

Connect. Exchange. Innovate.

# Joint Master Applied Geophysics

 **IDEA**  
League

TU Delft  
ETH Zurich  
RWTH Aachen

# General Information

Applied Geophysics is concerned with the development and application of exploration techniques suitable for investigating the Earth's shallow subsurface, a region of vital interest for a broad range of problems with a high societal relevance.

The Joint Masters programme offers a unique international and multifaceted education including theoretical as well as practical aspects of Applied Geophysics. The curriculum covers methodological aspects in the physical, mathematical, computational as well as data analysis and signal processing foundations of Applied Geophysics. Furthermore, theoretical and methodological aspects are put into practice in hands-on exercises and field work. The Joint Masters Programme is run in close collaboration with industry. Companies support the programme by providing funding, grants for scholarships and opportunities for research projects. Experts from industry and governmental agencies deliver special lectures and are involved in the co-supervision of master thesis projects.

The Joint Masters Programme offers students a combination of study and research, leading to an outstanding qualification in Applied Geophysics, relevant for careers in the areas of Earth resource exploration and management as well as environmental and engineering investigations. Graduates from the

programme are both immediately attractive for positions in industry as well as well prepared for doctoral studies in Earth Sciences.

## Why Applied Geophysics?

Our mission is to educate students in geophysical methodologies for exploring and monitoring the subsurface of the Earth. This education entails obtaining knowledge of the fundamental theory behind these methodologies, their application and their link to societally highly relevant fields such as natural resources, geo-energies (e.g., geothermal-power, hydro-power, hydrocarbons), subsurface storage, geo-hazards, underground management and the environment. The graduates are internationally oriented and attractive for positions in industry and government/public organisations but also well prepared for doctoral studies in Earth sciences around the world.

### Credits

A minimum of 120 credits according to the European Credit Transfer System

### Duration

2 Years, with a maximum of 4 years

### Language

English

### Degree

Master of Science

### Fees

Equal to the Delft University of Technology tuition fees

[www.idealeague.org/geophysics](http://www.idealeague.org/geophysics)



## Qualifications

To help satisfy society's rising need for highly qualified applied earth scientists, the three partner universities together offer the Joint Masters Programme in Applied Geophysics. Those who successfully complete the programme of study and research acquire outstanding skills in the mathematical and physical tools, programming and numerical methods of Applied Geophysics along with their application to solve real-world problems. The international programme provides the students an unique experience to study in international teams and to live and learn in three European cities. Graduates are well qualified in all fields of Applied Geophysics related to subsurface exploration for geoenergy resources, engineering investigations, as well as environmental applications.

## Employment

Our graduates work in a wide range of companies and government institutes in the energy, civil engineering and environmental sector. Others find employment outside geophysics in, for example, consultancy agencies and financial institutions. Many graduates also continue on a research path in PhD research programmes in various parts of the world.

# Programme



## Year 1, September - January

The Delft semester will focus on signal analysis, seismic and electromagnetic theory and exploration geophysics.



## Year 1, February - June

ETH Zurich will offer courses on seismic data processing, numerical modelling and inversion, geothermal energy and a geophysics field programme.



## Year 2, October - February

The semester at RWTH Aachen will be centred around specialised applied and numerical methods, hydrogeophysics and engineering geophysics, and borehole logging.

## Master Thesis

### Year 2, March - August

In the last semester, students will write their Master Thesis at one of the three universities or other approved university or industry laboratories.

# Living in different cities

The Joint Masters Programme in Applied Geophysics offers students the opportunity to live and learn in 3 European cities. Living in different countries broadens the students' perspective through experiencing different cultures. Its enhanced student mobility therefore improves the students' chances of pursuing careers in competitive global industries.

## TU Delft

Delft, The Netherlands

TU Delft's principal strength is in geophysical methods for subsurface characterization and monitoring of subsurface processes. The city of Delft offers a wonderful blend of ancient canals lined with merchant houses and modern architecture.

## ETH Zurich

Zurich, Switzerland

ETH Zurich's principal strength is in exploration, engineering and environmental geosciences as well as geothermal energy. Zurich has a natural beauty for all seasons - inviting for a swim in the lake in the summer and nearby ski resorts in the winter.

