Master electives list Medical Engineering (2023-2024)

Content

Medical Engineering	
Core	15 ec
Specialization electives	25 ec
Free space	15 ec
Externship	20 ec
Graduation project	45 ec

Master electives list Medical Engineering (2023-2024)

Core courses

Code	Course name	Lecturer	Q/TS	EC
8FM20	Clinical module 1 – Diagnostics and monitoring (dependent on # participants) • Neurology (8FM21) • Radiology (8FM22) • IC (8FM23)		1 or 3 /**DD**	7.5
8FM30	Clinical module 2 – Decision and intervention (dependent on # participants) • Heart & vessels (8FM31) • Oncology (8FM32) • Orthopaedics (8FM33) • Clinical chemistry – Catharina Hospital (8FM34)		1 or 3 /**DD**	7.5

DD = Whole Tuesday and Thursday in Maastricht during Q1/Q3; project runs until halfway Q2/Q4

Q = Quarter **TS =** Time slot **EC** = Credit points based on ➔ European Credit Transfer System (ECTS)

Specialization electives

Specialization electives given by BME faculty

Code	Course name	Lecturer	Q/TS	EC
8CM00	Systems medicine	Van Riel	1/D	5
8CM10	Radiation physics	Raaijmakers	1/A **a)**	2.5
8DM50	Machine learning in Medical Imaging and Biology	Veta	1/B	5
8MM50	Host response to biomaterials	Smits	1/A	5
8SM00	Clinical chemistry	Scharnhorst	1/B1	2.5
8SM50	Chemical Biology	Brunsveld	1/D	5
8VM00	Cardiovascular fluid mechanics	Van de Vosse	1/B	5
3MN170	Molecular biosensing	De Jong	2/E	5
5LPE0	Electromagnetic field in MRI	Raaijmakers	2/C1	5
8CM20	Molecular modelling	Markvoort	2/A	5
8MM30	Numerical analysis of continua II	Loerakker	2/C	5
8MM40	Cell mechanobiology and engineering	Kurniawan	2/B	5
8NM00*	Radioisotopes and ionizing radiation in biochemical technology CFK)	Moerdijk	2/B	2.5
8SM10	Protein engineering	Merkx	2/D	2.5
8TM10	Orthopaedic soft tissues: biomechanics and mechanobiology	Foolen	2/D	5
8VM30	Vascular mechanics	Rutten	2/E	5
8VM60	Ultrasound in the (bio)medical engineering	Lopata	2/D	5
8VM70+	Advanced topics in Ultrasound imaging in the (bio)medical engineering	Lopata	2/D	2.5
6EMA61	Advances in molecular chemistry	Palmans	3/E	5
8DM20	Capita selecta medical image analysis	Pluim	3/A+B **b)**	5
8SM20	Biomaterials	Dankers	3/C	5
8SM30	Capita selecta laboratory medicine	Scharnhorst	3/B1	2.5
8TM00	Bone structure and function	Van Rietbergen	3/B1	5
8VM20	Cardiac function	Bovendeerd	3/D	5
3MN210	Single molecule microscopy of nano materials	De Jong	4/C	5
8CM30	Applied clinical data science	Van Riel	4/E	2.5
8MM10	Microscopy for biological samples	Van Turnhout	4/B1	2.5
8SM40*	Nanomedicine	Van der Meel	4/A	5
8VM40	Cardiovascular fluid-structure interaction	Van de Vosse	4/D	5

* = Limited number of spots
CFK) = 8NM00 students in the "Fysica in de kliniek" certificate fill the first spots
\+ = If you already did 8VC00

a) = Only on Monday
b) = Lectures on Monday only and BZ on Monday afternoon

Q = Quarter **TS =** Time slot **EC** = Credit points based on ➔ European Credit Transfer System (ECTS)

Master electives list Medical Engineering (2023-2024)

Specialization electives in the lab

Code	Course name	Lecturer	Q/TS	EC
8PM00*	Project Molecular biology**	Merkx	1/$	5
8MM20*	Cell biological techniques and cell-biomaterial interactions**	Dankers	2/$	5
8PM01*	Project Organic chemistry	Meijer	4/C+E	5

