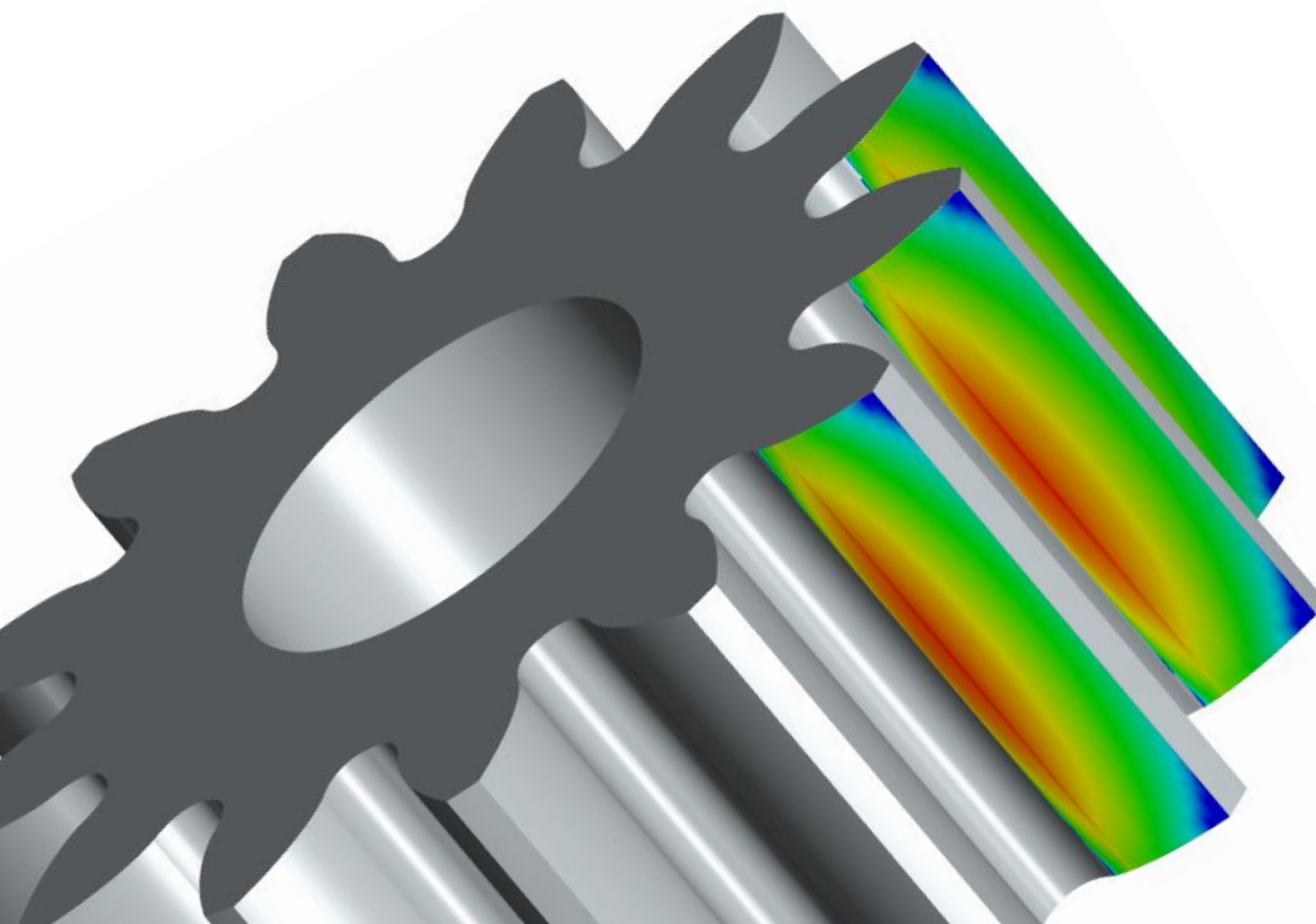


KISSsoft Live Stream Training

Special: Contact Analysis for Cylindrical Gears and Planetary Systems

September 26-28, 2023



The below schedule is shown in time zone CET 2:00 pm – 6:00 pm (Brussels) and does include breaks and Question & Answer Sessions.

