Prof. Dr.-Ing. Stephan Freudenstein

Chair and Institute of Road, Railway and Airfield Construction

Technical University of Munich

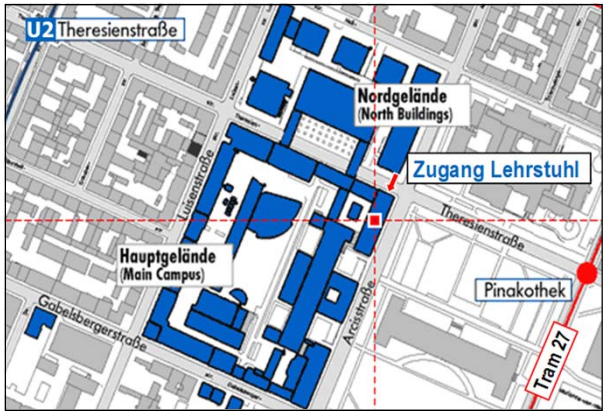
www.cee.ed.tum.de/vwb

Address of the Chair:

Arcisstraße 21
D-80333 Munich / Germany

Tel +49.89.289.22431
Fax +49.89.289.25384

verkehrswegebau.vwb@ed.tum.de

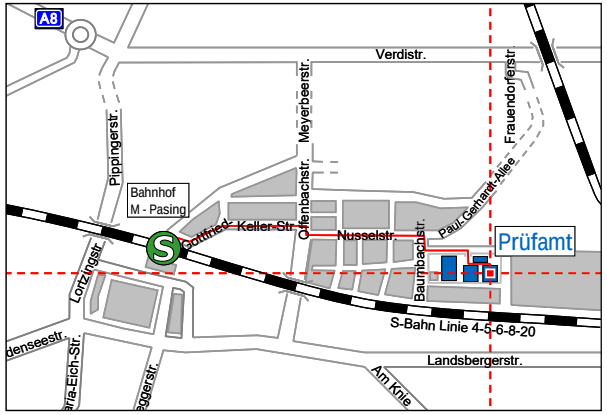


Address of the Institute:

Franz-Langinger-Straße 10
D-81245 Munich (Pasing) / Germany

Tel +49.89.289.27022
Fax +49.89.289.27042

verkehrswegebau.vwb@ed.tum.de



Chair and Institute of Road, Railway and Airfield Construction

Technical University of Munich

Prof. Dr.-Ing. Stephan Freudenstein

Chair of Road, Railway and Airfield Construction

TUM School of Engineering and Design

Technical University of Munich

Lectures Bachelor Programs:

Road, Railway and Airfield Construction Basic Module (Civil Engineering)/ Sustainable Infrastructure Planning Basic Module (Environmental Engineering), 5th Semester:

- Alignment and cross section-layout of road and railway
- Design and construction of the superstructure of road and railway

Road, Railway and Airfield Construction Supplementary Module, 6th Semester:

- Basics of vehicles and driving dynamics
- Calculation of the railway superstructure
- Switches, railway systems, railway system safety
- Noise protection along traffic routes

Road and Environment, 6th Semester :

- Incorporating road design into the environment

Lectures Master Programs:

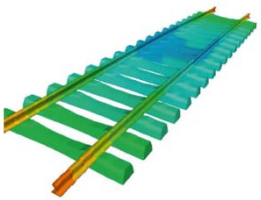
Compulsory Courses:

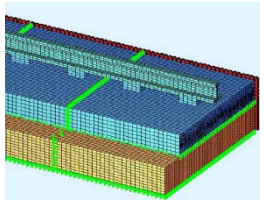
- Dimensioning in Road and Railway Construction:
  - Asphalt Pavements
  - Concrete Pavements
- Selected Topics Road and Railway Construction:
  - Structural Design of Airfields
  - Noise and Vibration Protection on Railways

Elective Courses:

- Planning Module
- Practice Module
- Simulation Module
- Railway Module
- BIM Infra
- Project Study

Research Focus

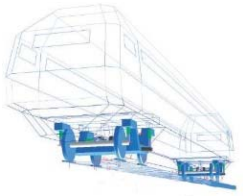




Theoretical Analysis

Railway Superstructure and its Components

Road Pavements in Asphalt and Concrete



Measurements in Operational Tracks

Laboratory Experiments

Institute of Road, Railway and Airfield Construction

For more than 65 years, we have been involved in research in road, railway and airport construction with international clients, public institutions, companies and foundations.

We were significantly involved in the development of the continuously welded track, the pre-stressed concrete sleeper and the slab track as well as the construction method without joints in concrete road construction. The results are documented in over 4500 research reports.

Current research topics:

- Vehicle-track interaction
- Early detection of discontinuities in the track
- Sleepers made of innovative materials
- Highly elastic rail fastenings
- Vibration behavior of different types of superstructure
- Structural design of road superstructures
- Continuously reinforced concrete pavements

Equipment:

- Servo-hydraulic testing machines for experimental superstructure research
- Rolling test bench for superstructure and pavements as well as expansion joints
- Equipment for optimizing structure-borne noise and vibration shielding
- Large-scale test rig for tests on complete superstructure systems of roads and railways with a scale of 1:1
- Salt spray test for corrosion testing
- Measurement technology and data processing for laboratory and operating tracks
- 3D-Scanner and DIC-cameras (2D & 3D)
- Simulation Lab