Dlubal

Structural Analysis & Design Software

www.dlubal.com

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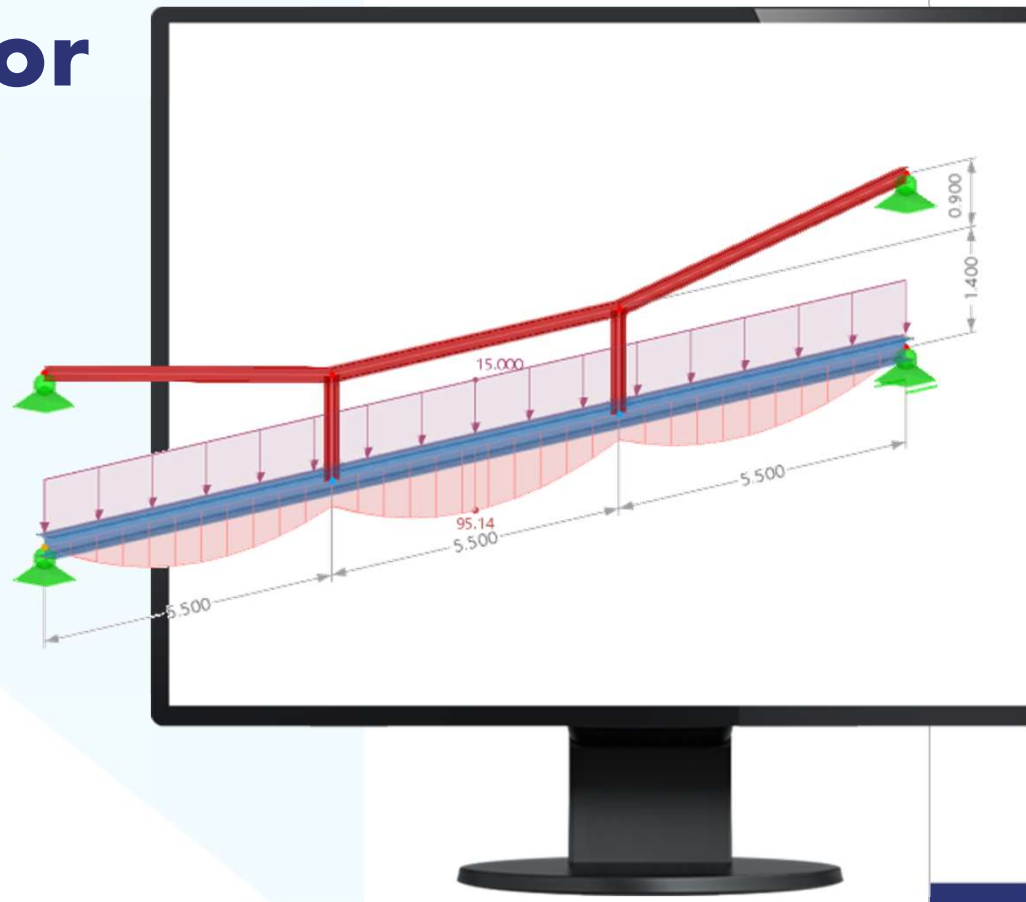
PART 1 | Introduction to Member Design

