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Qualifying Examination and Study Regulations for the Master's Degree Program in Management and Technology at the Technical University of Munich

dated April 27, 2022

as amended by the amending statutes of March 30, 2023

In accordance with Article 13 (1) Line 2 together with Article 58 (1) Line 1, Article 61 (2) Line 1 and Article 43 (5) of the Bayerisches Hochschulgesetz (BayHSchG) [Bavarian Higher Education Act] the Technical University of Munich (TUM) issues the following Examination and Academic Regulations (Fachsprüfungs- und Studienordnung, FPSO):

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§ 34
Applicability, Academic Degree, Related Programs of Study

(1) [1]These Examination and Academic Regulations (FPSO) for the Master's program in Management and Technology complement the General Academic and Examination Regulations for Bachelor's and Master's programs at the Technical University of Munich (APSO) of March 18, 2011 as amended. [2]The APSO shall have precedence.

(2) [1]Upon successful completion of the Master's examination the degree "Master of Science" ("M.Sc.") is awarded. [2]The academic degree may be used with the name of the university "(TUM)".

(3) [1]The Master's programs in Management and Technology (TUM-BWL) and Master in Management and Technology (WITEC) at the Technical University of Munich are related programs. [2]In the event of a transfer from another university to the Technical University of Munich, the responsible examination board shall decide on the degree program's similarity based on the examination/study regulations of the respective university.

§ 35
Commencement of Studies, Standard Duration of Study, ECTS

(1) Commencement of the Master´s program in Management and Technology at the Technical University of Munich is possible in the winter semester, as well as in the summer semester.

(2) [1]The number of credits in required and elective subjects needed to complete the Master's degree is 90 (minimum 60 weekly hours per semester), spread over three semesters. [2]In addition, 30 credits (maximum six months) are required for the completion of the Master's thesis pursuant to § 46. [3]The number of examinations in required and elective subjects to be completed in the Master's program in Management and Technology according to Appendix 1 (II) is thus a minimum of 120 credits. [4]The standard duration of study for the Master's program will be a total of four semesters.

§ 36
Eligibility Requirements

(1) Eligibility for the Master's program in Management and Technology is demonstrated by

1. a qualifying Bachelor of Science (B.Sc.) of at least six semesters obtained from a German or foreign university, or a degree that is at least the equivalent of this in technology and management-oriented business administration, business administration, economics or comparable study programs,

2. an adequate knowledge of the English language; students whose native language or language of education is not English must submit proof of having passed a recognized language test such as the Test of English as a Foreign Language (TOEFL, scoring at least 88 points), the International English Language Testing System (IELTS, at least 6.5 points) or the Cambridge Main Suite of English Examinations; if the student has successfully passed examination modules in English worth 12 credits as part of an undergraduate degree or conducted a final thesis worth 12 ECTS in English or has a GMAT score of at least 600 points, adequate knowledge of English is similarly deemed to be proven,

3. Proof of subject knowledge in the form of a "Graduate Management Admission Test" (GMAT) with at least 640 points mandatory for applicants who completed their first degree in the following countries: China, Bangladesh, India, Egypt, Pakistan; for other applicants with a first degree not completed in a signatory state of the Convention on the Recognition of Qualifications concerning Higher Education in the European Region of April 11, 1997 (hereinafter: Lisbon Convention), the submission of the test according to sentence 1 is recommended,

4. passing the aptitude assessment pursuant to Appendix 2.

(2) A degree is considered "qualifying" within the meaning of subsection (1) if there are no significant differences with regard to the competences (learning results) acquired in the scientifically oriented respective Bachelor's degree programs mentioned in subsection (1) No. 1 and if at the latest at the time of application at least 25 ECTS in business management modules, at least 10 ECTS in the field of economics and at least 15 ECTS in the field of engineering or natural sciences have been completed, and these meet the subject-specific requirements of the Master's degree program.

(3) The catalog of modules of the Bachelor's Program Management and Technology (TUM-BWL) shall be used for the determination pursuant to subsection (2) within the first stage of the aptitude procedure.

§ 37
Modular Structure, Module Examination, Courses, Course Specialization, Language of Instruction

(1) [1]General provisions on modules and courses are set out in §§ 6 and 8 of the APSO. [2]For any changes to the stipulated module provisions, § 12 (8) of the APSO shall apply.

(2) The curriculum listing the required and elective modules to be attended is given in Appendix 1 (III).

(3) [1]As a rule, the language of instruction in the Master’s program in Management and Technology is English. [2]In addition to the English-language modules, some modules are offered in German. [3]If it is indicated in the appendix that a module is held in English or German, the examiner will announce the language of instruction in a suitable and binding manner at the latest at the beginning of the lecture period.[4]If students have not demonstrated any knowledge of German in their application, the requirement will be stated in the admission that at least one module must be successfully completed by the end of the second semester in which German language skills can be acquired in an integrative manner. [5]The offer will be announced by the examination board in accordance with local practice. [6]Voluntary extracurricular courses such as German courses offered by the TUM Language Center are also recognized.

§ 37a
Project Studies (Project Studies in Management and Technology)

(1) [1]The Project Studies module consists of active involvement in a research or practical project connected to the contents of the degree program. [2]It comprises 12 Credits and 360 working hours. [3]It shall be completed by the end of the third semester.[4]The Project Studies module is completed by a written paper as well as an oral presentation. [5]It is carried out by a group of at least two students. [6] The project studies could also be carried out abroad. [7]Here, it should be demonstrated that tasks can be completed in a team environment. [8]If the student's contribution to group work is to be assessed as a component of an examination, that contribution must be clearly identifiable and gradable. [9]This also applies to each individual's contribution to the group result. [10]For the evaluation § 17 APSO applies.

(2) [1]The Project Studies module in Management and Technology is supervised by a lecturer from TUM School of Management. [2]Furthermore, research associates may also be appointed as examiners as long as the relevant conditions of the applicable version of the regulation on university examiners are met.

§ 38
Examination Deadlines, Progress Monitoring, Failure to meet Deadlines

Examination deadlines, progress monitoring and failure to meet deadlines are governed by § 10 of the APSO.

§ 39
Examination Board

Pursuant to § 29 of the APSO, the board responsible for all decisions concerning examination matters shall be the Master's Examination Board of TUM School of Management.

§ 40
Recognition of Periods of Study, Coursework and Examination Results

(1) Recognition of periods of study, coursework and examination results is governed by the provisions of § 16 of the APSO.

(2) Study and examination credits obtained within the framework of this Master's program at the HEC Paris an établissement d'enseignement supérieur consulaire will be recognized without assessment of their equivalence.

§ 41
Continuous Assessment Procedure, Types of Assessment

(1) [1]In addition to written examinations (Klausuren) and oral examinations in this course of study, possible forms of examination in accordance with §§ 12 and 13 APSO include laboratory activities, exercises (tests where applicable), reports, project work, presentations, learning portfolios and/or scientific papers. [2]The specific components of the respective module examination and the competences to be examined are listed in the module description. [3]Depending on the subject, the examination can be carried out individually or in groups, § 18 (2) lines 2 and 3 of the APSO apply accordingly.

a) [1]A **Klausur** (written exam) is a supervised written examination in which the objective is, within a limited amount of time and using predefined methods and resources, to identify problems, find solution strategies and, if required, implement them. [2]The duration of written exams is provided for in § 12 (7) of the APSO.

b) [1]**Laboratory activities** include, depending on the subject discipline, tests, measurements, fieldwork, field exercises and other activities with the aim of carrying out, evaluating and gaining knowledge. [2]Examples include the following: practical experiments, the description of procedures and the theoretical foundations thereof, including the literature, the preparation (if necessary also in the form of exercises) and practical implementation, necessary calculations, documentation and evaluation, as well as the interpretation of the results with regard to the findings to be elaborated [3]The laboratory activity may be complemented by a presentation for the purpose of assessing the student's communication competency in presenting scholarly work written or to an audience.

