



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:	Utbildningsrådet 2024-04-09	Ämnesgrupp:	MT2
Gäller fr.o.m.:	2024-08-26	Fördjupning:	G1N
Version:	4	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 common vector operations
- explain central concepts within mechanics.

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
- use free body diagrams and express mechanical equilibrium for a system
- solve rigid-body calculations
- discuss mechanical problems and solutions.

Värderingsförmåga och förhållningssätt

- reflect on and choose appropriate strategies for solutions
- judge if a solution is within reason.

Innehåll

Mathematics:

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

Mechanics:

- Newton's laws of motion
- classical mechanics, force, moment, free body diagram, static equilibrium, friction

- kinetics, kinematics, speed, acceleration, movement in cartesian coordinates
- work, energy, power,
- center of mass

Undervisningsformer

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

Undervisningen bedrivs på engelska.

Förkunskapskrav

General entry requirements and Mathematics 3c, Physics 2 (or the equivalent).

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

Kurslitteratur

Meriam, J. L., Kraige, L. G., Bolton, J. N. (2020). *Engineering mechanics?: SI version. Volume 1, Statics* (9th edition). Wiley.

Meriam, J. L., Kraige, L. G., Bolton, J. N. (2020). *Engineering mechanics?: SI version. Volume 2, Dynamics* (9th edition). Wiley.