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## Advanced training for KISSsys

KISSsys is an add-on to the KISSsoft calculation software. It allows the user to build structures of custom made power transmissions in a single file. The program manages and calculates the interactions between the transmission elements. Thanks to elements to define kinematic constraints and interrelations between the components a complete structure can be calculated and analysed very fast.

The flexibility of KISSsys strongly extends the possibilities of KISSsoft. Compared to the basic functionality of KISSsys using this potential is not as intuitive. So in order to give the engineer the knowledge needed to use this feature efficiently an advanced training focussing on the programming language and specific topics is offered.

During the training several selected topics will be covered, e.g. adapting default formulas or calculations to the user needs, working with programming language and using special templates. The content and topics will be agreed together with the participants before the training (questionnaire when registering). There will be parallel sessions, if possible (depending on the number of participants), including presentations, exercises and one-to-one support possibility.

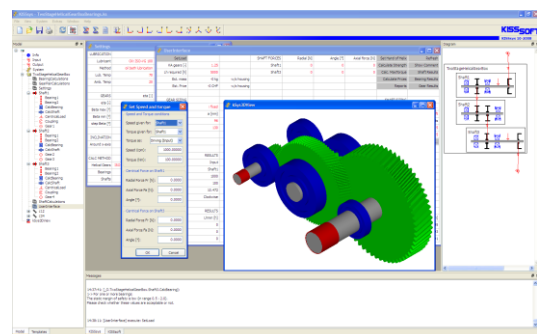
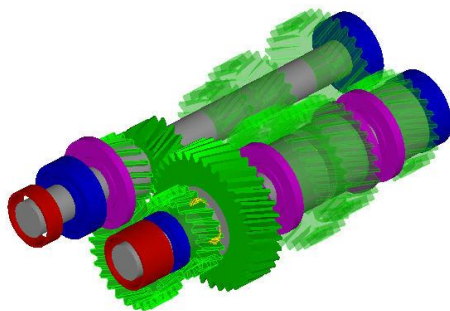
This advanced training is tailored for KISSsys users, who

- Have attended to any previous KISSsys trainings
- Can build simple KISSsys gearbox models on their own
- Have been using KISSsys for some time calculating own gearboxes

Minimum requirement for participants is to be able to build a standard model and is therefore not recommended for the beginners. The purpose of the training is to extend the knowledge of the participants to gain more from KISSsys.

The training duration is three days, covering around 5 topics per day. The structure of the training will offer two parts, introduction and exercise, for every topic. Every session will last two hours (1 + 1 hour). There will be possibility to attend all the sessions or only the ones that the attendant is especially interested in.

Discussions between the participants are very welcome to **share the knowledge**.



# Possible topics to cover:

- Load spectrum (in details)
- Load spectrum modifications (customisation)
- Bevel gear differential
- Planetary gears
- Positioning
- Calculation of complex kinematics
- Power distribution
- Dynamic dialogs
- 3DSettings
- Speed table
- Solving "programming" problems (e.g. critical masses, bearing TE-error with shaft deflections)
- Coaxial shafts
- Connections to FEM
- Reporting and data exchange

```

UserInterface.Torques

PAR Tmax;
VAR refTorque, refSpeed, m, res;

res = CADH_VarDialog(["Max input power", 200, 100, 0.4, 1],
                    ["CIVDLG_Real", "Input speed", "_O.Input.speed"],
                    ["CIVDLG_Real", "Input torque", "_O.Input.torque"]);

IF res[0] THEN
    _O.Input.speed=res[1];
    _O.Input.torque=res[2];
ELSE
    RETURN;
ENDIF

m = LEV(gears);
refTorque = _O.Input.torque;
refSpeed = _O.Input.speed;

FOR i = 0 TO m - 1 DO
    _O.Input.setConfig(1, [1, 0]);
    _O.Input.speed = refSpeed;
    _O.Input.torque = refTorque;
    _O.Output.setConfig(0, 0);
    SetGear(gears[i]);
    System.calcKinematic();
    IF abs(_O.Output.torque) > Tmax THEN
        RETURN;
    ENDIF
ENDFOR
    
```

The screenshot displays the KISSsys software interface with several key components:

- Model Tree:** Shows a hierarchical view of the model including Input, LoadSpectrum, Manual, Output, Settings, System, BearingResults, GearResults, ShaftResults, UserInterface, and kSys3DView.
- UserInterface Table:**

LOADS	Speed [rpm]	Torque [Nm]	Power [kW]	Direction of rotation
Input	3000	150	47.124	CW (from engine side)
Output	508.01	-885.81	47.124	CW (from engine side)
total ratio []	5.9054			Selected gear -- Gear1 --
efficiency	100 %			Results with Load Spectra
- Settings Table:**

GLOBAL SETT...	CalcMethod	Woehler type	LUBRICATION
BEARINGS	ISO 281-1		Type Oil: ISO
GEARS	ISO 6336:2006 Method B	Halbach	Temperature
SHAFTS			LubMethod oil bath lub
			Tot req. lifetime [h]
- kSys3DView:** A 3D visualization of a gear assembly with green gears and a blue shaft.
- Diagram:** A kinematic diagram showing the gear train layout with various components and their connections.
- Properties:** A list of variables for a kSysHelicalGear, including position (x, y, z), unit vectors, and geometric parameters like alpha, beta, d, da, and deflection.