c) [1]**Exercises** are administered to assess a student's ability to complete assigned tasks (for example, solving mathematical problems, writing computer programs, designing models) using theoretical knowledge to solve application-oriented problems. [2]Exercises are designed to assess the student's factual and detailed knowledge and its application. [3]Practical exercises may be administered in writing, orally or electronically. [4]They may take the form of homework assignments, practice sheets, programming exercises, (e-) tests, tasks assigned within a university internship program, etc.

d) [1]A **report** is a written record and summary of a learning process for the purpose of presenting the acquired knowledge in a structured way and analyzing the results in the context of a module. [2]The objective is to demonstrate in the report that all the essential aspects have been understood and can be presented in writing. [3]Reports may include excursion reports, internship reports, work reports, etc. [4]The written report may be complemented by a presentation for the purpose of assessing the student's communication competency in presenting scholarly work to an audience.

e) [1]**Project work** is designed to reach, in several phases (initiation, problem definition, role assignment, idea generation, criteria development, decision, implementation, presentation, written evaluation), the defined objective of a project assignment within a given period of time and using suitable instruments. [2]In addition, project work may include a presentation in order to assess a student's communication competency in presenting scholarly work to an audience. [3]Project work can also include creative designs, drawings, plan presentations, models, objects, simulations and documentations.

f) [1]A **research paper** is a written assignment in which students work independently on solving complex scholarly or scholarly/application-oriented problems, using the scientific methods of the related discipline. [2]The objective is to demonstrate the ability to solve problems corresponding to the learning results of the module in question in compliance with the guidelines for scholarly work – from analysis and conception to implementation. [3]Research papers, differing in their requirement standards, may take the form of a conceptual framework/theory paper [Thesenpapier], abstract, essay, research paper, seminar paper, etc. [4]The research paper may be complemented by a presentation and/or a colloquium for the purpose of assessing the student's communication competency in presenting scholarly work to an audience.

g) [1]A **presentation** is a systematic and structured oral performance supported by suitable audio-visual equipment (such as a projector, slides, posters, videos) for the purpose of demonstrating and summarizing specific issues or results and paring complex problems down to their essential core. [2]The objective of the presentation is to demonstrate the ability to prepare a certain topic within a given timeframe in such a way as to present or report on it in a clear and comprehensible manner to an audience. [3]In addition, the ability to respond competently to any questions, suggestions or discussions brought by the audience and relating to the subject area should be demonstrated. [4]The presentation may be complemented by a brief written précis.

h) [1]An **oral examination** is a timed, graded discussion of relevant topics and specific questions to be answered. [2]The objective of oral examinations is to demonstrate that the qualification objectives laid out in the module descriptions have been reached, the central concepts of the subject matter covered by the exam have been understood, and they can be applied to specific problems. [3]The oral examination may be held either as an individual or group examination. [4]The duration of the examination is provided for in § 13 (2) of the APSO.

i) [1]A **learning portfolio** is a collection of written materials compiled according to predefined criteria, demonstrating progress and achievements in defined content areas at a given time. [2]The criteria according to which the materials have been chosen and their relevance for their learning progress and the achievement of the qualification objectives must be explained. [3]The learning portfolio should demonstrate that active responsibility for the learning process has

been taken and the qualification objectives set out in the module description have been reached. [4]Depending on the module description, types of independent study assessment in a learning portfolio may include, in particular, application-oriented assignments, websites, weblogs, bibliographies, analyses, conceptual framework/theory papers, as well as the graphic representation of facts or problems. [5]Based on the compiled learning portfolio, a technical discussion can take place for summary and reflection.

(2) [1]The module examinations are, as a rule, taken concurrently with the program. [2]The type and duration of module examinations are provided for in Appendix 1 (II). [3]In the event of divergence from those provisions, § 12 (8) of the APSO must be complied with. [4]The assessment of module examinations is governed by § 17 of the APSO. [5]The grading weights of module part examinations correspond to the weighting factors assigned to them in Appendix 1 (II). [6]The modules marked with * in Appendix 1 (II) are only passed if each partial module examination has been passed.

(3) At the request of the students and with the consent of the examiners, exams of German-language modules may be taken in English.

§ 42
Registration for and Admission to the Master´s Examination

(1) [1]Upon enrollment in the Master's Program in Management and Technology (TUM-BWL), students are considered admitted to the module examinations of the Master's examination. [2]If the modules of the specialization in technology have already been successfully brought into the Bachelor's Program, the students are only admitted to the module examinations of the specialization modules, marked with the addition "major", of the respective specialization. [3]Students who take additional examinations within the framework of the consecutive Bachelor's Program Management and Technology (TUM-BWL) at the Technical University of Munich in accordance with § 46a of the Fachprüfungs- und Studienordnung for the Bachelor's Program Management and Technology (TUM-BWL) at the Technical University of Munich dated June 22, 2020, in the currently valid version, are also considered admitted to individual module examinations. [4]Insofar as admission to individual modules requires the existence of modules, this is specifically indicated in Appendix 1.

(2) [1]The registration requirements for required and elective module examinations are set out in § 15 (1) of the APSO. [2]The registration requirements for repeat examinations for failed required modules are set out in § 15 (2) of the APSO.

§ 43
Scope of the Master´s Examination

(1) The Master´s examination consists of:
1. the module examinations in the corresponding modules pursuant to subsection (2),
2. the Master´s thesis pursuant to § 46.

(2) [1]The module examinations are listed in Appendix 1 II. [2]One of seven specializations in management can be chosen. [3]When choosing the specializations

1. Innovation & Entrepreneurship elective modules of at least 30 credits,
2. Management & Marketing elective modules of at least 30 credits,
3. Operations & Supply Chain Management elective modules of at least 30 credits,

4. Financial Management elective modules of at least 30 credits,
5. Economics & Econometrics elective modules of at least 30 credits,
6. Energy Markets elective modules of at least 30 credits,
7. Life Sciences Management & Policy elective modules of at least 30 credits,

must be proven. [4]Of these, at least 6 credits must be earned through an Advanced Seminar of the respective specialization. [5]In case no specialization in management is chosen, at least 30 credits from elective modules of the mentioned management specializations are to be acquired. [5]Of these, at least 6 credits must be earned through an Advanced Seminar .[7]In addition, one of twelve technology specializations must be chosen. [8]When choosing the specialization

1. Mechanical Engineering major elective modules of at least 30 credits,
2. Informatics major elective modules of at least 30 credits,
3. Chemistry major elective modules of at least 30 credits,
4. Power Engineering major elective modules of at least 30 credits,
5. Computer Engineering major elective modules of at least 30 credits,
6. Information Technology and Electronics major elective modules are at least 30 credits,
7. Mechanical Engineering minor elective modules of at least 30 credits,
8. Informatics minor elective modules of at least 30 credits,
9. Chemistry minor required modules of at least 18 credits and elective modules of at least 12 credits,
10. Electrical Engineering and Information Technology minor, from elective field 1 elective modules of at least 10 credits and from elective field 2 elective modules of at least 20 credits,
11. Computer Engineering minor elective modules of at least 30 credits,
12. Industrial Engineering minor elective modules of at least 30 credits
13. Sustainable Energies required modules of 12 credits and elective modules of at least 18 credits

must be proven. [9]In addition, elective modules amounting to at least 30 credits in electives in Management and/or Technology must be proven. [10]The choice of modules must comply with § 8 Para. 2 APSO.

§ 44
Repeat Examinations, Failed Examinations

(1) The repetition of examinations is governed by § 24 of the APSO.

(2) Failure to pass examinations is governed by § 23 of the APSO.

§ 45
Coursework

Within the Master`s program in Management and Technology, modules are completed with examinations, not coursework.

§ 45 a
Multiple Choice Tests

The procedure for multiple choice tests is governed by § 12a of the APSO.

§ 46
Master’s Thesis

(1) [1]As provided for in § 18 of the APSO, students must complete a Master's thesis as part of their

Master's examination.

(2) [1]The completion of the Master's thesis should generally be the last examination undertaken. [2] In order to be allowed to commence work on their Master's thesis early, students must have earned a minimum of 48 credits, thereof a minimum of 18 credits in the technology specialization, if the objective of the thesis as laid out in § 18 (2) of the APSO can be reached depending on the study progress so far.

