Course Structure Diagram 2013–14
Bachelor of Health Sciences (BHSc) in Medical and Wellness Technology
3 years, 180 ECTS credits

Studies include compulsory general, basic and intermediate studies and optional studies so that the total extent of the degree is at least 180 ECTS credits. Studies are recommended to be performed according to the attached indicative timetable. The letter Y at the end of the course code refers to general studies, the letter P to basic studies and the letter A to intermediate studies. Before attending to the electrical and computer engineering courses student has to execute exercises called Introduction to the workstation. These exercises are carried out in the 1st year autumn just before the course Elementary programming.

<table>
<thead>
<tr>
<th>Year / Semester</th>
<th>Studies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 / Autumn</td>
<td>General Studies 4 ECTS credits</td>
<td>29.5 ECTS credits</td>
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<tr>
<td></td>
<td>Basic Studies 25.5 ECTS credits</td>
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<tr>
<td>1 / Spring</td>
<td>General Studies 4 ECTS credits</td>
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<td>Basic Studies 22 ECTS credits</td>
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<td>Intermediate Studies 5 ECTS credits</td>
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<td>2 / Autumn</td>
<td>Basic Studies 10 ECTS credits</td>
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<td>Intermediate Studies 21 ECTS credits</td>
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<td>2 / Spring</td>
<td>Basic Studies 18 ECTS credits</td>
<td>29 ECTS credits</td>
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<td></td>
<td>Intermediate Studies 10 ECTS credits</td>
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<tr>
<td></td>
<td>Optional Studies 1 ECTS credits</td>
<td></td>
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<tr>
<td>3 / Autumn</td>
<td>General Studies 3 ECTS credits</td>
<td>30.5 ECTS credits</td>
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<tr>
<td></td>
<td>Basic Studies 2 ECTS credits</td>
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<tr>
<td></td>
<td>Intermediate Studies 25.5 ECTS credits</td>
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<tr>
<td>3 / Spring</td>
<td>Basic Studies 1,5 ECTS credits</td>
<td>29 ECTS credits</td>
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<tr>
<td></td>
<td>Intermediate Studies 7 ECTS credits</td>
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<tr>
<td></td>
<td>Optional Studies 10,5 ECTS credits</td>
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<tr>
<td></td>
<td>Bachelor’s Thesis 10 ECTS credits</td>
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Bachelor’s Degree Programme in total 180 ECTS credits

STUDIES IN BACHELOR’S DEGREE (180 ECTS credits)

General Studies 11 ECTS credits

040007Y Introduction to scientific research 1.5 ECTS credits
040011Y Medical informatics I and II 1.5 ECTS credits
580101Y Introduction to University Studies 2 ECTS credits
901020Y Swedish 3 ECTS credits
902006Y Reading for Academic Purposes 1.5 ECTS credits
902007Y Scientific Communication 1.5 ECTS credits
Basic Studies 79 ECTS credits

031010P Calculus I 5 ECTS credits
031011P Calculus II 6 ECTS credits
031017P Differential Equations 4 ECTS credits
031019P Matrix Algebra 3.5 ECTS credits

040002Y Medical cell and developmental biology 7 ECTS credits
040005Y Biostatistics 3 ECTS credits
040105Y Basic Epidemiology 1.5 ECTS credits
040901Y Basic Anatomy 2 ECTS credits
040902Y Medical Biochemistry and Molecular Biology 9 ECTS credits
050004Y Chemistry 3 ECTS credits

521141P Elementary Programming 5 ECTS credits
555280P Basic Course of Project Management 2 ECTS credits
580102P Introduction to Medical and Wellbeing Technology 3 ECTS credits
761101P Basic Mechanics 4 ECTS credits
761102P Basic Thermodynamics 2 ECTS credits
761103P Electricity and Magnetism 4 ECTS credits
761104P Wave Motion 3 ECTS credits
761105P Atomic and Nuclear Physics 3 ECTS credits
761116P Radiation Physics, Biology and Safety 3 ECTS credits
761121P Laboratory exercises in physics I 3 ECTS credits
764163P Introduction to biophysics 3 ECTS credits

Intermediate Studies 68.5 ECTS credits

031050A Signal analysis 4 ECTS credits
040108A General Pathology 3.5 ECTS credits
040112A Physiology 15 ECTS credits
041201A Basics in eHealth 5 ECTS credits
080901A Introduction to Technology in Clinical Medicine 6 ECTS credits
521109A Electrical Measurement Principles 5 ECTS credits
521142A Embedded Systems Programming 5 ECTS credits
521302A Circuit Theory 1 5 ECTS credits
521337A Digital Filters 5 ECTS credits
521431A Principles of Electronics Design 5 ECTS credits
764324A Biophysical Laboratory Exercises I 5 ECTS credits
764327A Virtual Measurement Environments 5 ECTS credits

