

Appendices Master's degree programme Biomedical Engineering

Appendix A Teaching outcomes of the degree programme (art. 1.3)

The graduate Biomedical Engineering:

1. is familiar with existing scientific knowledge, skills and attitude in a specific BME field of expertise and is able to increase and develop these through study.
2. is capable of designing and conducting scientific research and of designing devices or systems in the field of expertise
3. is capable of effective communication with other experts in the fields of biomedical science and technology and with lay people, both in writing and orally.
4. is capable of cooperating with other experts in multidisciplinary teams
5. is capable to critically analyze and evaluate scientific literature
6. is capable of systematic and creative working and thinking in analyzing complex problems
7. is capable to integrate ethical and social aspects into her/his work and to reflect critically on his/her own and others' work
8. is prepared for a professional career in science and technology or in management and policy

Appendix B Specializations of the degree programme (art. 2.2)

The degree programme is divided into the following specializations:

- a) specialization (A) Medical Implants & Function Restoration
- b) specialization (B) Medical Instrumentation & Imaging

Appendix C Content of degree programme (art. 2.3)

Master's Curriculum	Impl.&Funct. Rest.	I&I
	ECTS	ECTS
Biomechanics 2	5	
Biomaterials 2	5	
Fundamental Design	5	
Recent Developments in Biomaterials	4	
Interface Biology	6	
Surface Characterization	5	
Colloid and Interface Science	5	
Integrated Lab Course Biomaterials	6	
Quality of Life	2	
Principles of Measurement Systems		5
Control Systems		5
Imaging Techniques in Radiology		5
Radiation Physics		5
Biomedical Instrumentation		4
Medical Physics for Radiation Oncology		5
Nuclear Medicine, SPECT and PET		5
MR Physics		4
Technology and Ethics	3	3
Multidisciplinary Project	4	4
Optional Modules	10	15
Research Assignment	40	40
Internship	20	20

Impl.&Funct. Rest.: Medical Implants & Function Restoration

I&I: Medical Instrumentation & Imaging

See Ocasys for form of examination and for practicals.

Appendix D Optional modules (art. 2.4)

Master's Curriculum	Impl.&Funct. Rest.	I&I
	ECTS	ECTS
Principles of Measurement Systems	5	
Biomedical Instrumentation	4	
Finite elements and applications (WI)	5	
Project Tissue Engineering	5	
Control Systems (TBK)	5	
Electronics (TBK)	5	
Fysische Systemen	5	
Organisatiekunde voor bijvakstud (TBK)	5	
Productontwikkeling	5	
Solid Mechanics	5	
Optical Measurements in Medicine		5
Radiation Safety		3
Computational Physics		6
Mathematical Methods for Physicists		6
Device Physics		5
Solid State Physics 1		5
Digital and Analogue Control Systems		6
Scientific Visualization		5
Computer Vision		5
Numerical Mathematics 2		5
Stromingsleer		5
Dynamische Systemen		5
Applied Signal Processing		5
Fysische Transportverschijnselen 2	3	3
Filosofie van de Natuurwetenschappen	5	5
Numerieke Methoden	6	6

Impl.&Funct. Rest.: Medical Implants & Function Restoration

I&I: Medical Instrumentation & Imaging

See Ocasys for form of examination and for practicals.

**Appendix E Entry requirements and compulsory order of examinations
(art. 3.2)**

Module	After successfully passing exams modules
Integrated Lab Course Biomaterials	Colloid and Interface Science Interface Biology Surface Characterization
Imaging Techniques in Radiology	Radiation Physics
Medical Physics for Radiation Oncology	Radiation Physics
MR Physics	Principles of Measurement Systems
Nuclear Medicine, SPECT and PET	Principles of Measurement Systems Radiation Physics

Appendix F Admission to the degree programme and different specializations (art. 4.1.1 + art. 4.2)

Holders of a Bachelor's degree in either Life Science & Technology, major Biomedical Engineering, or Physics or Applied Physics, from the University of Groningen are considered to have sufficient knowledge and skills and will be admitted to the Master's degree programme.

In addition to the provisions of Article 4.1, the following admission requirements apply to the various specializations:

- specialization (A) Medical Implants & Function Restoration: a Bachelor's degree in Life Science & Technology of the University of Groningen, major Biomedical Engineering, specialization Implantation & Function Restoration.
- specialization (B) Medical Instrumentation & Imaging: a Bachelor's degree in Life Science & Technology of the University of Groningen, major Biomedical Engineering, specialization Instrumentation & Imaging.

Or a Bachelor's degree in Physics or Applied Physics with specialization Biomedical Engineering.

**Appendix G Application deadlines for admission
(art. 4.5)**

Deadline of Application	Non-EU students	EU students
Biomedical Engineering	April 15 th 2009	June 1st 2009