

Designing and Implementing Applied Geosciences Bachelor and Master Programs Tailored for the Gulf Region

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ABSTRACT

The Bachelor of Science in Applied Geosciences degree is offered by GUtech since 2007. The program was created by the RWTH Aachen University, a German institution with over 140 years of experience in education in the fields of engineering and natural sciences. The curriculum of the BSc program focuses on three topics which are of key importance for the future in the Gulf Region: hydrocarbons, water and mineral resources. Elements of the program have been set up after a review of the industry's needs.

Students benefit from the input of new scientific ideas and teaching concepts developed by GUtech professors and applications contributed by RWTH Aachen. The “Kaizen” learning methodology, a teaching philosophy based on a mix of short learning units and repetitions with feedback loops and tests is used to continuously calibrate a course to student's needs. This blended, student-centred learning technique was analysed regarding its direct impact on the students' performance. The case study in Oman from GUtech leads to easy-to-implement key drivers for successfully teaching science. A newly designed Integrated Master Program for Applied Geosciences is based on the experiences from an existing Master Program for Petroleum Sciences that is running since 2010. The new integrated MSc program which is scheduled to start in 2016, will be composed of four parts: a core program followed by elective courses, focused on the three topics: water, petroleum and mineral resources. Advanced courses in geophysics, geochemistry and modelling in the specific domains will deepen the knowledge and enable the graduates either to start an academic career or take senior positions in ministries, companies and research institutions.

The basic courses are taught by GUtech professors according to German standards with significant teaching and research experience, publication record and industry experience. Specialized technical courses are taken over by drive-ins from industry and International fly-in professors. The structure and organization of the MSc Program is tailored for the region following German quality requirements.

The integrated and interdisciplinary MSc program will be open to graduates with BSc degrees in Geosciences, Physics, Petroleum Engineering or Environmental Sciences. It is planned to run the Master Program fulltime (1.5 years) and part-time (3 years), if required by market demand, allowing graduates already employed by the industry to study for a post-graduate degree.