Assessment plan for the curriculum of the Master's degree programme in Biomedical Engineering Curriculum 2025/2026

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1. Vision on assessment

1. Assessment should evaluate the students ability to apply knowledge, make judgments, and communicate in a professional way (both written and oral) with the aim to increase the quality of medical care and to decrease the cost and manpower, necessary for providing health care nowadays.
2. Assessment should enable qualification of a student to work in med-tech companies and (non-) academic hospitals
3. Assessment should enable qualification of a student to work in academic institutions to perform scientific research to new technologies that will contribute to more efficient health care and high quality of life
4. *Assessment as learning*: Assessment is part of the learning process to provide students feedback in their learning process.
    a. Assessment involves both feedback and summative assessment.
    b. Assessment is contextualized: this means that students receive feedback or are as much as possible tested in practical context-rich assignments.
    c. Learning and developing competencies is often team-based. Peers as well as teachers and/or professional from the field are needed as a mirror, to conduct a discussion, develop new insights and to ask critical questions.
    d. Problem solving and coping with problem solving tasks is seen as the core of the learning process.
5. Assessment should enable the evaluation of learning outcomes.

2. Assessment guidelines

Please explain the general assessment procedures that are used in the programmes. For example, 4-eyes principle in test design, standardised grading forms, rubrics.

1. Summative and formative assessment should be balanced in order to avoid "assessment steers learning" and stimulate internal motivation.
2. Formative assessment is primarily intended to provide feedback about the learning process and progress.
3. Written and oral deliverables should receive extensive feedback from the available staff. In case staff is unable to deliver this feedback, the use of such deliverables should be reconsidered.
4. Group projects/assignments allow for self-reflection and for intergroup summative assessment. Both of these enrich the academic learning process.

3. Learning outcomes of the degree programme

Learning Outcomes *At the end of the programme, the graduate is able to …*	
1	*Analyse the problem and define aim* A Biomedical Engineer is able to analyse biomedical problems of a complex nature by choosing the appropriate level of abstraction and by critically examining existing theories, models or interpretations based on the assessment of the scientific value of current research within Biomedical Engineering. The Biomedical Engineer thereby creates a cause-effect model, distinguishes the problems that are fundamental and solvable and defines the aim which has the highest priority.
2	*Execute the Design, Research & Development plan* A Biomedical Engineer is able to execute a Design, Research & Development plan and to adapt it when external circumstances or advancing insight requires it. Depending on the project the focus may be more on the scientific approach to increase knowledge and understanding (research), on prototyping and product improvement (development) or on the design of new devices or systems, although all three aspects are essential in the Design, Research & Development cycle of innovative products.
3	*Communicate results* A Biomedical Engineer, as an interdisciplinary specialist, is able to communicate orally and in writing about Design, Research & Development with colleagues, non-colleagues and other involved parties including health care providers and patients. In addition, the Biomedical Engineer is able to debate about both Biomedical Engineering and the place of Biomedical Engineering in society.

4	*Embed the results in scientific and social context* A Biomedical Engineer is able to analyse and to discuss the social consequences (economic, social, cultural) of new developments in Biomedical Engineering with colleagues and non-colleagues; has insight into (debates about) scientific practice and is able to analyse and to discuss the ethical and the normative aspects of the consequences and assumptions of the scientific practice with colleagues and non-colleagues and is able to integrate these ethical and normative aspects in its own work.
5	*Demonstrate a professional attitude* A Biomedical Engineer is able to incorporate the knowledge, skills and competences described above and demonstrates a professional attitude by showing a high level of independence, responsibility and commitment. In addition, the Biomedical Engineer shows social skills (including communication, collaboration and leadership skills) as well as the ability to improve after feedback.

4. Overview of assessment methods, test moments for course units, and examiners

There is a distinction between BME course examiner (table 3.1) and a Project examiner (table 3.2) within the Biomedical Engineering programme.

