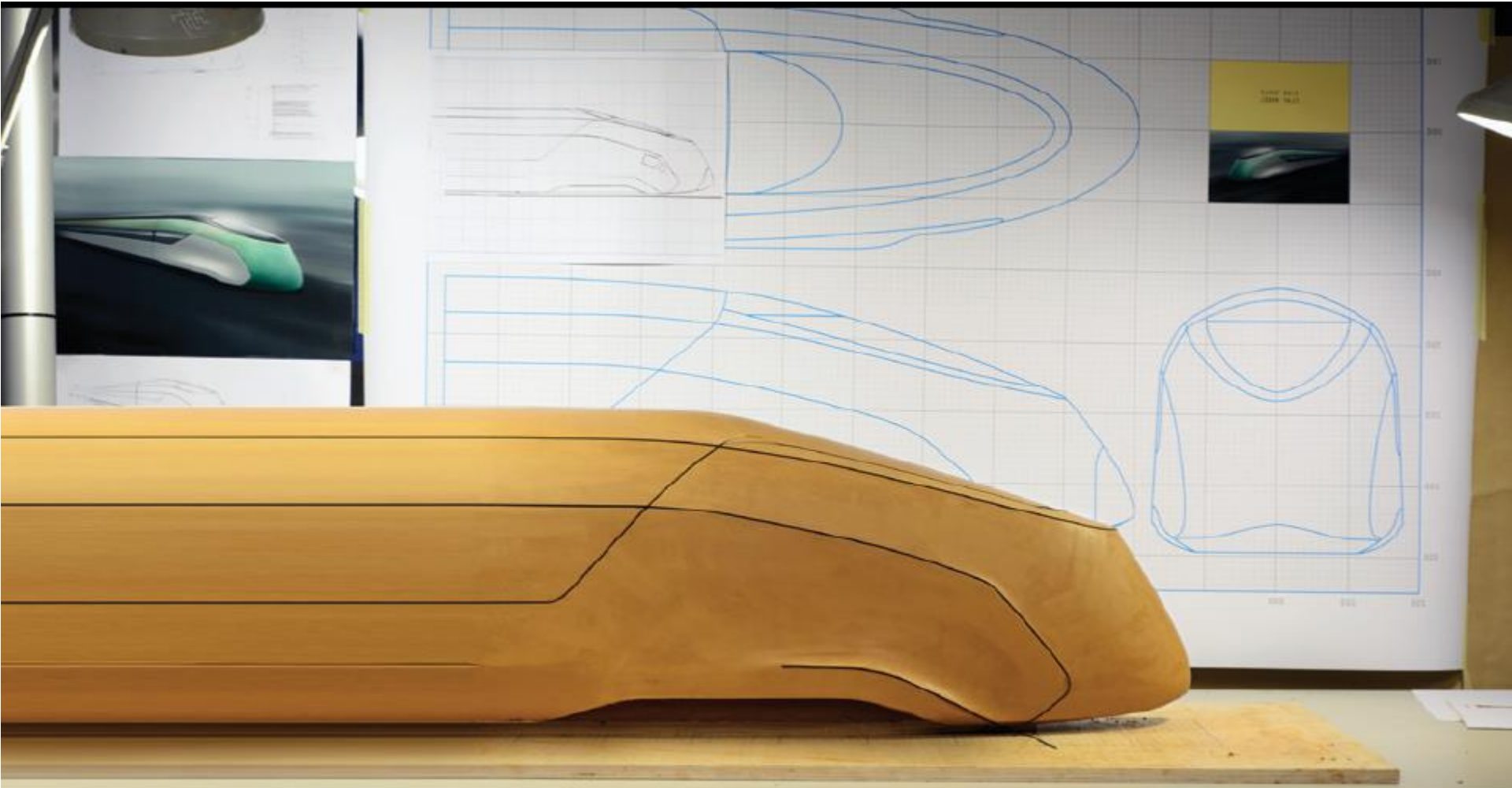
- Agriculture, forestry and fishing
- Mining and nat. resources
- Industry
- Energy and utilities
- Construction
- Trade
- Rail
- All other transport
- Information and communication
- Finance and insurance
- Real estate, commercial property
- Housing
- Sales
- Public administration, education + health
- Culture, entertainment, other services



→ 21 bill DKK/year
→ 25.000 jobs

Next generation railway technology

- New innovation, new ideas, new people to the sector



Railway study line

Description	Career	Prerequisites	Study programme	Cases	Student life	Study abroad	Contact
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Curriculum

Study lines

- Transport and Business Logistics (TBL)
- Transport Planning and Traffic Engineering (TPTE)
- Modelling of Traffic and Transport (MTT)
- Railway Technology (RT)**

Railway Technology (RT)

Learn how to plan and run a system that allows large volumes of passengers and freight to be transported fast, safe and efficiently.

