The Institute for Machine Elements and Systems Engineering researches the fundamental structural and tribological behaviour of machine elements and represents it in experimentally validated model descriptions. These models are used to organize and analyse the behaviour of technical systems in terms of functionality, losses, and noise emissions with a focus on drive technology. The developed models also serve as basis for the research and development of methods of Model Based Systems Engineering which are central elements of future industrial product development processes.

Drivetrain failures in the open seas are very costly and time-consuming to fix, and for various offshore systems there exists no models to predict the future state of the system. Therefore, it is important to determine the current state of such systems using simulation models with globally available data as input (motor torque, wave height, carried weight, etc) in order to predict their lifetime. Models have been created in the institute which calculate the lifetime of AHC-activated offshore winches, however the models still need improvements.

**Bachelor- / Master Thesis**

**Load Distribution and Lifetime Analysis of an Offshore Winch Drivetrain**

**Objectives:**
- Calculation and analysis of load distribution on 20 gearboxes in a model created for an offshore winch drivetrain
- Analysing the lifetime of the winch drivetrain through calculating the lifetime of the most critical gearbox/components

**Requirements:**
- Independence and reliability in work
- Interest in multi-body simulation and drivetrain technology
- Prior knowledge in Simpack, Matlab and Simulink are an advantage

**We offer:**
- Possibility to start immediately
- Intensive mentoring
- Supportive work climate
- Research experience for a future career in academics or industry

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