JÖNKÖPING UNIVERSITY
School of Health and Welfare

UTBILDNINGSPLAN

Prosthetics and Orthotics, BSc, 180 högskolepoäng

Programstart: Hösten 2021

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Programkod:	HGPO8	**Programstart:**	Hösten 2021
Fastställd av:	VD 2020-10-28	**Utbildningsnivå:**	Grundnivå
Reviderad av:	Utbildningschef 2020-12-07		
Version:	4,2		
Diarienummer:	Department of Rehabilitation		

Examensbenämning

Ortopedingenjörsexamen
Filosofie kandidatexamen med huvudområdet ortopedteknik

Degree of Bachelor of Science in Prosthetics and Orthotics
Degree of Bachelor of Science with a major in Prosthetics and Orthotics

Programbeskrivning

Scope

The programme of studies comprises 180 credits and leads to a degree in prosthetics and orthotics or a degree with a major in prosthetics and orthotics. The objectives for the degree are described in the Higher Education Ordinance´s System of Qualification (Annex 2, The Higher Education Ordinance SFS 1993:100 and subsequent amendment).

The programme of studies consists of a number of courses. Each course has its own established course syllabus with stated admission requirements. The study programme consists of compulsory courses corresponding to 172.5 credits and the remaining 7.5 credits can be obtained via an optional course. The main area of prosthetics and orthotics accounts for 131.5 credits.

A full academic year of 40 weeks corresponds to 60 credits, whereby an average of 1.5 credits corresponds to one week of studies of at least 40 hours.

Content and organisation

The programme begins with basic courses within the main subject area of prosthetics and orthotics, as well as courses in the fields of medicine, science and behavioural science. As the programme progresses, the emphasis on the main subject area increases so that, by the end of the programme, this is the sole focus area. The courses within the main subject area of prosthetics and orthotics are organised so as to represent a logical progression. Within the programme, emphasis is placed on the courses in medicine, science and behavioural science serving to support the main subject area of prosthetics and orthotics.
The student can make use of the elective course in order to orient their studies towards a subject that is of particular interest. The choice of course can be made from within the range of courses offered by the School of Health and Welfare, provided that the student meets the specific admission requirements. Due to resource limitations, students are not guaranteed a place on a particular elective course but must compete with other applicants, in accordance with the

selection rules of the course syllabus. The student can also choose courses offered by other universities and colleges, both nationally and internationally. All elective courses must correspond to the objectives of the study programme. All elective courses must be approved by the programme co-ordinator.
The main subject area of orthopaedic technology includes clinical placement studies within a department working with prosthetics and orthotics. For this placement, the student has access to study locations within the Nordic region. The purpose of the clinical placement studies is that the student shall be able to integrate theory with practice. The clinical placement studies also enable the student to develop skills in the solving of different sorts of practical problems, as well as to develop the capacity for empathy with consideration to an ethical and professional approach regarding individuals and their loved ones. The student shall also develop an understanding and respect for the skills of other occupational groups.

Forms of work
The study programme is conducted with a problem-oriented approach with a focus on the student's own learning. The forms of work are adapted to the nature of the course and the degree of specialisation, and may consist of literature studies, lectures, seminars and assignments conducted either individually or in groups. Students work in laboratories in order to practise working with situations that resemble those that will be encountered in their future occupations.

Internationalisation
The School of Health and Welfare works actively to create an international environment for study and research, which results in exchanges for students, teachers and researchers. The idea of internationalisation is that the student gains awareness of their role and responsibility as a professional working within prosthetics and orthotics in a global perspective. This can be achieved by means of exchange programmes for studies abroad but also by meetings with foreign lecturers and exchange students.

The prosthetics and orthotics programme has, via the School of Health and Welfare, agreements with universities and colleges in a number of countries. For students who choose to study courses at other universities and colleges, it is necessary that the chosen courses comply with the framework of the study programme's objectives. This is determined by the programme co-ordinator.

