HM1023 Applied Mechanics 7.5 credits

Tillämpad mekanik

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for HM1023 valid from Spring 2011

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

HN1002/6S2410 Applied Mathematics, HM1008/6S2411 Mechanics II and HN1007/6S2409 Computer Programming

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

Over all objectives after studying this course, students will be able to:

- With basis of a problem make idealizations, with motivations set up a mechanical model. With mathematical model and numerical methods analyze the model. Interpret and critically examine the result.

After the course, the participant should be able to:

- Formulate a mathematical model for a given problem, and analyze the model with the relevant mathematical methods and/or simulate these in a mathematical simulation software (Matlab)
- Define boundary and initial conditions to simulate using mathematical simulation software or commercial multi body simulation program
- Calculate forces and/or acceleration of simple Planar rigid-body problems
- Assess the results of calculations or simulations

Course contents

- Mechanics laws for particle systems
- General Planar solid body mechanics
- Coordinat transformation – accelerated reference system
- Formulation of boundary and initial values,
- Formulation of mathematical simulation models
- Mass motion of inertia

Course literature

Mechanics. Dynamics 12th Edition in SI Unit, 2010. R C. Hibbeler, Pearson Education.

Examination

- ÖVN1 - Exercises, 4.5 credits, grading scale: P, F
- RED1 - Account, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Approved exercises (ÖVN1; 4.5 hp) grading scale P/F
Approved written statements (RED1; 3 ECTS credits) or passed written exam (TEN1, 3 hp) grading scale P/F
Final grade is based on all the elements, A-F grading scale

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.