

AMTLICHES MITTEILUNGSBLATT

Herausgeber: Der Präsident der Technischen Universität Berlin
Straße des 17. Juni 135, 10623 Berlin
ISSN 0172-4924

Nr. 4/2018
(71. Jahrgang)

Redaktion: Ref. K 3, Telefon: 314-22532

Berlin, den
10. April 2018

INHALT

Seite

I. Legal and Administrative Provisions

Faculties

Study and Examination Regulations for the Bachelor's Degree Program in Mechanical Engineering at
Faculty V - Mechanical Engineering and Transport Systems at Technische Universität Berlin
of 12 July 2017.....

22

I. Legal and Administrative Provisions

Faculties

Study and Examination Regulations for the Bachelor's Degree Program in Mechanical Engineering at Faculty V - Mechanical Engineering and Transport Systems at Technische Universität Berlin

of 12 July 2017

On 12 July 2017, the Faculty Board of Faculty V - Mechanical Engineering and Transport Systems of Technische Universität Berlin, pursuant to Section 18 (1) no. 1 of the Constitution of Technische Universität Berlin, Section 71 (1) no. 1 of the Berlin State Higher Education Act (*Berliner Hochschulgesetz - BerlHG*) in the version of 26 July 2011 (Gazette of Laws and Ordinances p. 378), last amended by the Act of 30 June 2017 (Gazette of Laws and Ordinances [GVBl.], p. 338), adopted the following study and examination regulations for the Mechanical Engineering bachelor's program.*)

Content

I. General regulations

Section 1 – Scope of application
Section 2 – Entry into force/expiration

II. Program objectives and structure

Section 3 – Learning outcomes, program content and professional fields
Section 4 – Program start date, standard period of study, and required coursework
Section 5 – Program structure

III. Examination requirements and conduct of examinations

Section 6 – Purpose of the bachelor's examination
Section 7 – Bachelor's degree
Section 8 – Scope of the bachelor's examination, calculation of the overall grade
Section 9 – Bachelor's thesis
Section 10 – Types of examination and registration for examinations

IV. Annexes

Annex 1 - Module list
Annex 2 - Proposed course schedule

Please refer to the website <https://www.tu.berlin/en/studying/study-programs/all-programs-offered/study-course/mechanical-engineering-b-sc/>

I. General regulations

Section 1 – Scope of application

These study and examination regulations govern both the objectives and organization of studies, and the requirements and conducting of examinations in the bachelor's program in Mechanical Engineering. The program-specific provisions included herein supplement the Regulations Governing General Study and Examination Procedures of Technische Universität Berlin (*Ordnung zur Regelung des allgemeinen Studien- und Prüfungsverfahrens - AllgStuPO*).

Section 2 – Entry into force/expiration

(1) These regulations shall enter into force on the day after their publication and apply to students enrolling from the 2018 summer semester (1 April 2018) onwards.

(2) The Study and Examination Regulations for the bachelor's program in Mechanical Engineering of 15 July 2009 (TU Official Gazette 15/2010 p.236) cease to be effective three semesters after the entry into force of these regulations. Students who have not completed their studies at the time of expiry in accordance with Sentence 1 shall continue their studies in line with these regulations.

(3) Students enrolled in the bachelor's program in Mechanical Engineering at Technische Universität Berlin prior to the entry into force of these Study and Examination Regulations shall decide within three semesters of the entry into force of these regulations as to which set of regulations they wish to continue their studies under. This decision is irrevocable and to be recorded on file at the department in the Central University Administration responsible for such documentation.

II. Program objectives and structure

Section 3 - Learning outcomes, program content and professional fields

The degree program provides students with a broad foundation in the subject as well as the opportunity to choose a specialization through elective subjects. Upon completion, students are awarded a first professional degree qualifying them for a consecutive master's program. Students learn the theoretical principles of mechanical engineering and their relevant applications while also acquiring technical, methodological, and social skills. The courses in the bachelor's program are organized into different module groups (mathematic, technical-methodological, natural science, and non-technical principles) as well as methods-oriented and product-oriented topic areas. Elective subjects make up the bulk of the curriculum, allowing students to pursue their individual interests and tailor their studies to their desired career area.