Educational approach
The School of Health and Welfare's basic educational approach is that the individual should be given the freedom to seek their own knowledge and to take responsibility for their learning and their personal development. The educational objective is that the individual shall acquire the skills and preparedness in order to participate in the development of a changing society. The educational approach means that:
- the learning environment actively promotes the seeking of knowledge and the student's own responsibility
- learning processes and forms of examination contribute to the development of the student's capacity for critical thinking, problem-solving, in-depth learning and understanding
- learning processes promote the development of a professional approach when working with patients/clients/users
- a scientific approach is a natural part of the learning process
- the clinical placement studies provide the student with opportunities to observe, analyse and reflect on the various aspects that are significant to the ensuring of high quality work.

The educational approach is enshrined within the various programmes by means of the forms of work that support the students' learning processes. Regular course evaluations shall be carried out and the results of these taken into account in the formulation of the study programme,

course syllabus, forms of work and examination forms. Students shall be involved in this work. The management of the School of Health and Welfare has a responsibility to regularly monitor and evaluate the development of the educational approach.

The main subject area of prosthetics and orthotics

Definition of the main subject area

The main subject area of prosthetics and orthotics focuses upon gaining knowledge and understanding related to assistive technologies, which are designed to replace or support lost or impaired function in persons with musculoskeletal and/or neurological impairments. Prosthetics and orthotics is multidisciplinary and requires knowledge from medicine, behavioral science, mechanics and material science. The main subject is grounded on a comprehensive understanding of human body functions and structures and in particular the mechanical consequences of applying an external device to the body.
The main subject area of prosthetics and orthotics requires knowledge about; pathological conditions affecting musculoskeletal and neurological systems; the biomechanics of normal and pathological human movement; mechanical interactions between the human body and externally applied devices; materials technology for device design and fabrication. Knowledge is required in both qualitative and quantitative methods.
Within the subject area, theoretical and practical skills are developed for evidence-based decision making related to biomechanical functions of the body, prescription, manufacture, provision and evaluation of prosthetic and orthotic devices. A biopsychosocial perspective is required, recognising that prosthetic and orthotic management not only affects biological structures but also psychosocial aspects of health and wellbeing.

The progression of the main subject area

With regard to the main subject area of prosthetics and orthotics, the study programme is organised in such a way as to enable the successive broadening and deepening of knowledge as part of the student's skills and competence development.

The main subject begins with an overview of central concepts and theories, and provides both a foundation of knowledge and a scientific approach for in-depth studies. In addition, the student shall acquire knowledge in the identification of different models of health and discuss these with regard to theories and general strategies in order to commence the development of a critical approach to knowledge.

This is then followed by courses covering specific methods that provide guidelines for the provision of prostheses/orthoses and give support for theoretical arguments concerning problems related to prosthetics, orthotics. The programme then progresses to enable the student to be able to integrate knowledge from different subject areas. Information shall be organised and categorised so as to meaningfully address problems, and possible links and/or relationships shall be described.

The courses studied in the latter stages of the programme shall enable the student to acquire more in-depth theoretical knowledge in order to be able to resolve different problems that may arise in the workplace. The student shall be able to independently critically scrutinise and compare different theories and models and generate new ideas. In addition, the student shall demonstrate the capacity for creative thinking and a more in-depth scientific approach to evidence based knowledge.

Mål

General aims

According to the Higher Education Act (SFS 1992:1434, and subsequent amendments, Chapter

1, § 8), undergraduate education shall develop students':
- ability to make independent and critical assessments,
- ability to independently distinguish, formulate and solve problems, and
- preparedness to respond to changes in working life.

Within the area to which the education relates, students shall develop – in addition to knowledge and skills – the ability to:
- seek and assess knowledge at a scientific level,
- follow developments in knowledge, and
- exchange knowledge with people with no specialist knowledge within the field.

Central objectives
Graduates of the study programme in prosthetics and orthotics shall, in accordance with the System of Qualifications (Annex 2, The Higher Education Ordinance SFS 1993:100, and subsequent amendments), show such knowledge and skills that are required for authorisation as a prosthetic or orthotic technician within:

Knowledge and understanding
- demonstrate knowledge of the subject's scientific basis, awareness of current research and development work, and knowledge of the link between science and proven experience and the practical importance of this,
- demonstrate knowledge of relevant methods within the field, and
- demonstrate knowledge of relevant directives.

