



Course syllabus

Faculty Board of Science and Engineering
School of Engineering

2MT001 Maskinkonstruktion M3, 7,5 högskolepoäng
Machine Design M3, 7.5 credits

Main field of study

Mechanical Engineering

Subject Group

Mechanical Engineering

Level of classification

First Level

Progression

G2F

Date of Ratification

Approved by Organisational Committee 2009-12-07

The course syllabus is valid from autumn semester 2010

Prerequisites

Basic Mathematics 1, Vector Geometry, Calculus 1, Physics-Mechanics, Machine Technology - basic course, Advanced CAD in 3D, Machine Design M1, Machine Design M2, Solid Mechanics or equivalent.

Expected learning outcomes

The purpose of this course is to give the students:

- application of mechanical design process
- understanding and knowledge of how to dimension and design some particular machine elements and parts
- practice in using standards and company catalogues
- comprehensive (overall) view of machine design work
- training in design team work

Content

In this course we will deal with the subject in the form of lectures, seminars and specific machine design lessons. The theory of machine element design, which includes gears, rolling-element bearings, seals, shafts and associated parts, will be dealt with in lectures and seminars, which also include shrink fits.

The students are required to work in groups in order to design one gearbox per group. The theoretical part of the course will give the students enough know-how to dimension and design every part in a gearbox, and to perform force analyses to see how the different parts affect each other. The result containing description text, calculations, drawings etc will be presented in technical reports (one report per group)

This design project consists of two parts:

- Dimensioning and selecting the standard machine parts/elements from the company catalogues
- Training to use (Swedish) standard in machine design work

Type of Instruction

The result of the machine design task will be presented in a “machine design” report per group. The report must include a description of the problem and the solution in the form of text and figures, calculations and drawings.

Examination

The course is assessed with the grades U,3,4 or 5.

The examination will be based on the “machine design” report and homework.

Course Evaluation

When the course has finished, an evaluation is compiled. The results are reported to the students and then archived according to the rules of the school.

Required Reading and Additional Study Material

Required Reading

Khoshaba, S. Compendiums about machine elements. Växjö university

Khoshaba, S. Standards and equations (handbook). Växjö university

SKF General Catalogue

Reference Litterature

Juvinall, R. C. and Marshek, K. M. Fundamentals of Machine Component Design, fourth edition (2006). John Wiley & Sons.

Filiz, I. H. Solved Problems: Machine Elements, Volume 1, 2007). Laser Ofset, Turkey.