European Wind Energy Master (EWEM)
Wind as a renewable source of energy
Global Warming & Temperature Rise

• Annual temperature on the rise
• Rise in temperature by nearly 1°C since the 20th century
• Polar ice caps melting, forest fires, regional temperature increase
• Preventing further rise in temperature
• Reducing fossil fuels & generating renewable energy

Wind Energy – A vow towards Carbon neutrality

• Wind – More than one-third of global electricity by 2050
• Denmark & Netherlands global leaders in wind energy
• Reducing nearly 6.3 gigatonnes by 2050

Source: https://www.irena.org
Scope & Improvement

Onshore Wind
Three-fold increase by 2030 and Ten-fold increase by 2050 (as per current plans)

Offshore Wind
Increased demand. Six-fold increase by 2030 and Ten-fold increase by 2050 (as per current plans)

Source: https://www.irena.org
Global Investments

**Offshore Wind**
Regions with long coastlines greater potential for offshore. Increased investments expected.

**Onshore Wind**
Europe and Asia global leaders in onshore wind energy investments.

Source: [https://www.irena.org](https://www.irena.org)
Employment Opportunities

- Upto 1.5 million jobs in wind energy currently
- Nearly 2000 out of 10000 renewable energy jobs are in wind energy
- Increase in demand for new innovative designs, sustainable growth and turbines with lower environmental hazard
- Nearly 5 million additional jobs by 2050

Source: https://www.irena.org
Wind Turbines are getting larger and larger
History and future of Wind Energy science and engineering

<table>
<thead>
<tr>
<th>Classical Period</th>
<th>Age of Electricity</th>
<th>Age of aerospace</th>
<th>Modern Wind Turbine</th>
<th>Upscaling, and O&amp;M</th>
<th>Wind Farm and integration</th>
<th>Key Energy Source</th>
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</thead>
<tbody>
<tr>
<td>Advances in Mechanical engineering</td>
<td>Electrical Engineering and basic aerodynamics</td>
<td>Advanced aerodynamics and materials</td>
<td>Turbulence, aerodynamics, control, and materials</td>
<td>Manufacturing and supply chain, material science, improved models</td>
<td>Computational models, data sciences and optimisation</td>
<td>Flexible, 3D, active actuator systems, energy integration</td>
</tr>
</tbody>
</table>

Tractor Fleet Forest
Welcome to the European Wind Energy Master (EWEM)!
European Wind Energy Master

Joint-education programme, offered by:
TU Delft (the Netherlands), DTU (Denmark), NTNU (Norway) and University of Oldenburg (Germany)

- Receive 2 MSc degrees
- Obtain fundamental knowledge and learn to apply it to the Wind Energy sector
- Study in an international, multi-cultural environment
- Live in (at least) two different European countries
- Become part of the EWEM community
## Programme Structure

<table>
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<tr>
<th>First year (60 ECTS)</th>
<th>Second year (60 ECTS)</th>
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<tbody>
<tr>
<td><strong>1st semester</strong></td>
<td><strong>2nd semester</strong></td>
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<tr>
<td>Electrical Power Systems</td>
<td>DTU</td>
</tr>
<tr>
<td>Offshore Engineering</td>
<td>TUDelft</td>
</tr>
<tr>
<td>Rotor Design</td>
<td>TUDelft</td>
</tr>
<tr>
<td>Wind Farms &amp; Atmospheric Physics</td>
<td>Carl von Ossietzky Universitat Oldenburg</td>
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</table>
## Double Degree

<table>
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<tr>
<th>Tracks</th>
<th>Awarded Degrees</th>
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# Courses

