

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

dated July 7, 2016

5th amended version dated March 16, 2022 (consolidated version)

In accordance with Art. 13 (1) sentence 2 in conjunction with Art. 58 (1) sentence 1 and Art. 61 (2) sentence 1 of the Bayerisches Hochschulgesetz (BayHSchG) [Bavarian Higher Education Act] the Technical University of Munich (TUM) issues the following Examination and Academic Regulations (Fachprüfungs- und Studienordnung, FPSO):

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§ 34

Applicability, Academic Title, Related Programs of Study

- (1) ¹These Examination and Academic Regulations (FPSO) for the Master's program in Management complement the General Academic and Examination Regulations for Bachelor's and Master's programs at the Technical University of Munich (APSO) dated March 18, 2011 as amended. ²The APSO shall have precedence.
- (2) ¹Upon successful completion of the Master's examination the degree "Master of Science" ("M.Sc.") is awarded. ²The academic title may be used with the addendum "(TUM)".
- (3) ¹The Master's degree programs Management at the Heilbronn Campus of the Technical University of Munich, Industrial Engineering and Business Administration for natural scientists of the Technical University of Munich are related programs. ²When transferring to the Technical University of Munich from another university, the responsible examination board decides on the relatedness of the degree program based on the examination/study regulations of the university in question.

§ 35

Commencement of Studies, Standard Duration of Study, ECTS

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

§ 36

Eligibility Requirements

- (1) Eligibility for the Master's program in Management 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 engineering or natural sciences, or a Bachelor's in architecture or comparable study programs,
 2. 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 points 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") 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 relevant Bachelor's degrees named in subsection 1 (1) at TUM or a comparable university, and these competences correspond to the subject-specific requirements of the Master's program in Management.
 - (3) The module catalog of the respective undergraduate degree program is used for the determination according to Paragraph 2.

§ 37

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

- (1) ¹General provisions on modules and courses are set out in §§ 6 and 8 of the APSO. ²For any changes to the stipulated module provisions, § 12 (8) of the APSO shall apply.
- (2) The curriculum listing the mandatory and elective modules to be attended is given in Appendix 1 (III.).
- (3) ¹The language of instruction in the Master's program in Management is English in general. ²If students do not demonstrate a knowledge of German during the application process, admission will be subject to the additional requirement that at least one module is taken by the end of the second semester in which the student obtains integrative German skills. ³Relevant courses will be announced by the Examination Board in the usual manner. ⁴Voluntary extracurricular activities such as German courses taken at the Language Center will also be recognized. ⁵In addition to English-language modules, some modules will be offered in German. ⁶Any individual elective modules taught entirely or partially in German are identified in Appendix 1 (II.). ⁷If a module description indicates that it is taught in either English or in German, the examiner shall make a binding indication of the specific language of instruction in a suitable way no later than the commencement of the course.

§ 37a

Project Studies

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

- (2) ¹The Project Studies module is supervised by a lecturer from TUM School of Management. ²Furthermore, 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, Study Progress Monitoring, Failure to Meet Deadlines

- (1) Examination deadlines, study progress monitoring and failure to meet deadlines are governed by § 10 of the APSO.
- (2) ¹At least one of the module examinations from the core modules listed in Appendix 1 (II.) must be successfully completed by the end of the second semester. ²In the event of failure to meet deadlines, § 10 (5) of the APSO shall apply.

§ 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

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

§ 41

Continuous Assessment Procedure, Types of Assessment

- (1) ¹In addition to written examinations (*Klausuren*) and oral examinations, types of assessment pursuant to § 12 and § 13 of the APSO may include (but are not limited to) laboratory activities, exercises (tests, where applicable), reports, project work, presentations, learning portfolios and/or research papers. ²The specific components of the respective module examination and the competences to be examined are listed in the module description. ³ The examination can be conducted as an individual or group examination if the topic is suitable; § 18, Section 2, sentences 2 and 3 of the APSO apply accordingly.
- a) ¹A **written exam** (Klausur) is a supervised written examination in which the objective is to identify problems, find solution strategies and, if required, implement them, within a limited amount of time and using predefined methods and resources. ²The duration of written exams is governed by § 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. ²Examples include the following: practical experiments, the description of procedures and the theoretical foundations thereof, including researching 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 ³The laboratory activity may be complemented by a presentation for the purpose of

assessing the student's communication competency in presenting scholarly work to an audience.

