

BIWE-12: Safety concepts

Contents of this module

- Safety of structures, forecast and assessment of risk, limit states and failure of structures
- Concepts for description of uncertainty and safety
- Level 3-Analysis (stochastic concepts for assessing the safety of structures, integral formulas for failure probability)
- Level 2-Analysis (approximation methods for the computation of failure probability, safety index, reliability theory first and second order)
- Level 1-Analysis (semi-probabilistic safety concepts, partial safety factors, application of standards)
- Time series and load processes
- Model based and model free calculation methods

After completion of the module, students will be able to assess the safety of structures by applying advanced numerical methods.

Prerequisite Knowledge

- Basics in differential calculus, integral calculus, and probability theory
- Good knowledge from the module BIWO-04 as well study competence from the module BIWO-05

Topics of Project and Master Thesis

- In general: - Efficient meta-model based methods for global sensitivity analysis of complex non-linear systems