Courses in English
Course Description

Department: 03 Mechanical, Automotive and Aeronautical Engineering

Course title: Fatigue and Fracture

Hours per week (SWS): 4

Number of ECTS credits: 6

Course objective: After successful completion of this module, the student will be conversant in the theory of fatigue analysis due to the effects of cyclic loading. The proper application of learned methods with respect to fatigue and fracture analysis will be expected.

Prerequisites: Engineering Math, Statics, Strength of Materials

Recommended reading

Teaching methods

Assessment methods: Exam

Language of instruction: English

Name of lecturer: Prof. Dr.-Ing. Klemens Rother

Email: klemens.rother@hm.edu

Link

Course content:
1. Introduction Static and fatigue damage, damage mechanisms, elastic and elastic-plastic stress/strain behavior
2. S-N-curves (Wöhler Diagram, Gassner Diagram) Stress Cycle, SN-curve (Wöhler Diagram), scatter of experimental data, test evaluation, linear damage accumulation, probability of failure
3. Loads and Stresses Cycle counting, load spectra for elastic and elastic-plastic conditions
4. Factors Affecting Fatigue Behavior Effects due to loading, notches, material, size, technology, surface, temperature, corrosion, sequence effect
5. Stress Based Concept Analysis scheme, synthetic "Wöhler Diagrams", nominal-, structural-, notch stress concept

Remarks