Session 1: September 26, 2023

Introduction

I

Face load factor according to ISO 6336-1 Method C

Face load factor according to ISO 6336-1 Annex E

Sizing and optimization of tooth trace modifications

Session 2: September 27, 2023

Session 1 recap

Contact analysis: Theory of contact stiffness calculation

Interpretation of results / KISSsoft UI

Sizing and optimization of profile modifications

Session 3: September 28, 2023

Session 2 recap

Contact analysis: Additional results

Specialties (module specific settings)

Contact analysis for planetary gears

Topics of the Theory Part

Introduction to the Theory of Face Load Calculation

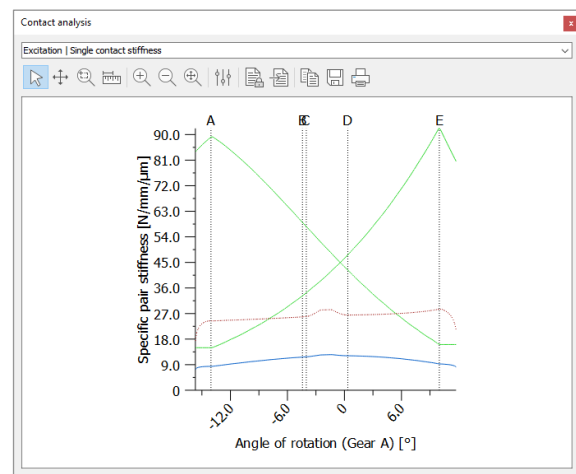
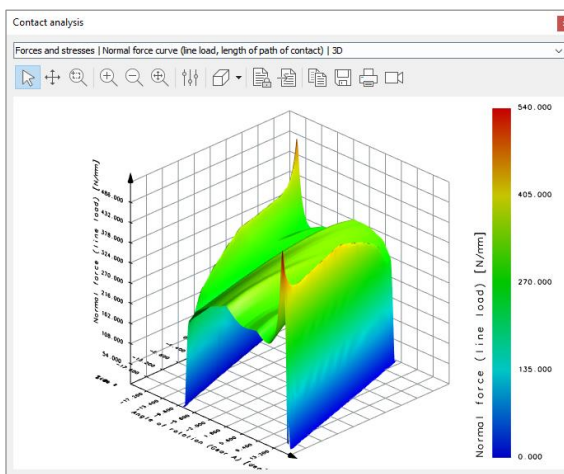
- Face load factor $KH\beta$ according to ISO 6336-1, Appendix E
- Taking into account manufacturing allowances in $KH\beta$ calculation according to ISO 6336-1, Appendix E
- Importance of tooth pair spring stiffness
- Characteristics of tooth pair spring stiffness according to ISO 6336-1
- Use of face load factors in load spectrum calculation

Theory of Stiffness Calculation

- Tooth pair spring stiffness according to the Weber/Banaschek analytical method
- Importance of system, tangent and secant stiffness
- Possible methods for calculating contact stiffness
- Importance of the correction coefficient for Hertzian stiffness
- Differences to the FE approach and comparison with other programs commonly used in Germany
- Defining the slice coupling factor
- Approximation and effects of helical gear teeth
- Defining the border weakening factor and its consequences on the buttressing effect

Interpretation of the most important Results

- Importance and interpretation of the transmission error
- Effect of transverse contact ratio and overlap ratio on the transmission error
- Identification of entry and exit impact
- Meaning of change of normal angle at the beginning of the profile modification
- How to identify and resolve numerical problems
- Importance and interpretation of the progressions of normal force, stress and kinematics



Topics of the Extended Contact Analysis, Planetary Systems, Sizing and Optimization Part

Extended Contact Analysis

- Defining the gear/planetary gear unit coordinate systems
- Defining the shaft coordinate system
- Importance of the inclination/deviation error of axis
- Taking the shaft calculation into account
- Problems of consistency in the shaft calculation

Contact Analysis with Planetary Gear Units

- Analytical model for planetary gear unit calculation
- Options and limits of planetary gear unit calculation
- Importance of calculating iterative load distribution
- Importance and correct configuration of axis alignment

Interpretation of the most important Results for Planetary Gear Units

- Meaning and interpretation of planetary stage transmission error
- Load distribution for planets

Sizing and Optimization of Modifications

- Defining profile and tooth trace modifications and their effects
- Sizing and optimizing modifications manually
- Sizing and optimizing modifications for load spectra
- How to use modification sizing effectively
- How to use iterative wear calculation