



COURSE SYLLABUS

Orthotic Management and Biomechanics I, 15 credits

Orthotic Management and Biomechanics I, 15 högskolepoäng

Course Code: H01K19	Education Cycle: First-cycle level
Confirmed by: Utbildningsrådet May 9, 2018	Disciplinary domain: Technology
Valid From: Aug 26, 2019	Subject group: MT2
Version: 1	Specialised in: G1F
Reg number: Department of Rehabilitation	Main field of study: Prosthetics and Orthotics

Intended Learning Outcomes (ILO)

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

Knowledge and understanding

- show familiarity with evidence and research within the area of ankle foot orthotics
- explain different treatment options
- explain common manufacturing methods in orthotics
- explain biomechanical principles related to ankle foot orthotics
- explain three-dimensional gait analysis systems and their use within the subject area.

Skills and abilities

- use biomechanical methods in analysing and evaluating lower limb orthotic interventions
- describe and evaluate orthotic devices from a biomechanical perspective
- collect and interpret instrumented gait analysis data
- perform biomechanical calculations
- select and provide appropriate intervention with regards to the user
- discuss interventions and results according to existing legislation, quality registries and guidelines
- show familiarity with frequently used materials and equipment necessary in the production of orthotic devices according to regulations of occupational safety, health and environmental sustainability
- critically evaluate and act upon the relevance of current research and proven experience
- use appropriate outcome measures to evaluate orthotic interventions.

Judgement and approach

- demonstrate empathy towards users and colleagues
- demonstrate an understanding for other health professions and their role in orthotic interventions
- critically evaluate one's own performance.

Contents

- ankle foot orthotics (AFO), concepts and prescription of orthotic interventions

- current research and evidence within the subject area
- biomechanical aspects/effects when using AFO
- instrumented gait analysis
- dynamic biomechanical calculations

Type of instruction

The course is conducted through lectures, group work, seminars and laboratory sessions including patient meetings.

The teaching is conducted in English.

Prerequisites

General entry requirements and completion of the courses Anatomy and physiology, basic course, 7.5 credits, Mechanics related to prosthetics and orthotics, 7.5 credits, Applied materials technology, 7.5 credits and Prosthetic management and biomechanics of the lower limb I, 15 credits or the equivalent.

Examination and grades

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

The examination will be based upon one individual written examination, one group seminar and performance in patient sessions.

A university lecturer serves as examiner for the course.

Registration of examination:

Name of the Test	Value	Grading
Individual written examination	9 credits	A/B/C/D/E/FX/F
Group seminar	3 credits	U/G
Interaction with clients	3 credits	U/G

Other information

Attendance

Attendance is compulsory in laboratory sessions and seminars.

Temporary interruption of a course

The School of Health and Welfare may suspend a student's participation in clinical training or other practical activities during the course if a student demonstrates gross unfitness/incompetence when applying skills. A student whose work-based training or other practical activities have been canceled due to gross inadequacy/incompetence may not continue study before the course director or examiner has verified and approved that the student has the knowledge and skills required. In connection with a decision on suspension, the decision will specify the grounds on which the suspension is based. After the decision, an individual plan will be established for the student where knowledge and skills gaps are specified, the degree of support the student is entitled to, and the terms and date(s) for examination(s).

Course literature

Lusardi, M., Jorge, M., & Nielsen, C. (2013). *Orthotics and Prosthetics in Rehabilitation*. St.Louis: Saunders Elsevier.

McRae, R. (2010). *Clinical Orthopaedic Examination*. Edinburgh: Churchill Livingstone.

Richards, J. (2008). *Biomechanics in clinic and research*. Edinburgh: Elsevier.

Literature within gait analysis, one of the following:

Perry, J. (2010). *Gait Analysis: Normal and Pathological Function*. Thorofare, USA: Slack.

Whittle, M. (2007). *Gait analysis: An introduction*. Edinburgh: Elsevier.

The most recent editions of the course literature should be used.

Additional relevant journal articles will be used.