UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Mechanics IV G1F

6 credits

Course code: MT355G
Version number: 4
Valid from: 1 July 2023
Ratified by: Curriculum Committee for Engineering Science
Date of ratification: 9 February 2023

1. General information about the course

The course is provided by the University of Skövde and is named Mechanics IV G1F (Mekanik IV G1F). It comprises 6 credits and is a first-cycle course. The level of progression is G1F.

The course is a part of the main field of study in Mechanical Engineering. The disciplinary domain of the course is Technology.

2. Entry requirements

The course has the following entry requirements: attended FY303G Mechanics III G1F and passed MA316G Mathematics for Engineers IV G1F and passed MA302G Linear Algebra I G1F and passed MA303G Linear Algebra II G1F (or the equivalent).

3. Course content

The course treats the theory of free and forced vibrations for one- and multiple-degree-of-freedom-systems. One-degree-of-freedom systems are analyzed with different types of loads. Multiple-degree-of-freedom systems are analyzed by the calculation of eigenfrequencies and eigenmodes as well as by diagonalization with help of eigenmodes and grouping in systems of several one-degree-of-freedom systems. The theory is applied to simple structures such as beams, plates and rotating shafts.

4. Objectives

After completed course the student should be able to:

- analyse free vibrations for one- and multiple-degree-of-freedom problems,
- analyse harmonically excited vibrations for one- and multiple-degree-of-freedom problems,
- analyse generally excited vibrations for one- and multiple-degree-of-freedom problems,
- analyse multiple-degree-of-freedom problems eith FEM.

5. Examination

The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

The examinations of the course consist of the following modes of assessment:

- **Suppervised written examination**
  3 credits, grades: A/B/C/D/E/F (determines the final grade)
- **Written examination**
  3 credits, grades: G/U

Students with a permanent disability who have been approved for directed educational support may be offered adapted modes of assessment.

6. Types of instruction and language of instruction

The teaching is comprised of supervision and teaching lessons.

The teaching is conducted in English.

7. Course literature and other educational materials

Inman D. J. (2014). *Engineering Vibrations* (4th ed). Essex Englad: Pearson. ISBN 9780273768449.

8. Student influence

Student influence in the course is ensured by means of course evaluation. The students are informed about the results of the evaluation and potential measures that have been taken or are planned, based on the course evaluation.

9. Additional information

Further information about the course, as well as national and local governing documents for higher education, is available on the website of the University of Skövde.