About the study line

The railway sector is rapidly expanding and faces numerous engineering challenges. Designing and optimising a modern railway system is a formidable project and requires a combination of engineering skills and advanced visionary thinking. For train services to run seamlessly, the infrastructure (tracks, signals, catenary systems etc.) and train schedules have to be coordinated. To acquire this, engineers need to take responsibility and leadership.

Academic focus

At the end of this proposed study line the student will be able to:

- Plan and evaluate a real rail project
- Describe the foundation for decision-making, both in a technical and communicative way
- Design railway infrastructure and evaluate railway capacity
- Plan the operation and maintenance of railways
- Evaluate life cycle costs for railways and safety issues on railways

Courses

The RT study line is composed based on the following list of master courses from which 90 course points must be selected from G: General Degree Competences, T: Technological Specialisation and E: Elective, respectively.


For the RT Study Line is mandatory to complete the following set of technological specialisation courses accounting for 20 ECTS points:

13123	Signalling Systems and Technology for Railways	E3A	5 ECTS
13126	Railway Design and Maintenance	F5	10 ECTS
13129	Rolling Stock acquisition and Management	JUN	5 ECTS

Furthermore, candidates can freely choose from the remaining courses (Min 10 ECTS points) accounting form 30 ECTS points:

02431	Risk Management	JAN	5 ECTS
13235	Planning Theory	F3A	5 ECTS
42372	Life Cycle Assessment of Products and Systems	E1	10 ECTS

Study line coordinator

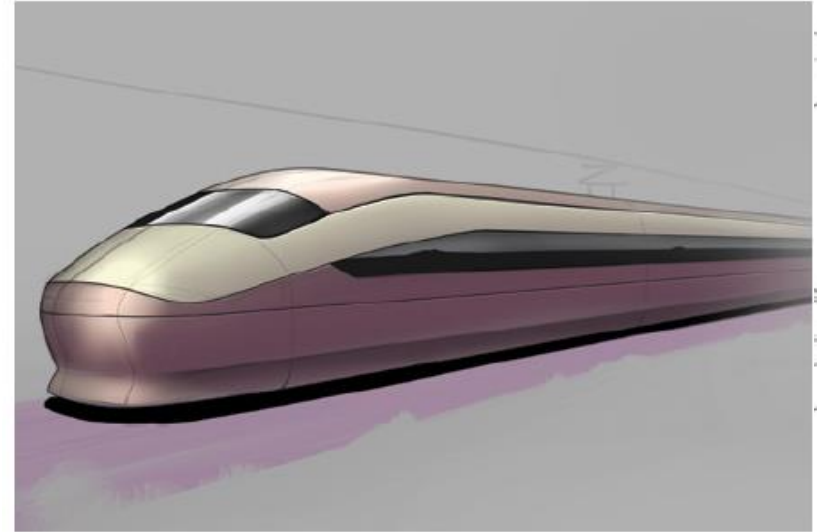


Steven Harrod
Associate Professor
DTU Transport
+45 45 25 14 86

ECTS

The Bologna Process is a European initiative to bring about transparency and compatibility across higher education in Europe. An important aspect of enabling student mobility, and particularly moving on to a further degree in another country, is a system of credits, used for recognition and accumulation—the European Credit Transfer System (ECTS).

All our courses are assigned a value in terms of ECTS points. Successful completion of an academic year of two terms accumulates 60 ECTS-points. Master's degrees have an ECTS value of 120 points.