BME Course examiner
Course examiners are appointed by the Board of Examiners as first or second course examiner. A BME course examiner is part of the curriculum of the Master's and/or Bachelor's Biomedical Engineering programme (see Table 4.1).

Project examiner
Project examiners are appointed by the Biomedical Engineering (BME) Board of Examiners as examiner of Internships and Master's projects. Project examiners are appointed by the Board of Examiners based on supervised Internships and/or Master's projects in recent years (Table 4.2). Project examiners only assess Internship and/or the Master's projects. The BME examiner will always have the final say on the assessment of the Internship/Master's project.

Internal and External Biomedical Engineering projects will be assessed by at least one BME course examiner.

Internal projects carried out at the University of Groningen (UMCG clinical departments excluded) will be assessed by (at least one) BME course examiner. The other examiner can be a Project examiner from the Faculty of Science and Engineering or the Faculty of Medical Sciences, appointed by the BME Board of Examiners.

There are two kinds of external projects; 1) at accredited universities or University Medical Center hospitals (UMC), and 2) at companies or regular hospitals.

1) External projects carried out at accredited universities and UMC's will be assessed by a BME course examiner as a first examiner, and by a scientific staff member from the hosting university/UMC as a second examiner.
2) External projects carried out at companies, regular hospitals or abroad will be assessed by two BME course examiners.

Table 4.1. Overview of assessment methods, test moments for course units, and BME course examiners, given per programme year and period.

Year	Period	Course	ECTS	Assessment method(s) *	Does (part of the) assessment have a formative function?	Test moment(s)	Course coordinator/ First examiner	Second examiner
1	1a	Biomaterials 2	5	AST	AST	halfway, end	dr. P. (Patrick) van Rijn	dr. T.G. (Theo) van Kooten
1	1a	Control Engineering for BME	5	WE	-	end	prof. dr. M. (Maryam) Ghandchi Tehrani	prof. dr. C. (Claudio) De Persis
1	1a	Interface Biology	5	WE P	-	end	dr. T.G. (Theo) van Kooten	dr. P. (Patrick) van Rijn
1	1a	MATLAB concepts for image and data analysis	5	AST	AST	halfway, end	dr. A.T.M. (Antoon) Willemsen	dr. J.B.C. (Jan-Bernard) Marsman
1	1a	MRI	5	OR, AST	-	end	dr. R.J. (Remco) Renken	dr. M.J.W. (Marcel) Greuter
1	1a	Radiation Physics	5	WE ITR	IT	halfway, end	dr. C.E. (Catherine) Rigollet	dr. A.K. (Alexandra) Biegun
1	1a	Product Design by the FEM (for BME)	5	WE, IT	IT	halfway, end	dr. R. (René) Fluit	dr. C.C. (Charissa) Roossien
1	1b	Biofilms	5	WE, IT, AST, P	IT, AST, P	start, halfway, end	dr. B.W. (Brandon) Peterson	dr. P.K. (Prashant) Sharma
1	1b	Computed Tomography	5	WE, R	-	end	dr. M.J.W. (Marcel) Greuter	dr. A.T.M. (Antoon) Willemsen
1	1b	Conventional Imaging Techniques in Radiology	5	WE, R	-	end	Ir. A.L.J. (Arjen) van Hulzen	dr. M.J.W. (Marcel) Greuter
1	1b	Engineering & Biotribology	5	WE, AST	-	end	dr. P.K. (Prashant) Sharma	prof. dr. A. (Antonis) Vakis
1	1b	Nanomedicines for Biomedical Applications	5	MC, AST, P, R, PR	AST, P, R, PR,	halfway , end	prof. dr. H.A. (Hélder) Santos	dr. M.A. (Mohammed Ali) Shahbazi
1	1b	Prosthetics and Orthotics	5	WE, R, P, PR	PR, P	halfway, end	dr. Ir. C.C. (Charissa) Roossien	dr. R. (René) Fluit
1	1b	Physics in Nuclear Medicine	5	WE, PR	-	end	dr. A.T.M. (Antoon) Willemsen	dr. O.V. (Oleksandra) Ivashchenko
1	2a	Biomedical Instrumentation 2	5	MC	-	end	prof. dr. R. (Romana) Schirhagl	dr. J.M. (Juha) Hijmans, prof. dr. ir. N.M. (Natasha) Maurits
1	2a	Medical Device Innovation and Translation 1	5	R, P, PR, Peer	R, PR, Peer	start, halfway, end	dr. Ir. C.C. (Charissa) Roossien	dr. R. (René) Fluit
1	2a	Statistical Methods for BME	5	WE, P, PR	P, PR	start, halfway, end	dr. B.W. (Brandon) Peterson	dr. J. (Jelmer) Sjollema
1	2b	Internship	15	AST, P, WE	AST, P	start, halfway, end	dr. J. (Jelmer) Sjollema	supervisor/examiner