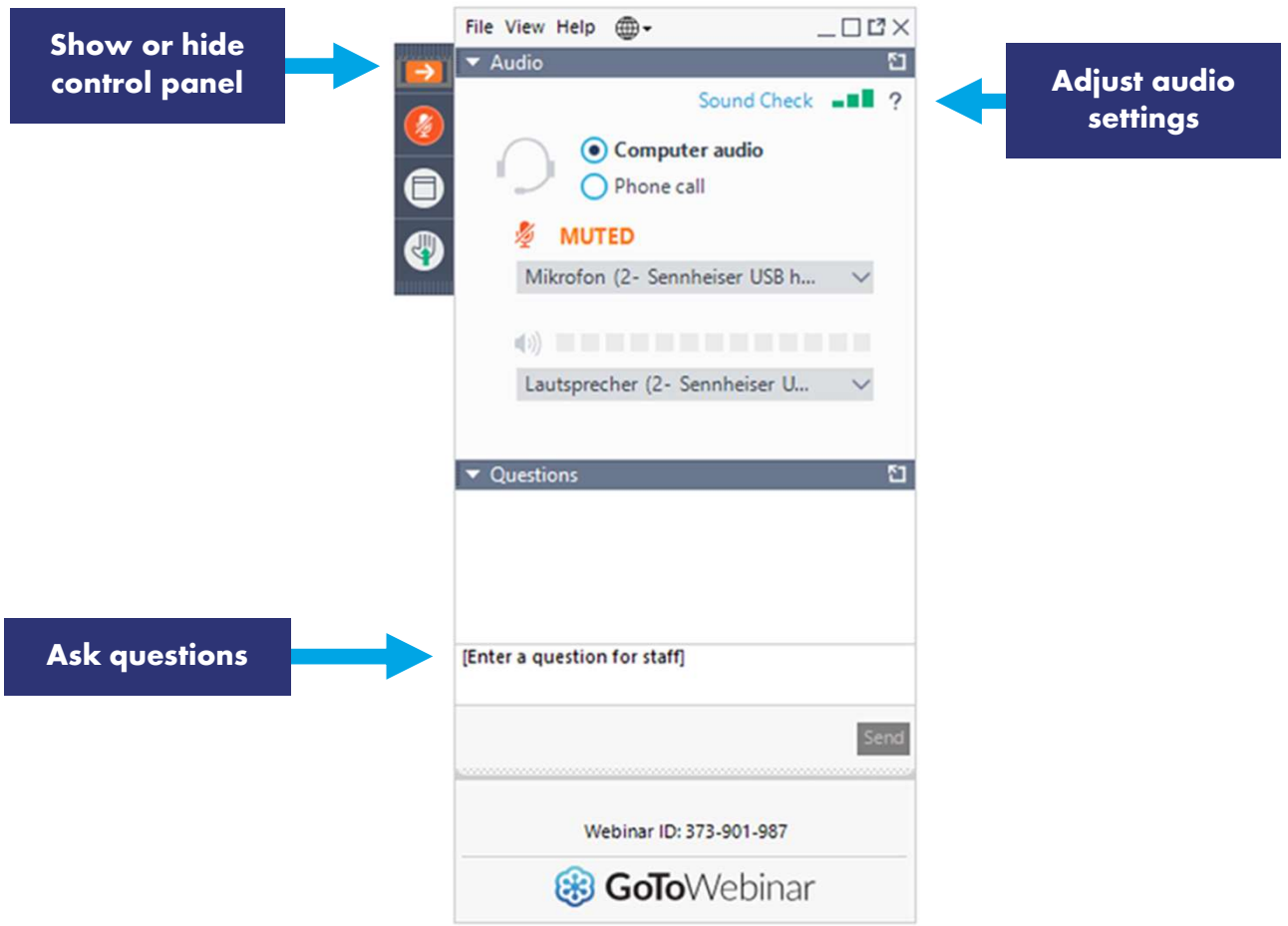
RFEM 6 for Students



Questions during the presentation

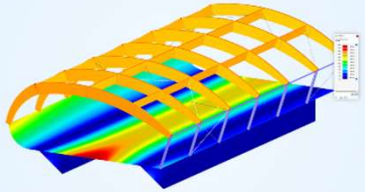
GoToWebinar Control Panel
Desktop

E-Mail: **info@dlubal.com**



EVENT SCHEDULE

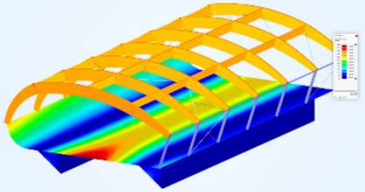
Online Training | English



Wed, Apr 10, 2024 | 4:00 PM - 7:00 PM CEST

RFEM 6 | Students
Member Design

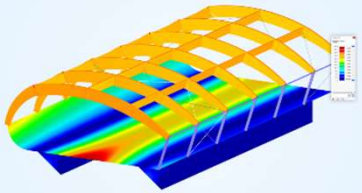
Online Training | English



Wed, Apr 17, 2024 | 4:00 PM - 5:00 PM CEST

RSECTION 1 | Students
Strength of Materials

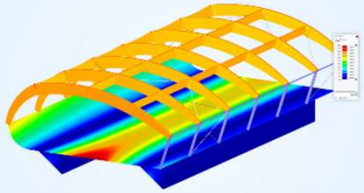