Skills and abilities
- demonstrate the ability to independently, and in conjunction with the patient, implement prosthetic/orthotic measures and act as a technical specialist within the entire rehabilitation area,
- demonstrate the ability to participate in preventative work and to initiate methodological improvements and quality assurance of equipment, working methods and products,
- demonstrate the ability to inform and educate different groups,
- demonstrate the ability to present and discuss (orally and in writing) measures and treatment results with interested parties, and to document these in accordance with relevant directives,
- demonstrate the capacity for teamwork and collaboration with other occupational groups, and
- demonstrate the ability to critically examine, assess and use relevant information, and to discuss new facts, phenomena and issues with different target groups, thereby contributing to the development of the profession and the business.

Judgement and approach
- demonstrate self-awareness and the capacity for empathy,
- demonstrate the ability to – employing a holistic perspective of the person – make assessments on the basis of relevant scientific, social and ethical aspects with particular regard to human rights,
- demonstrate the ability to act with a professional approach towards patients and their loved ones, and
- demonstrate the ability to identify one's own need of additional knowledge, and to continuously develop one's own skills.

Independent project (thesis)
To be awarded a degree in prosthetics and orthotics, the student must, within the framework of the course requirements, have completed an independent project (thesis) corresponding to at least 15 credits.

Programme-specific objectives

In addition to the programme objectives stated in the Higher Education Ordinance, the School of Health and Welfare has its own local objectives for the programme, including that the student shall:
- demonstrate ability for independent clinical decision making and use a patient centred approach to interventions spanning all ages
- demonstrate ability see the main subject area of prosthetics and orthotics from a cultural and international perspective
- demonstrate ability for an in-depth scientific attitude in both theoretical as well as clinical applications.

Innehåll

Courses within the programme

All courses within the programme are available at undergraduate level.

Compulsory courses within the main subject area
Prosthetics and orthotics, introduction, 7.5 credits
Models and perspectives on health and disability, 7.5 credits
Prosthetic management and biomechanics of the lower limb I, 15 credits
Orthotic management and biomechanics I, 15 credits
Prosthetic and orthotic management of the upper limb, 7.5 credits
Scientific methods and statistics, 7.5 credits
Prosthetic management and biomechanics of the lower limb II, 7.5 credits
Prosthetic and orthotic management of the foot, 15 credits
Orthotic management and biomechanics II, 7.5 credits
Prosthetics and orthotics, clinical placement studies, 15 credits
Product development in prosthetics and orthotics, 3.5 credits
Evidence based practice and knowledge translation in prosthetics and orthotics, 4 credits
Prosthetic and orthotics, independent research project, 15 credits
Prosthetic and orthotic management in pediatrics, 7.5 credits

Compulsory courses within other subject areas
Mechanics related to prosthetics and orthotics, 7.5 credits
Anatomy and physiology, basic course, 7.5 credits
Psychology, basic course, 7.5 credits
Applied materials technology, 7.5 credits
Pathophysiology related to prosthetics and orthotics, 7.5 credits

Elective courses related to prosthetics and orthotics
Clinical gait analysis, 7.5 credits

Kurser

Obligatoriska kurser

Kursbenämning	Hp	Huvudområde	Fördjupning	Kurskod
Anatomy and Physiology, Basic Course	7,5		G1N	HANG18
Applied Materials Technology	7,5	Ortopedteknik	G1F	HMTK19
Evidence Based Practice and Knowledge Translation in Prosthetics and Orthotics	4	Ortopedteknik	G2F	HEBN11
Mechanics related to Prosthetics and Orthotics	7,5	Ortopedteknik	G1N	HMPG18
Models and Perspectives on Health and Disability	7,5	Ortopedteknik	G1N	HMHG18

