Faculty of Science and Technology

UNIVERSITY OF TWENTE.

Programme-specific part of the programme section of the student charter including the education and examination regulations of the master's programme of Biomedical Engineering (BME)

(art. 7.13 and 7.59 WHW)

Contents

Preamble

1. The regulations in this programme-specific part apply to the full-time Biomedical Engineering master's programme (CROHO number 66226).

2. Together with the general section (TNW/23.907), this programme-specific part forms the programme section of the student charter including the education and examination regulations of the Biomedical Engineering master's programme of the Faculty of Science and Technology of the University of Twente.

3. In the event of a discrepancy, the Dutch version of this part takes precedence over the English version.

4. The legislation referred to herein is the Dutch Higher Education and Research Act (WHW).

Date: July 11, 2023
Reference: TNW/23.910

Article 1 Definitions

The terms that are used in this regulation and which are referred to in the Higher Education and Research Act (WHW) are defined in accordance with the law.

Article 2 Admission board

1. The dean of the TNW faculty forms an admission board for the purpose of admitting students to the master's programme who are not directly admissible in accordance with article 4.1.

2. The authority to admit or reject students has been delegated to the admission board referred to in section 1 by the Executive Board (reference S&C/387.191/lk).

3. The admission board consists of at least two members, including:
    a. the programme director;
    b. the professor or a delegated representative of the chair where the student wishes to graduate;
    c. for foreign students, the coordinator of internationalisation;
    d. for higher-education students or other Dutch universities the transfer coordinator;
    The programme director serves as chair of the admission board.
    If the chair of the board deems this necessary, the programme coordinator and/or the student adviser and/or the secretary of the examination board may be added to the admission board.

4. The admission board can ask the examination board for advice.

Article 3 Aims and attainments of the programme

The Biomedical Engineering master's programme allows students with a bachelor's degree in Biomedical Technology or a comparable degree to further specialise at the master's level in a specific area of the wider field of biomedical technology, in accordance with the individual student's specific competences and interests. Although students' final qualifications may differ, they must at minimum include the competences listed below:

The Master of Science Biomedical Engineering (BME)

1. Specialises in a specific aspect of the field of biomedical technology;
2. Possesses the necessary knowledge and skills to conduct research;
3. Possesses design skills;
4. Possesses a scientific mindset;
5. Possesses intellectual knowledge;
6. Is able to collaborate and communicate with specialists working in their chosen track, as well as other stakeholders;
7. Possesses the ability to integrate insights into medical and social contexts.

The Master of Science BME (k= knowledge, s= skill, a= attitude):

1. Is competent in the discipline of Biomedical Technology

Specialises in a specific field of biomedical technology. A master of science BME is familiar with existing scientific knowledge and has the competence to expand their knowledge through study.

- Has mastered aspects of the relevant fields of biomedical technology that touch upon the forefront of the knowledge (the latest theories, methods, techniques, current questions). [ks]
- Actively searches for structure in and coherence between in the relevant fields of Biomedical Technology. [ksa]
- Possesses the skill and attitude to apply these methods independently in the context of more advanced ideas or applications. [ksa]
- Is able to reflect on standard methods and their presuppositions; is able to question these; is able to propose adjustments and assess their scope. [ksa]
- Is able to independently spot gaps in their own knowledge and revise and expand their knowledge through study. [ksa]

2. Is competent in research

Possesses knowledge of conducting research and the skills to conduct their own research. A master of science BME has the competence to acquire new scientific knowledge through research. In this context, research means developing new knowledge and new insights in a purposeful and methodical manner.

- They are able to reformulate poorly structured research problems. In doing so, they also involve the system limits. They can defend their new interpretation before the parties involved for problems of a more complex nature. [ksa]
- Is perceptive and possesses the creativity and the ability to discover certain connections and new perspectives in seemingly trivial situations. They can utilise these perspectives for new applications.[ksa]

- Is able to independently draw up and execute a research plan. [ks]
- Chooses the right level of abstraction, given the process phase of the research problem. [ksa]
- Is able to and has the attitude to, where necessary, draw upon other disciplines in their own research. [ksa]
- Is able to deal with the changeability of the research process as a result of external circumstances or advancing insights. Is able to steer the process accordingly. [ksa]
- Is able to assess the scientific value of research conducted in the field of biomedical technology. [ksa]
- Is able to independently contribute to the development of scientific knowledge in one or more fields of Biomedical Technology. [ksa]

3. Is competent in design

In addition to conducting research, students will also learn to design; this depends in part on their chosen specialisation. In this context, designing is a synthetic activity aimed at the realisation of new or modified artefacts or systems with the intention to create value in accordance with predefined requirements and desires (e.g. mobility, health).