## RWTH Aachen

Aachen, Germany

RWTH Aachen's principal strength is in geothermal exploration, numerical methods and basin modelling. The city of Aachen is situated on the rim of the Eifel mountains, a historical spa town and home of a world heritage cathedral.



**Veerle Steenhuis**  
Alumna  
Joint Masters  
Programme  
Applied  
Geophysics

*Just three months after graduating from the Joint Masters Programme in Applied Geophysics, I started working as a Field Engineer for Schlumberger, a large oilfield services company. It's always been in my nature to take on new challenges, so both the M.Sc. Applied Geophysics and my job with Schlumberger after graduation were logical steps for me to take. Apart from that, the international atmosphere of the Joint Masters Programme is mirrored in my current job;*



**Mahfuj Ali**  
Master Student  
Joint Masters  
Programme  
Applied  
Geophysics

*I'm currently half way through the Joint Masters Programme in Applied Geophysics and it has been absolutely amazing so far. I did an industrial placement during my bachelors in Physics working for a marine seismic company. That is how I got into Geophysics and I knew I wanted to study it further. A colleague referred me to the Joint Masters Programme and I immediately loved the idea of moving around different universities across Europe. Each city has a unique atmosphere which I fully appreciated after living there for a semester.*

*Geophysics hasn't been the only thing I've learnt on this journey. Moving around has taught me to embrace foreign cultures, try new experiences and become more organised. I am confident the second year will only open up more opportunities. For anyone who loves travelling and has an interest in Geophysics, the Joint Masters Programme is perfect for you!*

*I work with people from all over the world and have worked in six different countries already! Furthermore, the analytical skills that I have developed during the Joint Masters Programme are very helpful for my job as a Field Engineer, which includes a lot of troubleshooting. Having a background in geophysics obviously helps when you're working in the Oil and Gas Industry, but I think the most important skill I've learned from the programme that applies to my job is teamwork! It has been great to work together with motivated students from all over the world and I really feel it prepared me for working in different, international environments.*

*I would definitely recommend the Joint Masters Programme, not only to students interested in Applied Geophysics, but also to students looking for a unique and very international study experience!*



# Applied Geophysics in numbers

Over the period 2006 - 2015



The Joint Masters Programme was founded in 2006. In 2015, the programme counted over 200 current students and alumni.



Our students come from:  
Europe (80%),  
Asia (6%)  
Central and South America (10%)  
Africa  
North America



The Joint Masters Programme has an excellent rate of on-time completion: 92% of our students complete the programme within 2 years.



Almost 30% of our students are female. This makes this programme one of the most diverse Master Programmes at our partner universities.



Employment of our alumni:  
PhD, Postdoc and University (44%)  
Energy (27%)  
Other, such as consultancy and banks (29%)



## About the IDEA League

The IDEA League is a strategic alliance between five leading European universities of technology: TU Delft, ETH Zurich, RWTH Aachen, Chalmers University and Politecnico di Milano.

Each IDEA League member has a respectable research-oriented profile and is the largest producer of engineering and science graduates in its own country. One of the IDEA League's main ambitions is to re-establish Europe as a technological and

scientific leader by bundling academic resources and knowledge.

Our joint activities in education, research and quality assurance, as well as our joint participation in EU programmes and initiatives make us a model of European cooperation. Together, we create added value by pooling resources for collaborative and complementary programmes for our students, researchers and staff.





For more information about the Joint Masters Programme Applied Geophysics and how to apply, please visit the Geophysics website via: [www.idealeague.org/geophysics](http://www.idealeague.org/geophysics)

**For questions about the programme, please contact:**

TU Delft International Office  
[internationaloffice@tudelft.nl](mailto:internationaloffice@tudelft.nl)

**For questions about this brochure, please contact:**

IDEA League Office  
[office@idealeague.org](mailto:office@idealeague.org)

For more information about the IDEA League or to download the PDF version of this booklet, please visit our website via: [www.idealeague.org](http://www.idealeague.org)

**Keep up to date with the IDEA League! Like us on Facebook**

[www.facebook.com/idea.league](http://www.facebook.com/idea.league)

**Current scholarship sponsors**



wintershall dea