Online Training | English



Wed, Apr 24, 2024 | 4:00 PM - 7:00 PM CEST

RFEM 6 | Students
FEM

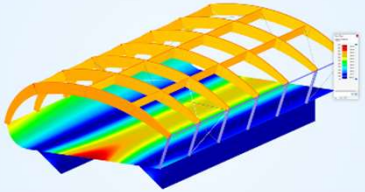
Online Training | English



Tue, Apr 30, 2024 | 4:00 PM - 5:00 PM CEST

RFEM 6 | Students
Timber Design

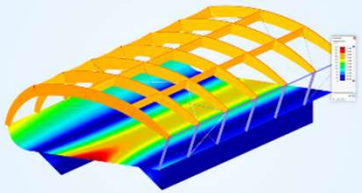
Online Training | English



Wed, May 8, 2024 | 4:00 PM - 5:00 PM CEST

RFEM 6 | Students
Reinf. Concrete Design

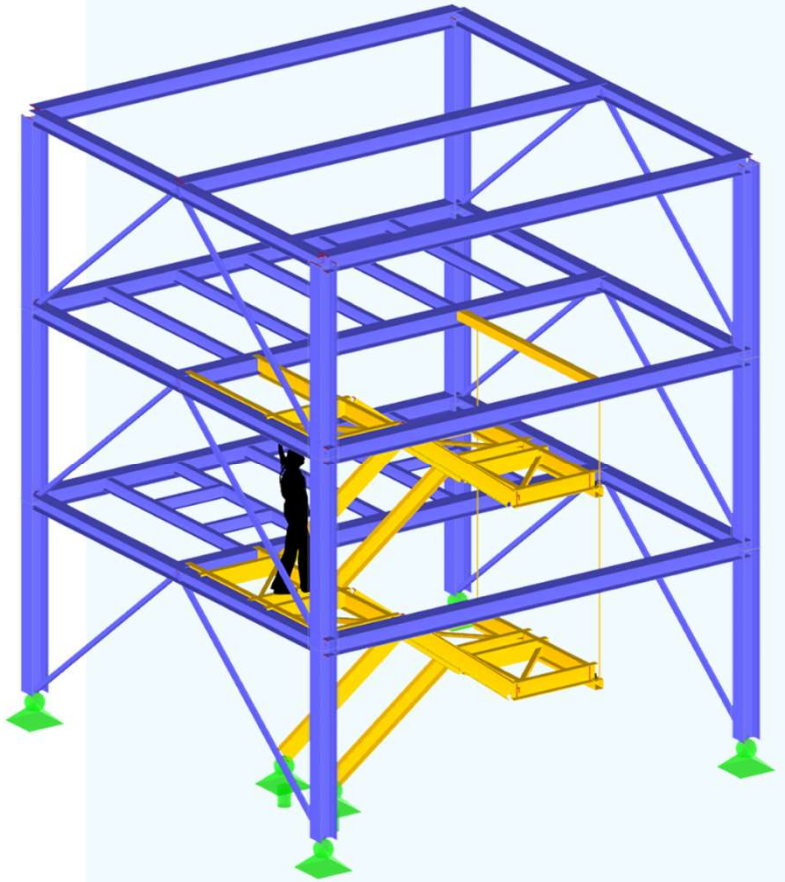
Online Training | English



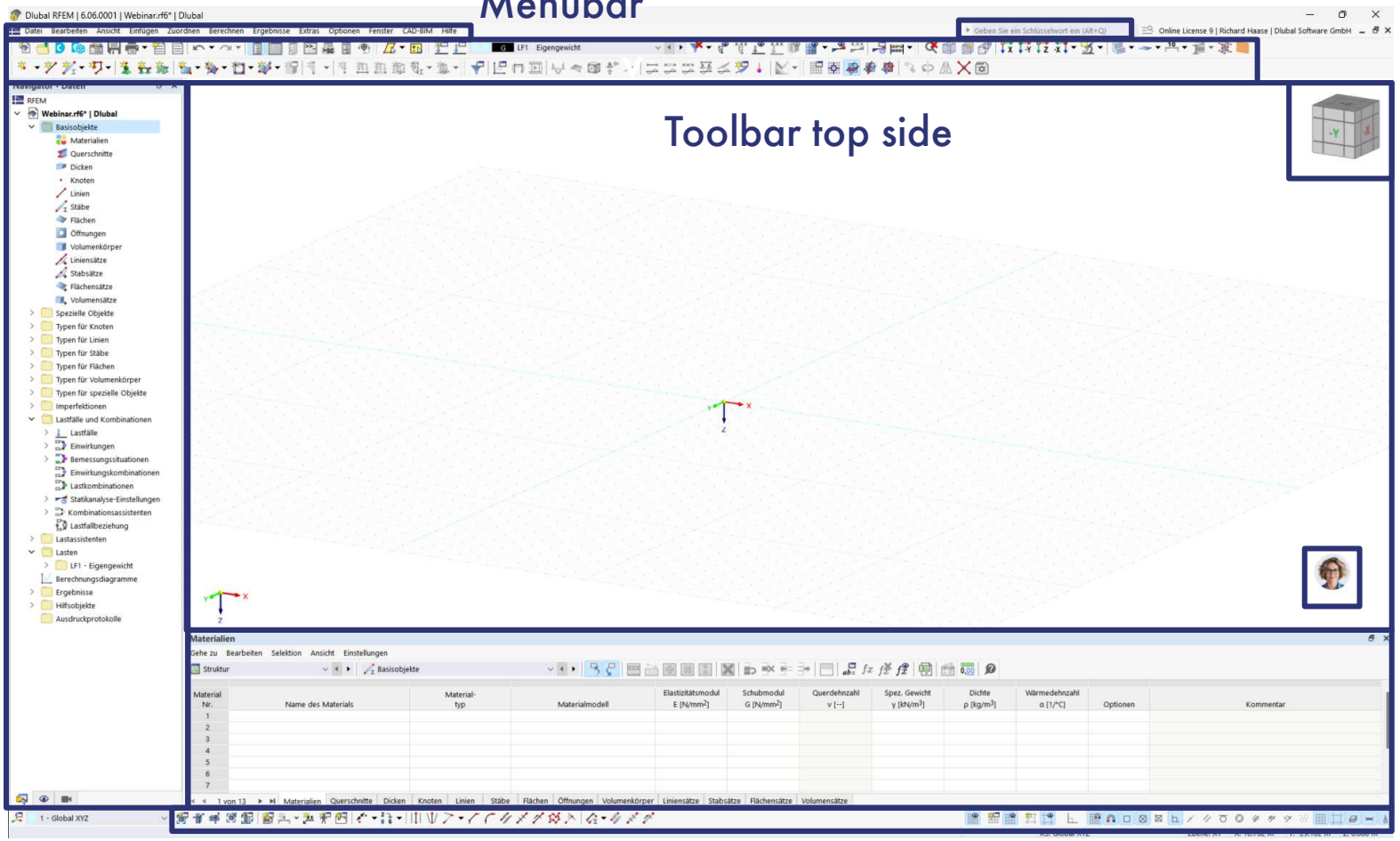
Wed, May 15, 2024 | 4:00 PM - 5:00 PM CEST

