

COURSE SYLLABUS

Mechanics related to Prosthetics and Orthotics, 7.5 credits

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Course Code: HMPG18	Education Cycle: First-cycle level
Confirmed: Apr 09, 2024	Disciplinary domain: Technology
Valid From: Aug 31, 2026	Subject group: Medical Technologies
	Specialised in: G1N First cycle, has only upper-secondary level entry requirements
	Main field of study: Prosthetics and Orthotics

Intended Learning Outcomes (ILO)

On completion of the course the student will be able to:

Knowledge and understanding

- explain elementary functions and their properties
- explain vectors and common vector operations
- explain central concepts within mechanics.

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

Judgement and approach

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

Content

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

Type of instruction

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

Language of instruction is English.

Entry requirements

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

Examination and grades

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

Registration of examination:

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

Other information

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

A university lecturer serves as examiner for the course.

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.

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.