- Is able to reformulate poorly structured design problems. In doing so, they also involve the system limits. They can defend their new interpretation before the parties involved for design problems of a more complex nature. [ksa]
- Possesses creativity and synthetic skills with regard to design problems. [ksa]
- Is able to independently draw up and execute a design plan. [ks]
- Chooses the right level of abstraction, given the process phase of the design problem. [ksa]
- Is able to and has the attitude to, where necessary, draw upon other disciplines in their own design. [ksa]
- Is able to deal with the changeability of the design process as a result of external circumstances or advancing insights. Is able to steer the process accordingly. [ksa]
- Is able to formulate new research questions based on a design problem. [ks]
- Possesses the ability to make design decisions and justify and evaluate these in a systematic manner. [ksa]

4. Has a scientific approach

A master of science BME has a systematic approach, characterised by the development and use of theories, models and coherent interpretations, has a critical attitude and has insight into the nature of science and technology.

- Is able to identify and take in relevant developments. [ksa]
- Is able to critically examine existing theories, models and interpretations related to the area of their graduation subject. [ksa]
- Possesses ample skill in and a tendency towards using, developing and validating models; is able to make a conscious choice between modelling methods. [ksa]
- Has insight into the nature of science and technology (purpose, methods, differences and similarities between scientific fields, nature of laws, theories, explanations, role of the experiment, objectivity, etc.) and has knowledge of current debates about this. [k]
- Has insight into the scientific practice (research system, relation with clients, publication system, importance of integrity, etc.) and has knowledge of current debates about this. [k]
- Is able to adequately document the results of research and design with a view of contributing to the development of knowledge in the field of biomedical technology and beyond and is able to publish these results. [ksa]

5. Possesses basic intellectual skills

A master of science BME is competent in reasoning, reflection and forming a judgement. These are skills which are learned or sharpened in the context of a specific discipline and which are generically applicable henceforth.

- Is able to independently reflect critically on their own thinking, decision making and acting and adjust these on the basis of this reflection. [ksa]
- Is able to recognise fallacies. [ks]
- Is able to apply the modes of reasoning (induction, deduction, analogy, etc.). [ksa]
- Is able to ask adequate questions and has a critical yet constructive attitude towards analysing and solving more complex (real-life) problems in the field of health care. [ksa]
- Is able to form a well-reasoned opinion when faced with incomplete or irrelevant data, taking into account the manner in which these data were generated. [ks]
- Is able to adopt a position with regard to a scientific debate in the field of biomedical technology and can critically assess the value of this debate. [ksa]
- Possesses basic numerical skills and an understanding of orders of magnitude. [ksa]

6. Is competent in collaboration and communication

Is able to collaborate and communicate with specialists working in their chosen track, as well as other stakeholders. A master of science BME has the competence to work with and for others. This not only requires adequate interaction, a sense of responsibility and leadership, but also good communication with colleagues and non-colleagues. He or she is also able to participate in a scientific or public debate.

- Is able to communicate in writing about research and solutions to problems with colleagues, non-colleagues and other involved parties in English. [ksa]
- Is able to communicate verbally about research and solutions to problems with colleagues, non-colleagues and other involved parties in English.
- [ksa]
- Is able to debate about both the field and its place in society. [ksa]
- Is characterised by professional behaviour. This includes reliability, commitment and independence. Respects the opinions of others. [ksa]
- Is able to perform complex project-based work: is pragmatic and has a sense of responsibility; is able to deal with limited sources; is able to deal with risks; is able to compromise. [ksa]
- Is able to work as part of a multidisciplinary team. [ksa]
- Is able to take on the role of team leader. [ks]

7. Takes the temporal and societal context into account.

Possesses the ability to integrate insights into medical and social contexts into their work. Life science and technology do not exist in isolation and always have a temporal and social context. Beliefs and methods have their origin; the decisions being made have social consequences over time. A master of science BME understand this and possesses the ability to integrate these insights into their scientific work.