- c) ¹**Exercises** are administered to assess a student's ability to complete assigned tasks (for example, solving mathematical problems, coding, designing models etc.) using theoretical knowledge to solve application-oriented problems. ²Exercises are designed to assess the student's factual and detailed knowledge and its application. ³Practical exercises may be administered in writing, orally or electronically. ⁴They may take the form of homework assignments, practice sheets, coding exercises, (e-)tests, design tasks, posters, tasks assigned within a university internship program, attestations etc.
- d) ¹A **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. ²The objective is to demonstrate in the report that all the essential aspects have been understood and can be presented in writing. ³Reports may include excursion reports, internship reports, work reports, etc. ⁴The 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. ²In addition, project work may include a presentation in order to assess a student's communication competency in presenting scholarly work to an audience. ³Project work may also include design drafts, drawings, plan representations, models, objects, simulations and documentation.
- f) ¹A **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. ²The objective is to demonstrate the ability to solve problems corresponding to the learning results of the module in compliance with the guidelines for scholarly work – from analysis and conception to implementation. ³Research papers, differing in their requirement standards, may take the form of a conceptual framework/theory paper (*Thesepapier*), abstract, essay, research paper, seminar paper, etc. ⁴The 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) ¹A **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. ²The 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. ³In 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. ⁴The presentation may be complemented by a brief written précis.
- h) ¹An **oral examination** is a timed, graded discussion of relevant topics and specific questions to be answered. ²The 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. ³The duration of the examination is governed by § 13 (2) of the APSO.

- i) ¹A **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. ²The 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. ³The 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. ⁴Depending 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. ⁵Based on the learning portfolio created, a summative discussion can take place for verbal reflection.
- j) ¹In the context of an **examination sequence**, several examination elements are to be completed within one examination. ²In contrast to a partial module examination, the examination performance is examined in an organizationally (spatially and temporally) coherent manner. ³Examination elements are several different examination formats which in their entirety cover the complete competence profile of the module. ⁴In particular, examination elements can also be examination formats according to letters g) and h) in combination with a practical performance. ⁵The total duration of the examination shall be specified in the module catalog.
- (2) ¹The module examinations are, as a rule, taken concurrently with the program. ²The type and duration of module examinations are governed by Appendix 1 (II.). ³In the event of divergence from those provisions, § 12 (8) of the APSO must be complied with. ⁴The assessment of module examinations is governed by § 17 of the APSO. ⁵Grades from partial module examinations are weighted using the weighting factors given in Appendix 1 (II.).
- (3) Where Appendix 1 (II.) provides that a module examination is either in written or oral form, the examiner must inform the students in appropriate form, no later than the first day of classes, of the type of examination to be held.

§ 42

Registration for and Admission to the Master's Examination

- (1) ¹Students who are enrolled in the Master's program in Management are deemed admitted to the module examinations of the Master's examination.
- (2) ¹The registration requirements for compulsory and elective module examinations are set out in § 15 (1) of the APSO. ²The registration requirements for repeat examinations for failed compulsory 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 modules pursuant to subsection (2), and
 2. The Master's thesis pursuant to § 46.
- (2) ¹The module examinations are listed in Appendix 1 (II.). ²60 credits in compulsory modules and a minimum of 30 credits in elective modules must be earned. ³When choosing modules, § 8 (2) of the APSO must be adhered to.

§ 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, modules are completed with examinations, not coursework.

