Special regulations governing admission to the Master's programme in Quantum Technologies in Electrical and Computer Engineering at the Technical University of Braunschweig

The Faculty Council of the Faculty of Electrical Engineering, Information Technology, Physics at the Technical University of Braunschweig adopted the following regulations on 20 October 2025 in accordance with Section 18, Paragraph (8) of the Lower Saxony Higher Education Act (Niedersächsisches Hochschulgesetz, NHG) and Section 7 of the Lower Saxony Higher Education Admission Act (Niedersächsisches Hochschulzulassungsgesetz, NHZG):

Section 1

Scope

(1) This regulation supplements the General Admission Regulations for Master's Programmes at the Technical University of Braunschweig (Allg. ZO-MA) and governs access to and admission to the consecutive English-language Master's programme "Quantum Technologies in Electrical and Computer Engineering".

(2) The admission requirements are governed by Section 2.

(3) If admission to the Master's programme "Quantum Technologies in Electrical and Computer Engineering" is restricted, the following applies: If more applicants meet the admission requirements for a restricted-admission programme than there are places available, the places will be allocated according to the results of the university's own selection process (Section 4). If fewer applicants meet the admission requirements than there are places available, no selection procedure will take place.

Section 2

Admission requirements

(1) The prerequisite for admission to the consecutive Master's programme in Quantum Technologies in Electrical and Computer Engineering is that the applicant

a) 1. has obtained a bachelor's degree or equivalent qualification in electrical engineering, electrical engineering and information technology, physics or computer science with a focus on natural sciences/engineering, or in another relevant subject, either at a German university or at a university belonging to one of the Bologna signatory states, in accordance with Paragraph (2).

or

2. has obtained an equivalent degree at another foreign university in the field of "electrical engineering" or "electrical engineering and information technology", "physics" or "computer science" with a focus on natural sciences/engineering, or in another relevant previous degree programme in accordance with Paragraph (2); equivalence is determined in accordance with the assessment proposals of the Central Office for Foreign Education at the Secretariat of the Conference of Ministers of Education (https://anabin.kmk.org, in German only);

and

b) has acquired the knowledge and skills listed in Appendix 1 to the extent required therein.

(2) The decision as to whether the previous course of study is academically suitable in accordance with Paragraph (1), Letter a) is made by the selection committee (Section 5). A course of study is considered academically suitable if there are no significant differences in terms of the knowledge and skills acquired in the Bachelor's degree programme in "Electrical Engineering and Information Technology" or "Physics" at Technical University of Braunschweig in the applicable examination regulations. The degree programme is generally still considered to be subject-specific if knowledge and skills in the subject areas listed in Appendix 1, item 1 have been acquired to the minimum extent specified in each case and to a total extent of 60 credits.

(3) Notwithstanding Paragraph (1), Letter a), applicants whose Bachelor's degree (or equivalent) is not yet available at the time of application are also provisionally eligible for admission if at least 150 credits (83.3%) have been earned in the case of a degree programme with a total of 180 credits, or at least 180 credits (85.7%) in the case of a degree programme with a total of 210 credits, and it is expected that the bachelor's degree (or an equivalent degree) will be obtained by 31 March of the respective winter semester or by 30 September of the respective summer semester at the latest. An average grade must be calculated from the credits earned by the end of the application period, which will be taken into account in the possible selection process in accordance with Section 4, Paragraph (2), regardless of whether the result of the Bachelor's examination (or final examination) deviates from this.

Test of English	**Minimum result**
Test of English as a Foreign Language (TOEFL), internet-based test/IBT www.ets.org	88 credits
International English Language Testing System (IELTS) www.ielts.org	Band 6,5 or higher
English Language Proficiency Report from TU Braunschweig's Language Centre	At least two skills at B2 level and two skills at C1 level in the Language Centre's English Language Proficiency Report
Equivalent language certificates may be recognised after comparative examination	

(4) Applicants who have not obtained the necessary study qualification – i.e. either the university entrance qualification or the Bachelor's degree (or an equivalent degree) in accordance with Section 18, Paragraph (8) NHG – at an English-speaking institution must have sufficient knowledge of the English language. Sufficient knowledge of English must be demonstrated by the minimum scores listed below in the following internationally recognised tests or by equivalent tests:

Successful completion of one of the tests must not be more than three years prior to receipt of the application for admission to the Master's programme. Applicants who have successfully completed at least two years of study exclusively in English are exempt from the requirement to provide proof of a test upon request.