The program objectives reflect the requirements of the mechanical engineering profession. The central objective is to provide students with a comprehensive technical education and the methodological engineering skills needed for systematic and interdisciplinary work. They further acquire skills which will help them continue to learn beyond their degree and in their field. The close link between research and teaching ensures that new developments in mechanical engineering are incorporated into class alongside essential engineering principles. Students also learn to consider aspects from other fields, such as business, the humanities, and social sciences, to apply a holistic approach to engineering problems as well as recognize macroeconomic and social and gender-relevant interrelationships and take these into account in their professional work. Students in the bachelor's program acquire the following skills:

- Ability to identify, understand and assess natural science and technical relationships and their application and use in the development, construction, production, sale, service, and disposal of machines and processes

*) Approved by the TU Berlin Executive Board on 26 September 2017

- Ability to identify and assess the influences and reciprocal relationships between technology and the environment
- Ability to understand and influence technological change in research, development, and application
- Ability to define problems and take on the resulting tasks working within interdisciplinary teams whose members are assigned different responsibilities, process their own work using creative approaches, incorporate the results of others, and communicate their own results
- Independent, socially responsible conduct and work
- Creative collaboration in interdisciplinary groups
- Comprehensive general education and training

These reflect the skills required of engineers in scientific research and industrial practice.

Mechanical engineers work in a range of fields across all economic sectors and company structures. These include:

- Design, planning, construction, and evaluation of machines, plants, and processes
- Development of manufacturing processes and management of production processes
- Installation, activation, and service of machines and plants
- Customer service and sale of high-quality technical goods
- Development of software for all areas of engineering work
- Advising and training

Section 4 - Program start date, standard period of study, and required coursework

- (1) Students may begin their studies in the winter or summer semester.
- (2) The standard period of study, including completion of the bachelor's thesis, is six semesters.
- (3) The program encompasses 180 credit points (CP).
- (4) The teaching curriculum and examination procedures are structured and organized in such a way as to enable students to complete the program within the standard period of study.

Section 5 - Program structure

- (1) Students can structure their studies individually. They are, however, obliged to comply with the provisions laid out in these Study and Examination Regulations. The recommended sequence in which modules should be taken is shown in the proposed course schedule in Annex 2 of these regulations.
- (2) Students earn a total of 180 credits points, of which 156 are awarded for taught modules, 12 for the professional internship, and 12 for the bachelor's thesis. The modules are divided into the following module groups:

1. Compulsory modules
2. Compulsory elective modules
3. Focus modules
4. Project
5. Elective modules

(3) The bachelor's program encompasses modules amounting to 156 credit points as well as a professional internship (12 credit points) and a bachelor's thesis (12 credit points). These modules are to be taken from the following module groups:

1. Compulsory modules totaling 93 credit points, including
 - Mathematical principles (27 CP)
 - Technical principles (36 CP)
 - Natural science principles (30 CP)

The modules assigned to each category can be found in the module list (Annex 1).

2. Compulsory elective modules totaling 48 credit points, including
 - Control engineering (6 CP)
 - Fluid mechanics and thermodynamics (6 CP)
 - Mechanics (6 CP)
 - Information technology principles (6 CP)

At least 6 CP must be taken in each of the four sub-areas listed in the module list.

- Methods orientation
- Product orientation

At least 6 CP each and a total of 18 CP must be taken in courses from the Methods Orientation and Product Orientation lists.

- Project (6 CP)

The modules assigned to each category can be found in the module list (Annex 1).

3. Electives 15 CP - These modules allow students to acquire additional subject-specific and generic skills as well as expertise that qualifies them for a profession and can be selected from the full range of subjects offered by Technische Universität Berlin, other universities or higher education institutions with equal status within the jurisdiction of the Framework Act for Higher Education as well as at universities and higher education institutions abroad recognized as equivalent. It is recommended that students select interdisciplinary courses. They can also choose modules for learning foreign languages.