RFEM 6 | Students
Steel Design

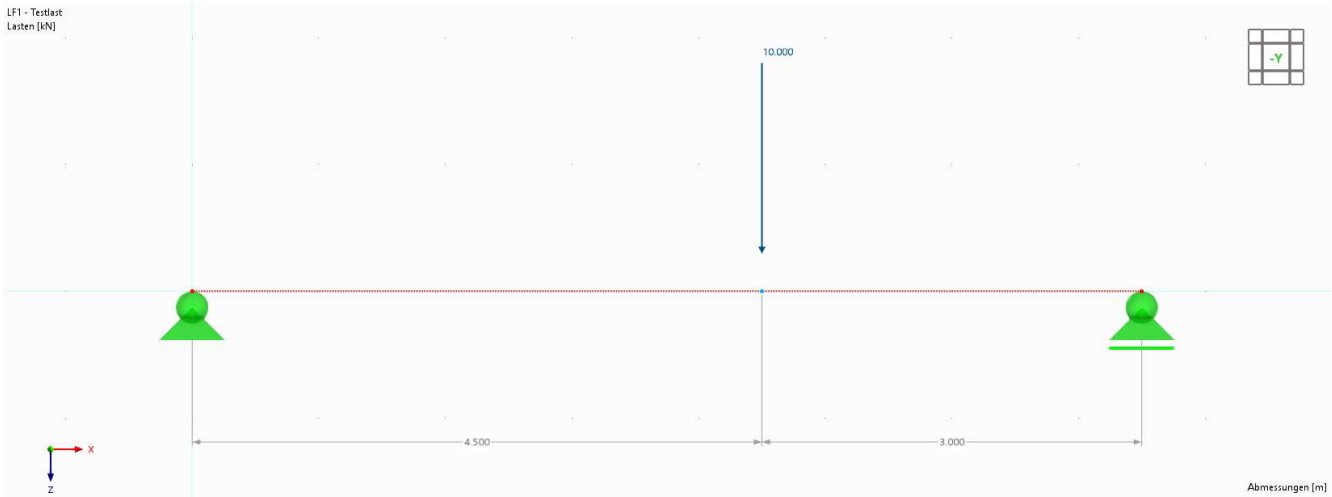
CONTENT



User-Interface



Single-span beam with concentrated load



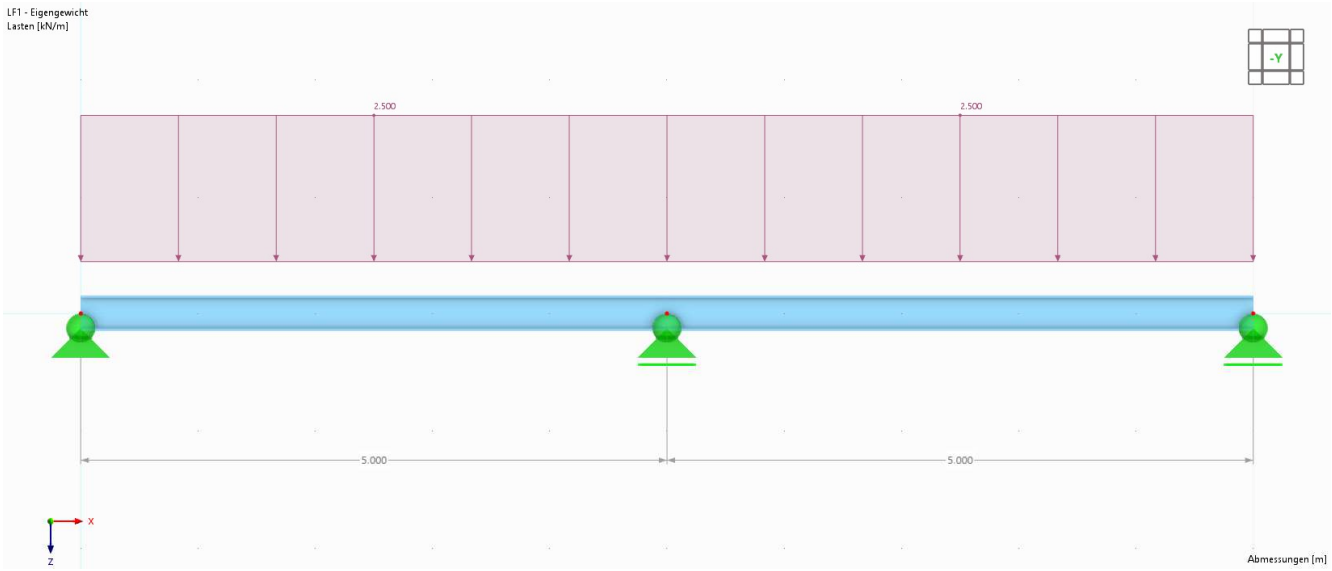
Step by Step

- Modeling
- Loadcases and Loads
- Calculation
- Results

Result interpretation

- Support Reaction
- Internal Forces
- Deformation

Two-span beam with altering load position



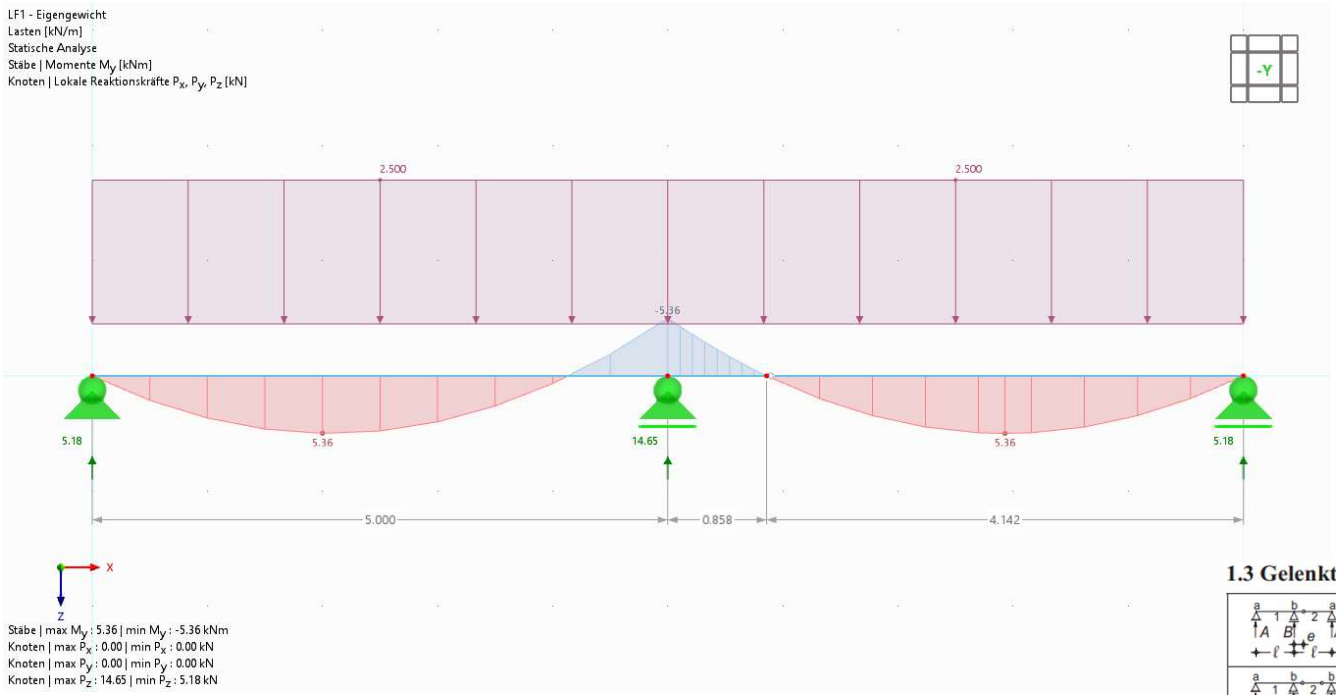
Information

- HEB 300, S235
- LC 1: Self-weight | g = 2,5 kN/m
- LC 2: Imposed load left| q = 5,0 kN/m
- LC 3: Imposed load right| q = 5,0 kN/m

Tasks

- Determine the support forces, internal forces and deformations
- Determine the governing load combination that causes the largest internal forces

Gerber beam / Hinged beam



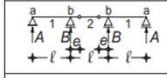
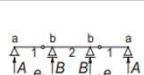
Information