- Understands relevant (internal and external) developments in the history of biomedical technology. This also includes integrating the interaction between the internal (ideas) development and the external (social) development into one's scientific work. [ksa]
- Is able to analyse the societal (economic, social, cultural) consequences of new developments in the field of biomedical technology, discuss these with colleagues and non-colleagues and integrate them into their scientific work. [ksa]
- Is able to analyse the consequences of scientific thinking and acting on health care, the environment and sustainable development and integrate these consequences into their scientific work. [ksa]
- Is able to analyse the ethical and normative aspects of the consequences and assumptions of scientific thinking and acting, discuss these with colleagues and non-colleagues (in both research and design) and integrate these ethical and normative aspects into their scientific work. [ksa]
- Chooses a position as professional in society. [ksa]

Article 4 Admission to the study programme

1. Direct admission to the study programme is obtained with:
    a. a final certificate of the Biomedical Technology bachelor's programme from the University of Twente, Eindhoven University of Technology, University of Groningen or the BMT specialisation of the Life Sciences programme from the University of Groningen.
    b. a certificate of admission to the study programme issued by the admission board.

2. Admission to the study programme subject to certain conditions can be obtained by:
    a. a student who holds a certificate from a technical bachelor's programme from a Dutch university. Sections 3 to 5 of this article apply.
    b. a student who holds a higher-education degree (HBO) from a study programme relevant to the field of biomedical technology. Sections 3 to 5 of this article apply. Further provisions for these students are laid down in article 6 of this programme-specific part.
    c. a student who holds an international bachelor's degree. See website for conditions and procedures. Furthermore, sections 3 to 5 of this article apply.

3. When assessing the application for admission to the master's programme, the admission board may demand that certain courses are passed before a certificate of admission to the master's programme is issued.

4. When issuing a certificate of admission to the master's programme, the admission board may decide to exempt the student from the obligation to complete certain units of the master's programme, with the exception of the final project.

5. When issuing a certificate of admission to the master's programme, the admission board may set conditions with regard to the specific content of the student's master's programme and determine that the admission is only valid for a certain track.

6. The decisions of the admission board referred to in section 4 of this article require the approval of the

Examination Board.

7. Students with a foreign pre-university education must be able to demonstrate a sufficient verbal and written command of English. As an entry requirement, they may be required to meet the standard score on a recognised test. This means a total score of 6.5 or higher on the IELTS test or a score of 90 or higher on the internet-based TOEFL test. Students with a bachelor's degree from countries with only English as the language of higher education are exempted from this language requirement.

Article 5 The pre-master programme

1. The student must first complete a transfer programme of 30 EC as determined by the admission board. This programme is tailored to the competences that the student has acquired elsewhere.

2. If a student fails to complete their assigned transfer programme within the available time frame, they will be excluded from participation in the BME transfer programme for a period of three years.

3. If the student completes the transfer programme within the available time frame, they can be admitted to the BME master's programme.

4. Only personal circumstances that the student has reported to their student adviser as soon as can reasonably be expected after their occurrence will be taken into consideration by the admission board in its decision whether or not to extend the available time frame or grant additional opportunities. Personal circumstances are illness of the person concerned, physical, sensory or other functional disorders of the person concerned, pregnancy of the person concerned or special family circumstances.

5. For each part to be completed, the student has a maximum of two (examination) opportunities.

Article 6 Language

1. The courses and the exams of the Biomedical Engineering master's programme are in English.

2. The master thesis report will be written and defended in English. Students are free to make a translation or summary in Dutch if this is necessary for the dissemination of the research results, but the final grade will be based on the original version in English.

Article 7 Structure of the programme

1. For the BME master's programme, students must choose one of five tracks that tie into the research areas of the TechMed Centre:
    a. Bioengineering Technologies
    b. Imaging and In Vitro Diagnostics
    c. Physiological Signals and Systems
    d. Medical Device Design
    e. Biorobotics

2. The BME master's programme consists of 120 EC, 15 and 45 EC of which are reserved for, respectively, an internship and a master thesis report. Per track, there are at least six compulsory subjects (30 EC green). Furthermore, there are track-specific electives (at least 15 EC blue) and free electives (no more than 15 EC orange). Consult tables 6 to 10 and the pre-approved electives on the website for more information and the most recent version of the tracks (https://www.utwente.nl/en/bme).

