

Subject examination and study regulations for the bachelor program Agricultural and horticultural sciences at the Technical University of Munich

From 4 June 2019

Based on Article 13, Paragraph 1, Sentence 2 in conjunction with Article 58, Paragraph 1, Sentence 1 and Article 61, Paragraph 2, Sentence 1 of the Bavarian University Act (BayHSchG), the Technische Universität München enacts the following statutes:

Table of Contents:

I. General provisions

- § 34 Scope, academic degree, related courses of study
- § 35 Start of studies, standard period of study, ECTS
- § 36 Qualification requirements
- § 37 Modularization, courses, language of instruction
- § 37 a Professional internship and excursion days
- § 38 Examination deadlines, study progress monitoring, missed deadlines
- § 39 Examination board
- § 40 Crediting of periods of study, academic achievements and examination results
- § 41 Course-related examination procedure, forms of examination
- § 41 a Multiple-choice procedure
- § 42 Study services
- § 43 Registration and admission to examinations
- § 44 Repetition, failure of examinations

II. bachelor examination

- § 45 Scope of the Bachelor examination
- § 46 Bachelor's Thesis
- § 46 a Bachelor colloquium
- § 46 b Additional tests
- § 47 Passing and Assessment of the Bachelor Examination
- § 48 Certificate, Diploma Supplement

III. Final provision

- § 49 Effectivity

Appendix 1: Examination modules

I. General provisions

§ 34

Scope, academic degree, related courses of study

- (1) These Subject Examination and Study Regulations (FPSO) supplement the General Examination and Study Regulations for Bachelor's and Master's Programs at the Technical University of Munich (APSO) of March 18, 2011, as amended. The APSO has priority.
- (2) On the basis of the successful completion of the Bachelor's examination, the academic degree "Bachelor of Science" ("B.Sc.") is awarded. The academic degree may be awarded with the university suffix "(TUM)".
- (3) There is no related degree program to the Bachelor's degree program in Agricultural and Horticultural Sciences at the Technische Universität München. When transferring from another university to the Technische Universität München, the responsible examination board decides on the relatedness of the degree program based on the examination/study regulations of the university in question.

§ 35

Start of study, standard period of study, ECTS

- (1) The start of studies for the bachelor's degree program in Agricultural and Horticultural Sciences is governed by § 5 APSO.
- (2) The amount of credits required to obtain the Bachelor's degree in the compulsory area is 99 credits (71 SWS), in the compulsory area of subject-specific orientation 34 credits (24 SWS), in the compulsory elective area 5 credits (4 SWS) and in the elective area 30 credits. In addition, 12 credits are required for the Bachelor's thesis and the final colloquium. In addition, a total of twelve weeks of study practice must be completed within the framework of compulsory modules. The scope of the studies and examinations to be completed in the compulsory, compulsory elective and elective areas according to Annex 1 in the Bachelor's degree program in Agricultural and Horticultural Sciences thus amounts to at least 180 credits. The standard period of study for the bachelor's degree program is six semesters in total.

§ 36

Qualification requirements

- (1) For the bachelor's degree program in Agricultural and Horticultural Sciences, the general admission requirements for studying at a university must be met in accordance with the Ordinance on Qualification for Studies at the Universities of the Free State of Bavaria and the State-recognized Non-State Universities (Qualification Ordinance-QualV) (BayRS 2210-1-1-3-K/WK), as amended.
- (2) In addition, proof of aptitude is required in accordance with the Statutes on the Determination of Aptitude for the Bachelor's Degree Program in Agricultural and Horticultural Sciences dated May 15, 2019.

§ 37

Modularization, courses, language of instruction

- (1) General regulations on modules and courses are set out in §§ 6 and 8 APSO. In the event of deviations from module specifications, § 12 Para. 8 APSO shall apply.
- (2) The study plan with a list of the modules to be taken in the compulsory, compulsory elective and elective areas is listed in Appendix 1. For the subject-specific orientation, students choose between an agricultural science and a horticultural science orientation in the first semester. Depending on their choice, students have to complete the compulsory modules of either the agricultural science or the horticultural science specialization according to Annex 1.
- (3) As a rule, the language of instruction in the Bachelor's degree program in Agricultural and Horticultural Sciences is German. If individual modules are held wholly or partly in English, this is indicated in Annex 1.

