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## **Job profile for M.Sc. UI "Digital modeling, visualisation and simulation of hydrological, hydraulic and environmental engineering systems" („Digitale Modellierung, Visualisierung und Simulation hydrologischer, wasserbaulicher und umweltbeobachtender Ingenieursysteme“)**

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### **1.1 Description**

In the course of the digital transformation of engineering hydrological, hydraulic engineering and environmental engineering planning, digital methods are playing an increasingly important role. The focus of the activities is on the use of subject-specific software systems, their programmatic adaptation, the cross-system use of data and an innovative visualization in line with engineering requirements to understand the task. The modules of this job description impart skills for the successful execution of the innovative engineering tasks described.

**Module recommendation for the combination of specialisations in the "Subject-specific elective area (basic modules of the specialisations)" in the amount of 36 CP (18 CP per specialisation)**

Focus on "Engineering Hydrology and Hydraulic Engineering":

- Ingenieurhydrologie II (13-L1-M002), 6 CP
- Methods of Spatial Analysis in Hydrology (13-L1-M016), 3 CP
- Hydraulic Engineering II: River Engineering, Flood Protection and Hydropower Use (13-L2-M001/3), 3 CP
- Hydraulic Engineering III: Hydraulic Engineering, Water Development, Ecohydraulics (13-L2-M018), 3 CP
- Hydraulic Engineering IV: Hydraulic Engineering Experiments (13-L2-M003/3), 3 CP

Focus on "Environmental Monitoring":

- Geodatabases II (13-B1-M020), 6 CP
- Geoinformationssysteme II (13-B2-M009), 6 CP
- Remote Sensing II (13-G0-M013), 6 CP

**Modules of the subject-specific elective area, 36 CP:**

- Engineering Informatics I (13-F0-M003), 6 CP
- Engineering Informatics II (13-F0-M004), 6 CP
- Geoinformationsrecht I (13-B1-M056), 3 CP
- Geoinformationsrecht II (13-B1-M057), 3 CP
- Engineering Modelling and Visualization (13-F0-M006), 6 CP
- Management Methods in Civil and Environmental Engineering (13-F0-M005), 6 CP
- Environmental Information Systems (13-F0-M012), 6 CP

### **1.2 Further information on the job description:**

The following module can be chosen as an additional service to round off the job description:

- High-Performance Simulations in Engineering (13-F0-M011), 6 CP

### **1.3 Advice on the job description:**

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