* Mode of assessment: Written exam (WE), Multiple-choice exam (MC), Oral exam (OR), Report (R), Assignment (AST), Practical exercise (PR), Presentation (P), Peer review (Peer).

Table 4.1. Continued.

Year	Period	Course	ECTS	Assessment method(s) *	Does (part of the) assessment have a formative function?	Test moment(s)	Course coordinator/ First examiner	Second examiner
2	1a	Bio-signal processing for human machine interaction	5	WE, IT, PR	IT	halfway, end	dr. E. (Elisabeth) Wilhelm	prof. dr. ir. M. (Ming) Cao
2	1a-1b	Advanced Medical Imaging for Diagnosis and Treatment	10	IT, AST, R, P	IT, AST	halfway, end	dr. ir. N.M. (Marianna) Sijtsema	dr. M.J.W. (Marcel) Greuter
2	1a	Integrated Lab Course Biomaterials	5	AST, R, P, PR	AST, R, P, PR	start, halfway, end	dr. M. (Monize) Caiado Decarli	dr. B.W. (Brandon) Peterson
2	1a	Medical Physics for Radiation Oncology	5	WE, PR	-	halfway, end	ir. V.C. (Vincent) Hamming	ing. P. (Pieter) Kloosterman
2	1a	Microscopy and Imaging	5	WE, AST	AST	halfway, end	dr F.P. (Felipe) Perona Martínez	prof. dr. R. (Romana) Schirhagl
2	1a	Recent Developments in Biomaterials	5	AST, P, R	-	end	dr. M.A. (Mohammed Ali) Shahbazi	dr. J. (Jelmer) Sjollema
2	1b	3D Bioprinting for Tissue Engineering	5	P, R, WE	P, R	halfway, end	dr. M.K. (Gosia) Wlodarczyk-Biegun	dr. M. (Monize) Caiado Decarli
2	1b	Medical Device Innovation and Translation 2	5	IT, R, P, Peer	P, Peer	halfway, end	dr. O. (Olga) Belousova	Prof. dr. A.J. (Arend) Groen
2	1b	Technology and the Ethics of Research	5	WE, AST, P	-	halfway, end	dr. G. (Gorazd) Andrejc	prof. dr. C. (Christoph) Jedan
2	2a-2b	Master's Project	30	AST, R, P	AST, P	halfway, end	dr. J. (Jelmer) Sjollema	supervisor/examiner
Courses organized by other programmes								
1	1b	Mechatronics	5	IT, WE	IT	halfway, end	dr. S. (Saeed) Ahmed	prof. dr. ir. J.M.A. (Jacquelien) Scherpen
2	1a	Robotics for IEM	5	WE, R	-	end	dr. B. (Bahar) Haghighat	prof. dr. ir. B. (Bayu) Jayawardhana
2	1a	Introduction to Data Science	5	AST, P, WE	AST	halfway, end	dr. E. (Elisabeth) Wilhelm	prof. dr. ir. B. (Bayu) Jayawardhana
2	1b	MEMS, NEMS and Nanofabrication	5	IT, WE	IT	start, halfway, end	dr. A.G.P. (Ajay) Kottapalli	prof. dr. Y. (Yutao) Pei

* Mode of assessment: Written exam (WE), Multiple-choice exam (MC), Oral exam (OR), Report (R), Assignment (AST), Practical exercise (PR), Presentation (P), Peer review (Peer).