§ 37 a

Professional internship and excursion days

- (1) Practical vocational training must be completed as a course credit within the meaning of § 6 Para. 7 APSO. Its duration amounts to a total of at least twelve weeks in the compulsory modules "Vocational field orientation" (at least eight weeks) as well as "Practical training in agricultural economics" (four weeks - for the orientation in agricultural science) and "Practical training in horticulture" (four weeks - for the orientation in horticultural science). The practical vocational training must be completed by the end of the sixth semester. Successful participation shall be confirmed by the companies and authorities where the training took place and evidenced by internship reports.
- (2) The board of examiners decides on the recognition of successfully completed vocational training or an equivalent achievement as practical vocational training.
- (3) For the award of the Bachelor's certificate, four excursion days must be proven within the scope of the module "Professional field orientation". The excursions can be completed as half-day, day or multi-day excursions. Participation in the excursions includes pre- and post-excursion discussions and the preparation of excursion reports.

§ 38

Examination deadlines, study progress monitoring, missed deadlines

- (1) Examination deadlines, study progress monitoring and missed deadlines are regulated in § 10 APSO.
- (2) At least one of the module examinations from the compulsory modules listed in Annex 1 must be successfully completed by the end of the second semester. If the deadline is exceeded, § 10 para. 5 APSO shall apply.

§ 39 Audit Committee

The body responsible for decisions in examination matters according to § 29 APSO is the examination board for the Bachelor's degree program in Agricultural and Horticultural Sciences.

§ 40 Crediting of periods of study, academic achievements and examination results

The crediting of periods of study, coursework and examinations is governed by § 16 APSO.

§ 41 Course-related examination procedure, forms of examination

- (1) Possible forms of examination according to §§ 12 and 13 APSO are, in addition to written examinations and oral examinations in this study program, in particular laboratory performances, exercise performances (if applicable, tests), reports, project work, presentations, learning portfolio, scientific papers and the examination course.
 - a) An **examination** is a written work under supervision with the aim to recognize problems in a limited time with the given methods and defined aids and to find ways to solve them and to be able to apply them if necessary. The duration of written examinations is regulated in § 12 para. 7 APSO.
 - b) Laboratory services include, depending on the discipline, experiments, measurements, work in the field, field exercises, etc. with the aim of carrying out, evaluating and gaining knowledge. Components can be e.g.: the description of the processes and the respective theoretical basis incl. literature study, the preparation and practical execution, if necessary necessary calculations, their documentation and evaluation as well as the interpretation of the results with regard to the knowledge to be gained. The laboratory performance can be supplemented by a presentation in order to test the communicative competence in presenting scientific topics to an audience. The specific components of the respective laboratory performance and the competencies to be tested with it are listed in the module description.
 - c) The **exercise performance (if applicable, tests)** is the processing of given tasks (e.g. mathematical problems, programming tasks, modeling, etc.) with the aim of applying theoretical content to solve application-related problems. It serves the verification of factual and detailed knowledge as well as its application. The exercise performance can be carried out in writing, orally or electronically, among others. Possible forms are e.g. homework, exercise sheets, programming exercises, (e-)tests, tasks in the context of university internships, etc. The concrete components of the respective exercise performance and the competencies to be tested with it are listed in the module description.
 - d) A **report** is a written review and summary of a learning process with the aim of reproducing what has been learned in a structured manner and analyzing the results in the context of a module. The report should prove that the essential aspects have been recorded and can be reproduced in writing. Possible report forms are, for example, field trip reports, internship reports, work reports, etc. The

written report can be supplemented by a presentation in order to test the communicative competence in presenting the contents to an audience.

