## Advanced Geophysical Field Course

| Type of Module | Module Code |
|---|---|
| Advanced Module | AM-GEOAFC |

| Identification Number | Workload | Credit Points | Term | Offered Every | Start | Duration |
|---|---|---|---|---|---|---|
| MN-GM-GEOAFC | 180 h | 6 CP | 1. – 3. Semester | SuSe | Summer Term Only | 1 Semester |

| 1 | Course Types | Contact Time | Private Study | Planned Group Size |
|---|---|---|---|---|
| | a) Seminar | 30 h | 60 h | 9 |
| | b) Practical Training | 30 h | 60 h | |

**2 Aims of the module and acquired skills**

Practical experience in direct current resistivity and electromagnetic prospection techniques, survey design, target identification, resolution of the methods, data evaluation, 1D and 2D modelling. General overview of the methods and their strength and weaknesses.

Acquired skills :

- Ability to plan, conduct, protocol, interpret and document direct current resistivity and electromagnetic geophysical measurements
- Ability to choose the most appropiate method for a given exploration problem
- The ability in scientific writing and oral presentation is trained during the seminar

**3 Contents of the module**

- Direct Current Method with Multielectrode System (2D-DC)
- Radiomagnetotelluric (RMT)
- In-Loop Transient Electromagnetic Soundings (TEM)
- LOTEM data analysis and modelling
- Ground Penetrating Radar (GPR) / Ground conducting meters (HLEM)

Accounting for new developments in electromagnetic methods of applied geophysics and/or instrumentation the above methods may be replaced.

**4 Teaching Methods**

Seminar about methods and field course (compulsory attendance for all parts)

**5 Prerequisites (for the Module)**

Formal: None

Basics of electric and electromagnetic methods are strongly recommended.

**6 Type of Examination**

Written examination (graded).

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| **7** | **Credits Awarded**<br>1. Successful participation in the seminar about methods is prerequisite for admission to the written exam:<br>○ Short oral presentation of one method (ungraded)<br>○ Successful preparation/complition of the practical courses (testified ungraded)<br>○ Written report (20 pages maximum) of one method including results of the field survey (ungraded)<br>Each failed part can be repeated once during the semester before the written examination.<br>2. Successful participation of the written exam. |
| **8** | **Compatibility with other Curricula**<br>None |
| **9** | **Proportion of Final Grade**<br>6/114 |
| **10** | **Module Coordinator**<br>B. Tezkan and R. Bergers |
| **11** | **Further Information**<br>**Recommended Literature:**<br>W.E. Telford et. al., Applied Geophysics, Cambridge University Press, 1990.<br>Nabighian, M.N., Electromagnetic soundings in applied geophysics, SEG,1987.<br>M.S. Zhadanov and G.V. Keller, The geoelectrical methods in applied geophysics, SEG, 1987.<br>D. S. Parasanis, Principles of Applied Geophysics, Halsted Press Book, 1979. |