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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