(4) The skills taught in each module, module examination requirements, and admission requirements, if any, are updated annually in the form of program-specific module catalogs in accordance with Section 33 (6) of the Regulations Governing General Study and Examination Procedures (AllgStuPO) and published at the beginning of the winter semester in October and at the beginning of the summer semester in April in the Official Gazette of Technische Universität Berlin.

(5) A six-week pre-internship is to be completed before the start of the lecture period of the first degree semester. Credit points are not awarded for the pre-internship as this is completed before the student commences studying. A professional internship lasting at least 12 weeks and worth 12 credit points is also required. Further details are regulated by the Internship Guidelines.

III. Examination requirements and conduct of examinations

Section 6 – Purpose of the bachelor's examination

The bachelor's examination determines whether a candidate has achieved the learning outcomes according to Section 3 of these Regulations.

Section 7 – Bachelor’s degree

On behalf of Faculty V - Mechanical Engineering and Transport Systems, Technische Universität Berlin awards the academic degree “Bachelor of Science” (B.Sc.) to students who have passed the bachelor’s examination.

Section 8 – Scope of the bachelor’s examination, calculation of the overall grade

(1) The bachelor’s examination comprises the module examinations listed in the module list (Annex 1), the professional internship, and the bachelor’s thesis according to Section 9.

(2) According to the principles stipulated in Section 47 AllgStuPO, the overall grade is to be determined by combining the grades achieved for those examinations arising from modules taken from the module list that are marked both as graded and for inclusion in the overall grade together with the grade achieved for the bachelor’s thesis.

(3) The calculation of the overall grade is based on at least 75% of the student’s overall performance (including the bachelor’s thesis), that is on module grades amounting to at least 135 credit points. Ungraded modules and modules where the student achieved their lowest grades amounting to no more than 25% of the overall performance (45 credit points maximum) as well as the professional internship are not included. In the event that a student receives the same grade in different modules, the most recently completed module is not considered. Only fully completed modules are included in the calculation of the grade. Grades excluded from the calculation of the overall grade are identified accordingly on the final certificate. The grades of all modules are listed on the final certificate.

(4) Examinations that are taken in the first degree semester and that are failed at their first attempt, are disregarded. (non-binding attempt).

Section 9 – Bachelor’s thesis

(1) The bachelor’s thesis amounts to 12 credit points and is assigned a writing period of 12 weeks. If there are significant reasons beyond the student’s control preventing them from completing the thesis within this time frame, the examination board shall grant an extension of the deadline for so long as the reasons in question continue to exist. The total possible extension may not exceed three months. In the event that the combined extensions exceed the stipulated maximum period of extension, the student may withdraw from the examination.

(2) The topic of the bachelor’s thesis must be related to the underlying technology and natural science principles, the compulsory elective modules or the chosen specialization.

(3) The examination board shall ensure the equivalence of topics and make certain that the bachelor’s thesis can be completed within the writing period. Non-disclosure agreements and other regulations concerning secrecy extending beyond the usual obligations of confidentiality and care are not permitted.

(4) The topic of the bachelor’s thesis may be rejected once, however only within the first eight weeks of being issued by the responsible department of the Central University Administration.

(5) The procedures for applying for admission to and assessment of a final thesis are regulated in the current version of the Regulations Governing General Study and Examination Procedures (AllgStuPO) as amended.

(6) Persons with experience in professional practice and training can be appointed as examiners of final papers. As a rule, this applies primarily for the appointment of second reviewers. The first assessor must be an approved examiner and professor at Technische Universität Berlin.

Section 10 – Types of examination and registration for examinations

(1) The different types of assessment and the procedure for registering for module examinations are established in the AllgStuPO as amended.

(2) The compensation principle is to be observed when conducting portfolio assessments. A passing grade for a single element must not be a necessary requirement for a student to pass the portfolio assessment as a whole.

(3) To register for the final exam, students must submit proof of a professional internship to the responsible department in the Central University Administration.

(4) For compulsory elective or elective modules studied at other faculties or institutions of higher education, the types of examination stipulated in the respective module descriptions shall apply.