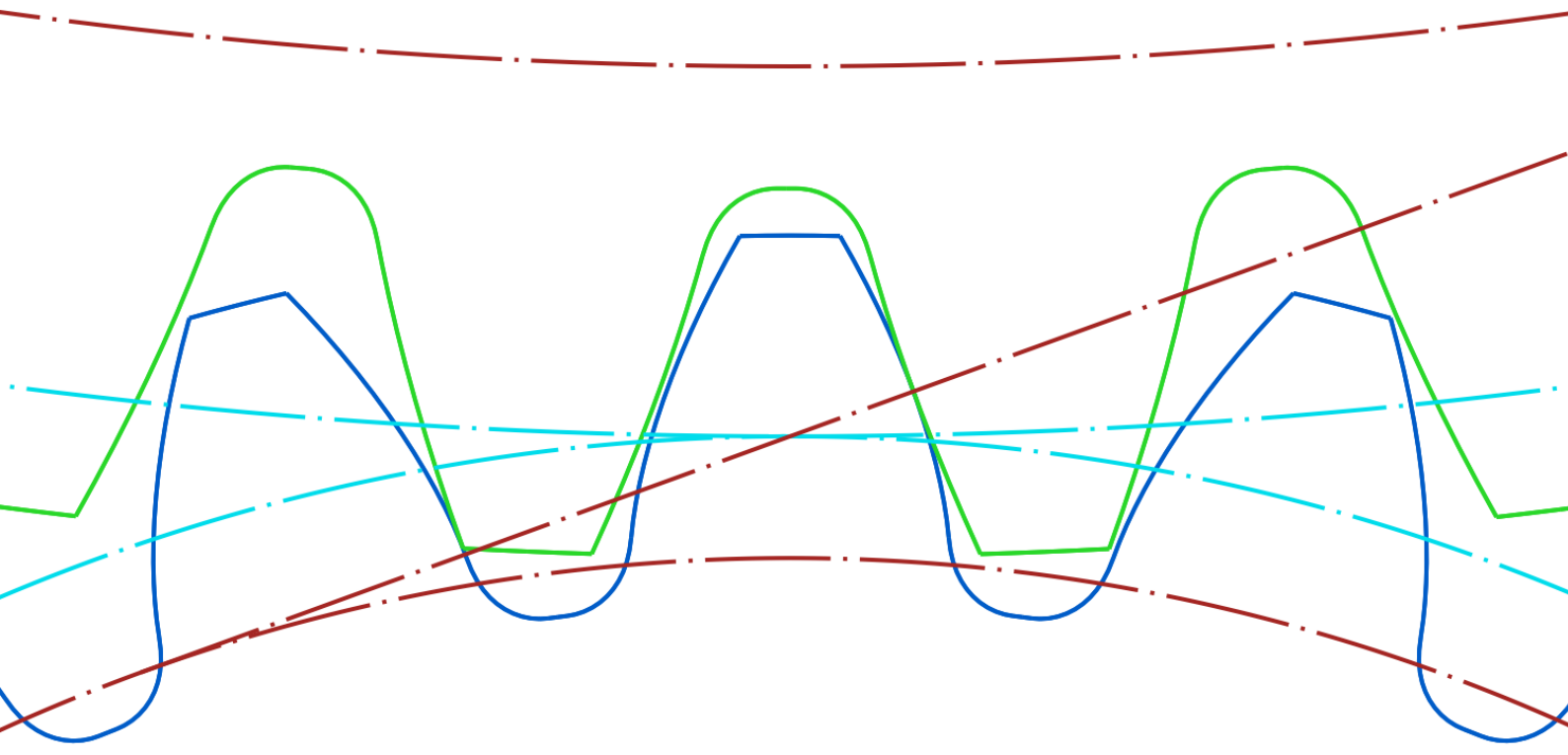
A Gleason Company KISSsoft

KISSsoft Training

April 3rd – 5th, 2023 (3 days)



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Sharing Knowledge

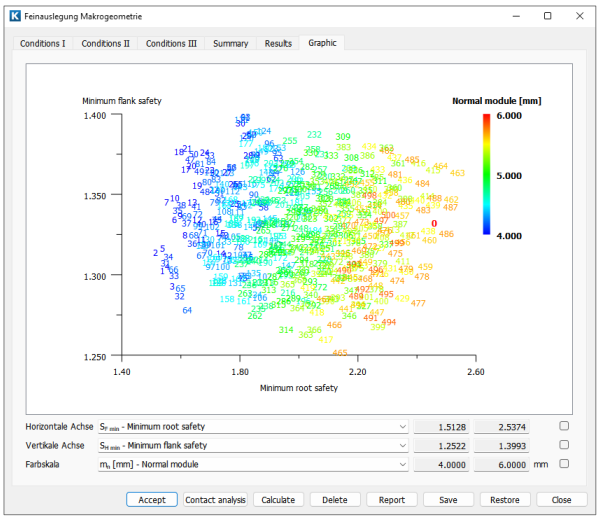
Day 1: April 3, 2023 – Basic: Gear Calculation