- e) In the context of a **project work**, a project assignment is to be achieved as a defined goal in a defined time and with the use of suitable instruments in several phases (initiation, problem definition, role allocation, idea generation, criteria development, decision, implementation, presentation, written evaluation). In addition, a presentation can be part of the project work in order to test the communicative competence in presenting scientific topics to an audience. The concrete components of the respective project work and the competencies to be tested with it are listed in the module description. The project work is also possible in the form of group work. In this case, it should be demonstrated that tasks can be solved in a team. The contribution to be assessed as examination performance must be clearly recognizable and assessable individually. This also applies to the individual contribution to the group result.
- f) The **scientific paper** is a written performance in which a challenging scientific or scientific-application-oriented question is independently processed using the scientific methods of the respective discipline. It should be demonstrated that a question corresponding to the learning outcomes of the respective module can be completely processed in compliance with the guidelines for scientific work - from analysis to conception to implementation. Possible forms, which differ in their respective level of demand, are e.g. thesis paper, abstract, essay, study paper, seminar paper, etc. The scientific elaboration can be accompanied by a presentation and, if necessary, a colloquium in order to test the communicative competence of presenting scientific topics in front of an audience. The concrete components of the respective scientific elaboration and the competences to be examined with it are listed in the module description.
- g) A **presentation** is a systematic, structured and visually supported oral presentation using suitable media (such as beamers, transparencies, posters, videos), in which specific topics or results are illustrated and summarized and complex issues are reduced to their essential core. The presentation is intended to demonstrate the ability to work on a specific topic in a given time in such a way that it can be presented to an audience in a clear, concise and comprehensible manner. In addition, it should be demonstrated that questions, suggestions or discussion points of the audience can be dealt with in an informed manner in relation to the respective subject area. The presentation may be supplemented by a short written preparation. The presentation may be given individually or in groups. The contribution to be assessed as an examination performance must be clearly recognizable and assessable individually. This also applies to the individual contribution to the group result.
- h) An **oral examination** is a time-limited examination discussion on specific topics and concrete questions to be answered. In oral examinations, it should be demonstrated that the qualification objectives documented in the module descriptions have been achieved and that the interrelationships of the examination area have been recognized and special questions can be placed in these interrelationships. The oral examination can be conducted as an individual examination or as a group examination. The duration of the examination is regulated in § 13 Para. 2 APSO.
- i) A **learning portfolio** is a written presentation of one's own work, selected according to previously defined criteria, with which learning progress and performance status at a certain point in time and in relation to a defined content are to be demonstrated. The selection of the work, its relation to the student's own

learning progress and its significance for the achievement of the qualification goals must be justified. The learning portfolio should demonstrate that responsibility has been taken for the learning process and that the qualification objectives documented in the module description have been achieved. Depending on the module description, the components of successful self-learning checks of the learning portfolio may include, in particular, work with application relevance, websites, weblogs, bibliographies, analyses, thesis papers as well as graphic presentations of an issue or a question. The concrete components of the respective learning portfolio and the competencies to be tested with it are listed in the module description.

- j) In the context of an **examination course**, several examination elements are to be completed within one examination performance. In contrast to a partial module examination, the examination performance is examined in an organizationally (spatially or temporally) coherent manner. Examination elements are several different examination formats which in their entirety cover the complete competence profile of the module. Examination elements can in particular also be examination formats according to letters a) to i). The total duration of the examination shall be specified in the module catalog; the examination form and duration of the individual examination elements shall be specified in the module description.
- (2) The module examinations are usually taken during the course of study. The type and duration of a module examination are specified in Annex 1. In the event of deviations from these stipulations, § 12 Para. 8 APSO must be observed. For the evaluation of the module examinations, § 17 APSO shall apply. The grade weights of partial module examinations correspond to the weighting factors assigned to them in Annex 1.
 - (3) If Appendix 1 specifies for a module examination that it is written or oral, the examiner shall announce the binding type of examination to the students in an appropriate manner no later than the beginning of the lecture.
 - (4) At the request of the student and with the approval of the examiners, examinations may be taken in a foreign language for courses taught in German.

§ 41 a Multiple choice

The implementation of multiple-choice procedures is regulated in § 12 a APSO.

§ 42 Study achievements

- (1) In addition to the examinations mentioned in § 45 Para. 1, the successful completion of study achievements in the compulsory modules according to § 37 a in conjunction with Annex 1 amounting to a total of 16 credits must be proven as part of the Bachelor's examination.
- (2) Instead of the examinations to be taken in elective modules in accordance with § 45 Para. 2 Sentence 2, the completion of coursework may also be required in elective modules. The number of credits to be earned in elective modules in accordance with section 45 (2) sentence 2 is reduced accordingly in these cases.

§ 43

Registration and admission to exams

- (1) Upon enrollment in the Bachelor's degree program in Agricultural and Horticultural Sciences, students are considered admitted to the module examinations of the Bachelor's degree.
- (2) Registration for an examination in a compulsory, compulsory elective and elective module is governed by § 15 para. 1 APSO. Registration for a corresponding repeat examination in a failed compulsory, compulsory elective and elective module is governed by § 15 Para. 2 APSO.

§ 44

Repetition, failure of examinations

- (1) The repetition of examinations is regulated in § 24 APSO.
- (2) The failure of examinations is regulated by § 23 APSO.

