Joint Doctoral Programme “Geo-Engineering and Water Management”

POSTGRADUATE STUDY: Joint Doctoral Programme Geo-Engineering and Water Management

COURSE TITLE: ADVANCED ROCK MECHANICS (3 ECTS-Credits)

COURSE STATUS: Mandatory course (MG2), Summer School 2017 in Vienna

LECTURER’S: Andreas Goricki, Christian Zangerl

COURSE DESCRIPTION:

Engineering Geology
- Geological background of rocks
- Geological background of discontinuities: Bedding planes, joints, faults, foliation planes
- Classification of rock and discontinuities

Geometrical rock mass characterization
- Discontinuity analysis for rock engineering
- Slope instability mechanisms and kinematic analysis

Geomechanical rock mass characterization
- Characteristics of intact rock and joints; failure modes
- Common failure criteria
- Methods for determining rock mass parameters; analytical and empirical methods
- Characterization of fault zones
- Critical review of classification methods (RMR, Q, GSI)

General process of geotechnical design for underground structures
- Determination of ground types
- Assessment of influencing factors
- Determination of ground behaviours
- Development of excavation and support concept
- Evaluation of system behaviour
- Optimization of excavation and support

Geotechnical monitoring of tunnels
- Purpose and target of monitoring
- Development of monitoring plan
- Monitoring parameters
- Evaluation and interpretation of displacement monitoring data
- Safety management

DEVELOPMENT OF GENERAL AND SPECIFIC COMPETENCIES (max. 500 characters – describe main goal of the subject in terms of knowledge and skills that a student would acquire by taking the course):

The aim of this course is to get the students acquainted with the principles of structural geology, rock mechanical stress strain behaviour and its testing procedures.

RECOMMENDED LITERATURE (with detailed data on publisher and year of publication):

QUALITY ASSURANCE METHODS:
An anonymous questionnaire will be filled in by all of the course participants. This procedure is compulsory for all subjects and is aimed at evaluation both of the teacher's performance (quality of delivery) and of the overall content and structure of the course.