(3) [1]The period of time between topic determination and submission of the completed Master's thesis must not exceed six months. [2]The Master's thesis is considered presented and not passed if it is not submitted on time without valid reasons pursuant to § 10 (7) of the APSO. [3]The Master's thesis should be written in English.

(4) 30 credits are assigned to the Master's thesis module.

(5) [1]If the Master's thesis is not graded with at least "sufficient" (4.0), it may be repeated once with a new topic. [2]Students must renew their application for admission within six weeks of receiving the grade for their thesis.

§ 47
Passing and Assessment of the Master´s Examination

(1) The Master's examination is deemed passed when the student has successfully completed all examinations required pursuant to § 43 (1) and has earned a total of at least 120 credits.

(2) [1]The module grade is calculated according to § 17 of the APSO. [2]The overall grade for the Master's examination will be calculated as the weighted grade average of the modules according to § 43 (2) and the Master's thesis. [3]The weighting of the grades for individual modules corresponds to the credits assigned to each module. [4]The overall grade is expressed by the designation pursuant to § 17 of the APSO.

§ 48
Degree Certificate, Diploma, Diploma Supplement

If the Master's examination is passed, a degree certificate, diploma and a diploma supplement including a transcript of records are to be issued in compliance with § 25 (1) and § 26 of the APSO.

§ 49
Double Degree

[1]The Technical University of Munich and the " HEC Paris an établissement d'enseignement supérieur consulaire " on behalf of its educational institution HEC Paris have signed a cooperation agreement. [2]The following special regulations apply to students participating in the Double Degree Program with HEC Paris:

1. [1]Participants are selected in two stages. [2]First, potential students are selected on the basis of success in their higher education entrance qualification, study success, motivation and language skills. [3]Students who begin their studies at the Technical University of Munich are also selected on the basis of their knowledge of the French language. [4]The final selection will then be made on the basis of personal interviews with representatives of both universities.

2. [1]Students who begin their studies at the Technical University of Munich must successfully complete the first two semesters at the Technical University of Munich and should have earned at least 40 credits after the second semester in order to continue their studies at HEC Paris in the third and fourth semesters. [2]Students who begin their studies at HEC Paris first complete their studies for one year in the Master in Management at HEC Paris.

3. [1]Students who have to complete the first two semesters at the Technical University of Munich have to achieve at least 40 credits at HEC Paris. [2]Of these, 30 credits will be credited for the electives in management and/or technology in the Management and Technology Master's program at the Technical University of Munich. [3]In addition, students must complete a qualified internship of at least 15 weeks. [4]The internship can only be started after completion of the Bachelor's program and should take place in France. [5]In addition, students can apply for the HEC Paris certification program. In return, they receive a further 15 credits.

4. [1]Of the 30 credits of the Master's Thesis at the Technical University of Munich, 20 credits will be credited for the Research Paper at HEC Paris. [2]Students have the opportunity to begin the research paper at HEC Paris and to further develop it into a Master's Thesis at the Technical University of Munich.

5. [1]Students who have to complete their first academic year at HEC Paris must enclose with their application for admission to the Master's program Management and Technology at the Technical University of Munich a transcript of records with modules amounting to at least 180 credits in a course of study in accordance with § 36 Para. 1 No. 1, deviating from No. 2.3.1 of Appendix 2; the submission of the curricular analysis is waived. [2]Furthermore, notwithstanding § 36 Para. 1 No. 2, a certificate from HEC Paris confirming the English language proficiency of the program is accepted as proof of adequate knowledge of the English language as an alternative for admission to TUM.

6. [1]For students who begin their studies at HEC Paris, the course of study at the Technical University of Munich takes at least three semesters. [2]During these three semesters, students will earn 30 credits from a management specialization (electives or specialization) and 30 credits from the technology specialization. [3]In addition, these students write their Master's Thesis in the amount of 30 credits at the Technical University of Munich. Out of the credits acquired during the first year at HEC Paris, 30 credits will be recognized for the master in Management and Technology as electives in management and/ or technology. [5]The Master's Thesis is recognized at HEC Paris as a Research Paper with 20 credits.

7. Upon successful completion of the Double Degree Program, students receive the degree "Master of Science" ("M.Sc.") from the Technical University of Munich and the degree "HEC Master of Science in Management Grande École" from HEC Paris.

§ 50
Entry into Force*)

(1) [1]These statutes shall enter into force on 1 April 2023. [2]They shall apply to all students who begin their studies at the Technical University of Munich in the winter semester 2023/24.

(2) [1]Similarly, the Qualifying Examination and Study Regulations of the Master's program Management and Technology (TUM-BWL) published on June 21, 2017 and its updated third version on May 28, 2021 are no longer valid. [2]Students who got enrolled at the Technical University of Munich before the winter semester 2023/24 will finish their studies according to the regulations as in line 1.

Appendix 1:

I. Scope of the Master´s Examination

	Components	Credits	Semester
1.	Examinations during the course of the program earning credits in the elective modules of the **specialization in technology**	30	1./2./3./4. Semester
2.	Examinations during the course of the program earning credits in the elective modules of the **specialization in management**	30	1./2./3./4. Semester
3	Examinations during the course of the program earning credits in the elective modules of the **electives in management and/or technology**	30	1./2/3./4. Semester
4.	**Master´s Thesis** pursuant to § 46	30	3./4. Semester

II. Examination Modules

Specialization in Management

One of the following seven specializations in management can be chosen. If no specialization is chosen, a total of 24 credits should be acquired in electives chosen from the following provided examples of the different specializations. Furthermore, any seminar of the Advanced Seminars at the TUM School of Management must be successfully completed in the scope of at least 6 credits.

Innovation & Entrepreneurship

In the specialization Innovation & Entrepreneurship a seminar of the Advanced Seminars Innovation & Entrepreneurship must be successfully completed in the scope of at least 6 credits.

Within the specialization Innovation & Entrepreneurship, further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM School of Management in a suitable form and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem. *	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Innovation- & Entrepreneurship (IE)								
WIB18812_1	Advanced Seminar Innovation & Entrepreneurship: Ideation and Venture Creation	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WIB26995	Advanced Seminar Innovation & Entrepreneurship: strategic Entrepreneurship	Elective	$ Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI000116	Lead-User-Project	Elective	4 Se	1.-4. Sem.	4	6 Credits	Project work	n.a.	German/ English
WI001166	Advanced Topics in Innovation & Entrepreneurship: Entrepreneurial Prototyping	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
MW2245	Think. Make. Start.	Elective	4 Pr	1.-4. Sem.	4	6 Credits	Project work	n.a.	English
WI001291	Competition Law and Entrepreneurial Strategies	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	120 min.	English
WI001147	Exploring society through future technologies	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI100180	Business Plan - Advanced Course (Business Models, Sales and Finance)	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German
WI001286	Innovation Management Tools and Methods	Elective	4 Se	1.-4. Sem.	4	6 Credits	Project work	n.a.	English
WIB26001	Advanced Topics in Innovation & Entrepreneurship: Social Entrepreneurship Lab	Elective	4 Se	1.-4.Sem.	4	6 Credits	Essay + presentation	n.a.	German/ English

Management & Marketing

In the specialization of Management & Marketing, one of the seminars offered within the framework of the Advanced Seminars Management & Marketing must be successfully completed in the amount of at least 6 credits.

