



COURSE SYLLABUS

Prosthetics and Orthotics Theory, 10.5 credits

Ortopedteknik, teori, 10,5 högskolepoäng

Course Code:	HOEN15	Education Cycle:	First-cycle level
Confirmed by:	Utbildningsrådet May 12, 2014	Disciplinary domain:	Medicine
Valid From:	Oct 19, 2015	Subject group:	MT2
Version:	1	Specialised in:	G2F
Reg number:	2014/1612 Avdelningen för rehabilitering/Department of Rehabilitation	Main field of study:	Prosthetics and Orthotics

Intended Learning Outcomes (ILO)

Upon completion of the course students should have the:

Knowledge and understanding

- to synthesize and discuss knowledge from current scientific literature related to the area of prosthetics and orthotics
- to explain relevant statistical tests and the selection of appropriate analysis methods
- to explain study design and methods associated with scientific research
- to explain the theoretical bases for product development.

Skills and abilities

- to critically evaluate current scientific research in relation to scientific methodology and statistical analysis and the relevance to prosthetics and orthotics clinical practice
- to identify and evaluate levels of evidence and use them for solving clinically oriented problems
- to identify and apply appropriate statistical analysis techniques to analyse research findings
- to justify and debate decisions in both written and oral formats
- to compare and reflect upon the application of quality improvement in clinical practice.

Judgement and approach

- to demonstrate insight into the benefits of working with and learn from other professional groups
- to identify individual and professional needs for knowledge and competence development.

Contents

- evidence based practice in the clinical environment
- statistical methods for multivariate data analysis
- statistical power and power analysis
- analysis of non-parametric data
- health economics in prosthetics and orthotics
- methods for product development
- outcome measures and quality systems in health care
- reliability and validity of clinical measures
- interface mechanics - current research findings and trends

- embedded systems and applications within prosthetic and orthotic
- osseointegration - clinical applications and research findings
- amputee sports research

Type of instruction

This course is presented in the form of lectures, group work, seminars and laboratory sessions.

The teaching is normally conducted in Swedish, but can occasionally be in English.

Prerequisites

The requirement to enter this course is basic eligibility for higher education. The student must also have a passing grade in Ortopaedic Technology, basic course, 6 credits, Anatomy and physiology, basic course 7,5 credits, Anatomy and Physiology of the Musculo-Skeletal System, 4,5 credits, Linear algebra and function theory, 9 credits, Single Variable Calculus, 6 credits, Psychology, 7,5 credits, Scientific Methodology and Statistics, 6 credits, Pathology related to prosthetics and orthotics, 7,5 credits, Prosthetics and orthotics, rehabilitation, 6 credits, Biomechanics, 15 credits, Ortopaedic Technology, intermediate course, 30 credits. Furthermore the student must have attended in the Applied mechanics and material science course, 15 credits and the Ortopaedic Technology, deepening, 12 credits, or equivalent..

Examination and grades

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

Examination will be based upon one individual oral presentation and opposition during seminar. Furthermore examination will be based upon one oral presentation in group in qualitative methods, one written examination of statistical methods, one oral presentation in group in product development and one oral group presentation in quality improvement.

A lecturer will serve as examiner for this subject.

Registration of examination:

Name of the Test	Value	Grading
Examination	10.5 credits	A/B/C/D/E/FX/F

Other information

Attendance requirements

During the course attendance is compulsory to seminars.

Course literature

Kirkwood, B., & Sterne, J. (2003). *Essential Medical Statistics*. Massachusetts: Blackwell Science.

Ullman, D. G. (2003). *The mechanical design process*. Boston: McGraw-Hill.

Relevant journal articles.

The latest edition of the course literature should be used.