Table 4.2. Project examiners for the Internship and/or the Master's project from accredited Dutch universities and UMC's. The Project examiner will operate next to a BME course examiner (see Table 4.1).

BME project examiner	**Department/Expertise**
dr. E.H.J.G. (Erik) Aarntzen	UMCG - Nuclear medicine, Imaging the immune system
dr. M.I. (Monica) Acuautla Menese	UG - Mechatronic engineering, Piezoelectric materials, MEMS/NEMS, Flexible Sensors
dr. ir. P. (Paul) Baron	UMCG - MRI Physics researcher
prof. dr. ir. D. (Deniz) Baskent	UMCG - Speech perception, speech technology, hearing loss, hearing aids, cochlear implants, development
prof. dr. R.M.F. (Rolf) Berger	UMCG - Pediatrics
prof. C.A. (Cristóbal) Bertoglio	UG - Mathematics, Interdisciplinary Applications/ BME/ Cardiac & Cardiovascular Systems
dr. F. (Frans) Bianchi	UG - Biochemistry & Molecular Biology
prof. dr. H.J.G. (Henk) Bilo	UMCG - Internist
prof. dr. G.H. (Truuske) de Bock	UMCG - Oncological Epidemiology
dr. R.P.H. (Reinoud) Bokkers	UMCG - Intervention radiologist
dr. R.J.H. (Ronald) Borra	UMCG - Imaging/MRI
prof. dr. S. (Stefan) Both	UMCG - Radiology Oncology
dr. ir. C.L. (Charlotte) Brouwer	UMCG - Radiation Oncology, Medical Physics
prof. dr. R. (Raffaella) Carloni	UG - Robotics Lab
prof. dr. E.C.J. (Esther) Esther Consten	UMCG - Robotic and computer assisted surgery
dr. Bart Cornelissen	UMCG - Basic and translational Research and Imaging methodology Development
prof. dr. F.W. (Frans) Cornelissen	UMCG - Ophthalmology, Neurosciences, Neuroimaging
dr. B. (Branislava) Curcic-Blake	UMCG - Neuroimaging
dr. K. (Kevin) Damman	UMCG - Cardiology
dr. P.R. (Peter) van Dijk	UMCG - Endocrinologist
prof. dr. P.U. (Pieter) Dijkstra	UMCG - Rehabilitation
dr. J.M. (Menno)) Douwes	UMCG - Pediatric cardiology
dr. M. (Michiel) Eramus	UMCG - Cardiothoracic surgery, ex vivo lung and heart perfusion, mechanical heart support, lung surgery and mediastinal surgery
dr. F. (Federica) Fontanella	UMCG - AI in prenatal echography
dr. E.P.C. (Etienne) Gaudrain	UMCG - Auditory research: Auditory Scene Analysis in Cochlear-Implant users
dr. B.N.G. (Ben) Giepmans	UMCG - (Advanced) Microscopy, Molecular biochemistry, Cell Biology
dr. M.C.M. (Marijke) Gordijn	UG - Human Chronobiology, Chronibiology and sleep
dr. C. (Christian) Greve	UMCG - Movement science/Beatrixoord
dr. J.M. (Juha) Hijmans	UMCG - Rehabilitation
dr. R.F. (Roland) Hoffmann	UMCG - cholesteatoma care, cochlear implantation, bone conduction implantation, stapes surgery, tinnitus
dr. M. (Mike) Hogervorst	UMCG - Trauma surgery and spinal surgery
dr. W.M.H. (Willem) Hoogaars	UMCG - (Advanced) Microscopy, Molecular biochemistry, Cell Biology
dr. A. (Anouk) van der Hoorn	UMCG - Radiology, Nuclear Medicine & Medical Imaging
prof. J.H.P. (Han) Houdijk	UMCG - Clinical Movement Sciences
dr. C.V. (Christian) Hulzebos	UMCG - Pediatrics, neonatology
prof. dr. P.C. (Paul) Jutte	UMCG - Orthopedics
prof. dr. M.A.J. (Marina) de Koning-Tijssen	UMCG - Neurologists Movement Disorders http://movementdisordersgroningen.com/en
dr. ir. E.W. (Erik) Korevaar	UMCG - Medical Physicist Radiation oncology
dr. J. (Joep) Kraeima	UMCG – 3D lab
dr. A.O. (Anastasiia) Krushynska	UG - Mechanics, Mechanical Engineering, Acoustics
dr. R. (Roald) Lambrechts	UMCG - Molecular and Cellular Biology
prof. dr. C.J.C. (Claudine) Lamoth	UMCG - Movement Analysis and Smart Technology in Aging
prof. dr. H.G.D. (Henri) Leuvenink	UMCG - Groningen Institute for Organ Transplantation
dr. P. (Peter) van Luijk	UMCG - Damage and Repair in Cancer Development and Cancer Treatment (DARE)

