National Graduate Research School in Tribology

Course plan

Title:	**Tribological components**
Points:	4 hp
Time:	spring 2009
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 • Introduction to tribology in manufacturing exemplified with turning • 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 mechanics, materials technology and strength of materials
Examination:	web based; 2 weeks after the week when the course was given
Grading:	Pass or Fail
Examiner:	Ulf Olofsson, Professor Department of Machine Design, Royal Institute of Technology Email: ulf.olofsson@itm.kth.se
Literature:	van Beek, Advanced Engineering Design