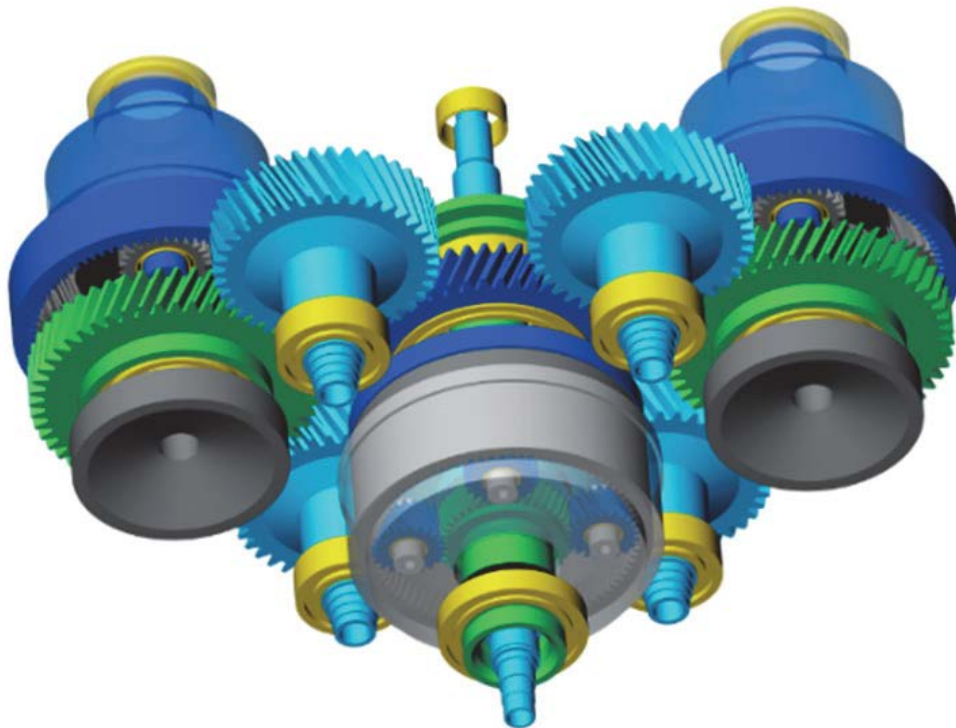


## KISSsoft and KISSsys Training

2 Day Basic KISSsoft Training  
2 ½ Day KISSsys Gearbox Training

Gleason hosts a 4½ day comprehensive KISSsoft Software Training Class to be held August 27-31, 2018 at The Gleason Works Facility in Rochester, NY.



## 2 Day KISSsoft Training Outline

The emphasis of the training is on the usage of the software and exercises executed by the participants. In addition some basic theory will be discussed in order to develop an understanding of the technical terms used in the software.

**Please note:** As preparation for this training we strongly recommend gaining familiarity with a KISSsoft test version and the tutorials available.

## 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

## Shaft Design

### Shaft Editor

- Input of a single shaft with geometry, stress concentration elements, forces, bearings
- Sizing of bearings
- Sizing of cross sections for shaft strength calculation

### Shaft Calculation

- Calculation of deformation (deflection lines etc.)
- Overview on shaft strength calculation
- Explanatory notes on graphics and reports
- Several stress cases
- Consideration of temperatures
- Calculation with a load spectrum
- Natural frequencies (critical speed) and buckling

### Bearing Calculation

- Overview on ISO calculation methods
- Influence of bearing stiffness on deformations and forces
- Influence of the inner geometry on bearing life time

## Gear Design and Optimization

### **Cylindrical (Spur/Helical) Calculation:**

- Techniques for a successful gear design project:
- Preliminary parameter definition
- Geometry optimization: Optimization of design parameters
- Path of Contact Calculations
- Profile modification and crowning

### **Commonly Used Techniques for Optimization of gears:**

- Techniques for determination of noise and vibration reducing tooth forms
- Deep tooth forms
- Contact stiffness, contact of a gear pair under load
- Transmission error and Impact shock
- Well balanced root and flank strength
- Reduced and removed backlash
- Surface modifications (definition of the optimum crowning)

### **Cylindrical Gear Configurations (epicyclic, racks, gear trains):**

- Validation to standards
- Geometry and strength optimization
- Special problems (assembly, etc.)

### **Optional Design Topics:**

- Plastic gears
- Sintered gears
- Precision mechanics (small modules)
- Identifying required safety factors
- Optimal case hardening depth (for case hardening or nitriding)
- Bevel Gears/Worms/Crossed-Helical/Face Gears
- Manufacturing:
  - Assessment of the manufacture of a tooth form
  - Manufacture of a tooth form using several different tools
  - Design and checking of master gears
- Further calculation options.

## 2.5 Day KISSsys Training Outline

This special 2.5-day training course will help participants to understand the essentials of KISSsoft and its add-on KISSsys with focus on modeling & analyzing gearboxes. This practical approach will be combined with theoretical knowledge necessary to make efficient use of the calculation programs.

Participants will design a KISSsys model of an existing bevel-cylindrical-planetary transmission of 450 kW and optimizing the gears, analyzing the strength of shafts and lifetimes of bearings, as well as efficiency and contact analysis calculation.