Orthotic Management and Biomechanics I	15	Ortopedteknik	G1F	HO1K19
Orthotic Management and Biomechanics II	7,5	Ortopedteknik	G2F	HOMN10
Pathophysiology related to Prosthetics and Orthotics	7,5		G1F	HPOK19
Product Development in Prosthetics and Orthotics	3,5	Ortopedteknik	G2F	HPDN11
Prosthetic and Orthotic management in Paediatrics	7,5	Ortopedteknik	G2F	HPMN11
Prosthetic and Orthotic Management of the Foot	15	Ortopedteknik	G1F	HFOK10
Prosthetic and Orthotic Management of the Upper Limb	7,5	Ortopedteknik	G1F	HPLK19
Prosthetic and Orthotics, independent Research Project	15	Ortopedteknik	G2E	HPOP11
Prosthetic Management and Biomechanics of the Lower Limb I	15	Ortopedteknik	G1F	HPMK19
Prosthetic Management and Biomechanics of the Lower Limb II	7,5	Ortopedteknik	G1F	H2PK10
Prosthetics and Orthotics Introduction	7,5	Ortopedteknik	G1N	HPIG18
Prosthetics and Orthotics, Clinical Placement Studies	15	Ortopedteknik	G2F	HPCN10
Psychology, basic course	7,5	Psykologi	G1N	HPBG19
Scientific Methods and Statistics	7,5	Ortopedteknik	G1N	HSCG10

Valbara kurser

Kursbenämning	**Hp**	**Huvudområde**	**Fördjupning**	**Kurskod**
Klinisk gånganalys[I]	7,5	Ortopedteknik	G1F	HGAK11

Programöversikt

Årskurs 1

Termin 1		Termin 2	
Period 1	Period 2	Period 3	Period 4
Models and Perspectives on Health and Disability, 7,5 hp	Anatomy and Physiology, Basic Course, 7,5 hp	Applied Materials Technology, 7,5 hp	Prosthetic Management and Biomechanics of the Lower Limb I, 15 hp
Prosthetics and Orthotics Introduction, 7,5 hp	Mechanics related to Prosthetics and Orthotics, 7,5 hp	Pathophysiology related to Prosthetics and Orthotics, 7,5 hp	

Årskurs 2

Termin 3		Termin 4	
Period 1	Period 2	Period 3	Period 4
Orthotic Management and Biomechanics I, 15 hp	Prosthetic and Orthotic Management of the Upper Limb, 7,5 hp	Prosthetic Management and Biomechanics of the Lower Limb II, 7,5 hp	Prosthetic and Orthotic Management of the Foot, 15 hp
	Psychology, basic course, 7,5 hp	Scientific Methods and Statistics, 7,5 hp	

Årskurs 3

Termin 5		Termin 6	
Period 1	Period 2	Period 3	Period 4
Orthotic Management and Biomechanics II, 7,5 hp	*Klinisk gånganalys [1], 7,5 hp*	Evidence Based Practice and Knowledge Translation in Prosthetics and Orthotics, 4 hp	Prosthetic and Orthotic management in Paediatrics, 7,5 hp
Prosthetics and Orthotics, Clinical Placement Studies, 15 hp		Product Development in Prosthetics and Orthotics, 3,5 hp	
		Prosthetic and Orthotics, independent Research Project, 15 hp	

Förkunskapskrav
Grundläggande behörighet samt Fysik 2, Kemi 1, Matematik 3 c Eller: Engelska 6/B, Fysik B, Kemi A, Matematik D.

Tillgodoräknande
A student that has passed component parts of a university programme at another Swedish or foreign university, or who has acquired the equivalent knowledge and skills in another way, can – following evaluation – receive credits for this within the framework of their studies at the School of Health and Welfare. Once the applicant has supplied the necessary documentation, the appropriate head of department will decide whether crediting can occur. The student shall be informed in writing of the content of the decision.

Villkor för fortsatta studier
The programme incorporates certain thresholds (detailed below) which must be completed in order to progress to the next level of study.
In order to start studies in term 2, it is required that the courses in term 1 have been completed. To be allowed to start studies in term 3, it is required that the student has received a passing grade in all the included courses in term 1 and that the remaining courses in term 2 have been completed. To be allowed to start studies in term 4, it is required that the student has received a passing grade in all the included courses in terms 1 and 2 and that the remaining courses in term 3 have been completed. To be allowed to start studies in term 5, it is required that the student has received a passing grade in all included courses in terms 1, 2 and 3, and that the remaining courses in term 4 are completed. To be allowed to start studies in term 6, it is required that the student has received a passing grade in all included courses in terms 1, 2, 3 and 4 and that the remaining courses in term 5 are completed.

Verification of enrollment status will take place on 1 July before semesters 3 and 5.
Verification of enrollment status takes place January 1 for term 4 and 6.