II. bachelor examination

§ 45

Scope of the Bachelor's examination

- (1) The bachelor's examination includes:
 1. the module examinations according to par. 2,
 2. the Bachelor's Thesis according to § 46,
 3. the Bachelor colloquium according to § 46 a as well as
 4. the academic achievements listed in § 42.
- (2) The module examinations are listed in Appendix 1. Compulsory modules require 145 credits, compulsory elective modules require 5 credits and elective modules require 30 credits. When choosing the modules, § 8 para. 2 APSO must be observed.
- (3) If an elective module listed in the appendix cannot be offered, § 8 para. 3 APSO shall apply. For the determination of the elective modules, § 17 para. 5 sentences 6 to 8 APSO shall apply.

§ 46

Bachelor's Thesis

- (1) Pursuant to § 18 APSO, students must prepare a Bachelor's Thesis as part of the Bachelor's examination. The Bachelor's thesis can be issued and supervised by expert examiners of the Faculty of the Weihenstephan Science Center for Nutrition, Land Use and Environment (WZW) of the Technical University of Munich (topic setter). The expert examiners according to sentence 2 are appointed by the examination board.
- (2) The Bachelor's Thesis should be started after successful completion of all module examinations.

- (3) The time from issuance to delivery of the Bachelor's Thesis may not exceed three months. The Bachelor's Thesis shall be deemed to have been taken and not passed if it is not delivered in due time without reasons recognized in accordance with § 10 Para. 7 APSO. For the passed Bachelor's Thesis 10 credits are awarded.
- (4) If the Bachelor's Thesis was not evaluated with at least "sufficient" (4.0), it can be repeated once with a new topic. It must be re-registered no later than six weeks after the notification of the result.

§ 46 a **Bachelor colloquium**

- (1) Students are considered to be registered for the Bachelor's Colloquium if they have achieved at least 150 credits in the Bachelor's degree program in Agricultural and Horticultural Sciences and have successfully completed the Bachelor's Thesis. The examination should take place no later than two months after the registration date determined in accordance with sentence 1.
- (2) The Bachelor's Colloquium is to be conducted by the topic writer of the Bachelor's Thesis and an expert assessor.
- (3) The Bachelor Colloquium is to be held in German or English at the request of the student.
- (4) The duration of the Bachelor's Colloquium is usually 30 minutes. The students have approx. 15 minutes to present their Bachelor's Thesis. This is followed by a disputation which, starting from the topic of the Bachelor's Thesis, extends to the further subject area to which the Bachelor's Thesis belongs.
- (5) The Bachelor Colloquium is successfully passed if it is evaluated with at least "sufficient" (4.0). If the Bachelor Colloquium has not been passed, § 24 para. 7 APSO shall apply.
- (6) 2 credits are awarded for the Bachelor Colloquium.

§ 46 b **Additional exams**

- (1) With a credit balance of at least 150 credits, module examinations from the Master's programs in Agricultural Systems Science and Horticultural Science can be taken as additional examinations from the sixth semester onwards.
- (2) The results of the additional examinations are not included in the overall grade of the Bachelor's examination and are not recorded in the Bachelor's certificate. However, the additional examinations and the results achieved are shown in the Transcript of Records.

§ 47

Passing and evaluation of the Bachelor examination

- (1) The Bachelor's examination is passed if all examinations listed within the scope of the Bachelor's examination according to § 45 have been successfully passed and a point account balance of at least 180 credits has been achieved.
- (2) The module grade is calculated according to § 17 APSO. The overall grade of the Bachelor's examination is calculated as the weighted grade average of the modules according to § 45 para. 2 and the Bachelor's Thesis. The grade weights of the individual modules correspond to the assigned credits. The overall grade is expressed by the predicate according to § 17 APSO.

§ 48

Certificate, Diploma Supplement

If the Bachelor examination has been passed, a certificate, a certificate and a Diploma Supplement with a Transcript of Records shall be issued in accordance with § 25 Para. 1 and § 26 APSO. The date of the certificate shall be the date on which all study and examination achievements have been completed.

