

**Master of Health Sciences (MHS) - Medical and Wellness Technology Master Programme**  
**Biomedical Technology**

**Study Structure 2016–18**  
**2 years, 120 ECTS credits**

Course name and Recommended timing	1st autumn		1st spring		2nd autumn		2nd spring	
	1	2	3	4	1	2	3	4
<b>Periods</b>								
<b>Complementary studies 0-60 ECTS Credits</b>								
<b>Compulsory studies 68-71 ECTS Credits</b>								
<a href="#">580101Y</a> Introduction to University studies 2 ects	2							
<a href="#">764664S</a> Biosystems analysis and simulation 6 ects	3	3						
<a href="#">080914S</a> Biomedical Engineering and Medical Physics Seminar 3 ects					3			
<a href="#">521093S</a> Biomedical Instrumentation 5 ects			5					
<a href="#">521124S</a> Sensors and Measuring Techniques 5 ects	5							
<a href="#">521273S</a> Biosignal Processing I 5 ects		5						
<a href="#">764634S</a> Medical Physics and Imaging 6 ects					2	3		
<a href="#">580121A</a> Practical Training 2 I-5 ects					5			
580214S Research Plan, Master's Thesis 5 ects						5		
580212S Master's Thesis 30 ects						2	13	15
<a href="#">580211S</a> Maturity Test 0 ects								0
<b>Advanced Studies (from one module need to be executed at least 25 ECTS credits)</b>								
<b>Biomedical technology (40 ects)</b>								
<a href="#">040911S</a> Using animals in research 3 ects			3					
<a href="#">080915S</a> Tissue Biomechanics 5 ects	5							
<a href="#">465105A</a> Research Techniques for Materials 5 ects		5						
<a href="#">580401A</a> Basic Biomaterials 2 ects		2						
<a href="#">580402S</a> Biomedical Imaging Methods 5 ects				5				
<a href="#">761359A</a> Spectroscopic Methods 5 ects			2	3				
<a href="#">521240S</a> Biophotonics and Biomedical Optics 5 ects						3	2	
<a href="#">080917S</a> Project in Biomedical Technology 10 ects			5	5				
<b>Optional studies (9-27 ects) *</b>				2	5	2		
<b>Credits during period</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>
<b>Credits during semester</b>	<b>30</b>		<b>30</b>		<b>30</b>		<b>30</b>	
<b>Credits during academic year</b>	<b>60</b>				<b>60</b>			
<b>Degree in total 120 ECTS credits</b>								

Studies include compulsory intermediate and advanced studies, advanced module's studies and optional studies. The student executes compulsory studies (70 ECTS credits), studies of chosen advanced module (at least 25 ECTS credits) and optional studies so that the total extent of the degree is at least 120 ECTS credits. Studies are executed according to the personal study plan. Studies are executed according to individual timetable depending on the optional studies. Some of the courses are held only every second year.

**Optional Studies (about 25 ECTS credits)**

Optional studies will be executed so that the total extent of the degree is at least 120 credits. Optional studies can be chosen from other advanced module or from other intermediate and advanced studies that support the degree. In the case of optional studies, if necessary, the student must agree with the organizing department for the participation for the course. Optional studies may include practical training in the field of biomedical engineering of up to 5 credits ([580121A](#) Practical training 2).

\* The table has been made assuming that the student will execute all courses included in advanced module. At least 25 ECTS credits have to be performed from the chosen advanced module. Thus, some of the courses listed in the advanced module can be replaced by optional courses.

## Master of Health Sciences (MHS) - Medical and Wellness Technology Master Programme

### Medical Imaging

Course name and Recommended timing	1st autumn		1st spring		2nd autumn		2nd spring	
	1	2	3	4	1	2	3	4
<b>Periods</b>								
<b>Complementary studies 0-60 ECTS Credits</b>								
<b>Compulsory studies 68-71 ECTS Credits</b>								
<a href="#">580101Y</a> Introduction to University studies 2 ects	2							
<a href="#">764664S</a> Biosystems analysis and simulation 6 ects	3	3						
<a href="#">080914S</a> Biomedical Engineering and Medical Physics Seminar 3 ects					3			
<a href="#">521093S</a> Biomedical Instrumentation 5 ects			5					
<a href="#">521124S</a> Sensors and Measuring Techniques 5 ects	5							
<a href="#">521273S</a> Biosignal Processing I 5 ects		5						
<a href="#">764634S</a> Medical Physics and Imaging 6 ects					2	3		
<a href="#">580121A</a> Practical Training 2 I-5 ects			5					
580214S Research Plan, Master's Thesis 5 ects						5		
580212S Master's Thesis 30 ects							15	15
<a href="#">580211S</a> Maturity Test 0 ects								0
<b>Advanced Studies (from one module need to be executed at least 25 ECTS credits)</b>								
<b>Medical Imaging (40 ects)</b>								
<a href="#">521149S</a> Computer Vision Methods for Medical and Biomedical Images 5 ects	5							
<a href="#">521466S</a> Machine Vision 5 ects			5					
<a href="#">521259S</a> Digital video processing 5 ects		5						
<a href="#">521289S</a> Machine Learning 5 ects				5				
<a href="#">521282S</a> Biosignal Processing II 5 ects				5				
<a href="#">580402S</a> Biomedical Imaging Methods 5 ects				5				
<a href="#">080918S</a> Project in Medical imaging 10 ects					5	5		
<b>Optional studies (9-27 ects) *</b>		2			5	2		
<b>Credits during period</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>
<b>Credits during semester</b>	<b>30</b>		<b>30</b>		<b>30</b>		<b>30</b>	
<b>Credits during academic year</b>	<b>60</b>				<b>60</b>			
<b>Degree in total 120 ECTS credits</b>								