Within the specialization Management & Marketing, further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM School of Management in an appropriate way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Management & Marketing								
WIB08001	Advanced Seminar Marketing, Strategy & Leadership: Advances in Consumer Research	Elective	4 Se	1.-4. Sem.	4	6 Credits	Presentation	n.a.	English
WI000817	Marketing Compliance	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	120 min	German
WI001128	Strategies in MNEs	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI001140	Luxury Marketing	Elective	4 V	1.-4. Sem.	4	6 Credits	Presentation	n.a.	English
WI001116	Methods in Personnel Recruitment and Development	Elective	4 Se	1.-4. Sem.	4	6 Credits	Written exam	120 min	German/ Englisch
WI000994	Negotiation Strategies	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
MGT001302	Customer Insights	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	60 min.	English
WI001219	Online Marketing	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	n.a.	English
WI001090	Behavioral Pricing: Insights, Methods, and Strategy	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
MGT001243	Introduction to Statistics Using R	Elective	4 V	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI001167	Choice Architecture Applications in Consumer Behavior	Elective	2 Se	1.-4. Sem.	2	3 Credits	Presenta-tion	n.a.	English

Operations & Supply Chain Management

In the specialization Operations & Supply Chain Management, one of the seminars offered in the Advanced Seminars Operations & Supply Chain Management must be successfully completed with at least 6 credits.

Within the specialization Operations & Supply Chain Management, additional elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Operations & Supply Chain Management								
WIB34001	Advanced Seminar Operations & Supply Chain Management	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI000979	Inventory Management	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
WI000976	Logistics and Operations Strategy	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
WI200541	Planning and Scheduling of Complex Operations: Models, Methods and Applications	Elective	4 VI	1.-4. Sem.	4	6 Credits	Exercise performance	60 min	English
WI001034	Healthcare Operations Management	Elective	4 VI	1.-4. Sem..	4	6 Credits	Exercise performance	60 min	English
WI000836	Advanced Planning in Supply Chains - Illustrating the Concepts and methodology using SAP IBP	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	90 min.	English
WI100967	Designing and Scheduling Lean Manufacturing Systems	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI000819	Discrete Optimization	Elective	4 Se	1.-4. Sem.	4	6 Credits	Exercise performance	n.a.	English
WI001206	Modelling Future Mobility Systems	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WIB22001	Sustainable Supply Chain Management	Elective	4 VI	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English

Finance & Accounting

In the Finance & Accounting specialization one of the seminars offered within the framework of the Advanced Seminars Finance & Accounting must be successfully completed in the amount of at least 6 credits.

Within the Finance & Accounting specialization further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM Scholl of Management in in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Finance & Accounting								
WIB23005	Advanced Seminar Finance & Accounting: Behavioral and Experimental Economics	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
WI000232	Derivatives	Elective	2 V + 2 Ü	1.-4. Sem.	2	6 Credits	Written exam	90 min	English
WI000231	Asset Management	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI000998	Group Accounting and IFRS	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI000234	Value Based Management	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI000233	Managemen t Accounting	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	German/ English
WI001187	Private Equity	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI001089	Capital Markets Law	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	English
WI001263	Alternative Investments	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI001087	Banking Law and Credit Collaterals	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	English
WI001259	Behavioral Finance	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WIB33002	Venture Capital Lab	Elective	4 Se	1.-4. Sem.	4	6 Credits	Resear ch paper	n.a.	English

Economics & Econometrics

In the Economics & Econometrics specialization one seminar of the Economics & Econometrics Advanced Seminars must be successfully completed with at least 6 credits.

Within the Economics & Econometrics specialization, further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The TUM School of Management will announce the supplementary elective catalogue in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem. *	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Economics & Econometrics								
WIV05001	Advanced Seminar in Economics and Policy: Economics of innovation	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research pape	n.a.	German/ English
WI000100	Advanced Microeconomics	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	120 min	German/ English
WI001145	Energy Economics	Elective	2 V + 2 Ü	1.-4. Sem..	4	6 Credits	Research paper	120 min	English
WI001221	International Trade I	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI001220	Network Economics I	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WZ1561	Value Chain Economics	Elective	4 VI	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WZ0041	Economics of Technology and Innovation	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	120 min	English
WI000258	Empirical Research in Management and Economics	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WZ1705	Applied Statistics and Econometrics	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	120 min	English
WI001133	Advanced Seminar Economics & Policy: Strategic Interaction - in Theory, Lab, and Field	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
WI001250	Advanced Seminar Economics & Policy: Current Topics in Value Chain Economics	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English

Energy Markets

In the specialization Energy Markets, a seminar of the Advanced Seminar Energy Markets must be successfully completed in the scope of at least 6 credits.

Within the Energy Markets specialization, further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem. *	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Energy Markets								
WIB29001	Advanced Seminar Energy Markets: Electricity Market Economics	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
WI000992	Energy Trading	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI000946	Energy Markets I	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI001125	Energy Markets II	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI001223	Challenges in Energy Markets	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	German/ English
WI001254	Advanced Seminar Energy Markets: Economics of Energy and Technology	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
WI001145	Energy Economics	Elective	2 V+ 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	English
WI001227	Network Economics II	Elective	2 V+ 2 Ü	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English
WI001220	Network Economics I	Elective	2 V+ 2 Ü	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English

Life Sciences Management & Policy

In the specialization Life Sciences Management & Policy a seminar of the Advanced Seminars Life Sciences Management & Policy must be successfully completed in the scope of at least 6 credits.

Within the Life Sciences Management & Policy specialization, further elective modules amounting to a total of 24 credits from a supplementary elective catalogue must also be successfully completed. The supplementary elective catalogue will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Life Sciences Management & Policy								
WIB14002	Advanced Seminar Life Sciences & Management: Sustainable Entrepreneurship – Theoretical Foundations	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	180 min.	English
WI000836	Advanced Planning in Supply Chains - Illustrating the Concepts Using an SAP IBP	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	90 min.	English
WI000948	Food Economics	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	60 min	English
WI100311	Food & Agribusiness Marketing	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	German/ English
WI000926	International Environmental Governance and Conflict Management	Elective	4 V	1.-4. Sem.	3	5 Credits	Research paper	n.a.	English
WZ1467	Current challenges in the management in the agriculture, building materials and energy industry	Elective	4 V	1.-4. Sem.	4	5 Credits	Oral exam	30 min.	German
WZ1561	Value Chain Economics	Elective	4 VI	1.-4. Sem.	4	5 Credits	Research paper	n.a.	English
WZ1700	Agribusiness Governance	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min.	English
WZ1705	Applied Statistics and Econometrics	Elective	2 VO + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	120 min.	English
WI000739	Consumer Behavior	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	120 min.	English

WZ1564	Econometric Impact Analysis	Elective	4 V	1.-4. Sem.	4	6 Credits	Exercise performance	60 min.	English
WI001194	Who is responsible for food and health? Social and cultural perspective on food, health, and technology	Elective	2 Se	1.-4. Sem.	4	6 Credits	Research paper	n.a.	English

Specialization in Technology

Each student must choose an engineering or a natural science specialization and successfully complete modules amounting to 30 credits. Depending on the chosen engineering/scientific specialization the regulations of that subject apply.

Mechanical Engineering

Depending on their previous knowledge, students can choose basic modules or advanced modules in mechanical engineering.

Within the selected competence module catalogue, modules amounting to at least 30 credits from an elective module offer must be successfully completed. This exemplary elective module catalogue will be continuously updated, the current elective module catalogue will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Students who have already successfully completed their Bachelor's degree in Mechanical Engineering, can only choose the major modules in Mechanical Engineering.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem. *	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Mechanical Engineering basic modules (minor)								
MW2016	Basics of Machines Drawing and Computer Aided Design 1	Elective	1 V + 1 Ü + 1 PR	1.-4. Sem.	2	2 Credits	Exercise performances	n.a.	German
MW2013	Basics of Machines Drawing and Computer Aided Design 2	Elective	1 V + 1 Ü + 1 PR	1.-4. Sem.	2	2 Credits	Exercise performances, written exam	90 min	German
MW1108	Engineering Mechanics for Technology Management	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	120 min	German
MW1694	Machine Elements – Basics, Manufacturing, Application	Elective	2 V + 3 Ü	1.-4. Sem.	5	7 Credits	Written exam	120 min	German
BV350007	Materials in Mechanical Engineering	Elective	4 VI	1-.4. Sem.	4	6 Credits	Written exam	90 min	German
MW2021	Fluid Mechanics I	Elective	3 V + 3 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
MW1903	Bioprocess Engineering	Elective	3 V	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
MW1918	Industrial Software Engineering	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
MW1932	Basics of Casting and Metal Forming	Elective	3 V	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
MW2015	Basics of Thermodynamics	Elective	3 V + 2 Ü + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	120 min	German
MW2156	Metal-cutting Manufacturing Processes	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
MW2022	Automatic Control	Elective	3 V + 2 Ü + 2 Ü + 1 Ü + 1 Ü	1.-4. Sem.	5	5 Credits	Written exam	90 min	German