(5) Knowledge of the German language does not need to be demonstrated.

Section 3

Commencement of studies, application for admission, application deadline

(1) The Master's programme in Quantum Technologies in Electrical and Computer Engineering begins in both the winter and summer semesters. Applications for admission to the Master's programme in Quantum Technologies in Electrical and Computer Engineering are subject to the provisions of Sections 3 and 4 of the General Regulations for Master's Programmes (Allg. ZO-MA). The following deadlines apply for the submission of application documents to the university:

a) for the winter semester

- by 15 March of each year for applications from foreign nationals and stateless persons who are not subject to the same admission requirements as German citizens and persons from EU/EEA countries, and

- by 15 July of each year for applications from all other persons

and

b) for the summer semester
   - by 15 September of the previous year for applications from foreign nationals and stateless persons who are not legally equivalent to German citizens and persons from EU/EEA countries,

     and

   - by 15 January of each year for applications from all other persons.

Applications pursuant to Sentence 2 shall only apply to the allocation of study places for the relevant application date. The university is not obliged to verify the information provided by applicants ex officio.

(2) If admission to the Master's programme is restricted, the following shall also apply: For applications for admission outside the study place allocation procedure and the specified admission numbers, the following cut-off dates apply, by way of derogation from Section 4, Paragraph (2) Sentence 1 Allg. ZO-MA, by which the documents must be received by the university:

a) for the winter semester by 10 October

and

b) for the summer semester by 10 April of each year.

These applications also apply only to the allocation of study places for the relevant application date. Here too, the university is not obliged to officially verify the information provided by applicants.

(3) The application referred to in Paragraph (1), Sentence 2, must be accompanied by the following documents – in certified German or English translation if the originals are not in English or German:

a) the degree certificate for the course of study that qualifies the applicant for admission (or other equivalent qualification) in accordance with Section 2, Paragraph (1), Letter a) or, if this is not yet available, a certificate of academic achievement, credits, total credits and average grade,

b) a tabular curriculum vitae,

c) proof of sufficient knowledge of the English language in accordance with Section 2, Paragraph (4),

d) if applicable, proof in accordance with Section 2, Paragraph (1), Letter b) of knowledge, skills and credits in accordance with Appendix 1 (e.g. excerpts from module handbooks), provided that the enclosed documents under Letter a) do not sufficiently provide this proof,

e) if applicable, other evidence of subject-specific knowledge and skills in accordance with Section 2, Paragraph (1), Letter b).

In the event of admission restrictions, the requirements set out in Sentence 1 shall also apply to applications outside the capacity limit, but shall not affect the more extensive requirements applicable in these procedures. The prerequisite for an application outside the capacity limit is that the applicant has already applied for a place in the same degree programme within the specified admission quota for the relevant semester in due time and form and has proven that they meet the admission requirements.

In particular, an affidavit must be submitted stating that neither final nor provisional full or partial admission to the Master's programme "Quantum Technologies in Electrical and Computer Engineering" or a subject-appropriate degree programme at a university in the Federal Republic of Germany or in a Member State of the European Union has been obtained to date. The affidavit must state the applicant's nationality.

(4) Applications that are incomplete or not submitted in the correct form or by the deadline will be excluded from further consideration. The submitted documents will remain at the university.

Section 4

Selection and admission procedure

(1) If an internal university selection procedure is carried out in accordance with Section 1, Paragraph (3) Sentence 2, this shall be carried out by a selection committee (Section 5) in accordance with Paragraphs (2)-(4). Admission is generally granted for the Master's programme "Quantum Technologies in Electrical and Computer Engineering".

(2) For foreign nationals and stateless persons who are not treated equally with German citizens and persons from EU/EEA countries in terms of admission law, a preliminary quota of 70 per cent of the available study places is set aside.