- Schneider Bautabellen (24. Edition): page 4.13
- Eccentricity e: 0,1716 x L

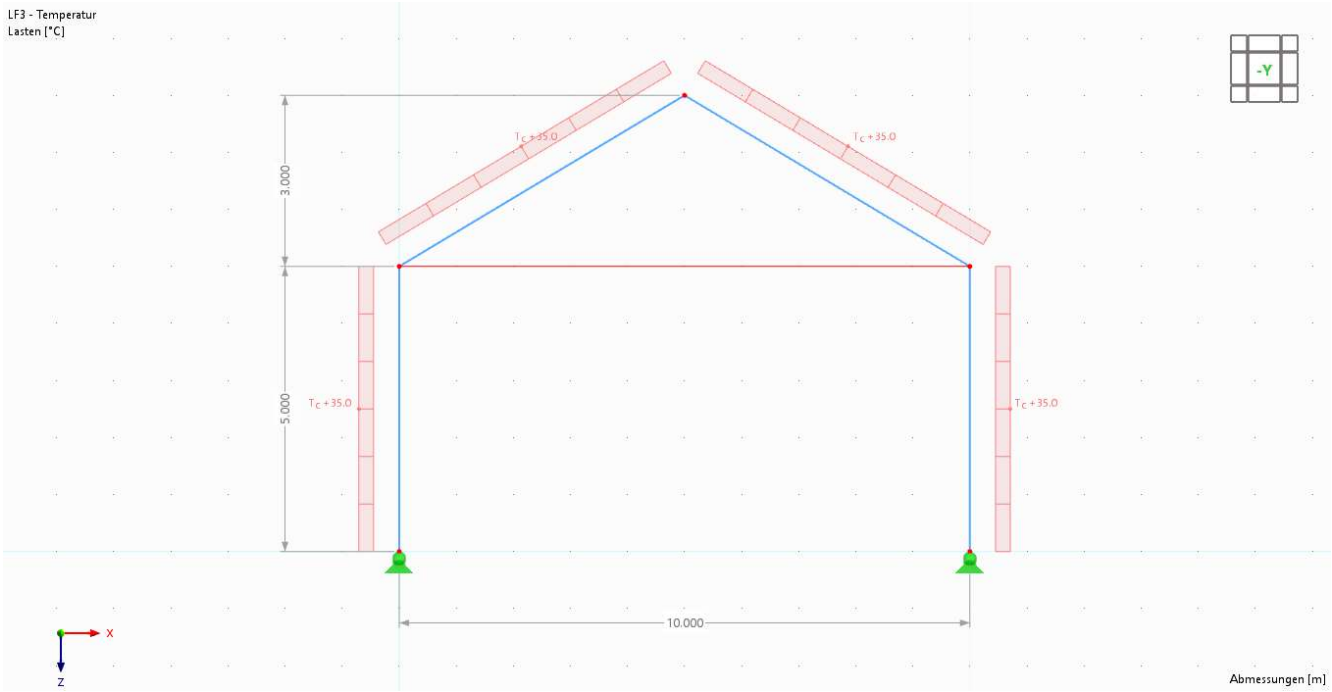
Tasks

- Parametrize the structure

1.3 Gelenkträger (Gerberträger) [1] mit Streckenlast q

	$e = 0{,}1716\,l$	$A = 0{,}414\,ql$ $B = 1{,}172\,ql$	$M_1 = 0{,}0858\,ql^2$ $M_2 = 0{,}0858\,ql^2$ $M_b = -0{,}0858\,ql^2$	$f_1 = \frac{ql^4}{130\,EI}$
	$e = 0{,}22\,l$	$A = 0{,}414\,ql$ $B = 1{,}086\,ql$	$M_1 = 0{,}0858\,ql^2$ $M_2 = 0{,}0392\,ql^2$ $M_b = -0{,}0858\,ql^2$	$f_1 = \frac{ql^4}{130\,EI}$
	$e = 0{,}1250\,l$	$A = 0{,}438\,ql$ $B = 1{,}063\,ql$	$M_1 = 0{,}0957\,ql^2$ $M_2 = 0{,}0625\,ql^2$ $M_b = -0{,}0625\,ql^2$	$f_1 = \frac{ql^4}{130\,EI}$
	$e = 0{,}1716\,l$	$A = 0{,}414\,ql$ $B = 1{,}086\,ql$	$M_1 = 0{,}0858\,ql^2$ $M_2 = 0{,}0392\,ql^2$ $M_b = -0{,}0858\,ql^2$	$f_1 = \frac{ql^4}{130\,EI}$

Two-hinged frame with tie rod



Information

- Frame: HEB 300, S235
- Tie rod: R30
- LC 1: Snow| s = 1,0 kN/m
- LC 2: Wind | w = 1,0 kN/m
- LC 3: Temperature increase of the frame Tc = 35 K

Tasks

- Determine the support forces, internal forces and deformations

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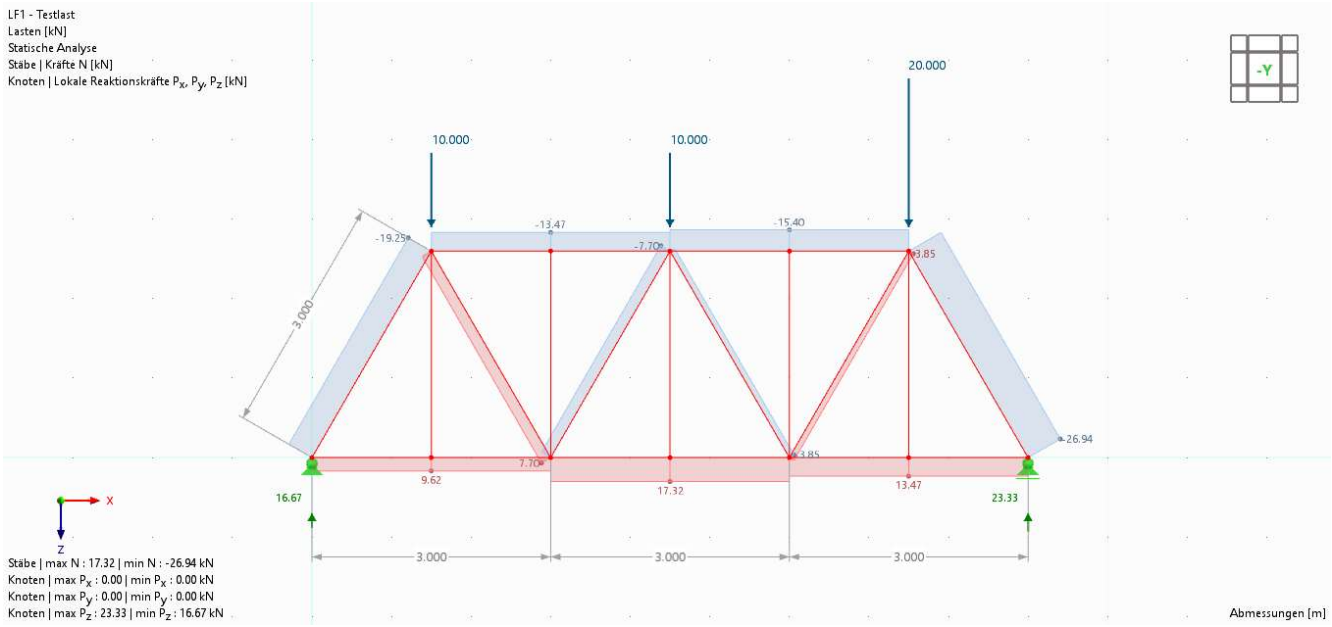
Coffee Break