§ 45a

Multiple Choice Test

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

§ 46

Master's Thesis

- (1) ¹As governed in § 18 of the APSO, students must complete a Master's thesis as part of their Master's examination.
- (2) ¹The completion of the Master's Thesis module should generally be the last examination undertaken. ²In order to be allowed to commence work on their Master's thesis early, students must have earned a minimum of 45 of the 60 credits for the compulsory modules and a minimum of 6 credits in the elective modules, 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) ¹The period of time between the determination of the topic and submission of the completed Master's thesis must not exceed six months. ²The Master's thesis is considered completed and failed if it is not submitted in time without valid reasons pursuant to § 10 (7) of the APSO. ³The Master's thesis shall be written in English.
- (4) ¹If the Master's thesis is not graded with at least "sufficient" (4.0), it may be repeated once with a new topic. ²Students must register the new topic 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 120 credits at least.
- (2) ¹The module grade is calculated according to § 17 of the APSO. ²The overall grade for the Master's examination will be calculated as the weighted grade average of the modules according to § 43 (2) sentence 2 and the Master's thesis. ³The weighting of the grades for individual modules corresponds to the credits assigned to each module. ⁴The overall grade is expressed by the designation pursuant to § 17 of the APSO.

§ 48 Degree Certificate, Diploma, Diploma Supplement

¹If the Master's examination is passed, a degree certificate, a 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* Entry into Force

- (1) ¹These Examination and Academic Regulations enter into force the day after their publication. ²They shall apply to all students who commence their studies on the degree program at the Technical University of Munich from the winter semester 2016/17 onwards.

APPENDIX 1:

I. Scope of the Master's Examination

	Components	Credits	Semester
1.	Examinations during the course of the program earning credits in the compulsory modules of the Fundamentals in Management	42	Semester 1/2
2.	Examinations during the course of the program earning credits in the compulsory modules of the Fundamentals in Economics	6	Semester 1
3.	Examinations during the course of the program earning credits in the compulsory modules of the Fundamentals in Law	6	Semester 2
4.	Examinations during the course of the program earning credits in the compulsory modules of Entrepreneurial, Strategic, and International Management	6	Semester 1
5.	Examinations during the course of the program earning credits in the elective modules from the Electives in Management	30	Semester 3
6.	Master's thesis pursuant to § 46	30	Semester 4
		120	

II. Examination Modules

Master in Management (Compulsory modules)

Students must successfully complete the following compulsory basic modules:

N o.	Module no.	Module name	Module type	Type of instruction SWS/V Ü P	Sem.	SWS	Credits	Type of examination ²	Duration of examination	Language of instruction
Fundamentals of Management										
1	WI001139	Financial Accounting (MiM)	Compulsory	2 V + 2 Ü	1	4	6	Written exam	60 min	English
2	WI001137	Management Science (MiM)	Compulsory	2 V + 2 Ü	1	4	6	Written exam	60 min	English
3	WI000258	Empirical Research in Economics and Management	Compulsory	2 V + 2 Ü	1	4	6	Written exam	120 min	English
4	WI001138	Investment and Financial Management (MiM)	Compulsory	2 V + 2 Ü	2	4	6	Written exam	120 min	English
5	WI001129	Marketing & Innovation Management (MiM)	Compulsory	4 V	2	4	6	Written exam	120 min	English
6	WI001131	Production and Logistics (MiM)	Compulsory	4 V	2	4	6	Written exam	120 min	English
7	WI001130	Cost Accounting (MiM)	Compulsory	2 V + 2 Ü	2	4	6	Written exam	60 min	English

Fundamentals of Economics										
8	WI001056_1	Principles of Economics	Compulsory	2 V + 2 Ü	1	4	6	Written exam	120 min	English

Fundamentals of Law										
9	WI001122	Introduction to Business Law (MiM)	Compulsory	2 V + 2 Ü	2	4	6	Written exam	120 min	English

Entrepreneurial, Strategic and, International Management										
10	WI001185	Entrepreneurial, Strategic and, International Management	Compulsory	4 V	1	5	6	Written exam	120 min	English

Elective modules for the Electives in Management

Within the framework of the elective subject in management, students will undertake examinations in the field of management from a supplementary elective catalogue amounting to at least 30 credits. 12 credits out of these 30 credits can be awarded by taking the module 'Project Studies' as governed in §37 a.

Instead of examinations at TUM, subject-related examinations amounting to 30 credits can be undertaken at a foreign university during a stay abroad. For this purpose, students compile an individual semester study plan with a mentor appointed by the faculty. The courses are to be selected from the selection offered by the foreign university.