3. The electives are chosen in conference with the chair of the master thesis committee. The curriculum must be approved by the chair of the master thesis committee and the examination board. The curriculum must be approved before the end of the first quartile after the student enrolled in the BME master's programme.

4. If a student has already completed one or more compulsory components of the master's programme during their bachelor's programme or if they have completed courses that can be approved as electives for the master's programme, the examination board can grant the student an exemption from these subjects. The total number of EC that the student must obtain as part of their master's programme will not be reduced. Furthermore, the student cannot retake any courses they have already completed to have them count as part of the master's programme.

Article 8 The master curriculum

The programmes below apply in academic year 2023-2024. The most up to date version can be found on the master website www.utwente.nl/en/bme.

Table 1. Track Bioengineering Technologies

	Code	Course	1A	1B	2A	2B
1	201400285	Biostatistics				
2	201500222	Technology for Health				
3	201900088	Applied Cell biology				
4	201400284	Biomedical Membranes & Artificial Organs				
5	201600327	Tissue Engineering				
6	201900123	Advanced Organic Chemistry				
7	201800288	Introduction to Bioengineering Technologies (note: only for students who didn't follow B-BMT)				
8	201700040	In Vitro Diagnostics				
9	193640020	Biophysical Techniques & Molecular Imaging				
10	201400283	Biomedical Materials Engineering				
11	202200254	Advanced Drug Delivery and Nanomedicine (combination of the old courses 201200220 Nanomedicine and 193740010 Controlled Drug and Gene Delivery)				
12	202001414	Physical Biology (don't sign up if you participated in the Soft and Biological Physics minor)				
13	191211120	Lab-on-a-chip (don't sign up if you already completed 201500054)				
14	193400111	Bionanotechnology				
15	193700050	AMM-project Organic Materials				
16	191210720	Biomedical Signal Acquisition				
17	193640050	Clinical Chemistry (max. 15 to 20 students, separate registration)				
18	202200365	Topics in Human Anatomy, Physiology and Movement Disorders				
19	202300081	Advanced Anatomy and Physiology				
20	202300079	Microphysiological systems				
21	193740050	Biochemistry				

*previous knowledge of Applied Cell Biology is required

Compulsory **Elective**

Table 2. Track Imaging and In Vitro Diagnostics

	Code	Course	1A	1B	2A	2B
1	201700040	In Vitro Diagnostics				
2	201400285	Biostatistics				
3	193640020	Biophysical Techniques & Molecular Imaging				
4	201800114	Imaging Technology in Radiology				
5	201500222	Technology for Health				
6	191506001	Mathematical Methods				
7	202300029	Radiation Protection Expertise	*			
8	193572010	Physics of Bubbles				
9	191551150	Numerical Techniques for PDE				
10	193542070	Medical Acoustics				

11	201900260	Magnetic Methods in Medicine				
12	193810020	Advanced Techniques for Signal Analysis				
13	202200103	Image Processing and Computer Vision (was191210910 2a)				
14	193500000	Biomedical Optics				

Compulsory **Elective**

Table 3. Track Physiological Signals and Systems

	Code	Course	1A	1B	2A	2B
1	201500222	Technology for Health				
2	201400285	Biostatistics				
3	201400286	Clinical Research Methods				
4	193810020	Advanced Techniques for Signal Analysis				
5	191150700	Integrative Design of Biomedical Products				
6	201700071	Identification of Human Physiological Systems				
7	193810010	Biological Control Systems				
8	201800156	Biomechanics of human movement				
9	191210720	Biomedical Signal Acquisition				
10	201400282	Bioelectromagnetics				
11	191150480	Human Movement Control				
12	202200149	eHealth for Remote Patient Monitoring (was 201600028 Telemedicine and Data Analysis for Monitoring)				
13	193810100	Dynamic Behavior of Neuronal Networks				
14	191506001	Mathematical Methods				
15	191560430	Nonlinear Dynamics				
16	202200106	Optimal Estimation in Dynamic Systems (was 191210920)				
17	202200111	System Identif. Parameter Estim. and ML (was 191131700 System Identification and Parameter Estimation 2a)				
18	201600070	Machine Learning I				
19	191154740	Biophysical Fluid Dynamics: The Respiratory System				