	Mechanical engineering advanced modules (major)								
MW1921	Material Flow and Logistics	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW0102	Production Ergonomics	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW0068	Material Flow Systems	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW0097	Layout Planning of Logistical Systems	Elective	3 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW2129	Ergonomics	Elective	2 V + 1 Ü	1.-4. Sem	n.a.	5 Credits	Written exam	90 min	German
MW0049	Joining Technologies	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW0010	System Engineering for Vehicle Drive Lines	Elective	3 VI	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW1911	Basics of Motor Vehicle Construction	Elective	3 V	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW1919	Lightweight Structures	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW0101	Product Ergonomics	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	90 min	German
MW2023	Heat Transfer Phenomena	Elective	2 V + 1 Ü	1.-4. Sem	3	4 Credits	Written exam	90 min	German
MW2244	Energy from Biomass and Residuals with Seminar	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Oral examination	30 min	German
MW2428	Solar Engineering	Elective	2 V + 1 Ü	1.-4. Sem	3	6 Credits	Written exam	90 min	German

Informatics

Depending on their previous knowledge, students can choose basic modules or advanced modules in computer science.

Within the selected competence module catalog, modules amounting to at least 30 credits from an elective module offer must be successfully completed. This exemplary elective module catalog will be continuously updated, the current elective module catalog will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Students who have already successfully completed the engineering/scientific subject of informatics in the bachelor's program can only choose the major modules in informatics.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Informatics basic modules (minor)								
IN0001	Introduction to Informatics 1	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	120 min	German
IN8024	Information Management for Digital Business Models	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	90min	German/ English
IN0004	Introduction to Computer Organization and Technology – Computer Architecture	Elective	4 V + 2 Ü	1.-4. Sem.	6	8 Credits	Written exam	120 min	German
IN0002	Fundamentals of Programming (Exercises & Laboratory)	Elective	4 PR	1.-4. Sem.	4	6 Credits	Exercise performance	n.a.	German
IN0006	Introduction to Software Engineering	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	German
IN0009	Basic Principles: Operating Systems and System Software	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	German
IN0008	Fundamentals of Databases	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	German
IN0003	Introduction to Informatics 2	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	120 min	German
IN2113	Programming Languages	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German/ English
IN0042	IT Security	Elective	4 V + 1 Ü	1.-4. Sem.	5	5 Credits	Written exam	60 min	German

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Informatics advanced modules (major)								
IN0010	Introduction to Computer Networking and Distributed Systems	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	German
IN2028	Business Analytics	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	English
IN2031	Application and Implementation of Database Systems	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	German
IN2040	Virtual Machines	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	English
IN2062	Techniques in Artificial Intelligence	Elective	3 V + 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German/ English
IN2067	Robotics	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	English
IN2076	Advanced Computer Architecture	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
IN2089	Strategic IT Management	Elective	2 S	1.-4. Sem.	2	3 Credits	Written exam	75 min	German
IN2101	Network Security	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	75 min	English
IN2222	Cognitive Systems	Elective	3 VI	1.-4. Sem.	4	5 Credits	Written exam	75 min	English
IN2309	Advanced Topics of Software Engineering	Elective	4 V + 2 Ü	1.-4. Sem.	6	8 Credits	Written exam	100 min	German/ English

Chemistry

Depending on their previous knowledge, students can choose basic modules or advanced modules in chemistry.

In the competence module catalog "Basic Modules (minor)" 18 credits in the compulsory area and at least 12 credits from the elective area must be successfully completed.

In the Competence Module Catalog Major, modules of at least 30 credits from the elective modules must be successfully completed. This exemplary elective module catalog is continuously updated, the current elective module catalog is announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Students who have already successfully completed the bachelor's degree course in engineering or natural sciences in chemistry can only choose the major modules in chemistry.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Chemistry basic modules (minor)								
	Compulsory modules								
CH6202	General and Inorganic Chemistry	Compulsory	2 V + 1 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	German
CH1090	Introduction to Organic Chemistry	Compulsory	3 V + 1 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	German
CH1091	Basic Principles of Physical Chemistry 1	Compulsory	3 V + 1 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	German
	Elective modules								
CH0106	Biology for Chemists	Elective	3 VI	1.-4. Sem.	3	6 Credits	Written exam	90 min	German
CH1123	Chemical Engineering for TUM-BWL	Elective	4 V	1.-4. Sem.	4	6 Credits	Written exam	120 min	German/ English
CH0107	Analytical Chemistry	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	German
CH0999	Chemistry Software and Databases for TUM-BWL	Elective	2 VI	1.-4. Sem.	2	3 Credits	Written exam	60 min	German
CH0124	Toxicology and Legal Studies for Chemists	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	90 min	German
CH4107	Inorganic Solid State and Organometallic Chemistry	Elective	3 V+ 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
CH4103	Molecular Inorganic Chemistry	Elective	3 V+ 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
CH4117	Biochemistry	Elective	2 V + 1 Ü	1.-4. Sem.	2	5 Credits	Written exam	90 min	German

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	Chemistry advanced modules (major)								
CH4107	Inorganic Solid State and Organometallic Chemistry	Elective	2 V+ 2 Ü	1./3. Sem.		5 Credits	Written exam	90 min	German
CH3153	Construction Chemicals I	Elective	2 V + 1 PR	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH4103	Molecular Inorganic Chemistry	Elective	3 V + 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
CH1019	Laboratory Course in Chemical Engineering	Elective	2 PR	1.-4. Sem.	3	3 Credits	Laboratory performance	n.a.	German
CH0124	Toxicology and Legal studies for Chemists	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	90 min	German
CH4117	Biochemistry	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH6204	Material Flows in Industry and Nature	Elective	2 V	1.-4. Sem.	2	3 Credits	Project work	n.a.	German
CH4115	Advanced Analytical Techniques	Elective	4 V	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
CH3154	Nano Materials	Elective	2 V + 1 PR	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH0226	Molecular Medicine	Elective	2 V + 1 Se	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH3037	Molecular Biotechnology	Elective	2 V + 1 Se	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH0867	Food Chemistry I	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH3095	Industrial Chemical Processes II - Petrochemical Processes	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH3094	Industrial Chemical Processes I - Refining	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH5108	Industrial Relevant Activation of Small Molecules	Elective	2 V	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
CH0115	Reactivity of Organic Compounds	Elective	3 V+ 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German

Electrical Engineering and Information Technology

Depending on their previous knowledge, students can choose basic modules or advanced modules in electrical engineering and information technology.
In the competence module catalog basic modules (minor) at least 10 credits from elective area 1 and at least 20 credits from elective area 2 have to be successfully completed.