Table 4.2. Continued.

BME project examiner	**Department/Expertise**
dr. A.M.L. (Anne) Meesters	UMCG - 3D Lab/Imaging/Trauma Surgery
prof. dr. H.C. (Henny) van der Mei	UMCG - BME
dr. V.E. (Vincent) de Meijer	UMCG - HPB and Liver Transplant Surgeon
dr. S.K. (Sanne) Meles	UMCG - Neuroimaging
prof. dr. S. (Sarthak) Misra	UMCG - BME/UT Twente - Surgical Robotics Lab
dr. C. (Cyril) Moers	UMCG -Tansplantation, Organ preservation
dr. T. (Taraneh) Mokabber	UG - Biomaterials Materials Science
dr. A. (Alessio) Murgia	UMCG - Rehabilitation, Neurosciences, BME
prof. dr. W.N. (Maarten) Nijsten	UMCG - Critical Care
prof. dr. P. (Peter) Olinga	UG - Translational Biopharmaceutics
dr. A.R. (Rob) den Otter	UMCG - Neurosciences, Rehabilitation
dr. P. (Peter) Pijpker	UMCG - 3D lab - development and application of 3D technology
dr. P. (Pietro) Pisciotta	UMCG - Medical Physicist
dr. S.J. (Sonja) van Tuinen-Pyott	UMCG - Peripheral auditory system, Hearing loss and tinnitus, Neuroscience
dr. L. (Laurens) Reinke	UMCG - Simulation Center UMCG
prof. dr. M.F. (Michiel) Reneman	UMCG - Pain Rehabilitation and Work Participation
prof. H.A. (Hélder) Santos	UMCG - Biomedical Engineering
dr. R.C.L. (Richte) Schuurmann	UMCG - Surgery
dr. A. (Alina) Sigaeva	UMCG - Free radicals regulation and cell communication
dr. J. (Joyce) van Sluis	UMCG - Imaging (PET)
prof. dr. C.K. (Corry) van der Sluis	UMCG - Rehabilitation Medicine
dr. D.(Dominika) Suchá	UMC Utrecht - Radiology: Cardiothoracic imaging
dr. I. (Ignace) Tielliu	UMCG - Endovascular repair of peripheral artery aneurysms, Diagnosis and treatment of vascular graft and endograft infections
dr. H. (Hans) Timmerman	UMCG - Anesthesiology
dr. H.C. (Hugo) van der Veen	UMCG - Orthopedic surgery
dr. R.J.K. (Riemer) Vegter	UMCG - Human Movement Science
prof. dr. R. (Rozemarijn) Vliegenthart	UMCG - Radiology, Nuclear Medicine & Medical Imaging
dr. M. (Marina) Volkova	UMCG - Molecular Biology
prof. dr. J.P.P.M. (Jean-Paul) de Vries	UMCG - (Vascular) surgery
dr. M.K. (Marieke) van Vugt	UG - Artificial Intelligence, mind-wandering, decision making, EEG, cognitive modelling; mindfulness, attention, social neuroscience, brain decoding, computational psychiatry, depression
dr. C.W.J. (Kars) van der Weijden	UMCG - Neuroimaging, Radiology, Nuclear Medicine & Medical Imaging Neurosciences
dr. R. (Robin) Wijsman	UMCG - Radiotherapist Oncology
dr. A.R. (Arthur) Wijsmuller	UMCG - Consultant surgeon
dr. T.P. (Tineke) Willems	UMCG - Cardiovascular Centre
dr. P.J. (Pieter) van der Zaag	UG - Microscopy, Nanoscience & Nanotechnology, Radiology, Nuclear Medicine & Medical Imaging