Compulsory **Elective**

Table 4. Track Medical Device Design

	Code	Course	1A	1B	2A	2B
1	191150700	Integrative Design of Biomedical Products				
2	201400285	Biostatistics				
3	201500222	Technology for Health				
4	202200070	Medical Certification & Human Factors (was 201400287 ergonomics)				
5	201800156	Biomechanics of Human Movement				
6	202001580	Early HTA during Medical Device Development				
7	201400286	Clinical Research Methods				
8	202200365	Topics in Human Anatomy, Physiology and Movement Disorders				
9	202001409	Development of Artificial Internal Organs				
10	201300004	Robotics for Medical Applications				
11	191150480	Human Movement Control				

12	191121720	Design, Production and Materials	*			
13	201700294	Engineering Project Management				

Compulsory **Elective**

Table 5. Track Biorobotics

	Code	Course	1A	1B	2A	2B
1	201400285	Biostatistics				
2	201300004	Robotics for Medical Applications				
3	201500222	Technology for Health				
4	202200104	Control system design for Robotics (was 202000255 Advanced Control Engineering 1a)				
5	202200108	Software Development for Robotics (was 201800335 Programming 2)				
6	201700071	Identification of Human Physiological Systems				
7	201200133	Biomechatronics				
8	202200101	Modelling, Dynamics and kinematics (was 191211060 Modern Robotics 2a)				
9	191210910	Image Processing and Computer Vision				
10	191561620	Optimal Control				
11	201600070	Machine Learning I				
12	201900037	Flexible Multibody Dynamics				
13	191150480	Human Movement Control				
14	201800156	Biomechanics of Human Movement				
15	201400286	Clinical Research Methods				
16	191150700	Integrative Design of Biomedical Products				
17	193810020	Advanced Techniques for Signal Analysis				
18	202000248	Soft Robotics				
19	202000256	Learning and adaptive control				

Compulsory **Elective**

Pre-approved free electives

These courses are part of all BME tracks or other MSc programmes. Always check your eligibility and meet the admission requirements in Osiris before choosing these courses as free electives.

Table 6 pre-approved free electives Q1

Code	Course	1A	1B	2A	2B
201400103	3D Printing; Processes And Use				
201800083	Advanced Colloids & Interfaces you can't choose this course if you participated in the minor Soft and Biological Physics				
193810010	Biological Control Systems				
191154740	Biophysical Fluid Dynamics: The Respiratory System				
193640020	Biophysical Techniques & Molecular Imaging				
201400286	Clinical Research Methods				
191121720	Design, Production and Materials	**			
201400584	Design of Persuasive Health Technology				
201900074	Fundamentals of Numerical Methods				
202300081	Advanced Anatomy and Physiology				
202200103	Image Processing and Computer Vision (was 191210910 2a/q3)				
201700040	In Vitro Diagnostics				

191150700	Integrative Design of Biomedical Products				
201600070	Machine Learning I				
201200146	Maintenance Engineering & Management				
202200101	Modelling, Dynamics, and Kinematics (was 191211060 Modern Robotics 2a)				
191560430	Nonlinear Dynamics				
202001414	Physical Biology				
191158510	Programming in Engineering				
202300029	Radiation Protection Expertise				
202200100	Systems Engineering (was 191211080)				
** 5EC semester course					

Table 7 pre-approved free electives Q2

Code	Course	1A	1B	2A	2B
202200254	Advanced Drug Delivery and Nanomedicine (combination of the old courses 201200220 Nanomedicine and 193740010 Controlled Drug and Gene Delivery)				
201900091	Advanced Topics in Finite Element Methods				
201900088	Applied Cell biology				
201400283	Biomedical Materials Engineering				
201600273	Clinical Biotechnology				
202200104	Control System Design for Robotics (was 202000255 advanced control engineering 1a & 201900093 Control System Design for Mechatronics)				
201400174	Data Science				
201800177	Deep Learning - From Theory to Practice				
201900037	Flexible Multibody Dynamics				
191211120	Lab-on-a-chip				
201600071	Machine Learning II				
191506001	Mathematical Methods				
202200070	Medical Certification & Human Factors (replacement for 201400287 ergonomics)				
191551150	Numerical Techniques for PDE				
191561620	Optimal Control				
193572010	Physics of Bubbles				
201300004	Robotics for Medical Applications				
202200149	202200149 eHealth for Remote Patient Monitoring (was 201600028 Telemedicine and Data Analysis)				