One of the two specializations ("Electrical Engineering and Information Technology" or "Information Technology and Electronics") must be selected in the competence module catalogue major. In the chosen specialization, modules of at least 30 credits must be successfully completed. This exemplary catalog of elective modules will be continuously updated, the current catalog of elective modules will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Students who have already successfully completed the electrical engineering and information technology engineering subject in the bachelor's program can only choose the advanced modules (majors) in information technology and electronics or energy technology.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	Electrical engineering and information technology								
	Basic modules (minor)								
	Elective field 1 (10 credits)								
EI29821	Principles of Information Engineering	Elective	4 V	1.-4. Sem.	3	5 Credits	Written exam	75 min	German
EI10002	Principles in Electrotechno-logy	Elective	3 V + 1 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
EI1289	Electrical Engineering (LB-BF-MT)	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
	Elective field 2 (20 credits)								
EI10003	Analog Electronics	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	English
EI2986	Telecommunication I – Signal Representation	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	75 min	German
EI0625	Communication Networks	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	German/ English
EI3199	Laboratory Analog Electronics for TUM-BWL	Elective	4 Pr	1.-4. Sem.	4	5 Credits	Research Paper	n.a.	German/English
EI4802	Basics of High-Frequency Engineering	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	German/ English
EI2988	Telecommunication II	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	k.A.	German/ English
EI1286	Devices and Installations in Electrical Power Systems	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	30 min	German/ English
EI05551	Internet Communication	Elective	5 VI	1.-4. Sem.	4	6 Credits	Written exam + Exercise (3:2)	75 min	German/ English
EI0644	Photovoltaic Stand Alone Systems	Elective	3 V + 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	60 min	German/ English
EI0602	Audio Communication	Elective	3 VI	1.-4. Sem.	4	5 Credits	Written exam	60 min	German/ English
EI0636	Nanoelectronics	Elective	5 VI	1.-4. Sem.	5	5 Credits	Written exam	60 min	English

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	EI- Information technology and Electronics Advanced modules (major)								
EI05381	Multimedia Laboratory	Elective	5 Pr	1.-4. Sem.	5	6 Credits	Project work	n.a.	German
EI4585	Project: Economic aspects of Nanotechnology	Elective	4 FOPr	1.-4. Sem.	4	5 Credits	Oral exam	n.a.	German
EI0631	Media Technology	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
EI7585	Clinical Applications of Computational Medicine	Elective	2 V	1.-4. Sem.	2	6 Credits	Project work	n.a.	English
EI7331	Algorithm for Digital Circuit Design	Elective	2 V	1.-4. Sem.	2	5 Credits	Written exam	60 min	German
EI0622	Semiconductor Sensors	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	60 min	German
EI73871	Practical Aspects of Technical Acoustics	Elective	4 VI	1.-4. Sem.	43	6 Credits	Written exam	90 min	German
EI7355	Nanosystems	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam and presentation	30 min	English
EI7624	Techno-Economic Analysis of Telecommunication Networks	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam and project	90 min	English
EI73141	Brain, Mind and Cognition (Seminar)	Elective	3 Se	1.-4. Sem	3	5 Credits	Research project	n.a.	English
EI1291	Transmission of Electrical Energy - High Voltage Engineering	Elective	2 V + 1 Ü	1.-4. Sem	3	5 Credits	Written exam	60 min	English
EI74042	Mathematical Methods of Circuit Design	Elective	4 VI	1.-4. Sem	4	5 Credits	Written exam	60 min	English

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	EI- Power Engineering advanced modules (major)								
EI7135	Industrial Energy Economy	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	German
EI0611	Basics of Electrical Energy Storage	Elective	3 V +1 Ü	1.-4. Sem.	3	5 Credits	Written exam	60 min	German
EI0620	Fundamentals of Electrical Machines	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	German
EI7513	Ecomanagement and Life Cycle Analysis	Elective	2 V	1.-4. Sem.	2	3 Credits	Written exam	60 min	German
EI0610	Electrical Drives – Fundamentals and Applications	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
EI0628	Power Electronic – Fundamentals and Applications	Elective	3 VI + 1 Pr	1.-4. Sem.	3	5 Credits	Written exam	90 min	German
EI7328	Electromagnetic Compatibility in the Field of Power Engineering	Elective	4 VI	1.-4. Sem.	4	5 Credits	Oral exam	30 min	German
EI7329	Energy Application Technology	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	60 min	German
EI0612	Electrical Small Power Machines	Elective	3 VI	1.-4. Sem.	3	5 Credits	Written exam	60 min	German
EI4585	Project: Economic Aspects of Nanotechnology	Elective	FOPr	1.-4. Sem.	4	5 Credits	Report	n.a.	German
EI7624	Techno-Economic Analysis of Telecommunication Networks	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam, report	90 min	English
EI70330	Data Networking	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	English
EI70810	Battery Storage	Elective	3 VO + 1 Ü	1.-4. Sem.	4	5 Credits	Written exam	60 min	English

Computer Engineering

Depending on their previous knowledge, students can choose basic modules or advanced modules in Computer Engineering.

Within the selected competence module catalog, modules amounting to at least 30 credits from an elective module offer must be successfully completed. This exemplary elective module catalog will be continuously updated, the current elective module catalog will be announced by the TUM School of Management in an appropriate way and in good time before the start of lectures.

Students who have already successfully completed the engineering or scientific subject of Computer Engineering in the Bachelor's program can only choose the major modules in Computer Engineering.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	Computer engineering basic modules (minor)								
IN8005	Introduction into Computer Science (for non Informatics studies)	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 - 150 min	English
IN8024	Information Management for Digital Business Models	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 - 150 min	German/ English
IN8029	–Informatik Bachelor-Praktika für Management	Elective	6 PR	1.-4. Sem.	6	10 Credits	Project	n.a.	German/ English
IN2113	Programming Languages	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	German/ English
EI10001	Principles of Information Engineering	Elective	3 VI	1.-4. Sem.	3	6 Credits	Written exam	75 min	English
EI10002	Principles in Electrotechnology	Elective	3 V + 1 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
EI10003	Analog Electronics	Elective	2 V + 1 Ü	1.-4. Sem.	3	5 Credits	Written exam	90 min	English
EI5183	Control Theory (MSE)	Elective	3 V	1.-4. Sem.	3	4 Credits	Written exam	90 min	n.a.
IN0006	Introduction to Software Engineering	Elective	3 V + 2 Ü	1.-4. Sem.	5	6 Credits	Written exam	90 min	English
IN0003	Functional Programming and Verification	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	120 min	English
IN2339	Data Analysis and Visualization in R	Elective	2 V + 4 Ü	1.-4. Sem.	6	6 Credits	Written exam	90 min.	English

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighting ratio	Duration of examination	Language of instruction
	Computer engineering advanced modules (major)								
IN2028	Business Analytics	Elective	2 V + 2 Ü	1.-4. Sem.	4	5 Credits	Written exam	90 min	English
IN2062	Techniques in Artificial Intelligence	Elective	3 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	German/ English
IN2067	Robotics	Elective	5 VI	1.-4. Sem.	5	6 Credits	Written exam	90 -min	English
IN2222	Cognitive Systems	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	75 min	English
IN2309	Advanced Topics of Software Engineering	Elective	4 V + 2 Ü	1.-4. Sem.	6	8 Credits	Written exam	100 min	German/ English
EI0697	Mobile Communications	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam	90 min	English
EI0636	Nanoelectronics	Elective	5 VI	1.-4. Sem.	5	5 Credits	Written exam	60 min	English
EI70240	Statistical Signal Processing	Elective	4 VI	1.-4. Sem.	4	6 Credits	Written exam	n.a.	English
EI73141	Brain, Mind and Cognition (Seminar)	Elective	3 Se	1.-4. Sem.	3	5 Credits	Research project	n.a.	English
EI7480	Data-Driven Innovation	Elective	2 V +1 Ü	1.-4. Sem.	3	5 Credits	Written exam, project + homework	n.a.	English
EI7581	Inside my iphone – Technology Analysis of a Smart Phone	Elective	4 Se	1.-4. Sem.	4	6 Credits	Research project	n.a.	English
EI7352	Multimedia Communications	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam + homework	90 min	English
EI7624	Techno-Economic Analysis of Telecommunication Networks	Elective	4 VI	1.-4. Sem.	4	5 Credits	Written exam + project	90 min	English

Industrial Engineering

Within the selected competence module catalog, modules amounting to at least 30 credits from an elective module offer must be successfully completed. This exemplary elective module catalogue will be continuously updated, the current elective module catalog will be announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Modules from the elective catalog Industrial Engineering (minor) cannot be included in the OSCM specialization at the same time.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination, weighing ratio	Duration of examination	Language of instruction
	Industrial engineering basic modules (minor)								
WI100967	Designing and Scheduling Lean Manufacturing Systems	Elective	4 VI	1.-4. Sem.	4	6 Credits	written exam	120 min	English
WI200541	Planning and Scheduling of Complex Operations: Models, Methods and Applications	Elective	4 VI	1.-4. Sem.	4	6 Credits	exercise performance 1:1	60 min	English
IN2028	Business Analytics	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
IN2211	Auction Theory and Market Design	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	English
MA4800	Foundations of Data Analysis	Elective	4 V + 2 Ü	1.-4. Sem.	6	8 Credits	Written exam	90 min	English
IN8005	Introduction into Computer Science (for non Informatics studies)	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Written exam	90 min	English

Sustainable Energies

In the competence module catalog 12 credits in the compulsory area and at least 18 credits from the elective area must be successfully completed.