III. final provision

§ 49

Entry into force

- (1) These regulations shall enter into force on October 1, 2019. It applies to all students who begin their specialized studies at the Technical University of Munich as of the winter semester 2019/20.
- (2) The subject examination and study regulations for the Bachelor's degree program in Agricultural and Horticultural Sciences at the Technical University of Munich dated August 20, 2015 shall cease to apply at the same time, subject to the provision in Paragraph 1 Sentence 2. Students who have already commenced their subject studies at the Technical University of Munich prior to the winter semester 2018/19 shall complete their studies in accordance with the regulations pursuant to sentence 1.

Appendix 1: Examination modules

A Compulsory modules

Module no.	Module name	Teaching form	Sem.	SWS	Credits	Exam-art	Exam duration (min)	Sub-teaching language	Weighting factor
WZ1827	Biology	V	1	6	6	Written exam	150	de	
WI001062	Introduction to the Economics	V	1	4	5	Written exam	120	de	
MA9601	Higher mathematics 1	V + T	1	2 + 2	5	Written exam	60	de	
WZ1825	Soil Science	V + T	1 - 2	3 + 2	5	Written exam	120	de	
WZ0063	Chemistry	V	1 - 2	5	5	Written exam	180	de	
WI001200	Agricultural and horticultural economics	VI	2	8	9	Written exam	180	de	
WZ1829	Plant cultivation and plant nutrition	V + T	2	4 + 2	6	Written exam	180	de	
PH9017	Practical physics	V + P	2	1,6 + 2,4	5	Exercise performance + Laboratory performance		de	1 : 1
WZ0086	Agroecosystems	V	3	4	5	Written exam	120	de	
WZ1832	Phytopathology and plant breeding	V	3	6	6	Written exam	120	de	
WZ0064	Applied chemistry	P + T	4	2 + 2	5	Exercise performance		de	
WZ0095	Applied Physics	VI	4	4	5	Written exam	120	de	
WZ0055	Operating and production systems	Ü	4	3	5	verbal	30	de	
WZ0054	Biotechnological methods	V + T	5	2 + 2	5	Written exam	60	de	
WI001202	Business management and marketing	V	5	4	5	Written exam	120	de	
WZ0053	General education		6		5	After offer 1	After offer 1		
WZ0058	Vocational field orientation		6		12	Report (SL) + Excursion days (SL)		de	
		total		99 credits					

Subject-specific compulsory modules with an agricultural science orientation

WZ1828	Anatomy and physiology of farm animals	V + T	1	3 + 1	5	Written exam	120	de	
WZ1830	Internship agribusiness	P	1		4	Laboratory performance (SL)		de	
WZ1843	Grassland and forage production	V + T	2	3 + 1	5	Written exam	120	de	
WZ1840	Plant production systems	V	3	4	5	Written exam	120	de	
WZ1841	Animal Nutrition	V	3	4	5	Written exam	90	de	
WZ1839	Animal breeding and husbandry	VI + V	3	2 + 2	5	Written exam	120	de	
WZ1844	Agricultural technology animal husbandry and hygiene	V	5	4	5	Written exam	120	de	
		total		34 credits					

Subject-specific compulsory modules with horticultural science orientation

WZ1451	Introduction to Horticultural Science	V	1	4	5	Written exam	120	de	
WZ1831	Internship horticulture	P	1		4	Laboratory performance (SL)		de	
WZ0057	Technological bases of horticultural production	VI + E	2	3,4 + 0,6	5	Written exam	180	de	
WZ0091	Horticultural production physiology	V	3	4	5	Written exam	120	de	
WZ1848	Basics of vegetable production	V	3	4	5	Written exam	120	de	
WZ0124	Growth and yield physiology of horticultural crops	V + T	3	3 + 1	5	Written exam	90	de	
WZ1850	Environmentally friendly horticulture: fertilization and plant protection	VI	5	4	5	verbal	30	de	
		total		34 credits					

Bachelor's Thesis

WZ0059	Bachelor's Thesis		6		10	Scientific elaboration		en / en	
	Final colloquium		6		2	Colloquium	30	en / en	

B Elective modules

WZ0056	Applied Statistics: Biometry	Ü + VI	3	2 + 2	5	Written exam	120	de	
WI001203	Applied Statistics: Econometrics	Ü + VI	3	2 + 2	5	Written exam	120	de	

C Elective modules

Modules totaling 30 credits must be taken from the following list.

The compulsory modules of the non-selected subject-specific orientation can also be brought in as elective modules.

The examination board continuously updates the catalog of elective modules. Changes will be announced on the website of the examination board at the beginning of the semester at the latest.