Designing the future



Presentations today

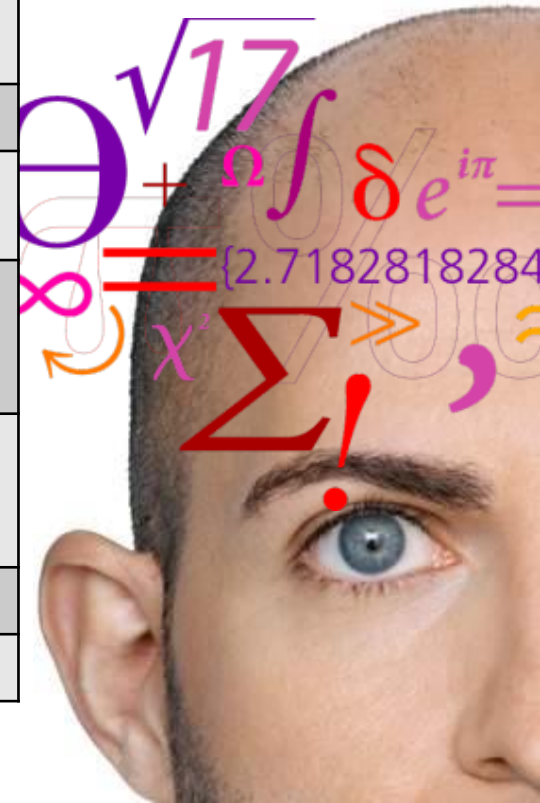
**Bombardier, Siemens
Skaarup Imcase, Furrer+Frey
Rambøll, Metroselskabet**



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Upcoming activities for students

- Conference on Railways hosted by Banebranchen (the Danish Rail Sector Association)
- Presentations in both Danish and English
- Participants from Denmark and abroad
- Sign up at www.banekonferencen.dk
- Tivoli Congress Center
- 17th May 2016
Full day program and Galla Dinner