Ideal truss structure



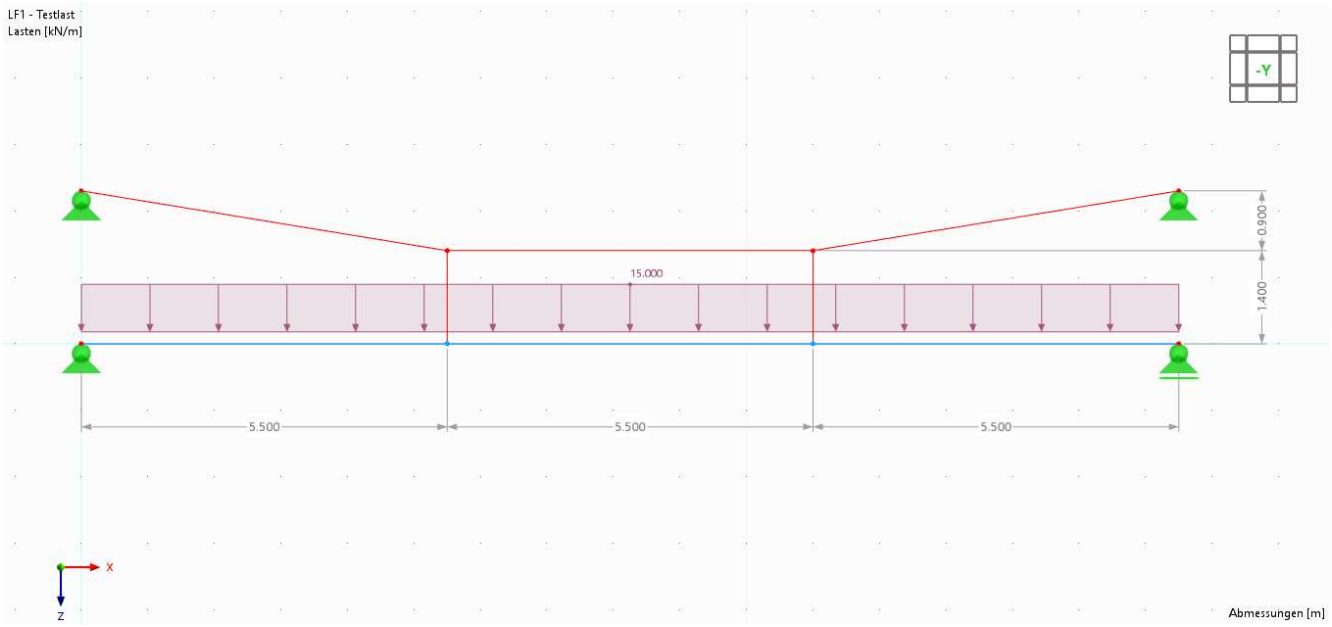
Information

- Members: HEB 300, S235
- Nodal loads as indicated
- Member Type: Truss (only N)

Tasks

- Determine the support forces and internal forces
- Determine the null members
- Which members are loaded in tension / compression?

Suspended single-span beam



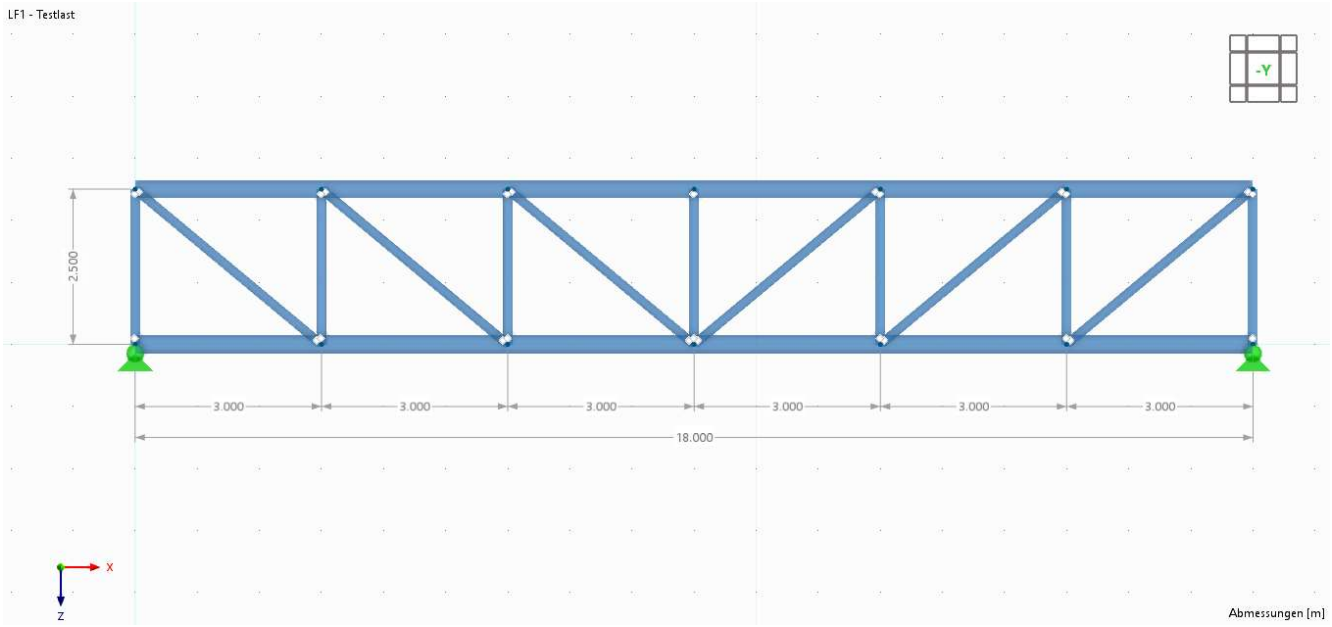
Information

- Truss members: IPE 200, S235
- Beam: HEB 300, S235
- Distributed load: q = 15 kN/m

Tasks

- Determine the support forces and internal forces

Generated truss structure



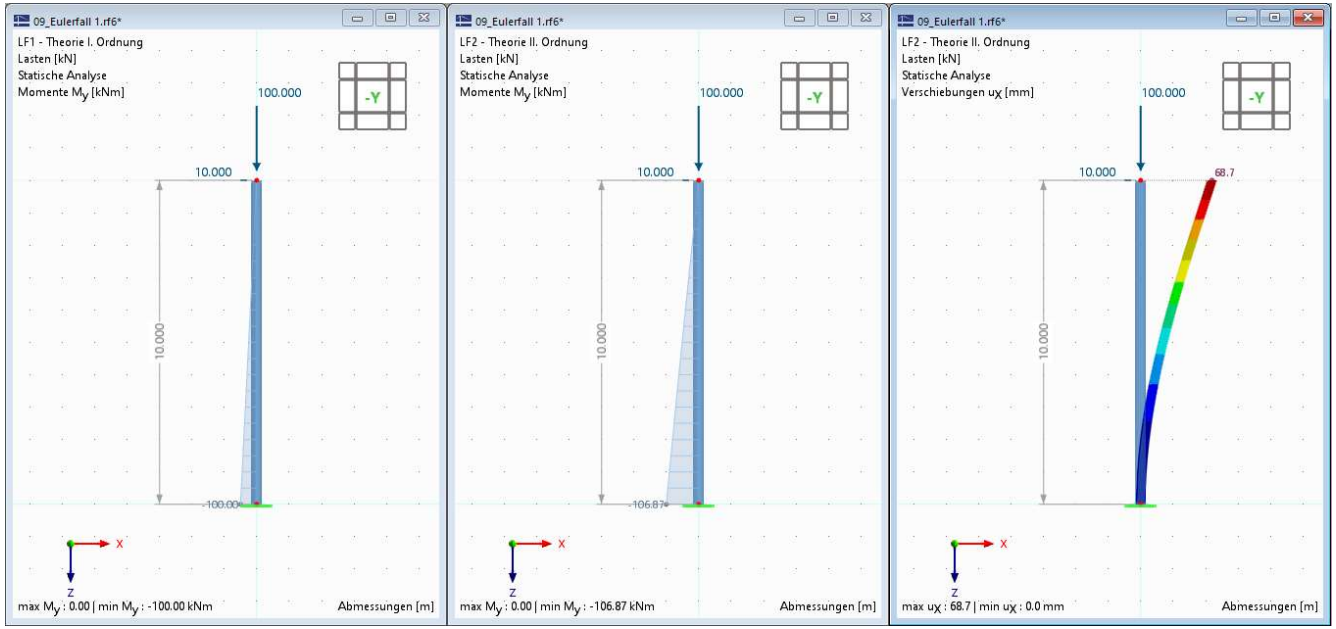
Information

- Upper/lower Chord: HEA 300, S235
- Diagonals: IPE 160, S235
- Posts: HEA 160, S235