The course syllabus for each course may contain specific admission requirements. The study programme includes the handling of thermoset plastics which is regulated by the provisions of the Swedish Work Environment Authority, AFS 2005:18. For this reason, the School of Health and Welfare organises lung function testing by a doctor as part of an employment suitability assessment, which takes place at the start of the programme of studies and at the beginning of semester 5. An approved employment suitability assessment is a prerequisite for the continuation of studies.

Examenskrav
To be awarded the Bachelor of Science in Prosthetics and Orthotics, the student must have completed all course requirements amounting to 180 credits. To be awarded the Bachelor of Science with a major in Prosthetics and Orthotics, the student must have completed all course requirements amounting to 180 credits, of which at least 90 credits were awarded for a successive deepening within the main subject area of prosthetics and orthotics.

For both degrees, the student must also – within the framework of the course requirements – have completed an independent thesis of at least 15 credits within the main subject area of prosthetics and orthotics (Annex 2, The Higher Education Ordinance SFS 1993:100 and subsequent amendments).

Degree and course certificates

The request for a degree certificate must be made using a specific form (the form is available on the university's website) which is then sent to the Student Office. Degree certificates are issued following the completion of the studies, on the condition that the degree results have been entered into the student records system. Degree certificates are issued on behalf of the School of Health and Welfare by a representative of the Student Office.

If the degree certificate applies to studies at more than one college/university, the certificate shall be issued by the college/university where the student most-recently passed an exam or completed their studies, unless otherwise agreed by the schools.
The request for a course certificate must be made using a specific form (the form is available on the university's website) which is then sent to the Student Office. The course certificate is issued on the condition that exam results have been entered into the student records system. Course certificates are issued on behalf of the School of Health and Welfare by a representative of the Student Office.

Authentication

After the completion of course requirements corresponding to 180 credits, the School of Health and Welfare will, if requested by the student, issue a degree certificate which can constitute a qualifying document for the issuing of authentication by the National Board of Health and Welfare.

Övrigt

Grades

In accordance with Jönköping University's regulations, the course syllabus shall specify which grades are used. Grades shall be determined by one of the teachers specifically appointed by the university (the examiner).
Grades are awarded according to a target-related 7-point scale: A, B, C, D, E, FX, F. The School of Health and Welfare can make use of an alternative grading system, which is decided by the Dean. In such a case, this will be indicated in the course syllabus.

Examination

Guidelines for examination, see Regulations and guidelines for first, second and third cycle education at Jönköping University.

Approved leave of studies and the resumption of studies

Approved study leave can only be applied for (and granted) from the study programme, not from individual courses. Applications for approved study leave are made by the student using a specific form which is submitted to the Department of Rehabilitation. Approved study leave can be granted for a maximum of one (1) year. Extensions may be granted if there are extenuating circumstances. Decisions concerning approved study leave are made by the head of the department. The decision of the head of department is announced in writing and, if granted, the resumption of studies is planned between the head of department and the student. Studies are conducted in accordance with the study plan that applies at the time of resumption. The student reports to the Department of Rehabilitation when he/she wishes to resume studies. Decisions relating to the resumption of studies are made by the head of the department. Decisions are conveyed to the student in writing.

Non-completion of studies
Requests for the termination of studies of a programme or course must be made using a specific form and submitted by the student to the Department of Rehabilitation. Before the decision to terminate studies is made, the student is entitled to receive study guidance. The decision for the termination of studies is made by the head of the department, who is also responsible for ensuring that the student is deregistered from the course.

Temporary interruption of clinical placement studies
The School of Health and Welfare may suspend a student's participation in clinical placement studies or any other practical element of an ongoing course if the student has shown gross incompetence/unsuitability in the practical application of their studies on people. A student whose clinical placement studies or any other practical element has been suspended due to gross incompetence/unsuitability is not permitted to resume participation in the course until the course co-ordinator or examiner has performed checks and ascertained that the student possesses the necessary knowledge and skills. The reasons for the suspension must be stated in the decision to suspend the student's participation. Following the decision, an individual plan must be established for the student which shall state the shortcomings in knowledge and/or skills, the support that the student can expect to receive, how the checks shall proceed, when the first check shall take place and when any further checks shall be made.