



KURSPLAN

Mechanics related to Prosthetics and Orthotics, 7,5 högskolepoäng

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Kurskod:	HMPG18	Utbildningsnivå:	Grundnivå
Fastställd av:	Utbildningsrådet 2017-11-28	Utbildningsområde:	Tekniska området
Reviderad av:	Avdelningschef 2023-10-31	Ämnesgrupp:	MT2
Gäller fr.o.m.:	2023-12-11	Fördjupning:	G1N
Version:	3	Huvudområde:	Ortopedteknik

Lärandemål

Upon completion of the course the student should have the ability to:

Kunskap och förståelse

- explain elementary functions and their properties
- explain vectors and the basic calculations which are required to define them
- show familiarity with the concepts eigenvalues and eigenvectors
- explain the basics of statics and dynamics
- explain central concepts within mechanics use as force, energy and momentum.

Färdighet och förmåga

- solve equations and algebra expressions containing elementary functions
- use vectors and vector calculations to solve geometrical problems in two and three dimensions
- show knowledge of free body diagrams and express mechanical equilibrium for a system
- use equations to solve rigid-body calculations
- account for and discuss mechanical problems and solutions.

Värderingsförmåga och förhållningssätt

- show ability to choose appropriate strategies for solutions
- show ability to see if a solution is within reason.

Innehåll

Mathematics:

- derivatives
- integrals
- differential equations
- trigonometric functions
- vectors

Mechanics:

- classical mechanics, force, static equilibrium, free body diagram
- center of mass
- kinematics, speed, acceleration, movement in cartesian coordinates
- Kinetics, Newton's laws of motion
- power, work, energy

Undervisningsformer

The course is implemented through lectures, group work and seminars.

Undervisningen bedrivs på engelska.

Förkunskapskrav

General entry requirements.

Examination och betyg

Kursen bedöms med betygen A, B, C, D, E, FX eller F.

Examination of the course will be based upon one written examination.

A university lecturer serves as examiner for the course.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Written examination	7,5 hp	A/B/C/D/E/FX/F

Övrigt

During the course attendance is compulsory during group work and seminars.

Kurslitteratur

Potter, M.C., Nelson, E.W., Best, C.L., McLean, W.G., (2021), *Schaum's Outline of Engineering Mechanics – Statics*. McGraw-Hill

Potter, M.C., Nelson, E.W., Best, C.L., McLean, W.G., (2021). *Schaum's Outline of Engineering Mechanics - Dynamics*. McGraw-Hill.