Table 8 pre-approved free electives Q3

Code	Course	1A	1B	2A	2B
201900123	Advanced organic chemistry				
202200109	Adv. Software Development for Robotics (was 191211090 Real-Time Software Development)				
193810020	Advanced Techniques for Signal Analysis				
193700050	AMM-Project Organic Materials				
201800156	Biomechanics of Human Movement				
201400284	Biomedical Membranes & Artificial Organs				
191210720	Biomedical Signal Acquisition				
193400111	Bionanotechnology				

201400584	Design of Persuasive Health Technology				
191131360	Design Principles for Precision Mechanisms 2				
202001409	Developm.of Artificial Internal Organs				
201000159	Durability of Consumer Products				
193580020	Experimental Techniques in Physics of Fluids				
201400046	Experimental Methods				
191150480	Human Movement Control				
201900260	Magnetic Methods for Imaging				
193400121	Nano-Fluidics				
202200106	Optimal Estimation for Dynamic Systems (was 191210920 Optimal Estimation in Dynamic Systems)				
194121020	Optimization of Healthcare Processes				
202200108	Software Development for Robotics (was 201800335 Programming 2)				
202000248	Soft Robotics				
191551200	Scientific Computing				
202200110	Tele-presence Robotics				
191155730	Tribology				

Table 9 pre-approved free electives Q4

Code	Course	1A	1B	2A	2B
202100080	3D bioprinting				
201100254	Advanced Computer Vision and Pattern Recognition				
193740050	Biochemistry				
201400282	Bioelectromagnetics				
201200133	Biomechatronics				
193500000	Biomedical Optics				
193640050	Clinical Chemistry (max. 15 participants)				
202000040	Design of Flexible and Soft Robotic Systems				
202100107	Deep Learning for 3D Medical Image Analysis				
193810100	Dynamic Behaviour of Neuronal Networks				
202001580	Early HTA during Med. Device Development				
201700294	Engineering Project Management				
192360501	E-health Strategies				
201700071	Identification of Human Physiological Systems				
201800114	Imaging Technology in Radiology				
202000256	Learning and adaptive control				
202300079	Microphysiological systems				
193542070	Medical Acoustics				
191211110	Modelling and Simulation				
193730040	Polymers and Material Science Practice				
202000248	Soft Robotics				
201000262	Surgical Navigation Technology				
202200111	System Identif. Parameter Estim. and ML (was 191131700 System Identification and Parameter Estimation)				
191622510	Technology and Social Order				
191571090	Time Series Analysis				
201600327	Tissue Engineering (assumed previous knowledge 201400330)				

202200365	Topics in Human Anatomy, Physiology and Movement Disorders				
202100252	Technology for assessment of performance in sports				

Table 10 pre-approved free electives all year

Code	Course	1A	1B	2A	2B
191158500	Advanced Programming in Engineering				
193640010	Capita Selecta BME				
201400267	Capita Selecta BW				
201800207	Capita Selecta RAM				
201400270	Capita Selecta BIOS				
201400269	Capita Selecta BSS				
201700367	Capita Selecta AST				
201400268	Capita Selecta BMPI				
201400266	Capita Selecta BST				
201400271	Capita Selecta CNPH				
201400272	Capita Selecta DBE				
201400275	Capita Selecta NBP				
201400273	Capita Selecta MCBP				
201400274	Capita Selecta MTG				
201400276	Capita Selecta NIM				
201600219	Capita Selecta POF				
202001596	Capita Selecta BioEE				

Article 9 Sequence of study units

1. Before the start of a study unit, the student must meet the prior knowledge requirements of that study unit.
2. Students may begin their internship once they have completed 30 ECs' worth of subjects.
3. The student may only begin working on their master thesis project after completing at least 65 EC of the master's programme, including the internship.
4. In order to pass the master thesis defence, the student must have completed all other study units of the master's programme.
5. The examination board is authorised to grant an exemption of the conditions stipulated in sections 1 to 4 of this article in cases where the strict application of these conditions would result in an unjustifiable delay of a student's study progress. The student may submit their request for exemption to the examination board.

Article 10 Final master's assignment

1. The objective of the assignment is to learn to carry out a design and/or research assignment of a certain size and complexity independently.
2. The registration of the master's assignment must be officially approved before the start of the assignment, up to a maximum of 2 weeks after the start.
3. The master's assignment may be carried out at one of the biomedical chairs of the UT or at an external client.
4. The Master's assignment, if carried out at one of the biomedical chairs, shall be designed in consultation with the graduating professor.
5. The Master's programme, if carried out by an external client, will be designed in consultation with one

of the professors involved in the BMT/BME programme and the day-to-day supervisor of the external client.