### Recommended optional studies:

*Recommended optional studies for advanced module*

*Biomedical Technology:*

[747604S](#) Introduction to biocomputing 3 ECTS cr (P2)

[764322A](#) Cell Membrane Biophysics 7 ECTS cr (PI-P2)

[764629S](#) Identification of linear systems 5 ECTS cr (P3)

[521282S](#) Biosignal Processing II 5 ECTS cr (P4)

[521285S](#) Affective Computing 5 ECTS cr (PI-P2)

[521149S](#) Computer vision methods for medical and biomedical images 5 ECTS cr (PI)

[580202S](#) Biomedical Engineering Project 5-10 ECTS cr

*Recommended optional studies for advanced module*

*Medical Imaging:*

[031044A](#) Mathematical Methods 3 ECTS cr (PI-P3)

[521240S](#) Biophotonics and Biomedical Optics 5 ECTS cr (P2-P3)

[521412A](#) Digital Techniques I 5 ECTS cr (PI-P2)

[521432A](#) Electronics Design I 5 ECTS cr (PI-P2)

[521285S](#) Affective Computing 5 ECTS cr (PI-P2)

[766661S](#) NMR Imaging 8 ECTS cr (PI-P2)

[580201A](#) Biomedical Engineering Programming Study 5 ECTS cr

[580202S](#) Biomedical Engineering Project 5-10 ECTS cr

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### Health Technology

Course name and Recommended timing	1st autumn		1st spring		2nd autumn		2nd spring		
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<b>Periods</b>									
<b>Complementary studies 0-60 ECTS Credits</b>									
<b>Compulsory studies 68-71 ECTS Credits</b>									
<a href="#">580101Y</a> Introduction to University studies 2 ects	2								
<a href="#">764664S</a> Biosystems analysis and simulation 6 ects	3	3							
<a href="#">080914S</a> Biomedical Engineering and Medical Physics Seminar 3 ects					3				
<a href="#">521093S</a> Biomedical Instrumentation 5 ects			5						
<a href="#">521124S</a> Sensors and Measuring Techniques 5 ects	5								
<a href="#">521273S</a> Biosignal Processing I 5 ects		5							
<a href="#">764634S</a> Medical Physics and Imaging 6 ects					2	3			
<a href="#">580121A</a> Practical Training 2 1-5 ects					5				
580214S Research Plan, Master's Thesis 5 ects						5			
580212S Master's Thesis 30 ects						5	15	10	
<a href="#">580211S</a> Maturity Test 0 ects								0	
<b>Advanced Studies (from one module need to be executed at least 25 ECTS credits)</b>									
<b>Health Technology (40 ects)</b>									
<a href="#">040404A</a> Health technology and rehabilitation 5 ects								5	
<a href="#">080916S</a> Biomechanics of Human Movement 5 ects			5						
<a href="#">521282S</a> Biosignal Processing II 5 ects				5					
<a href="#">555333S</a> Production Management 5 ects		5							
<a href="#">521430A</a> Electronic Measurement Techniques 5 ects				5					
<a href="#">521145A</a> Human-Computer Interaction 5 ects	5								
<a href="#">080919S</a> Project in Health Technology 10 ects			5	5					
<b>Optional studies (9-27 ects) *</b>		2			5	2			
<b>Credits during period</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	
<b>Credits during semester</b>	<b>30</b>		<b>30</b>		<b>30</b>		<b>30</b>		
<b>Credits during academic year</b>	<b>60</b>				<b>60</b>				
<b>Degree in total 120 ECTS credits</b>									

Recommended optional studies for advanced module Health Technology:

- [031044A](#) Mathematical Methods 3 ECTS cr (P1-P3)
- [464085A](#) Patenting 5 ECTS cr (P3-P4)
- [812671S](#) Usability Testing 5 ECTS cr (P3-P4)
- [521238S](#) Optoelectronic Measurements 5 ECTS cr (P4)
- [521412A](#) Digital Techniques I 5 ECTS cr (P1-P2)
- [521432A](#) Electronics Design I 5 ECTS cr (P1-P2)
- [521285S](#) Affective Computing 5 ECTS cr (P1-P2)
- [555242A](#) Product Development 5 ECTS cr (P1-P3)
- [521149S](#) Computer vision methods for medical and biomedical images 5 op (P1)
- [521240S](#) Biophotonics and Biomedical Optics 5 ECTS cr (P2-P3)
- [580201A](#) Biomedical Engineering Programming Study 5 ECTS cr
- [580202S](#) Biomedical Engineering Project 5-10 ECTS cr