The supplementary catalog of elective modules will be published by the TUM School of Management in appropriate form and in good time before the first day of classes; the following is **an example of such a catalog**.

No.	Module no.	Module name	Module type	Type of instruction SWS/V Ü P	Sem.	SWS	Credits	Type of examination ²	Duration of examination	Language of instruction
11	WI900684	Project studies (Master in Management) ¹⁾	Elective		3/4	4	12	project work	n/a	German/English
12	WIB18812_1	Advanced Seminar in Innovation and Entrepreneurship	Elective	4 S	3/4	4	6	research paper	n/a	German/English
13	WI000116	Lead-User-Project	Elective	4 S	3/4	4	6	project work	n/a	German/English
14	WI001166	Advanced Topics in Innovation & Entrepreneurship	Elective	4 S	3/4	4	6	research paper	n/a	German/English
15	WI001187	Private Equity	Elective	4 S	3/4	4	6	written exam	120	German/English
16	WI001140	Luxury Marketing	Elective	4 V	3/4	4	6	presentation + presentation 1:3	n/a	English
17	WI001167	Choice Architecture Applications in Consumer Behavior	Elective	2 S	3/4	2	3	presentation	n/a	English
18	WI001219	Online Marketing	Elective	2 S	3/4	2	3	written exam	60min	English
19	WI000994	Negotiation Strategies	Elective	4 S	3/4	4	6	research paper	n/a	German/English
20	WIB19823	Advanced Topics in Operations & Supply Chain Management I	Elective	4 V	3/4	4	6	written exam	120 min	German/English
21	WIB23005	Advanced Seminar in Finance & Accounting	Elective	4 S	3/4	4	6	research paper	n/a	German/English

Notes:

- 1) This module and the relevant partial module examinations can be stretched over two semesters or more.
- 2) All the types of examination indicated according to §41 are possible. Students will be given binding details, in particular the number, type, scope and method of grading these examinations, at the latest two weeks before the first day of classes in appropriate form.

Key to abbreviations:

Sem. = semester; SWS = *Semesterwochenstunden* (weekly hours per semester); V = *Vorlesung* (lecture); Ü = *Übung* (exercise); S = seminar.

The column for exam duration indicates the number of minutes required for a written exam.

Master's Thesis

No.	Module no.	Module name	Module type	Type of instruction SWS/V Ü P	Sem.	SWS	Credits	Type of examination	Duration of examination	Language of instruction
22	WI900261	Master's Thesis (Master in Management)	Compulsory		4		30			English

III. Curriculum

1. Curriculum

Semester	Course	Type of module	Credits
Semester 1			
	Financial Accounting (MiM)	Compulsory module	6
	Management Science (MiM)	Compulsory module	6
	Empirical Research in Economics and Management	Compulsory module	6
	Principles of Economics	Compulsory module	6
	Entrepreneurial, Strategic, and International Management	Compulsory module	6
Total credits in Semester 1:			30
Semester 2			
	Investment and Financial Management (MiM)	Compulsory module	6
	Introduction to Business Law (MiM)	Compulsory module	6
	Marketing & Innovation Management (MiM)	Compulsory module	6
	Production and Logistics (MiM)	Compulsory module	6
	Cost Accounting	Compulsory module	6
Total credits in Semester 2:			30
Semester 3			
	Elective modules from the elective in Management	Elective modules	30
Total credits in Semester 3:			30
Semester 4			
	Master's Thesis (Master in Management)	Compulsory module	30
Total credits in Semester 4:			30
Total credits for Master's program in Management			120

APPENDIX 2: Aptitude Assessment

Aptitude Assessment for the Master's degree program in Management at the Technical University of Munich

1. Purpose of the Assessment

¹Eligibility for the Master's degree program in Management, in addition to the requirements pursuant to § 36 (1) numbers 1 and 2, requires proof of aptitude pursuant to § 36 (1) no. 3 in accordance with the following provisions. ²The special qualifications and skills of the candidates should correspond to the profession of an engineer or natural scientist. ³Individual aptitude parameters are

- 1.1 specialized knowledge from (and success in) undergraduate studies in engineering or natural sciences in line with the engineering and natural science Bachelor programs at the Technical University of Munich,
- 1.2 knowledge of technical and management matters,
- 1.3 the ability to carry out research work and/or basic research and methodological work,
- 1.4 subject-specific language competence in English.