6. In the case of an external master's assignment, the external client where the assignment is to be carried out must collaborate with the department of the BMT/BME study programme or there must be agreements between the expertise of the external client and the department of the BMT/BME study programme.

7. Procedures regarding the master's assignment can be found on the Canvas page of the master's assignment.

Article 11 Dual master's guideline

If a student wishes to combine the BME master's programme with a second master's programme, they must acquire approval from both examination boards beforehand.

For the BME master's programme, the student has to meet the following requirements:

- 60 ECs' worth of BME subjects (in accordance with article 6), including 30 ECs' worth of subjects that form part of both study programmes
- A combined internship of 20 EC
- A combined master's thesis of 70 EC.
- Furthermore, the student must also meet the requirements of the second master's programme.

The combined master's thesis and internship must be substantively approved by both examination boards beforehand.

The aforementioned ECs serve as a guideline; every request for a dual master's will be individually reviewed by the examination board. If a student wishes to deviate from these guidelines, they can submit their motivated request to the examination board.

Article 12 Internship

The main purpose of the internship is to enable students to learn how to operate in practical situations at a level that is commensurate with a Master's degree, so that they can apply the knowledge and skills they have acquired and continue to improve them. The internship allows students to familiarise themselves with professional practice and to discover interesting jobs for the future. Detailed information about the learning goals can be found on the canvas page Internships TNW.

Article 13 Quality assurance

The quality of education is systematically monitored according to the Plan-Do-Check-Act (PDCA) cycle. The quality assurance system is described in the BMT/BME Quality Assurance Manual[1] and consists of three parts:

1. The organisation of the faculty with all actors who play a role in the management, organisation, development and execution of the study programme. Through a clear division of tasks and responsibilities and mutual coordination, the actors jointly ensure a high-quality study programme.

2. The evaluation system that monitors the quality of the study programme and provides the actors with information on the quality and is therefore aimed at educational development and continuous quality improvement. Furthermore, the evaluation system also provides information for external accountability about the study programme to bodies within the university (such as the Faculty Council, the dean, the University Council and the Executive Board) and outside the university (the Ministry, the Education Inspectorate, review committees and accreditation bodies).

3. A complaints procedure for students forms part of the quality assurance provisions[2].

[1] The Quality Assurance Manual can be found on the OKC's Canvas page.
[2] Can be found in the Quality Assurance Manual.

Article 14 Transitional arrangement

1. If the study programme included in article 7 is amended or if one of the articles in the general section or in this programme-specific part is amended, the programme will draw up and publish a transitional arrangement.

2. The conditions for such transitional arrangements are stipulated in article 8.4 of the general section.

3. Any transitional arrangements are published on the website of the Biomedical Engineering programme.

Article 15 Safety

Working in a laboratory is subject to certain safety requirements. Students are obligated to inform themselves of these rules and comply with them.

Article 16 Flexible programme

By way of derogating from the provisions in article 7 of this programme-specific part, the student can submit a request to the examination board to follow a flexible programme as referred to in article 7.3d of the WHW. The examination board will assess whether the flexible programme fits within the domain of the master's programme, is coherent and is of a sufficient level in light of the aims and attainments of the programme.

Article 17 Student counselling

1. The programme director will appoint a student adviser for the purpose of student counselling. The student adviser's job is to, on the one hand, advise and guide individual students regarding all aspects of their studies and, on the other hand, inform the programme director regarding the students' study progress.

2. Over the course of the study programme, the student adviser monitors the progress made by the students assigned to them and offers them solicited and unsolicited advice.

3. The student adviser provides solicited and unsolicited advice to the examination board regarding decisions that affect individual students; in doing so, the student adviser and the examination board will treat any information provided to them by the students confidentially.

Article 18 Amendment

In the event of amendments to the programme-specific part, the provisions of articles 8.3 and 8.4 of the general section shall apply.

Article 19 Commencement

These regulations will enter into force on 1 September 2023 and replace the regulations of 1 September 2022.

Adopted by the Faculty Board after having obtained advice from the TNW Faculty Council and the BME Programme Committee and with consent from the BME Programme Committee with article 3, 5, 8, 13 and 15.