Upon application and subject to approval by the Examination Committee, students may select subject-relevant modules from the entire range of lectures offered by the Technical University of Munich or other universities as an alternative to the subject catalog of elective modules.

WI000194	Agricultural policy	V	4	4	5	Written exam	120	de	
WZ0193	Vocational and occupational pedagogy	VI	4 and 5	4	5	Written exam	120	de	
WI001201	Controlling in agricultural and horticultural companies	V	4	4	5	m	30	de	
WZ1505	Introduction to resource and environmental economics	V + VI	4	2 + 2	5	Written exam	120	de	
WZ0105	Yield physiology	VI	5	4	5	m	30	de	
WZ1846	Outdoor Plant Science	V	5	4	5	Written exam	120	de	
WZ1855	Feed Analysis	S	5	4	5	m	30	de	
WZ1856	Feed science and ration design	VI	5	4	5	Written exam	90	de	
WZ0108	Basics of control and regulation technology	VI	5	4	5	Written exam	90	de	
WZ1847	Basics of fruit growing	V	4	4	5	m	25	de	
WZ0111	Land use in the tropics and subtropics	V	5	4	5	Written exam	120	de	
WZ0113	Organic farming	V	5	4	5	Written exam	120	de	
WZ1857	Plant Immunology	V + S	4	2 + 1	5	Written exam	90	de	
WZ1849	Production management for medicinal and aromatic plants	V	5	4	5	Written exam	120	de	
WZ1859	Special plant breeding	V	4	4	5	Written exam	120	de and en	
WZ0118	Special phytopathology	V + T	4	2 + 2	5	Written exam	90	de	

WZ1871	Special animal husbandry and livestock management	V + T	5	2,8 + 1,2	5	m	30	de	
WZ1860	Special vegetable gardening	V	4	4	5	Written exam	120	de	
WZ1861	Special fruit growing	V	5	4	5	m	25	de	
WZ0119	Special crop production	V	5	4	5	Written exam	120	de	
WZ1867	Technical basics for Smart Farming	VI	4	4	5	m	30	de	
WZ1872	Animal genetics and breeding	VI	4	4	5	Written exam	90	de	
WZ1863	Animal health and regulatory physiology	Ü	4	4	5	Written exam	60	de	
WZ1864	Veterinary microbiology	V + T	4	2 + 2	5	Written exam	60	de	
WZ1865	Business analysis and development	V + T	5	2 + 2	5	Written exam	120	de	

Explanations:

S = Seminar
 Sem. = semester
 SL = academic performance
 SWS = semester hours per week
 P = Internship
 Ü = Exercise

V = Lecture
 VI = Lecture with integrated exercise
 m = oral examination
 E = Excursion
 de = german
 en = english

1 Students may choose from the courses offered by the TUM Language Center, the Carl von Linde Academy, UnternehmerTUM or the range of special general education modules offered by WZW. The type and duration of examinations depend on the respective announcement of these institutions for the chosen module.

Credit Balance:

1st semester	
Mandatory modules	25 credits
Compulsory modules (agricultural orientation)	5 credits
Compulsory modules (horticultural science orientation)	5 credits
Total (per orientation)	30 credits
2nd semester	
Mandatory modules	25 credits
Compulsory modules (agricultural orientation)	5 credits
Compulsory modules (horticultural science orientation)	5 credits
Total (per orientation)	30 credits
3rd semester	
Mandatory modules	11 credits
Compulsory modules (agricultural orientation)	15 credits
Compulsory modules (horticultural science orientation)	15 credits
Elective module	5 credits
Total (per orientation)	31 credits
4th semester	
Mandatory modules	15 credits
Electives	15 credits
Total	30 credits
5th semester	
Mandatory modules	10 credits
Compulsory modules (agricultural orientation)	5 credits
Compulsory modules (horticultural science orientation)	5 credits
Electives	15 credits
Total (per orientation)	30 credits
6th semester	
Mandatory module general education	5 credits
Mandatory module	12 credits
Bachelor's Thesis	12 credits
Total	29 credits

Issued on the basis of the resolution of the Academic Senate of the Technical University of Munich dated January 30, 2019 and the approval by the President of the Technical University of Munich dated June 4, 2019.

Munich, June 4, 2019

Munich University of Technology

Wolfgang A. Herrmann
President

These bylaws were filed at the college on June 4, 2019; notice of the filing was posted at the college on June 4, 2019. The date of the notice is therefore June 4, 2019.