(3) The study places in the advance quota pursuant to Paragraph (2) and the additional quota (applicants from EU/EEA countries) shall be allocated in each case according to the results of the university's own selection procedure in accordance with the following provisions.

(4) The selection decision shall be made as follows:
Taking into account the final grade in accordance with Section 2, Paragraph (1), Letter a) or the average grade in accordance with Section 2, Paragraph (3), a respective ranking list shall be drawn up for both application groups/quotas in accordance with Paragraph (3), with the best grade being awarded first place on the list. In the event of identical final or average grades, the ranking shall be decided by lot.

(5) In all other respects, the provisions of the university's enrolment regulations generally applicable to enrolment remain unaffected.

Applicants whose qualifying degree pursuant to Section 2, Paragraph (3), will be exmatriculated upon expiry of the deadline if they have not submitted the relevant degree certificate to the university by 31 March of the respective winter semester if they commence their studies in the winter semester, or by 30 September of the respective summer semester if they commence their studies in the summer semester, unless the applicant can prove that they are not responsible for this.

Section 5

Selection Committee for the Master's Programme „Quantum Technologies in Electrical and Computer Engineering“

(1) The Faculty of Electrical Engineering, Information Technology, Physics shall form a selection committee to make the selection decision and prepare the admission.

(2) This selection committee consists of three voting members, who must belong to the group of university lecturers or scientific staff, and one member of the student group with an advisory vote. At least one member must belong to the group of university lecturers.

The members and their deputies are appointed by the Faculty Council of the Faculty of Electrical Engineering, Information Technology, Physics. The term of office for members is two years, and one year for the student member; reappointment is possible. The selection committee has a quorum if at least two members with voting rights – including at least one member of the university teaching staff group – are present.

(3) The tasks of the selection committee are:

a) to examine the admission requirements in accordance with Section 2, Paragraph (1), Letter a) and Letter b),

b) to decide whether a degree programme is to be regarded as academically suitable in accordance with Section 2, Paragraph (2),

c) in the event of a necessary selection procedure in accordance with Section 4, to draw up rankings of applicants in accordance with Section 4, Paragraph (4), and

d) notifying applicants of the respective ranking list to the Enrolment Office or the International Office, which issues the applicant with a letter of admission or rejection.

Section 6

Notification, succession procedure, conclusion of the procedure

(1) Applicants who are eligible for admission will receive an electronic or written letter of admission from the university. This letter will specify a deadline by which the applicant must declare in writing or electronically whether he or she accepts the place. If this declaration

is not received by the deadline and in the required form, the letter of admission will become invalid. This legal consequence must be indicated in the letter of admission.

(2) Applicants who cannot be admitted will receive a rejection notice electronically or in writing, including information on their legal rights. If a selection procedure in accordance with Section 4 has preceded, the ranking achieved within the selection procedure in their group and the ranking of the last applicant admitted to this procedure must be stated. Eligible applicants who could not be admitted in the previous selection procedure shall participate in the respective replacement procedure for their group. Further notifications shall only be issued in the event of admission.

(3) The respective replacement procedure shall also be carried out on the basis of the ranking list formed in accordance with Section 4, Paragraph (4).

(4) After completion of the admission procedure, any remaining study places shall be allocated by lottery upon application. If the degree programme "Quantum Technologies in Electrical and Computer Engineering" is not subject to admission restrictions and if, after completion of enrolment, further study places are available within the specified capacity, the university is free to conduct a lottery. The application must be submitted electronically via the application portal (TUconnect); the admission requirements pursuant to Section 2 must be met. The application period begins one month before the start of the semester and ends with the completion of the lottery procedure, but no later than the start of lectures; the university reserves the right to terminate the procedure earlier.

Section 7

Admission to higher semesters

(1) Applicants for degree programmes with restricted admission must demonstrate that they have the level of achievement required for study in the higher semester.

(2) The prerequisite for admission to a higher semester is a degree programme completed in accordance with Section 2, Paragraph (1), Letter a), proof of knowledge and skills in accordance with Section 2, Paragraph (1), Letter b) and the prerequisite in accordance with Section 2, Paragraph (4).