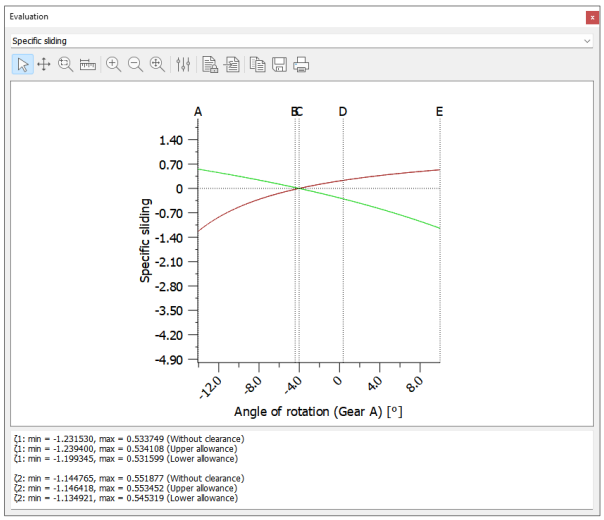
General Scope of the Program

- General settings
- Maintenance of technology data base (materials, bearings etc.)
- Settings and adaptations for reports
- Possibilities of project administration
- Generation and application of calculation templates

Helical Gear Calculation (Gear Pair)

- Main data input fields (basic data)
- Reference profile, definition and meaning
- Influence of the profile shift
- Definition of High tooth form
- Definition of tolerances, tooth thickness and back lash
- Possibilities to control the correct inputs
- Dealing with incomplete information
- Pre-sizing of new gears (Rough sizing)
- Optimization of gear pair using different criteria such as noise, vibration or strength (Fine sizing)
- Sizing of tip relief
- Evaluation of profile modifications and modified tooth forms
- Operation with graphics
- Special features of planetary stages and racks
- Manufacturing data for drawings





Day 2: April 4, 2023 – Basic: Shaft and Bearing Calculation

General Scope

- General settings
- Maintenance of technology data base (materials, bearings etc.)
- Settings and adaptations for reports, possibilities of project administration
- Generation and application of calculation templates, settings in kiss.ini

Shaft Editor

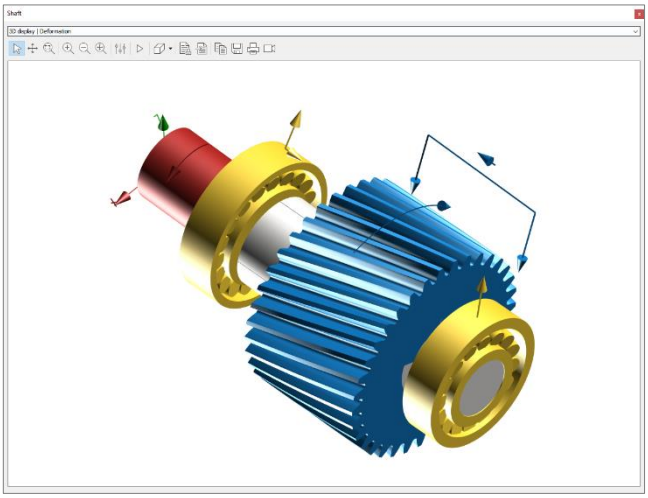
- Shaft modeling in shaft editor and use of elements tree, interpretation of results
- Sizing of bearings
- Sizing of cross sections for shaft strength and beam models

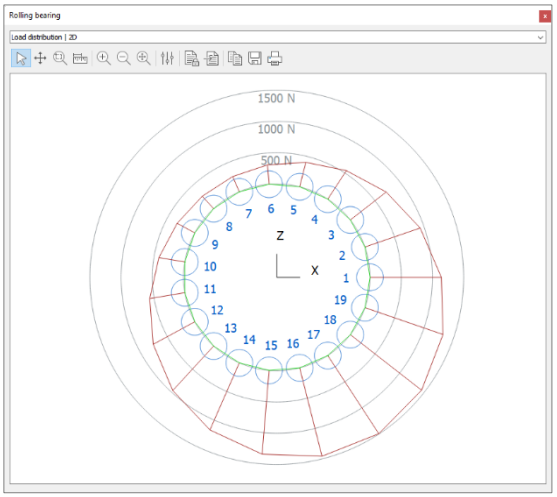
Shaft Calculation

- Shaft calculation including calculation of deformation
- Overview on shaft strength calculations
- Explanations to graphics and reports
- Various stress cases of gear modeling effects
- Consideration of temperatures

Bearing Calculation

- Overview of the ISO calculation methods
- Influence of bearing stiffness on displacements and forces
- Influence of inner geometry on bearing lifetime and bearing liability





Day 3: April 5, 2023 - Advanced: Cylindrical Gear Design, Analysis and Optimization

Geometry of Cylindrical Gears with Involute Profile

- Tooth form for spur and helical gears, external and internal gears
- Profile shift, Grinding stock allowance, Manufacturing profile shift
- Sizing profile shift coefficient and deep tooth form
- Backlash (Theoretical and Operating), Tip clearance
- Tolerances and allowances, Quality and deviation

Strength of Cylindrical Gears

- Calculation of safety factors
- Calculation of the flank safety according to ISO 6336:2019
- Calculation of the root safety according to ISO 6336:2019
- K factors
- Exercises

Basics of Tooth Contact Analysis (LTCA)

- Face load factor calculation according to ISO 6336-1 Annex E
- Transmission error and its relationship with vibration and noise
- Effect of the deviation and inclination error of the axis
- Exercises

Strategies for Gear Design Optimization

- Rough sizing to define the raw dimension of gears
- Fine sizing to define the macro geometry of gears
- Modification sizing to define the micro geometry of gears