Part 1 of the training will focus on modeling the kinematic structure of the transmission in KISSsys, and part 2 contains the dimensioning and optimization by modification of the gears, shafts and bearings. This differentiated approach allows participants to understand step by step the designing and optimizing process of gearboxes in order to obtain best results and output. Basic knowledge of KISSsoft and KISSsys is advantageous but not required. Anyone wishing to join the training but lacking KISSsoft knowledge may ask in advance for a test version with a validity of 30 days in order to familiarize themselves with the KISSsoft user surface and main functionalities.

## General scope of the program

- Gearbox Design and Analysis

## KISSsys

### Getting Started:

- Kinematic structure in KISSsys
- Several ways to setup KISSsys models
- 3D View and positioning of shafts
- User Interface and samples for simple programming code
- Reports and Table Export

### Cylindrical Gears:

- Sizing of Gears using KISSsys
- Basic data and definitions, reference profile
- Pre-manufacturing and finishing
- Optimization of macro geometry
- Required safeties
- Calculation of root and flank strength safeties

## Bevel Gears:

- Conventional cutting methods
- Cone types of bevel and hypoid gears
- Geometry calculation, virtual cylindrical gear
- Rating according to several standards
- Typical parameters for dimensioning
- Optimization of macro geometry
- 3D models and geometry options
- Contact analysis

## Shaft Calculation

- Modeling of coaxial shafts
- Shaft strength calculation according to DIN 743

## Bearing Lifetime:

- Bearing lifetime according to classical method or inner geometry
- Modified lifetime considering influence of lubricant

## Contact Analysis of Cylindrical Gears

- Face load distribution according to ISO 6336-1, Annex E
- Contact analysis under load
- Flank modifications, Tip and root relief
- Noise and strength optimization

## Efficiency:

- Losses of gears, bearings, seals...
- Thermal rating according to ISO/TR 14179

## Load Spectra:

- Definition of load spectra for the transmission
- Rating of gears, shafts and bearings with load spectra

## Housing Deformation (Optional):

- Calculation of housing deformation (using GPK model)
- Influence to gear meshing contact

## Schedule

Classes start each day at 8:30 AM and run through 5:00 PM.  
Friday classes will end at noon.

## Pricing

- 2 day Basic KISSsoft training class will be \$1,750.00 per person. Additional people from the same company are charged half price only, \$875.00.
- 2 ½ day KISSsys training class will be \$2,500.00 per person. Additional people from the same company are charged half price only, \$1,250.00.
- 4 ½ day full KISSsoft/KISSsys training class will be \$3,750.00 per person. Additional people from the same company are charged half price only, \$1,875.00.

Lunch is included as part of the course fee at the Gleason cafeteria. Customers will need to bring their laptops with them. Gleason will provide software and training material on USB sticks for the training.

## Registration

Complete the request for registration to reserve your training spot. Please include the name of the person/persons attending and any special dietary considerations. The class size will be limited to 15 and fills up fast.

Please send the completed form to the Gleason Training Department:

**Attn:** KISSsoft Software Training

**Phone:** (585) 256-6688

**E-mail** [gwr-training@gleason.com](mailto:gwr-training@gleason.com) or [jlabarge@gleason.com](mailto:jlabarge@gleason.com)

**We will follow-up with course confirmation**

All classes at The Gleason Works Customer & Dealer Training Center are taught in English. If trainees require an interpreter, one must be provided by them or arranged through their Gleason Sales Office or representative.

Cancellations must be made at least 10 days in advance of a class. If a cancellation is received after that day but before the start of a class, the student will be charged 50 percent of all course fees. Students who do not attend a session for which they registered will be charged the full course fee.

## Request for Registration

KISSsoft Software Training  
August 27-31, The Gleason Works, Rochester, NY

Date of this request: \_\_\_\_\_

Name(s): \_\_\_\_\_

Employee of Company: \_\_\_\_\_

Company address: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Type of Training:

- 2 day Basic KISSsoft training class will be \$1,750.00 per person. Additional people from the same company are charged half price only, \$875.00. Number of attendees \_\_\_\_\_
- 2 ½ day Advanced KISSsys training class will be \$2,500.00 per person. Additional people from the same company are charged half price only, \$1,250.00. Number of attendees \_\_\_\_\_
- 4 ½ day full KISSsoft/KISSsys training class will be \$3,750.00 per person. Additional people from the same company are charged half price only, \$1,875.00. Number of attendees \_\_\_\_\_
- Type of payment: Purchase Order      Purchase Order Number: \_\_\_\_\_
- Check Enclosed
- Credit Card – (Bring credit card number and expiration date to the class)

Do you want Gleason Works to make a hotel reservation for you? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, please specify hotel and dates for check-in and check out. Please note that some hotels provide transportation. The Gleason Works does not provide daily transportation.

Hotel \_\_\_\_\_ Check in \_\_\_\_\_ Check-out \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Please send/submit the completed form using one of the email address below.**

**Attention: KISSsoft Software Training**

**Phone: (585) 256-6688**

**E-mail: [gwr-training@gleason.com](mailto:gwr-training@gleason.com) or [jlabarge@gleason.com](mailto:jlabarge@gleason.com)**

**We will follow up for course confirmation.**