This exemplary elective module catalog is continuously updated, the current elective module catalog is announced by the TUM School of Management in a suitable way and in good time before the start of lectures.

Module no.	Module name	Type of Module	Teaching method SWS/ V Ü P	Sem.	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	Sustainable Energies basic modules (minor)								
	Compulsory modules								
EI74831	Project Lab Renewable and Sustainable Energy Systems	Compulsory	FOPr	1.-4. Sem.	4	6 Credits	Project Report	n.a.	English
EI70860	Integration of Renewable Energies	Compulsory	4 V	1.-4. Sem.	4	6 Credits	Writtten exam	60 min	English
	Electives								
EI7467	Interdisciplinary Project Internship: Concept Development of a Renewable Energy System in a Developing Country	Elective	FOPr	1.-4. Sem.	4	6 Credits	Project Report	n.a.	English
EI80004	Sustainable Mobility	Elective	2 V + 1 Ü	1.-4. Sem.	3	6 Credits	Writtten exam	90 min	English
MW2149	Introduction to Wind Energy	Elective	2 V + 2 Ü	1.-4. Sem.	4	6 Credits	Writtten exam	90 min	English
EI8033	Battery Storage	Elective	2 V + 1 Ü	1.-4. Sem.	4	6 Credits	Writtten exam	60 min	English
MW1475	Renewable Energy Technology I	Elective	2 V	1.-4. Sem.	2	3 Credits	Writtten exam	60 min	English
MW1476	Renewable Energy Technology II	Elective	2 V	1.-4. Sem.	2	3 Credits	Writtten exam	60 min	English
WZ4207	Waste and Waste Water Treatment	Elective	4 V	1.-4. Sem.	4	6 Credits	Writtten exam	90 min	English

Electives in Management and/or Technology

Within the framework of the electives in Management and/or Technology, students will perform examinations in the management or technological field in the amount of 30 credits. Of these, 12 credits can be earned as part of a the module “project study” in accordance with § 37a.

In the electives in Management and/or Technology, students have access to all courses of the management specializations at Master level as well as all electives in Technology modules of the Master's program Management & Technology.
Instead of examination performances at the TUM, subject-related examination performances amounting to 30 credits can be performed at a foreign university within the scope of a stay abroad. The student, together with a mentor appointed by the faculty, prepares an individual semester study plan, which must be approved at least three weeks before the performance of the examination. The corresponding courses must be selected from the range offered by the foreign university.

The catalog of elective modules will be announced by the TUM School of Management in good time before the start of lectures.

Students who have already successfully completed basic modules of an engineering or natural science subject in the Bachelor's degree program are not permitted to bring these also into the Master's degree program in Management & Technology.

Module no.	Module name	Type of module	Teaching method SWS/ V Ü P	Sem.*	SWS	Credits	Type of examination	Duration of examination	Language of instruction
	Project Studies								
WI900685	Project Studies	Elective		1.-4. Sem.	8	12 Credits	Project work	n.a.	German/ English

Master’s Thesis

	Master's Thesis								
WI900249	Master's Thesis	Compulsory		4. Sem		30 Credits			German/ English

Explanations:
Sem. = semester; SWS = Semesterwochenstunden (weekly hours per semester); V = Vorlesung (lecture); Ü = Übung (exercise); P = Praktikum (internship), Se = seminar.
For written examinations, the duration of the examination in minutes is listed in the column ‘Duration of examination’.

Comments:
* Recommended semester depending on the chosen management specialization and the engineering/scientific subject.

III. Curriculum - shown separately according to the respective technology specialization

1. Semester (WS)	Technology EI minor	Technology CH minor	Technology SE minor	Technology all other minors	Technology all majors
Specialization in Management	12	12	12	12	12
Specialization in Technology	5	6	6	12	12
Electives in Management and/or Technology	13	12	12	6	6
Overall credits	**30**	**30**	**30**	**30**	**30**
2. Semester (SS)					
Specialization in Management	12	12	12	12	12
Specialization in Technology	5	18	12	12	12
Electives in Management and/or Technology	12	0	6	6	6
Overall credits	**29**	**30**	**30**	**30**	**30**
3. Semester (WS)					
Specialization in Management	6	6	6	6	6
Specialization in Technology	20	6	12	6	6
Electives in Management and/or Technology	5	18	12	18	18
Overall credits	**31**	**30**	**30**	**30**	**30**
4. Semester (SS)					
Master's Thesis	30	30	30	30	30
Overall credits	**30**	**30**	**30**	**30**	**30**

APPENDIX 2: Aptitude Assessment

Aptitude Assessment for the Master's program in Management and Technology (TUM- BWL) at the Technical University of Munich

1. Purpose of the Assessment

[1]The qualification for the Master's program in Management and Technology (TUM-BWL) requires, in addition to the requirements of § 36 Paragraph 1 Nos. 1 and 2, proof of suitability in accordance with § 36 Paragraph 1 No. 4 in accordance with the following regulations. [2]The special qualifications and abilities of the applicants shall correspond to the professional field of a graduate in management with engineering or scientific competence. [3]Individual aptitude parameters are:

1.1 specialized knowledge from (and success in) the first degree course in the field of business administration/ management with engineering or natural scientific reference, based on the Bachelor's degree course in Management and Technology (TUM-BWL) at the Technical University of Munich,

1.2 knowledge of management and technical matters,

1.3 the ability to carry out research work and/or basic research and methodological work,

1.4 engineering, scientific and management language skills (in English).

2. Aptitude Assessment Process

2.1 [1]The aptitude test will be carried out every six months by the TUM School of Management. [2]The Enrollment Statutes, in particular § 7, shall apply to the aptitude assessment process.

2.2 [1]Applications for admission to the aptitude test, including the documents set out in 2.3.1 through 2.3.5 and § 36 (1) no. 2 must be filed with the Technical University of Munich via the online application process by May 31 for the winter semester and November 30 for the summer semester (absolute deadline). [2] The degree certificate and the diploma showing that the applicant has successfully completed the Bachelor's degree must be submitted to the TUM Center for Study and Teaching-Application and Enrollment of the Technical University of Munich no later than five weeks after the start of lectures. [3]If this is not done, the applicant will not be permitted to start the Master's degree pursuant to § 36 of these regulations.

2.3 The application must include:

2.3.1 a transcript of records including a list of modules amounting to at least 140 credits; the transcript of records must be issued by the responsible examination authority or the responsible study secretariat and an officially certified copy must be available. Official certification is not required if the examinations were taken at the Technical University of Munich,

2.3.2 the curriculum of the first degree program, from which the respective module contents and the competencies imparted must be evident (e.g. module handbook, module descriptions) as well as the form issued by the TUM School of Management, in which the applicants compile the grades, credits as well as semester hours of the required examination achievements,

2.3.3 a curricular analysis derived from the transcript of records; it must be completed in the online application procedure and a printout must be included with the application materials,

2.3.4 a curriculum vitae in table form,

2.3.5 an essay written in English between 1500 and 2000 words. The essay must be uploaded to TUMonline. The chairman of the commission may propose one or more topics. Applicants must be notified of this by 1 April or 1 November at the latest.

2.3.6 an assurance that the essay was written independently and without outside help and that the thoughts acquired from foreign sources are identified as such.

2.3.7 Optionally, for applicants who are not required to provide proof of a GMAT score in accordance with § 36 Para. 1 No. 3, a proof of a GMAT score is required.