(3) The available places in a higher semester with restricted admission shall be allocated to applicants in the following order:

a) for whom rejection of admission would constitute a particular hardship for personal reasons,

b) who are or were enrolled in the same or a comparable degree programme

aa) at another German higher education institution or a higher education institution in another member state of the European Union or another signatory state to the Agreement on the European Economic Area,

or

bb) who are or were enrolled at a foreign university as German nationals or persons with equivalent admission rights,

or

cc) who have been admitted for the first semester and can be classified in a higher semester,

c) who cite other reasons

(4) Within each of the three case groups according to Paragraph (3), admission is decided on the basis of social, in particular family and economic reasons relevant to the choice of location; in the case of equal ranking, the average grade is decisive; in cases where the grades are still the same, the decision is ultimately made by lot. The average grade is determined on the basis of the achievements to date.

(5) Notwithstanding Paragraph (2), applicants who do not yet have their qualifying degree in accordance with Section 2, Paragraph (3) at the time of application may also be admitted to the 2nd semester if the other admission requirements in accordance with Section 2 are met. The bachelor's or degree certificate must be presented upon enrolment. If the bachelor's (or other equivalent degree) has not yet been completed at the time of enrolment, the admission shall expire.

(6) If admission to the Master's programme "Quantum Technologies in Electrical and Computer Engineering" is restricted, students changing locations may only be admitted to the next higher semester. The requirements of Paragraph (1) must be met accordingly. However, if the standard period of study has already been exhausted, admission is excluded.

Section 8

Entry into force

These regulations shall enter into force on 1 January 2026. They shall govern the admission procedure for the first time for the 2026/27 winter semester. At the same time, the regulations on admission and admission to the Master's programme "Quantum Technologies in Electrical and Computer Engineering" – public announcement by the university dated 13 April 2023 (TU announcement sheet No. 1485) – upon completion of the admission procedure for the summer semester 2026.

Appendix 1

1. The knowledge and skills required under Section 2, Paragraph (1), Letter b) are generally deemed to have been acquired if knowledge and skills have been acquired in each of the following areas to at least the extent specified:

Area	Subject areas	Scope
Mathematics and physical fundamentals	Applicants are familiar with essential mathematical and physical concepts. They have mastered the most important calculation techniques in the following areas: • Ordinary differential equations • Integral calculus in several real and complex variables • Differential calculus in several real and complex variables • Linear algebra and analytical geometry • Statistics and probability theory They have knowledge in the following areas: • Mechanics and thermodynamics • Optics and atomic physics	**min. 15 credits**
Fundamentals and core areas of electrical engineering and information technology	Applicants have knowledge of the fundamentals and core areas of electrical engineering and information technology. This includes knowledge in the following areas: • Fundamentals of electrical engineering (in particular, basic equations for simple field problems and calculations for simple linear electrical networks) • Networks (in particular, network analysis methods such as graph theory and mesh impedance methods, as well as system behaviour of networks) • Materials in electrical engineering (in particular, fundamentals of quantum mechanics and material properties important for electrical engineering) • Measurement technology (in particular, the use and dimensioning of electrical sensors for non-electrical quantities and the most important measuring instruments) • Line theory (in particular, the propagation of electromagnetic waves on lines, the design and dimensioning of line systems) • Electromagnetic field theory (in particular derivation and interpretation of Maxwell's equations, Hertzian dipole, waveguides) • Fundamentals of electronics (in particular principles, modes of operation and electrical properties of various semiconductor devices) • Fundamentals of energy technology (in particular, network calculation relationships relating to network stability and security of supply with electrical energy,	**min. 45 credits**

	functions of electromagnetic converters, basic power converter circuits) • Circuit technology (in particular, elementary integrated CMOS circuits) • Fundamentals of information technology (in particular, fundamentals of communication, information and high-frequency technology) • Fundamentals of control engineering (in particular, modelling of dynamic systems, controller design for linear systems and stability analysis) • Programming • In-depth knowledge in at least one relevant electrical engineering elective area	

2. The module descriptions for the Bachelor's degree programme in Electrical Engineering and Information Technology or Physics at the Technical University of Braunschweig are used to compare the knowledge and skills to be demonstrated.