

# Courses Applied Geophysics

2021-2023



## Summary

The Applied Geophysics programme is taught at three partner universities:  
TU Delft, ETH Zurich and RWTH Aachen

**First year Delft:** A minimum of 24 credits should be passed from TU Delft subjects, whereby AESM1511 Field Geophysics and Signal Analysis with Matlab/Python Exercises is obligatory and two out of three of the following blocks must be passed:

- AESM1320 Geology for Geo-Energy
- AES1540-11 Electromagnetic Methods
- AES1560 Advanced Reflection Seismology and Seismic Imaging

Code	Subject	ECs
AES1540-11	Electromagnetic Exploration Methods	6
AES1550-06	Geophysics Special Subjects	6
AES1560	Advanced Reflection Seismology and Seismic Imaging	6
AESM1590-18	Seismic Acquisition to Data Information Content	6
AESM1511	Field Geophysics and Signal Analysis with Exercises	6
CIE4606	Geodesy and Remote Sensing	5
AESM1320	Geology for Geo-Energy	5

**First year Zürich:** A minimum of 25 credits should be passed from the ETH Zürich subjects, whereby three of the following three blocks must be passed:

- 651-4079-00L Reflection Seismology Processing
- 651-4104-00L and 651-4106-03L Geophysical Fieldwork and Processing
- 651-4094-00L and 651-4096-00L Modelling and Inverse Theory for Applied Geophysics

Code	Subject	ECs
651-4079-00L	Reflection Seismology Processing	5
651-4087-00L	Case Studies in Exploration and Environmental Geophysics	3
651-4094-00L	Numerical Modelling for Applied Geophysics	5
651-4096-00L	Inverse Theory I: Basics	3
651-4096-02L	Inverse Theory II: Applications	3
651-4104-00L	Geophysical Fieldwork and Processing: Methods	2
651-4106-03L	Geophysical Field Work and Processing: Preparation + Field Work	7
651-4109-00L	Geothermal Energy	3
651-4240-00L	Geofluids	6
701-0106-00L	Mathematics V: Applied Deepening of Mathematics I – III	3

**Second year Aachen:** A minimum of 25 credits should be passed from the RWTH Aachen subjects, whereby three of the following six blocks must be passed:

- 53.14584 and 53.26003 Petrophysics for Applied Geophysics (Petrophysics and Laboratory Practicals: Applied Reservoir Petrophysics)
- 53.14570 and 53.50132 Geophysical Logging and Log Interpretation
- 53.260000 Application of Geophysical Prospecting Methods in Earth and Environmental Science
- 53.18482 and 53.29469 Hydrogeophysics and Engineering Geophysics
- 53.42487 and 53.50028 Numerical Reservoir Engineering + Advanced Mathematical Modelling in Applied Geosciences
- 54.12000 Research Module in Applied Geophysics

Code	Subject	ECs
53.14570	Geophysical Logging and Log Interpretation	3
53.50132	Fieldwork: Geophysical Logging and Log Interpretation	3
53.18482	Hydrogeophysics	3
53.2600	Application of Geophysical Prospecting Methods in Earth and Environmental Science	6
54.12000	Research Module in Applied Geophysics	6
53.31439	Data Analysis in Geoscience	3
54.34827	Mineral Exploration	3
53.32124	Petroleum System Modelling	3
53.23301	Sedimentary Basin Dynamics	3
53.29469	Engineering Geophysics	3
53.33690	Remote Sensing of Sedimentary Basins	3
53.45471	Portfolio Management and Prospect Evaluation	3
54.24346	Energy Resource Management	3
53.42487	Numerical Reservoir Engineering: Geophysical process simulation	3
53.50028	Advanced Mathematical Modelling in Applied Geosciences	3
53.12002	Principles of Plate Tectonics	3
53.12001	Plate Tectonics Seminar	3
11.47549	Numerical Methods for Geophysical Flows	3
41.00220	Finite Elements in Fluids	6
81.18471	Economics of Technological Diffusion	6
12.53420	Machine Learning	6
53.32383	Underground Excavation	6

Code	Subject	ECs
53.14584	Petrophysics	3
53.26003	Laboratory Practicals: Applied Reservoir Petrophysics	3
53.49932	Neotectonics and Earthquake Geology	3
53.30255	Seismic Interpretation in Geology	3

## Second year Delft/Aachen/Zürich: Final thesis

Code	Subject	ECs
AESM2506	Final Thesis Applied Geophysics	30