



Nationell forskarskola i tribologi

Research school course plan

Title: Tribological components

Points: 4 hp

Time: spring 2011

Objectives:

A student that has completed the course shall:

- have an improved ability to use knowledge from basic subjects, such as mathematics, mechanics and solid mechanics, in tribology and the design of tribological components;
- be able to describe common failure mechanisms which are limiting the performance of a product;
- be able to calculate the degree of efficiency of a product;
- be trained in using international standards when designing standard components;
- be able to apply knowledge about bearing design on components with similar contact conditions as in a bearing.

Content:

The course is based on problem solving. An existing product is used as example throughout the course and all assignments concerns analyses and redesign of this product.

Topics treated are:

- Introduction to tribology and mechanical components
- Failure mechanisms in mechanical components;
- Analyses of the forces in a mechanical product;
- Estimation of the degree of efficiency in a product;
- Standard design methods for gears, bearings and joints
- Modeling of non-standard components and the use of bearing theories applied in similar components.

Teaching:

The course will be conducted through lectures, laboratory exercises and assignments.

Prerequisites:

General course in solid mechanics and materials technology

Examination:

Tribology consultancy exercise and laboratory rapport angle nut runner laboratory exercise

Grading:

Pass or Fail

Examiner:

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Literature:

van Beek, Advanced Engineering Design