Tasks

- Get familiar with blocks
- Replace the beam members with regular truss members

Fixed column | 1st and 2nd order theory



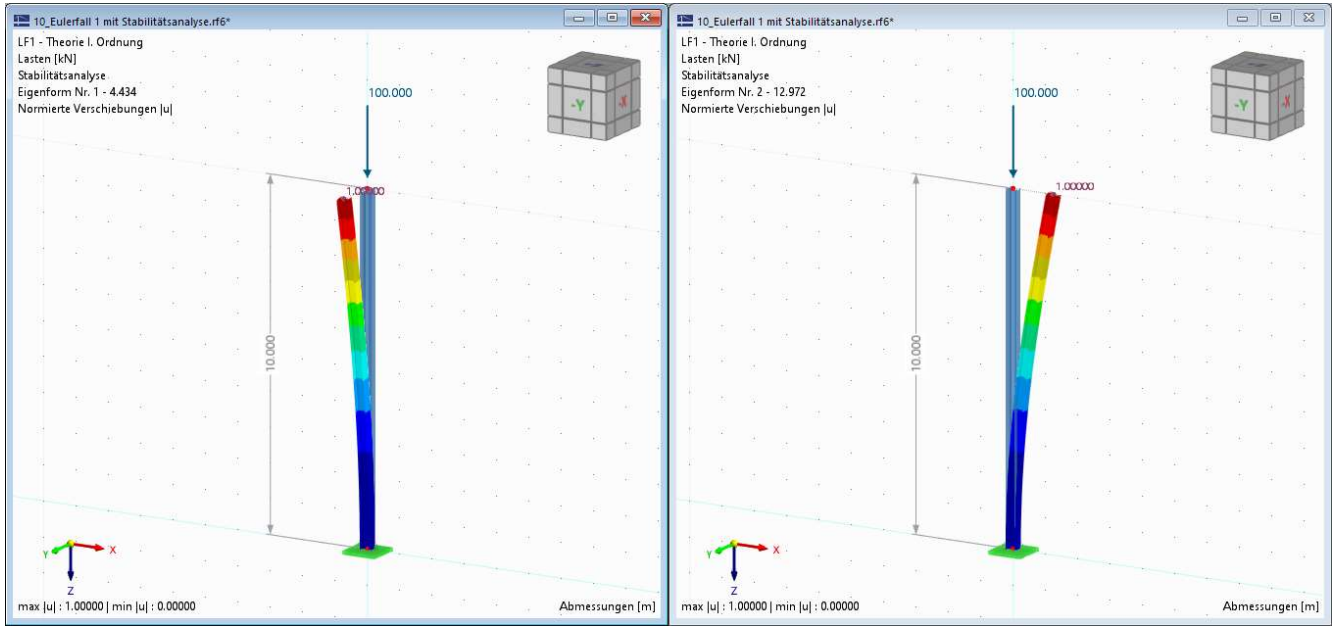
Information

- Fixed column: HEB 300, S235
- Nodal load: Pz = 100 kN, Px = 10 kN

Tasks

- Study the influence of 2nd order theory on the resulting internal forces and deformations

Euler-Case 1 | Mode shapes



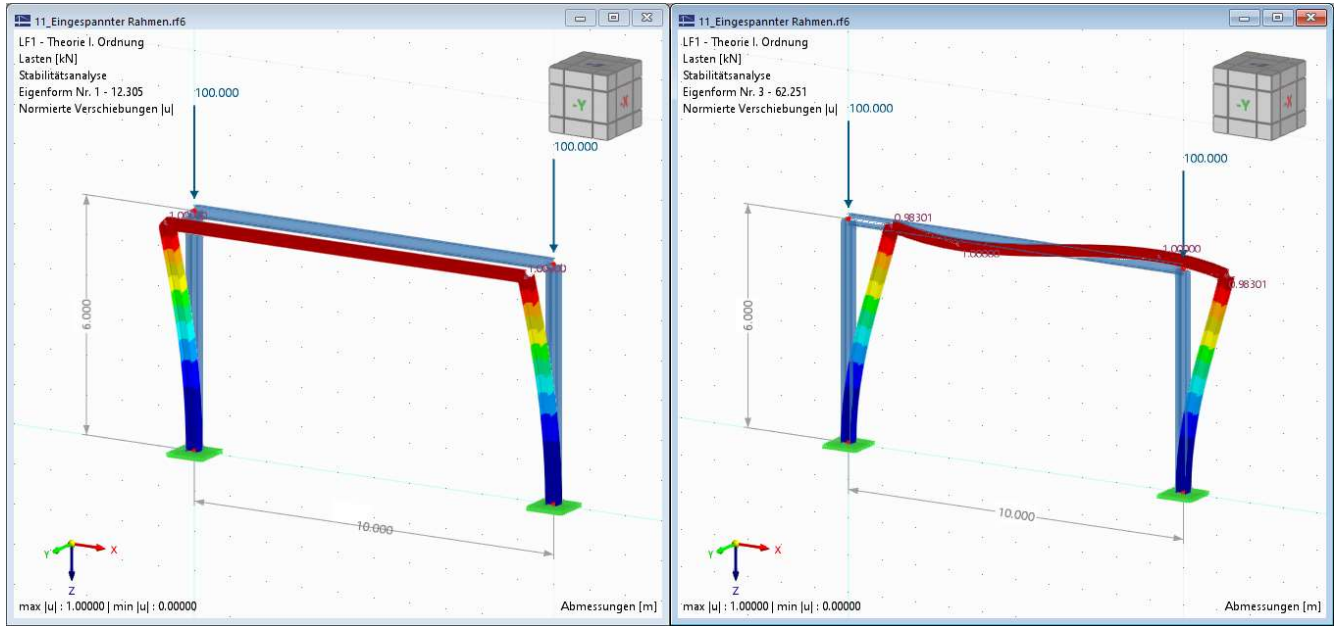
Information

- Fixed column: HEB 300, S235
- Load: Pz = 100 kN
- Add-on: Structure Stability

Tasks

- Calculate the critical load of a cantilever
- Determine the critical lengths for buckling about the minor and major axis of the cross-section

Fixed frame | Mode shapes



Information

- Columns: HEB 300, S235
- Beam: IPE 300, S235
- Add-on: Structure Stability required

Aufgaben

- Compare the different mode shapes
- How to prevent the frame from buckling out-of-plane?