Bachelor’s Thesis and Maturity Test 10 ECTS credits

580209A Bachelor’s Thesis 10 ECTS credits
580211A Maturity Test 0 ECTS credits
Bachelor's Degree Programme in Medical Technology, studies for each semester

1. Academic year

- **031010P** Calculus I 5 ECTS credits
- **031019P** Matrix Algebra 3.5 ECTS credits
- **040011Y** Medical informatics I 0.5 ECTS credits
- **521141P** Elementary Programming 5 ECTS credits
- **580101Y** Introduction to University Studies 2 ECTS credits
- **580102P** Introduction to Medical and Wellbeing Technology 3 ECTS credits
- **761101P** Basic Mechanics 4 ECTS credits
- **761102P** Basic Thermodynamics 2 ECTS credits
- **761121P** Laboratory exercises in physics I 3 ECTS credits
- **902007Y** Scientific Communication 1.5 ECTS credits

- **031011P** Calculus II 6 ECTS credits
- **031017P** Differential Equations 4 ECTS credits
- **040007Y** Introduction to scientific research 1.5 ECTS credits
- **040011Y** Medical informatics II 1 ECTS credits
- **040901Y** Basic Anatomy 2 ECTS credits
- **521142A** Embedded Systems Programming 5 ECTS credits
- **761104P** Wave Motion 3 ECTS credits
- **761103P** Electricity and Magnetism 4 ECTS credits
- **764103P** Introduction to biophysics 3 ECTS credits
- **902006Y** Reading for Academic Purposes 1.5 ECTS credits

In total 60.5 ECTS credits

2. Academic year

- **040002Y** Medical cell and developmental biology 7 ECTS credits
- **080901A** Introduction to Technology in Clinical Medicine 6 ECTS credits
- **521302A** Circuit Theory 1.5 ECTS credits
- **521109A** Electrical Measurement Principles 5 ECTS credits
- **761105P** Atomic and Nuclear Physics 3 ECTS credits
- **764324A** Biophysical Laboratory Exercises I 5 ECTS credits
- **901020Y** Swedish 3 ECTS credits (is held every second year)
- **040005Y** Biostatistics 3 ECTS credits
- **040902Y** Medical Biochemistry and Molecular Biology 9 ECTS credits
- **041201A** Basics in eHealth 5 ECTS credits
- **050004Y** Chemistry 3 ECTS credits
- **521431A** Principles of Electronics Design 5 ECTS credits
- **761116P** Radiation Physics, Biology and Safety 3 ECTS credits

In total 59 or 62 ECTS credits
3. Academic year

031050A Signal analysis 2/4 ECTS credits (continue in the spring)
040108A General Pathology 3.5 ECTS credits
040112A Physiology 15 ECTS credits
555280P Basic Course of Project Management 2 ECTS credits
764627A Virtual Measurement Environments 5 ECTS credits
901020Y Swedish 3 ECTS credits (is held every second year)
031050A Signal analysis 2/4 ECTS credits
040105Y Basic Epidemiology 1.5 ECTS credits
521337A Digital Filters 5 ECTS credits
580209A Bachelor’s Thesis 10 ECTS credits
580211A Maturity Test 0 ECTS credits

In total 46 or 49 ECTS credits + optional studies

Optional Studies 11.5 ECTS credits

Optional studies are selected among basic and intermediate studies that support the degree so that the total extent of the degree is at least 180 ECTS credits. In the case of optional studies, if necessary, the student must agree with the organizing department for the participation to the course. Optional studies may include practical training in the field of biomedical engineering of up to 4 ECTS credits (course code 580120A Practical training 1).

Recommended optional studies for Bachelor’s degree:

031018P Complex Analysis 4 ECTS credits
031022P Numerical Analysis 5 ECTS credits
465075A Research Techniques for Materials 3,5 ECTS credits
521144A Algorithms and Data Structures 6 ECTS credits
521432A Electronics Design I 5 ECTS credits
580201A Biomedical Engineering Programming Study 5 ECTS credits
750340A Basics of bioinformatics 3 ECTS credits
753124P Concepts of genetics 4 ECTS credits
764115P Foundations of cellular biophysics 2 ECTS credits
766326A Atomic physics 1 6 ECTS credits (replaces the course 761105P Atomic and Nuclear Physics 3 ECTS credits)
766328A Thermophysics 6 ECTS credits (replaces the course 761102P Basic Thermodynamics 2 ECTS credits)
763333A Solid state physics 4 ECTS credits
766334A Nuclear and particle physics 2 ECTS credits
811138A Internet and Networks 5 ECTS credits
811168P Information Security 5 ECTS credits
811170P Introduction to Information Systems Analysis and Design 6 ECTS credits