

Master's Thesis (MA, 30 ECTS)

Working Title Building Information Modelling (BIM) in tunnelling

Description

Digitalisation is now an essential part in the construction industry. One of the newest and most innovative technology in this field is Building Information Modelling (BIM). The principal of BIM is to first build virtual and then real. BIM is widely known for its application in structural engineering, but more and more infrastructure projects, such as tunnel projects, use BIM.

The goal of this master's thesis is to identify points of intersection of the different processes for constructing a tunnel with BIM. For this, collisions between the different processes and models have to be studied. Most of these models have a connection to numerical modelling; the connection between those two types of modelling should also be explored. The different models and steps are:

1. Digital Terrain Model
2. Land use model (zoning, land registry)
3. Geological model (geology and hydrogeology)
4. Building model (building masses)
5. Design model
6. Maintenance

BIM is much more than raising the level from 2D into the third dimension, more levels can be included, such as 4D (time), 5D (cost) and 6D (maintenance).

Special attention should be given to the problem of support systems in tunnelling. This problem arises because adaptations can occur during construction, for example due to an unexpected geology. It is another goal of this master thesis to investigate the support systems in BIM in detail.

Templates for a scientific report are on the institute's homepage. There is also a guideline for scientific writing that can be downloaded from this homepage. This master project has to be written in English.

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Start immediately / by appointment

Duration approx. 6 months

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