2. Aptitude Assessment Process

2.1 ¹The aptitude test will be held once a year by the School of Management. ² The Enrollment Statutes, in particular § 7, shall apply to the aptitude assessment process.

2.2 ¹Applications for admission to the aptitude test according to § 7, 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 (absolute deadline). ²The diploma and the degree certificate as proof of completion of the Bachelor's program must be filed with the Registrar's Office of the Technical University of Munich no later than five weeks after the beginning of lectures. ³If 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 worth at least 140 credits; the transcript of records must be issued by the relevant examination authority or study office,

2.3.2 a curricular analysis derived from the transcript of records; this must be completed within the online application procedure and uploaded in electronic form in TUMonline,

2.3.3 a curriculum vitae in tabular format,

2.3.4 an essay written in English with a minimum of 1,500 words and a maximum of 2,000 words. The essay must be uploaded to TUMonline as a pdf-file. The chairman of the committee may propose one or more topics. Applicants must be notified of this by 1st of April at the latest,

2.3.5 an assurance that the essay was written in compliance with the guidelines for safeguarding good scientific practice and for dealing with scientific misconduct at the Technical University of Munich, the thoughts taken from external sources are marked as such,

2.3.6 optionally, for applicants who are not required to provide proof of a GMAT score in accordance with § 36 (1), No. 3, proof of a GMAT score.

3. Aptitude Assessment Committee

3.1 ¹The aptitude test shall be carried out by the committee for the aptitude test and the selection committee.. ²The 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. ³The implementation of the procedure pursuant to No. 5 with the reservation of No. 3.2 sentence 11 shall be the responsibility of the committee.

3.2 ¹ The committee for the aptitude test consists of five members .The members of the committee are appointed by the Dean in consultation with the Vice-Dean of Academic Affairs from the members of the TUM School of Management who have authorization as examiners. ² At least three of the committee members must be university lecturers as defined by the BayHSchPG. ³The student council has the right to nominate a student representative to serve in an advisory capacity on the committee. ⁴For each member of the committee, a representative shall be appointed. ⁵The 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. ⁷The term of members is one year. ⁸ Extensions of the term of membership and reappointments are possible. ⁹The 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. ¹⁰The 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 ¹The selection committees each consist of two members from the group of members of the TUM School of Management who are authorized to administer examinations in the degree program in accordance with Art. 62 Para. 1 Sentence 1 BayHSchG in conjunction with the University Examination Regulations. ²At least one member must be a university lecturer as defined by the BayHSchPG. ³The activity as a member of the committee for the aptitude assessment procedure can be exercised alongside the activity as a member of the selection committee. ⁴The members shall be appointed by the committee for the aptitude assessment procedure for one year; No. 3.2 sentence 9 shall apply accordingly. ⁵Different selection committees may be appointed for each criterion and level.

4. Admission to the Aptitude Assessment Process

4.1 ¹The execution of the aptitude assessment process requires that the documents mentioned in No. 2.2 are submitted in correct form and on time, in compliance with the rules of good scientific practice. ²In order to determine whether the rules of good scientific practice have been observed, the essay will be checked using special plagiarism checking software.

4.2

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

5. The Aptitude Assessment Process

5.1 First stage of the aptitude assessment process

5.1.1 ¹The committee will assess, based on the written application documents required under no. 2.3, whether or not an applicant is suitable for a program pursuant to no. 1 (First stage of the aptitude assessment process). ²The committee shall assess the documents submitted on a scale of 0 to 75 points, 0 being the lowest result and 75 the best result to be achieved. ³There will be no negative points.

The following criteria will be applied to the evaluation:

a) **Academic qualification**

¹The 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. ²It is oriented toward the subject groups listed below, which are considered for a Bachelor's degree in either engineering or natural sciences.