Open Discussion

Any Questions

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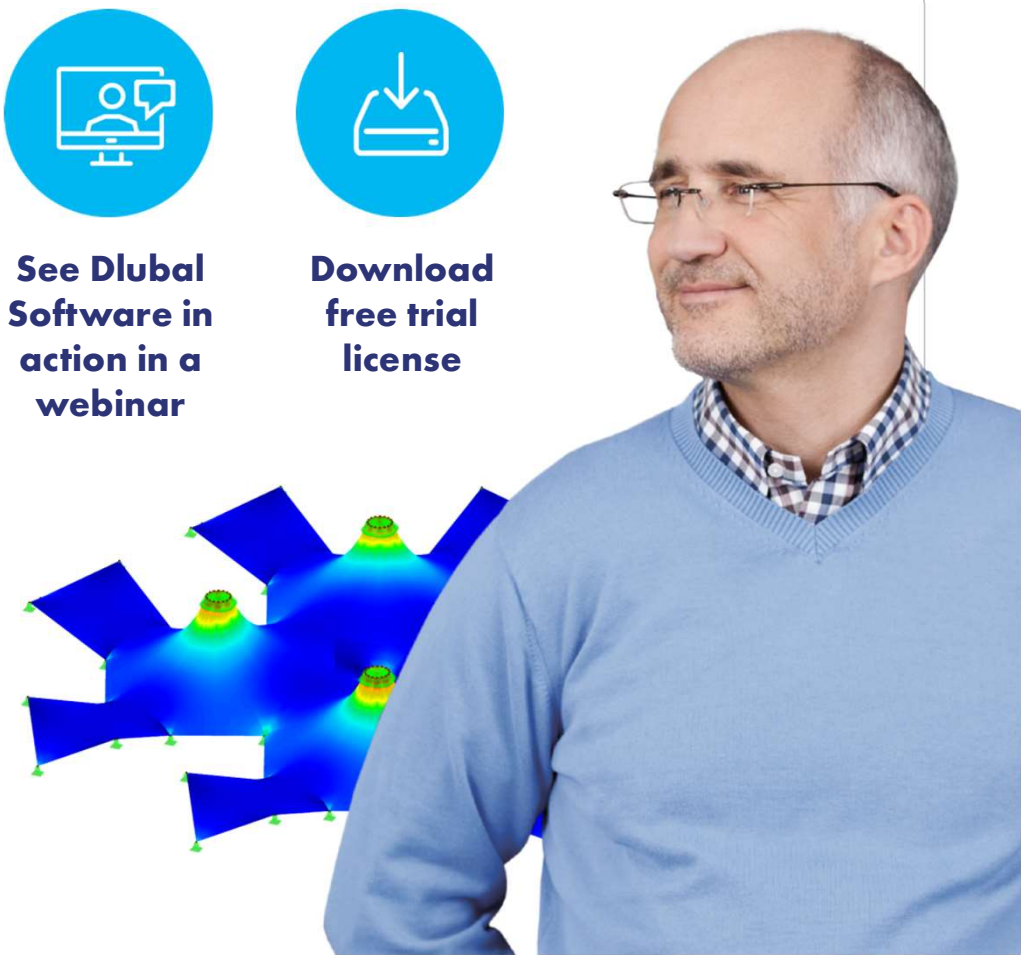

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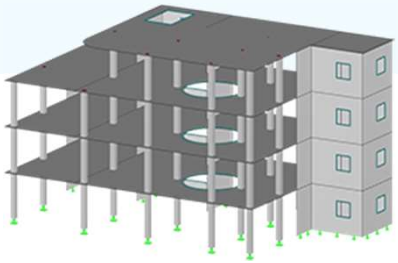
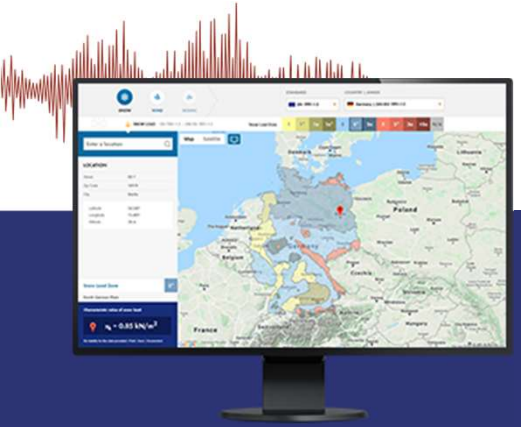


Free Online Services

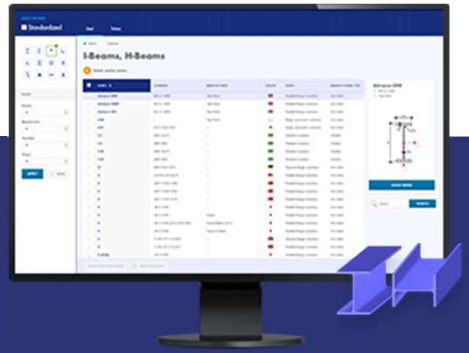
Geo-Zone Tool

Dlubal Software offers an online tool for determining the characteristic load values of the relevant load zone.



Cross-Section Properties

With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.



FAQs & Knowledge Base

Check out the frequently asked questions our customer support team is asked and get helpful tips and tricks with our technical articles to improve your work.

Models to Download

Download numerous example files that help you to get started and become familiar with the Dlubal programs.

Free Online Services

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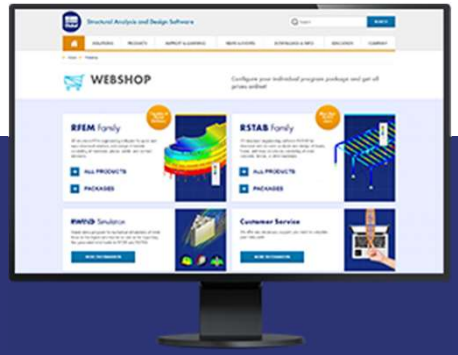
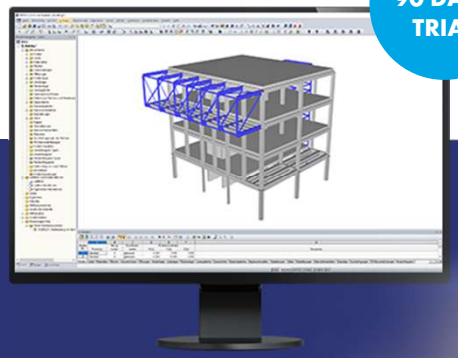
Customize your program package and get all prices online!



Trial Versions

The best way how to learn our programs is to simply test them yourself. Download the free 90-day free trial version of our structural analysis & design software.



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