prof. dr. J.A.M. (Clark) Zeebregts	UMCG - Applied endovascular techniques, Carotid surgery, Vascular anastomotic techniques, Vascular prosthetic graft infections, Translational research after atherosclerotic plaque morphology, new molecular imaging techniques
From outside UG/UMCG:	
dr. A.J. (Ot) Bakermans	Amsterdam UMC - Cardiovascular MR imaging; Magnetic resonance spectroscopy
dr. ir. C.A.T. (Nico) van den Berg	UMC Utrecht - Computational Imaging
prof. dr. D.W. Donker	Enschede TU - Cardiovascular and Respiratory Physiology (CRPH)
dr. V. (Venkat) Kalpathy Venkiteswaran	Enschede- UT Twente Surgical Robotics Lab
dr. C.M. (Charlotte) Lameijer	Amsterdam UMC - Trauma Surgeon (Trauma Shoulder, elbow, hand/wrist)
dr. R.N. (Nils) Planken	UMC Amsterdam - Cardiovascular imaging
dr. K. S. (Koenraad) Rhebergen	UMC Utrecht - Medical physicist - Audiologist / senior researcher at UMC Utrecht
dr. ir. A. (Aimée) Sakes	Delft - Bio-Inspired Technology (BITE) Group
dr. D.(Dominika) Suchá	UMC Utrecht - Radiology: Cardiothoracic imaging
prof. dr. ir. F.J.W. (Frank) Verhaegen	Maastricht University - Radiotherapy

5. Relationship between course units and details of the learning outcomes

Table 5.1. Learning outcomes that are assessed in each course are indicated with 'x' in the table below, given per track. Courses indicated in Italic are compulsory elective courses (E).

A. Track: Biomaterials Science and Engineering

	Courses	Learning outcomes							
		1. Acquire expertise in Biomedical Engineering	**2. Analyse the problem and define aim**	**3. Create a Design, Research & Development proposal**	**4. Execute the Design, Research & Development plan**	**5. Analyse and interpret the data**	**6. Communicate results**	**7. Embed the results in scientific and social context**	**8. Demonstrate a professional attitude**
	Year 1								
1a	Biomaterials 2	x		x			x	x	
1a	*Product Design by FEM (for BME) (E)*	x	x	x		x	x		
1a	*MATLAB Concepts for Image and Data Analysis (E)*	x			x	x			
1a	Interface Biology		x			x	x	x	
1b	Biofilms		x			x	x		
1b	Nanomedicines for Biomedical Applications		x	x	x	x	x		
2a	Biomedical Instrumentation 2		x			x			
2a	Medical Device Innovation and Translation 1		x	x	x		x	x	x
2a	Statistical Methods in BME		x		x	x	x		
2b	Internship	x	x	x	x	x	x	x	x
	Year 2								
1a	Integrated Lab Course in Biomaterials					x	x	x	
1a	Microscopy and Imaging				x	x			
1a	Recent Developments in Biomaterials	x		x		x	x		
1b	3D Bioprinting for Tissue Engineering	x				x	x	x	
1b	Medical Device Innovation and Translation 2			x	x		x	x	x
1b	Technology and the Ethics of Research		x			x	x	x	x
2a 2b	Master's thesis project	x	x	x	x	x	x	x	x
	Start symposium	x					x	x	
	End symposium	x					x	x	
	Seminars	x					x		

