JÖNKÖPING UNIVERSITY
School of Health and Welfare

COURSE SYLLABUS
Mechanics related to Prosthetics and Orthotics, 7.5 credits

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Course Code:	HMPG18	**Education Cycle:**	First-cycle level
Confirmed by:	Utbildningsrådet Nov 28, 2017	**Disciplinary domain:**	Technology
Revised by:	Department head Oct 31, 2023	**Subject group:**	MT2
Valid From:	Dec 11, 2023	**Specialised in:**	G1N
Version:	3	**Main field of study:**	Prosthetics and Orthotics

Intended Learning Outcomes (ILO)

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

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

Skills and abilities
- 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.

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

Contents

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

Type of instruction

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

The teaching is conducted in English.

Prerequisites

General entry requirements.

Examination and grades

The course is graded A, B, C, D, E, FX or F.

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

A university lecturer serves as examiner for the course.

Registration of examination:

Name of the Test	Value	Grading
Written examination	7.5 credits	A/B/C/D/E/FX/F

Other information

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

Course literature

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.