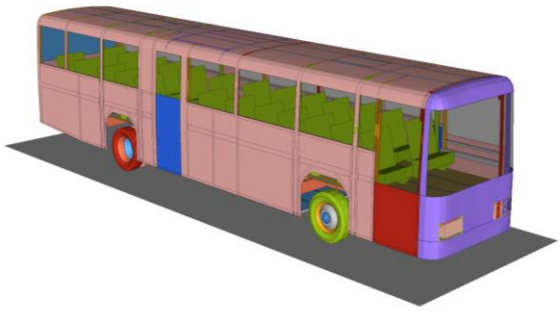
Vehicle Safety Insitute

Creation of a bus FE-Model according to prEN16303 requirements

Background

Crash tests (as defined in the norm EN1317) have been obligatory for the certification of road side barriers made of steel or concrete. However as computational ressources increase and numerical methods gain in trust, some parts of the certification may be approved numerically in the future. Therefor the pre-norm prEN16303 was formulated. This norm comprises modelling guidelines as well as validation procedures for car- as well as barrier models to be applied.



Source: VSI / TU Graz

Your goal in this thesis is to update an existing FE-bus model (13.000kg), that this model fulfils the requirements of prEN16303. Therefore, firstly the experiments for the validation shall be carried out and subsequently the model has to be reviewed and adapted accordingly. Finally a proof of concept needs to be done by validating the model with a set of past crash tests.

Tasks

- **Get familiar** with the subjects of explicite FE Analysis (LS Dyna) and impact testing against roadside barriers
- **Understand** the process of validation and verification in FEA
- **Develop** model approaches in line with requirements based on prEN16303

Literature

- Nycz, Daniel. (2016). Influence of impact angle and humidity on TB11 virtual crash tests for SP-05/2 road safety barrier. The Archives of Automotive Engineering. 73. 71-88.
- Pachocki, Łukasz & Wilde, Krzysztof. (2018). Numerical simulation of the influence of the selected factors on the performance of a concrete road barrier H2/W5/B. MATEC Web of Conferences. 231. 01014. 10.1051/matecconf/201823101014.

Recommended as

- Master thesis for Mechanical Engineers

Organizational

- Start: anytime
- Scholarship: min. € 2.500,- for successful completion of the thesis
- Contact: Gregor Gstrein, Desiree Kofler

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