Courses Applied Geophysics
2023-2025

Summary

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

First year Delft: A minimum of 24 credits must be obtained from TU Delft subjects, whereby all of the three following blocks must be passed:

- JMAG110 Field Geophysics and Signal Analysis with Matlab Exercises
- JMAG100 Electromagnetic Exploration Methods
- JMAG111 Advanced Reflection Seismology and Seismic Imaging

Code	Subject	ECs
JMAG100	Electromagnetic Exploration Methods	6
JMAG121	Geophysics Special Subjects	6
JMAG111	Advanced Reflection Seismology and Seismic Imaging	6
JMAG120	Seismic Acquisition to Data Information Content	6
JMAG110	Field Geophysics and Signal Analysis with Exercises	6

First year Zürich: A minimum of 24 credits must be obtained from the ETH Zürich subjects, whereby the block consisting of the two subjects

- 651-4104-00L Geophysical Fieldwork and Processing: Methods
- 651-4106-03L Geophysical Fieldwork and Processing: Preparation and Field Work is obligatory and one out of the following two block must be passed:
- 651-4079-00L Reflection Seismology 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	4
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
651-4110-00L	Computational Methods in Seismic Data Analysis and Imaging	3
651-4109-00L	Geothermal Energy	5
651-4240-00L	Geofluids	6
701-0106-00L	Mathematics V: Applied Deepening of Mathematics I – III	3

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Second year Aachen: A minimum of 24 credits must be obtained 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
- 54.12003 Inversion concepts for multi-method geophysics
- 53.18482 and 53.29469 Hydrogeophysics and Engineering Geophysics
- 53.42487 and 53.50028 Computational Continuum Mechanics + Scientific Machine Learning and Advanced Numerical Methods
- 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
54.12000	Research Module in Applied Geophysics	6
54.12003	Inversion Concepts for Multi-Method Geophysics	6
53.31439	Data Analysis in Geoscience	3
54.34827	Mineral Exploration	3
53.23301	Sedimentary Basin Systems	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	Computational Continuum Mechanics	6
53.50028	Scientific Machine Learning and Advanced Numerical Methods	3
53.12002	Principles of Plate Tectonics	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

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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 and Well Integration	3

Second year Delft/Aachen/Zürich: Final thesis

Code	Subject	ECs
JMAG230	Final Thesis Applied Geophysics	30