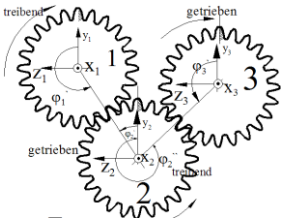
Invitation to our Seminar



Introduction to Computer-Aided Fatigue Life Calculations of Gearwheels

in Niederstotzingen-Stetten near Ulm

Steinbeis-Transfer Centre
New Technologies in Traffic Engineering
Tel +49 (0)7325 3306
Fax +49 (0)7325 4992

http://www.stz-verkehr.de

Seminar Program

9.00 Welcome

9.15 Basic Terms and Definitions

Forces at the tooth, types of loading tooth root and tooth flank, material characteristics and S-N curves, generating S-N curves, dependency of loading of rpm and torque, allocation of tooth forces in planetary transmission, consideration of reversing the direction of rotation of the alternation load influence, statistical failure behaviour, scatter of the S-N curve, conversion to other failure probabilities, risk factor.

10.30 Break

10.45 Counting procedure

Outline of counting procedures, time-at-level count, revolution collective, rainflow count, exercise.

11.45 Calculating a pair of gearwheels for a vehicle transmission for tooth flank and tooth root

Calculating the basic data for geometry, durability and manufacturing tools, generating the S-N curve.
Fatigue life calculation for a simple load collective with three steps, control check with pocket calculator and comparison with winLIFE, fatigue life calculation for a measured collective.

12.45 Lunch (included in price)

13.45 Calculating a pair of gearwheels for a vehicle transmission for tooth flank and tooth root / Part II

Fatigue life calculation for a realistic, measured collective from a test drive, variations of parameters for increasing the fatigue life.

14.30 Break

14.45 Calculating a planetary gear for a vehicle transmission

The calculation previously carried out for the pair of gearwheels is now replaced with a planetary gear with three planets.

15.45 Links to drive train simulation winEVA

The simulation system winEVA is used for a route-simulation on a track route. The results obtained are used for the gearwheel calculation.

16.30 Break

16.40 Discussion

17.00 End of Seminar

Organisational Details:

Time: from 9 AM to 5 PM

Place: Hotel Zum Mohren, Familie Dörflinger, Oberdorfstraße 31, 89168 Niederstotzingen-Stetten, Tel. +49 (0)7325 92247-11, Fax.: +49 (0)7325 92247-12, info@lonetalhotel.de, www.lonetalhotel.de

It is also possible to reach us by train. The nearest railway station is Niederstotzingen.

There are enough PCs for all the participants.

Cost: 630 € + VAT

Registration: Due to limited space, we can only accept a maximum of 10 participants. All applications are binding. As soon as we have received your application, we will send you confirmation and an invoice which we would ask you to pay as soon as possible.

Overnight Stays: We recommend the conference hotel where the course is held: Zum Mohren, Oberdorfstraße 31, 89168 Niederstotzingen-Stetten, Tel. +49 (0)7352 92247-11, Fax.: +49 (0)7325 92247-12, info@lonetalhotel.de, www.lonetalhotel.de

Organising Company: Steinbeis Transfer Centre New Technologies in Traffic Engineering, Tel.: +49 (0)7325 3306, Fax. +49 (0)7325 4992

Lecturers: Prof. Dr.-Ing. G. Willmerding and Mr. Jakob Häckh MSc

Aims: To provide the participants with knowledge of fatigue life calculations of dynamically loaded components with multiaxial loads. We cover the basic theory of multiaxial fatigue life analysis and calculate examples using winLIFE. Test results exist for all the calculation examples we do and this enables the participant to assess the accuracy.

Requirements*:* The knowledge gained in the winLIFE-BASIC Seminar is essential for this course. This Seminar is therefore only recommended for participants who have already attended the winLIFE-BASIC Seminar.

Seminars:
Three times a year:
- winLIFE–BASIC (2 x German, 1 x English)
- winLIFE-MULTIAXIAL (2 x German, 1 x English)

Once a year
- FKM-guideline: static strength and dynamic fatigue prove (German, English on request)
- Power-User: Effective use of winLIFE for complex problems (German, English on request)
- Crack Growth and Random Fatigue (German, English on request)

The -Modules

The **-Modules** can be used in conjunction with finite element programs such as *NASTRAN* for Windows, *IDEAS, SAMCEF, WTP 2000* and, with the help of *FEMAP,* with all standard FE programs. Measured data can be transferred from several programs (*LMS Roadrunner, winEVA*). The interfaces are documented in such a way that they can be programmed by the customer.

QUICK CHECK: static strength analysis and fatigue analysis according to FKM-guideline for non-welded components, welded components can be analysed by a hot spot search (not according FKM)

BASIC: is for the basic procedures of fatigue life analysis.

MULTIAXIAL is for calculating special problems where the direction of principal stress is not consistent. This program is an extension to the BASIC module and is for solving the most difficult of problems.

GEAR WHEELS and BEARINGS is for calculating gear wheels and bearings according to standard calculation procedures without finite elements. It is designed to transfer data from the program to our drive train simulation program winEVA and the measuring programs winADAM and DIANA.

CRACK PROPAGATION: You can calculate the crack growth of a component according to established theories.

RANDOM: Based on a given acceleration of a component in g2/Hz (PSD-spectrum) the stress PSD is calculated and a fatigue calculation performed.

Applications

has been sold to more than 240 customers and is used in the automobile, military and engineering industries, ship building, wind energy, mining industry, planning and universities.

Short Description / Demo-Version

http://www.stz-verkehr.de

Steinbeis-TZ Verkehrstechnik, Rosenstr. 5, 89168 Niederstotzingen
Tel.: 07325 3306 email: guenter.willmerding@t-online.de

Registration

Please send this page by post to:

Steinbeis Transfer Centre
New Technologies in Traffic Engineering
Rosenstr. 5
89168 Niederstotzingen

Or fax to: +49 (0)7325 4992.

Registration for the Seminar

Computer-Aided Fatigue Life Calculations with winLIFE for Gearwheels

on _____

This application is binding.

After receiving the registration confirmation and the invoice, the applicant agrees to transfer the seminar fee of 630 € + VAT to our bank account at the Volksbank Brenztal eG IBAN DE92 6006 9527 0063 7300 06 BIC Code: GENODES1RNS

When we receive your registration form we will send you confirmation within three days.

Surname_____

First name_____

Title_____

Company_____

Dept._____

Street_____

Post code _____Town_____

Tel_____

Fax_____

Email_____

Date_____Place_____

Signature _____

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