

# COURSE DETAIL

## ENGINEERING MECHANICS

**Country**

Sweden

**Host Institution**

Lund University

**Program(s)**

Lund University

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Physics Mechanical Engineering Civil Engineering

**UCEAP Course Number**

156

**UCEAP Course Suffix****UCEAP Official Title**

ENGINEERING MECHANICS

**UCEAP Transcript Title**

ENGINEERING MECHNCS

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

The course comprises basic parts from rigid body mechanics as well as deformable body mechanics and strength of materials. In rigid body mechanics, both static and dynamic problems are treated. In statics, the equations of equilibrium are formulated from free body diagrams, and problems with concentrated as well as distributed forces are handled. The distributed forces come from applications in hydrostatics and the computation of centroids. The dynamics part of the course is based on the laws of Newton. Particle motion is described in linear and curvilinear coordinates and the equations of motion of the particle are established. Equivalent formulations based on the principles of preservation of energy and momentum are also treated. Examples of applications are taken both from daily life experiences such as climbing ladders, moving furniture, riding a bike or a rollercoaster, and technical applications from robotics and ballistics. In deformable body mechanics, the tensorial concepts of stress and strain are first defined. The relations between stress and strain, i.e. constitutive laws, for different materials are established and applications from the dimensioning of different simple construction elements (lines, rods, beams, and trusses) are treated. Important phenomena such as fatigue and fracture are also discussed.

### Language(s) of Instruction

English

### Host Institution Course Number

FHLA05

### Host Institution Course Title

ENGINEERING MECHANICS

### Host Institution Course Details

<https://kurser.lth.se/lot/course/FHLA05>

### Host Institution Campus

Engineering

**Host Institution Faculty**

**Host Institution Degree**

**Host Institution Department**

Engineering - Solid Mechanics

**Course Last Reviewed**

2023-2024

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