Viden / Knowledge		Løstbane / Light Rail		Konkurrence		Udvalgte projekter / Current Projects		Innovation		2030+		Kunden / The Customer	
Vedligeholdelse / Maintenance		Løstbaneprojekter		Åbning af markedet		Store jernbaneprojekter		Software Management		Jernbanen efter 2030		Freight Customers	
Lokal 1	Lumbye	Carstensen	Harlekin	Congress Hall	Pierrot	Columbine	Glassalen						
10:45-11:15	Asset Management Planning for Good Intervention Decisions Chief Engineer Graham Stroud Atkins EIR Info Slides	Aarhus: Status og mulige udfordringer Dimitris Gias Rasmussen Aarhus Løstbane Info Slides	Status og tendenser på jernbanesektoren i et EU-perspektiv Knut Erik Rasmussen Transportministeriet Info Slides	København - Ringsted 230 km/h Prosjektleder Jan Schouder Til Baneløsning Info Slides	Signalling Programme - Laboratory Test Senior Consultant Gite Oberbauer Bombardier Info Slides	Et teknisk blik på den danske jernbane Branchefører Michael Inge Danish Industry Transport Info Slides	Expectations and Possibilities for Automotive Deliveries by Train Supply Chain Developer Jørgen Møller / Logistics Developer Daniel Sørensen Info Slides						
11:15-11:45	Unified Strategy for Operation & Maintenance of Rolling Stock and Infrastructure Managing Director Claudio Casarini Metro Service Info Slides	København: Ring 10 og Frederiksborg Vores ansvar og muligheder Managing Director Claudio Casarini Metro Service Info Slides	Indførelse af nye tog og biler Managing Director Martin Bratt Thelle Copenhagen Economics Info Slides	Fjerns ledning - Ringsted - Høby Prosjektleder Jens Ole Rasmussen Baneløsning Info Slides	Low BIM (100) Railway Project Railroads Group Manager & BIM Strategist Daniel Albrecht / BIM Manager Tor Lundberg Info Slides	København: Ring 10 og Frederiksborg Vores ansvar og muligheder Managing Director Claudio Casarini Metro Service Info Slides	The Rail Freight Corridor through Denmark Chief Advisor Hans Christian Wulder Trafikstyrelsen Info Slides						
11:45-12:15	Aarhus R. Fjernsynsprojekt Indeholder Paa Aker Brønstad Spongesborg & Madsen Info Slides	Odense og Ålborg Status Prosjektleder Kasper C. Thøgersen Odense Løstbane / Ålborg Kommune Info Slides	Udfordringer og erfaringer Managing Director Martin Bratt Thelle Copenhagen Economics Info Slides	Fjerns tunneling mellem Ringsted - Høby Dimitris Gias Rasmussen Transportministeriet Info Slides	Purchase and Approval Process of Software Lead Assessor Trends Witter RTW A/S Info Slides	Status på TEN korridorerne Informationscenter Den Danske Region Info Slides	Signalling Programme in Relation to Freight Trains Project Director Morten Sandegård Baneløsning Info Slides						
12:15-12:30	Freight / Løst	ERTMS	Rolling Stock and Operation	Forretningsmuligheder	Electrification & Signalling	RailTech	Glassalen	Økonomi	Rejseinformation				
Lokal 2	Lumbye	Carstensen	Harlekin	Congress Hall	Glassalen	Columbine	Pierrot						
13:30-14:00	ERTMS introduktion Branchefører Jens Holst Møller / Migration Manager Tommy Gade Jensen Baneløsning / Atkins Info Slides	Rolling Stock for a Small City Sales Manager Tobias Koch Siemens Info Slides	Freemove konference Dimitris Gias Rasmussen Danish Home Info Slides	The Electrification Programme Project Director Søren Laurson Baneløsning Info Slides	RailTech DTU Branchefører Allan Larsen / Formand Nasse Nybo Johansen RTW / Baneløsning Info Slides	Økonomi 2030 Regional Manager Stefan Gustafsson Nordic Development Director Mats Rasmussen Sweco / Skanska Info Slides	Rejseplaner Communications Manager Birgitte Wørdage Polyplan A/S Info Slides						
14:00-14:30	ERTMS introduktion Branchefører Jens Holst Møller / Migration Manager Tommy Gade Jensen Baneløsning / Atkins Info Slides	Rolling Stock for a Small City Sales Manager Tobias Koch Siemens Info Slides	Freemove konference Dimitris Gias Rasmussen Danish Home Info Slides	The Electrification Programme Project Director Søren Laurson Baneløsning Info Slides	RailTech DTU Branchefører Allan Larsen / Formand Nasse Nybo Johansen RTW / Baneløsning Info Slides	Økonomi 2030 Regional Manager Stefan Gustafsson Nordic Development Director Mats Rasmussen Sweco / Skanska Info Slides	Rejseplaner Communications Manager Birgitte Wørdage Polyplan A/S Info Slides						
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15:00-15:30	ERTMS introduktion Branchefører Jens Holst Møller / Migration Manager Tommy Gade Jensen Baneløsning / Atkins Info Slides	Rolling Stock for a Small City Sales Manager Tobias Koch Siemens Info Slides	Freemove konference Dimitris Gias Rasmussen Danish Home Info Slides	The Electrification Programme Project Director Søren Laurson Baneløsning Info Slides	RailTech DTU Branchefører Allan Larsen / Formand Nasse Nybo Johansen RTW / Baneløsning Info Slides	Økonomi 2030 Regional Manager Stefan Gustafsson Nordic Development Director Mats Rasmussen Sweco / Skanska Info Slides	Rejseplaner Communications Manager Birgitte Wørdage Polyplan A/S Info Slides						
Lokal 3	Lumbye	Letbanens udfordringer	Jernbanen 2020	Aktuelle projekter	Research & Innovation	Mega Trends	Freemove						
15:00-15:30	Integration of ETCS on Existing Rolling Stock Senior Project Manager Jakob Dalsgaard Bombardier Info Slides	Bæredygtig omstilling af Letbanen Jens Ole Pedersen Cotracor Handlingsråd Info Slides	Trudt ved man tænker over, inden man laver nye tog? Lektor/cheffør Larsen Tjallinghøj Petersen Baneløsning Info Slides	Congress Hall Ny strategisk initiativ Ny strategisk initiativ Dimitris Gias Rasmussen Info Slides	Research & Innovation Senior Consultant Rasmus DTU Management Info Slides	Økonomi 2030 Regional Manager Stefan Gustafsson Nordic Development Director Mats Rasmussen Sweco / Skanska Info Slides	Rejseplaner Communications Manager Birgitte Wørdage Polyplan A/S Info Slides						