3. Aptitude Assessment Committee

3.1 [1]The aptitude test shall be carried out by a committee consisting, as a rule, of the Dean of academic affairs in charge for the Master's program in Management and Technology, at least two university professors and at least one research assistant. [2]The committee shall be responsible for preparing the aptitude assessment, organizing it and ensuring a structured and standardized procedure for determining suitability within the framework of this statute; it shall be responsible provided that no other responsibility is specified by these Regulations or by delegation. [3]The implementation of the procedure pursuant to No. with the reservation of No. 3.2 sentence 11 shall be the responsibility of the committee.

3.2 [11]The committee for the aptitude test consists of five members. The members of the committee are appointed by the faculty council in consultation with the dean for academic affairs. [2] At least three of the committee members must be university lecturers as defined by the BayHSchPG. [3] The student council has the right to nominate a student representative to serve in an advisory capacity on the committee. [4]For each member of the committee, a representative shall be appointed. [5]The committee shall elect a chairperson and a deputy chairperson from among its members. [6] The process shall be governed by § 30 of the Basic Regulations of the TUM as they stand at the time. [7]The term of members is one year. [8] Extensions of the term of membership and reappointments are possible. [9]The chairperson may make urgent decisions that cannot be postponed instead of the committee on the suitability procedure; he or she must inform the committee of such decisions without delay. [10]The Study Office shall support the committee for the aptitude assessment procedure and the selection committees; the committee for the aptitude assessment procedure may delegate to the Study Office the task of the formal admission examination according to No. 4 as well as the evaluation of points on the basis of previously defined criteria for which there is no leeway for evaluation, in particular the conversion of the grade, the determination of the total number of points achieved, the compilation of the selection committees from the members appointed by the committee as well as the allocation to the applicants.

3.3 [1]The selection committees each consist of two members from the group of members of the TUM School of Management who are authorized to examine the degree program according to Art. 62 Para. 1 Sentence 1 BayHSchG in conjunction with the University Examination Ordinance. [2]At least one member must be a university lecturer within the meaning of the BayHSchPG. [3]The activity as a member of the commission for the aptitude test can be exercised in addition to the activity as a member of the selection committee. [4]The members shall be appointed by the committee for the aptitude test for one year; No. 3.2 sentence 9 shall apply accordingly. [5]Different selection committees may be appointed for each criterion and level.

4. Admission to the Aptitude Assessment Process

4.1 [1]Admission to the aptitude assessment process requires that all the documents specified in no. 2.2 have been submitted in due time and in full. [2]In order to determine whether the rules of good scientific practice have been observed, the essay will be checked with special plagiarism checking software.

4.2 [1]Whoever fulfills the necessary requirements according to No. 4.1 will be examined in the suitability procedure according to No. 5. [2]If this is not the case, a notice of rejection will be issued, stating the reasons and stating the right of appeal. [3]If the selection committee comes to the conclusion that the rules of good scientific practice have been significantly violated, the applicant shall be excluded from the current application procedure. [4]Sentence 2 shall apply accordingly.

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5. The Aptitude Assessment Process

5.1 <u>First stage of the aptitude assessment process</u>

5.1.1 [1] On the basis of the written application documents required according to No. 2.3, it will be assessed whether the applicants are suitable for the study program as specified in No. 1. (First stage of the aptitude assessment process). [2] The submitted documents are evaluated on a scale ranging from 0 to 69 points, 0 being the worst and 69 the best possible result. [3]There will be no negative points.

The following criteria will be applied to the evaluation:

a) Academic qualification

[1]The curricular analysis of existing skills and knowledge is not conducted in the form of a schematic comparison of the modules, but rather on the basis of competencies. [2]It is based on the elementary core module groups of the bachelor's degree program Management and Technology (TUM-BWL) of the Technical University of Munich listed in the following table:

Core module groups	Rating (in points) Number of points
Business/Management modules in the amount of at least 25 ECTS	20
Basics in the field of empirical methods in the amount of at least 6 ECTS	10
Basics in the field of quantitative decision support with methods of operations research in the amount of at least 6 ECTS	10
Economic modules of at least 10 ECTS	10
Total	**50**

[3]If it has been established that there are no significant differences in the competences acquired (learning outcomes), a maximum of 50 points will be awarded. [4]If this value is a decimal, it is rounded up to the next whole number. [5]If competences are missing, 0 points are awarded for the respective group type.

b) Final grade

[1]One point is awarded for each 2/10 of a grade that is better than 2.7 on the basis of an average of 140 credits. [2]The maximum number of points is 9. [3]For foreign degrees, the grade will be converted according to what is referred to as the “Bavarian formula”. [4]If a certificate with more than 140 credits is available at the time of application, the assessment will be based on the best graded modules with a total of 140 credits. [5] Applicants must list these in the application and confirm in writing that the information provided is correct. [6]The average is calculated from graded module examinations amounting to 140 credits. [7]The overall average grade is calculated as the weighted average grade of the modules. [8]The grading weights of the individual modules correspond to the assigned credits. [9]The grade weights of the individual modules correspond to the assigned credits.

Grade	1	1,1/1,2	1,3/1,4	1,5/1,6	1,7/1,8	1,9/2,0	2,1/2,2	2,3/2,4	2,5/2,6	≥2,7
Points	9	8	7	6	5	4	3	2	1	0

c) GMAT-Score

Applicants who provide evidence of having a GMAT score of a minimum of 650 points will be awarded 10 points. The remaining points will be awarded the following way:

GMAT	≤640	650	660	670	680	690	700	≥710
Points	0	1	2	3	4	6	8	10

5.1.2 The score for the first stage shall be the sum of the individual scores in 5.1.1 a) to 5.1.1 c).

5.1.3 Applicants who achieve at least 51 points pass the aptitude test.

5.1.4 Applicants with a total score of 45 or less points fail the aptitude test.

5.2. <u>Second stage of the Aptitude Assessment Process</u>

5.2.1 [1]For the remaining candidates, the essay is evaluated as the second stage. [2]In the second stage of the aptitude procedure, the professional qualifications acquired in the first degree course, the grade or ranking and the result of the essay by other applicants are evaluated, whereby the qualification acquired in the first degree program must be given at least equal consideration. [3]The essay will be assessed by two members of the commission on a scale of 0 to 40 points. [4]The content of the essay, which is based on a social topic, will be evaluated according to the following criteria: The applicants should be able to

1. Present abilities for scientific-logical argumentation with basic and method-oriented text structure as well as to write the essay in a scientific way under correct indication of sources,
2. Classify the question in the context of Management and Technology,
3. English knowledge

5.2.2 Each member of the Commission shall independently assess each of the three criteria, the criteria being weighted as follows:

1. To present scientific-logical argumentation skills with basic and applied method-oriented text structure, and to write the essay in a scientific manner and under correct indication of sources: maximum 20 points,

2. Classification of the question in the context of Management and Technology: maximum 10 points,

3. English language proficiency: maximum 10 points.

5.2.3 [1]The evaluation of the essay is carried out by the selection committee. [2]Both selection committee members independently evaluate each of the three focal points. [3]The score per member of the Commission is the sum of the weighted evaluations of each criterion. [4]The total score shall be the arithmetic mean of the scores of the two Commissioners, rounded up to whole points. [5]The maximum number of points is 40.

5.2.4 [1]The applicant's overall score in the second stage is calculated as the points obtained under 5.2.3 and the points under 5.1.1 a) (academic qualification) and 5.1.1 b) (Grading table/ranking of final grade). [2]Applicants with 70 or more points will be deemed suitable.[3]Applicants with less than 70 points have not passed the assessment process.

5.3 Establishment and announcement of the result

[1]The result of the aptitude test shall be determined on the basis of the number of points achieved and will be communicated in writing. [2]A rejection notice must specify the reasons for the rejection and provide information on legal remedies.

5.4 Determined eligibility applies to all subsequent applications for this program.

6. Documentation

The aptitude assessment process must be documented, including the date, duration and location of the assessment, the names of the committee members, the applicant's name and the decision of the members of the committee, as well as the overall result. [2]This record must contain the essential reasons for the decision for the assessment of the essay; these reasons may be recorded in note form.

7. Repetition

Applicants who fail the aptitude test may register to repeat the aptitude assessment test once.