* = Limited number of spots
** = 8MM20 **or** 8PM00 (not both)

$ = Individually planned with lecturer

Specialization electives given by faculty from other departments

Only 1 of these courses can be chosen as specialization elective

Code	Course name	Lecturer	Dep		EC
2MMA80	Mathematics of neural networks	Duits	MCS	Please check OSIRIS for the current programming	5
3MA100	Physics behind medical technology: equipment and physiology	Van Pul	AP		5
4MM20	Computational and experimental micro-mechanics	Hoefnagels	MECH		5
4UM00*	Microfabrication methods	Den Toonder	MECH		5
5LSB0	Monitoring respiration and circulation	Woerlee	EE		5
5LSC0	Biomedical sensing technology (indien 8VB10 niet is gedaan)	Mischi	EE		5
5SSD0	Bayesian machine learning and information processing	De Vries	EE		5
6EMA53	Molecular photophysics	Janssen	CEC		5
6MSM10	Physical organic chemistry	Sijbesma	CEC		5

* = Limited number of spots

Q = Quarter **TS =** Time slot **EC** = Credit points based on ➔ European Credit Transfer System (ECTS)

Suggestions for free space

Master level

Code	Course name	Lecturer	Dep		EC
	Specialization electives (see pages 2+3)		BME		
8GM00	Career development	Pril	BME	all	2.5
8ZM91	Extending graduation project		BME		15
8ZM92	Extending graduation project		BME		10
8ZM97	Extending extern/internship		BME		5
8ZM98	Extending extern/internship		BME		10
8ZM99	Extending extern/internship		BME		15
0LM120	Perspectives on medical technology	Dennis	IEIS	Please check OSIRIS for the current programming	5
0LM140	Let's make humans better	Frank	IEIS		5
1ZM16	Management of product development	Sihag	IEIS		5
1ZM90	Open innovation	Cloodt	IEIS		5
2IPC0	Programming methods	Cleophas	MCS		5
2IX20	Software specification	Keiren	MCS		5
2MMS20	Statistics for big data	Van den Heuvel	MCS		5
4CM00	Control engineering	Witvoet	MECH		5
4LM50	Rheology/Computational rheology	Cardinaels	MECH		5
5SSC0	Adaptive array signal processing	Van Sloun	EE		5
5SSD0	Bayesian machine learning and information processing	De Vries	EE		5
6EMA51	Characterization of materials	Friedrich	CEC		5
6MSM31	Polymer and colloid science	Tuinier	CEC		5

Bachelor level

Maximum 15 EC bachelor level 3 courses; check Osiris if they are taught in English or Dutch

Code	Course name	Lecturer	Q/TS	EC
8DC00	Medical image analysis	Van Eijnatten	1/E	5
8RC00	Pharmacology	Brunsveld	1/A	5
8TB10	Structure and function of joints	Foolen	1/A	5
2DBM90	Applied biostatistical modelling	Rijpkema	2/A	5
8LC00	Applied cell biology	De Boer	2/E	5
8P370	CBL Microscopy	Albertazzi	2/C	5
8VC00	Advanced imaging techniques	Lopata	2/D	5
6E3X0	Macro-organic chemistry	Palmans	3/B	5
8CB10	Simulation biochemical systems	Hilbers	3/C	5
8P340	Project Biomechanics	Van de Vosse	3/B	5
8P350	Project Tissue engineering	Smits	3/D	5
8P361	Project Imaging	Veta	3/E	5
8P380	Project Lab on chip	Gumuscu Sefunc	3/B	5
8TC20	Basic tissue engineering	Hofmann	3/C	5
8VB10	Measurements and modeling in the clinic	Lopata	3/A	5
8CB20	Synthetic and systems biology	De Greef	4/B	5
8CC00	Adv. Programming & Biomed. Data Analysis	Hilbers	4/B	5
8P313	Instrumental analysis	Abdelmohsen	4/A	5
8RB10	Bio-organic chemistry	Dankers	4/B	5
8VB20	Model based cardiovascular pathophysiology	Bovendeerd	4/A	5

Q = Quarter **TS =** Time slot **EC** = Credit points based on ➔ European Credit Transfer System (ECTS)