Contact

Web and e-mail:

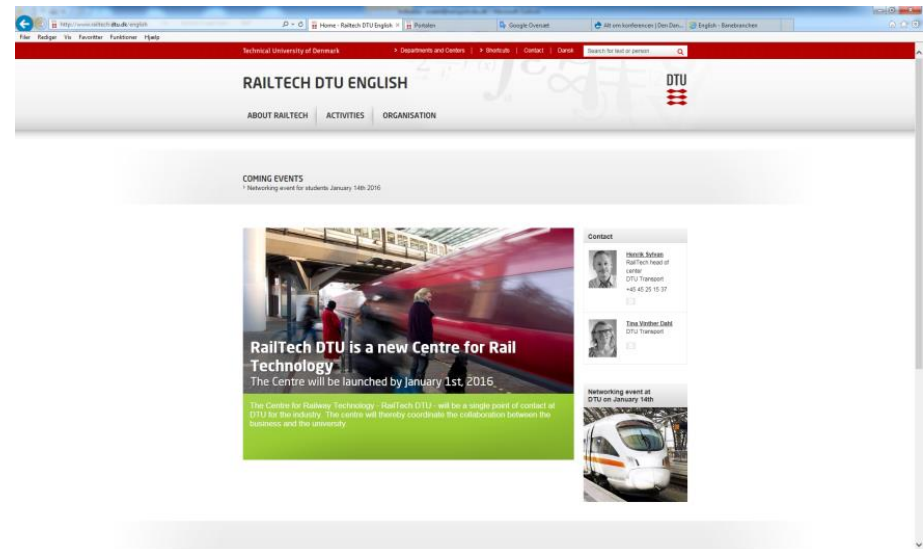
- www.railtech.dtu.dk
- railtech@dtu.dk

Head of centre:

- Henrik Sylvan
sylvan@transport.dtu.dk

Coordinator:

- Tina Vinther Dahl
tvdahl@transport.dtu.dk



Introduction	10 min/Henrik Sylvan, RailTech DTU	Welcome – introduction to the centre; the aims and the visions. The railway business, the education, the career opportunities etc.
How to build an international Railway career?	10 min/ Malik Kleist, Bombardier	Malik has worked with Bombardier for approx. 3 years. He started working with Danish projects in order to get to know the technics – and the business. It is his ambition to get to work abroad – and is now allocated worldwide projects 100%
From Denmark to Germany	10 min/ Martin Rene Hansen, Siemens	Martin has worked with Siemens Mobility for approx. 5 years. He has been stationed in Germany since 2014 in connection with the project. The work is conducted in a big international team with colleagues from 6 different countries. Martins focus is on testing and assessment of the software deliverance.
From Skaarup Imcase Swiss partner Furrer + Frey	10 min/ Michael Rietmann, Furrer + Frey)	Michael works with Skaarup Imcase partner in Schwitterland, Furrer + Frey. He will introduce the measuring system DCM (Dynamic Catenary Monitoring) as an effective tool for checking overhead contact lines on completion of the work. His work includes the whole process from inquiry, planning and performing the mission to invoicing at the end. In addition he is responsible for the maintenance and development of all kinds of measuring systems and its parts.
To work in Denmark for a global company – across borders	10 min/Rikke Holm Christensen, Rambøll	Rikke has been with Rambøll for 1,5 years as a railway consultant. Rikke works on a variety of railway projects including capacity, signaling and project management. The projects are based international as well as in Denmark. Rikkes presentation will focus on the transition going from being a student to an employee in a global company with colleagues and projects from several countries.
Working with signalling systems without actually doing it...	10 min/ Matias Sevel Rasmussen, Metroselskabet	Matias works with Metroselskabet and Hovedstadens Letbane and has done so since 2012. He is working with a broad range of signaling related tasks and Automatic Train Control (ATC) for the existing Metro as well as ATC design reviews and upcoming tests supervision for Cityringen. He also has a minor involvement in the light rail project.
Summary	Henrik Sylvan, RailTech	Summary and Q&A
Networking	Pizza/beer served	Talk career, ask questions, network - and get a beer and a pizza.....