Universität Stuttgart

Baustatik und Baudynamik

Bachelor Thesis

# Principle of Cantilever Bridges on the Example of the Forth Bridge

Bridges stand out in the field of structures because of their special requirements. Often, very large spans have to be overcome, and sufficiently high but also wide passageways have to be guaranteed underneath. They are essential for creating direct routes and crossing points in a highly interconnected, modern infrastructure.

The Forth Bridge in Scotland is a steel railway bridge built in the late 19th century. At the time of its construction, it was the largest spanning structure worldwide, and it was one of the first bridges to be built as a cantilever bridge.

The objective of this thesis is to thoroughly investigate the principle of the cantilever bridge using the example of the Forth Bridge. The aim is to find out why the cantilever bridge allowes such large spans and what the limits of this system are. The structural analysis is to be based on a truss model of the bridge.

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The Forth Bridge at the Firth of Forth in Scotland

**The specific tasks are**

- detailed description of the load transfer
- performance of structural analysis on truss models
- investigation of the special features of the construction
- thorough elaboration and documentation of the results

**Recommended fields of interest**
structural analysis, bridges