<table>
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<th>TU Delft</th>
<th>NTNU</th>
<th>Oldenburg</th>
<th>DTU</th>
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<tbody>
<tr>
<td>Site Conditions for Wind Turbine Design</td>
<td>Electric Power Engineering</td>
<td>Fluid Dynamics</td>
<td>Wind Turbine Technology &amp; Aerodynamics</td>
</tr>
<tr>
<td>Transients in Power Systems</td>
<td>Marine Hydrodynamics</td>
<td>Wind Physics Measurement</td>
<td>Offshore Wind Energy</td>
</tr>
<tr>
<td>Floating Structures</td>
<td></td>
<td>Advanced Wind Energy Meteorology</td>
<td>Turbulence Modelling</td>
</tr>
<tr>
<td>Offshore Wind Farm Design</td>
<td></td>
<td></td>
<td>Loads, Aerodynamics &amp; Control</td>
</tr>
<tr>
<td>Rotor/Wake Aerodynamics</td>
<td></td>
<td></td>
<td>Planning &amp; Development of Wind Farms</td>
</tr>
</tbody>
</table>

**TU Delft Courses**
- Site Conditions for Wind Turbine Design
- Transients in Power Systems
- Floating Structures
- Offshore Wind Farm Design
- Rotor/Wake Aerodynamics

**NTNU Courses**
- Electric Power Engineering
- Marine Hydrodynamics
- Arctic Offshore Engineering
- FEM in Structural Analysis
- Power Electronics for Renewable Energy

**Oldenburg Courses**
- Fluid Dynamics
- Wind Physics Measurement
- Advanced Wind Energy Meteorology
- CFD
- Control of Wind Turbines & Wind Farms

**DTU Courses**
- Wind Turbine Technology & Aerodynamics
- Offshore Wind Energy
- Turbulence Modelling
- Loads, Aerodynamics & Control
- Planning & Development of Wind Farms
Potential Employers

[Logos of various companies]
• Association for student welfare & socialising
• Guest lectures, wind turbine climbs, company visits, excursions, etc
• Practical matters before & after joining EWEM
• Visit website for more information www.ase-aeolus.com
• Connect on FB, Instagram and LinkedIn
Apply!
Admission Requirements

1. TU Delfts’ requirements (for all EWEM applicants)
   • Required documents (e.g. Motivation letter, Transcript of records)
   • With exceptions (e.g. no GRE test and no English Language Proficiency for students from TUD, DTU, NTNU and UOL)

2. EWEM requirements
   • Working experience

3. Track specific requirements
   • Specific BSc Background (BSc degree must be obtained before 1 September)
   • Working knowledge/ skills
Required BSc. Background (1/2)

Wind Farms & Atmospheric Physics:
Mechanical Engineering
Aerospace Engineering
Mathematics or Physics

Rotor Design:
Mechanical Engineering
Aerospace Engineering
Physics

Similar backgrounds accepted if proven relevant
### Required BSc. Background (2/2)

#### Electric Power Systems
- Electrical Engineering
- Physics

#### Offshore Engineering
- Civil Engineering
- Structural Engineering
- Mechanical Engineering
- Physics

*Similar backgrounds accepted if proven relevant*
Application Procedure

- TU Delft procedure is applicable for EWEM applicants
- Tuition fees same as TU Delft tuition fees
Deadlines

Registrations open from October- 31 March

Admission decision –
Application before 1st December: Decision in January/ February
Application before 31st January: Decision in March/ April
Application before 1st April: Decision in May/ June

Complete applications must be uploaded on the admission website of TU Delft’s Central Student Administration before 1 April
Please visit the website for more info: tudelft.nl/ewem
Some tips

• Preliminary transcripts are acceptable when applying, but the final degree certificate is required before the start of the programme.

• Track Coordinators assess your application. Do not assume that they know your specific programme by hand and prepare your application accordingly.

• The lack of one or more of the requirements will be weighed against the other qualifications of the applicant, and possible admission might be considered.
Contact

Website: www.tudelft.nl/ewem
E-mail: ewem@tudelft.nl

Follow us!

@ewemlife

European Wind Energy Master

European Wind Energy Master
We are looking forward to your application!