B. Track Medical Device Design

	Courses	Learning outcomes							
		1. Acquire expertise in Biomedical Engineering	**2. Analyse the problem and define aim**	**3. Create a Design, Research & Development proposal**	**4. Execute the Design, Research & Development plan**	**5. Analyse and interpret the data**	**6. Communicate results**	**7. Embed the results in scientific and social context**	**8. Demonstrate a professional attitude**
	Year 1								
1a	Product Design by FEM (for BME)	x	x	x		x	x		
1a	*MATLAB Concepts for Image and Data Analysis (E)*	x			x	x			
1a	*Interface Biology (E)*		x			x	x	x	
1a	Control Engineering for BME	x	x	x	x	x			x
1b	Engineering and Biotribology	x	x			x	x	x	
1b	Mechatronics	x	x			x			
1b	Prosthetics and Orthotics	x	x			x	x	x	
2a	Biomedical Instrumentation 2		x			x			
2a	Medical Device Innovation and Translation 1		x	x	x		x	x	x
2a	Statistical Methods in BME		x		x	x	x		
2b	Internship	x	x	x	x	x	x	x	x
	Year 2								
1a	Introduction to Data Science	x	x			x			
1a	Bio-signal processing for human machine interaction		x			x			
1a	Robotics for IEM			x	x	x	x		
1b	MEMS, NEMS and Nanofabrication					x	x		
1b	Medical Device Innovation and Translation 2			x	x		x	x	x
1b	Technology and the Ethics of Research		x			x	x	x	x
2a 2b	Master's thesis project	x	x	x	x	x	x	x	x
	Start symposium	x					x	x	
	End symposium	x					x	x	
	Seminars	x					x		

C. Track: Medical Imaging (MI)

	Courses	Learning outcomes							
		1. Acquire expertise in Biomedical Engineering	**2. Analyse the problem and define aim**	**3. Create a Design, Research & Development proposal**	**4. Execute the Design, Research & Development plan**	**5. Analyse and interpret the data**	**6. Communicate results**	**7. Embed the results in scientific and social context**	**8. Demonstrate a professional attitude**
	Year 1								
1a	Radiation Physics			x	x	x	x		
1a	MATLAB Concepts for Image and Data Analysis	x			x	x			
1a	MRI	x					x		
1b	Conventional Imaging Techniques and Ultrasound					x			
1b	Computed Tomography	x	x	x		x	x		
1b	Physics in Nuclear Medicine	x				x			
2a	Biomedical Instrumentation 2		x			x			
2a	Medical Device Innovation and Translation 1		x	x	x		x	x	x
2a	Statistical Methods in BME		x		x	x	x		
2b	Internship	x	x	x	x	x	x	x	x
	Year 2								
1a	Microscopy and Imaging				x	x			
1a	Medical Physics for Radiation Oncology					x			
1a 1b	Advanced Medical Imaging for Diagnosis and Treatment					x	x	x	
1b	Medical Device Innovation and Translation 2			x	x		x	x	x
1b	Technology and the Ethics of Research		x			x	x	x	x
2a 2b	Master's thesis project	x	x	x	x	x	x	x	x
	Start symposium	x					x	x	
	End symposium	x					x	x	
	Seminars	x					x		