Engineering subject groups

a) Subject groups from the Bachelor's in Mechanical Engineering:

Mathematics, engineering mechanics, mechanical drawing, materials science, thermodynamics.

b) Subject groups from the Bachelor's in Electrical Engineering and Information Technology:

Mathematics, computer science, digital technology, circuit technology, electricity and magnetism, physics, measurement system and sensor technology, signals, materials of electrical engineering, electromagnetic field theory, systems, electronic components, computer technology, electrical power engineering.

c) Subject groups from the Bachelor's in Civil Engineering:

Mathematics, engineering mechanics, hydromechanics, construction process management, structural analysis, finite elements, hydrology, hydraulic engineering, urban water management, surveying.

d) Subject groups from the Bachelor's in Architecture:

Design, construction, statics and strength of materials, history of construction, representation and design, structural design and materials, building climatics and building technology, digital form finding, urban design, urban planning, urban studies, visual design, architecture and design theory, art history.

e) Other engineering subject groups:

For all other engineering degrees not mentioned in a) - d) a comparable study program at Technical University of Munich will be considered.

Natural science subject groups

a) Subject groups from the Bachelor's in Informatics:

Introduction to Computer Science, Computer Engineering, Discrete Structures, Fundamentals of Programming, Algorithms and Data Structures, Databases, Operating Systems and Systems Software, Analysis, Computer Networks and Distributed Systems, Theoretical Computer Science, Discrete Probability Theory, Numerical Programming, Systems Development;

b) Subject groups from the Bachelor's in Mathematics:

Analysis, Linear Algebra, Discrete Mathematics, Numerics, Probability Theory, Mathematical Modeling, Programming Language;

c) Subject groups from the Bachelor's in Games Engineering:

Introduction to Computer Science for Games Engineering, Fundamentals of Programming, Introduction to Computer Science, Discrete Structures, Games Engine Design, Introduction to Software Engineering, Algorithms and Data Structures, Linear Algebra, Interaction Methods and Devices, Aspects of System-Oriented Programming in Game Development, Operating Systems and Hardware-Oriented Programming for Games, Analysis, Social Gaming, Computer Networks and Distributed Systems, Theoretical Computer Science, Numerical Programming, Physical Principles for Computer Games, Databases, Fundamentals of Artificial Intelligence;

d) Subject groups from the Bachelor's in Bioinformatics:

Introduction to Bioinformatics, Introduction to Programming, Introduction to Computer Science, Fundamentals of Programming, Analysis, Discrete Structures, Biology, Chemistry, Programming and Modeling, Algorithms and Data Structures, Discrete Structures, Linear Algebra, Analysis, Biochemistry, Molecular Biology and Biochemistry, Algorithmic Bioinformatics, Formal Languages and Complexity, Theoretical Computer Science, Stochastics, Discrete Probability Theory, Genome-Oriented Bioinformatics, Databases, Advanced Bioinformatics;

e) Subject groups from the Bachelor's in Biology:

Mathematics, Inorganic Chemistry, Biology of Organisms, Zoology, Cell Biology, Genetics, Organic Chemistry, Physical Chemistry, Computer Science, Statistics, Experimental Physics, Microbiology, Bioinformatics, Biochemistry, Ecology, Human and Animal Physiology, Botany, Plant Physiology, Bioanalytics, Evolution and Biodiversity, Developmental Biology, Genomics and Genetic Engineering;

f) Subject groups from the Bachelor's in Physics:

Experimental physics, linear algebra, calculus, theoretical physics (mechanics/electrodynamics/quantum mechanics), chemistry;

g) Subject groups from the Bachelor's in Chemistry:

Inorganic Experimental Chemistry, Basic Inorganic Chemical Practicum, Experimental Physics, Principles and Methods of Chemistry, Mathematical Methods of Chemistry, Biology, Analytical Chemistry, Structure of Organic Compounds, Chemical Thermodynamics and Kinetics, Chemistry of Nonmetals, Preparative Inorganic Chemical Practicum, Reactivity of Organic Compounds, Biochemistry, Physical Chemistry Practicum on Thermodynamics, Introduction to Quantum Mechanics, Structural Analytical Techniques, Chemistry of Metals and Inorganic Solids, Organic Chemistry Practicum, Molecular Structure and Statistical Thermodynamics, Trace Analytical Techniques, Toxicology;

h) Subject groups from the Bachelor's in Nutritional Science:

Inorganic experimental chemistry, Inorganic chemistry, Cell biology, Experimental physics, Physical practical, Mathematics, Biology: Genetics, Human Physiology, Computer Science, Organic Chemistry, Principles of Human Nutrition, Food Science, Biochemistry, Physiology, Morphology, Microbiology, Nutritional Physiology of Macro- and Micronutrients, Food Microbiology, Food Science, Immunology, Experimental Nutrition Research, Nutritional Medicine, Human Sensory Science, Biofunctionality of Food, Toxicology, Pharmacology and Clinical Studies, Regulation of Metabolism, Biostatistics;

i) Subject groups from the Bachelor's in Geosciences:

Mathematics, Experimental Physics, Chemistry, Biology, Data Processing in the Geosciences, General Mineralogy, Paleontology, Geological Maps and Profiles, Rocks, Applied Geophysics;

j) Subject groups from the Bachelor's in Biotechnology:

Inorganic Experimental Chemistry, Biochemistry, Software and Databases, Basic Biochemistry Lab, Basic Chemistry Lab, Introduction to Genetics, Mathematics, Physics, Plant Science, Computer Science, Microbiology, Organic Chemistry, Physiology and Functional Anatomy, Protein Biochemistry, Bioinformatics/Genomics/Proteomics, Biomineral Chemistry, Statistics, Physical Chemistry, Biochemical Analysis, Biotechnology, Immunology, Cellular Biochemistry, Bioprocess Engineering, Plant Molecular Biology, Molecular Bacterial Genetics, Molecular Plant Breeding, Molecular Genetics and Regulatory Physiology of Animals, Proteins: Structure, Function and Engineering, Metabolic Engineering and Natural Product Production, Pharmacology and Toxicology;

k) Subject groups from the Bachelor's in Sports Science:

Basic competencies in sports science (introduction to sports science work, basics of the theory of sports science, basics of mathematics and natural sciences), anatomical basics for sports and health science (functional anatomy of the human musculoskeletal system, anatomy of the internal organs), biological/physiological basics (biochemistry, physiology), anatomical basics for sports and health science, movement sciences (basics of movement science, basics of biomechanics), methodology (experimental design and descriptive statistics, Probability theory and inferential statistics, Experimental work), Biological/physiological competencies in sport (neuroanatomy/physiology, performance/work physiology, nutrition and fluid balance, doping prevention), Health science, Fundamentals of sports medicine, Introduction to traumatology, Training Science Competency, Psychological Competency (Fundamentals of Psychoregulation, Psychology of Motivation and Emotion), Sports Education/Didactic Competency, Applied Anatomy, Biomechanical Competency, Basic Sports Diagnostic Competency, Sports Science Methodological Competency, Sports Technology;

l) Subject groups from the Bachelor's in Medicine:

General medicine, anesthesiology, occupational medicine, social medicine, ophthalmology, surgery, dermatology, venereology, gynecology, obstetrics, otorhinolaryngology, human genetics, hygiene, microbiology, virology, internal medicine, pediatrics, clinical chemistry, laboratory diagnostics, neurology, orthopedics, pathology, pharmacology, toxicology, psychiatry and psychotherapy, psychosomatic medicine and psychotherapy, legal medicine, urology.

³Where it is determined that there are no significant differences with regard to the competencies (learning results) acquired, a maximum of 50 points will be awarded. ⁴If this value is a decimal, it will be rounded up to the next whole number. ⁵Missing competencies will be deducted in accordance with the credits of the corresponding modules of the equivalent Bachelor's program at the Technical University of Munich. ⁶ If a GMAT score is to be submitted in accordance with § 36 Para. 1 No. 3, it will be assumed, in the case of corresponding successful proof, that with regard to the competencies demonstrated in the first degree, there are no significant differences in terms of level compared to the reference degree programs mentioned in Section 5.1.1 No. a) Sentence 2 and that the curricular analysis is carried out in accordance with the above-mentioned criteria.

b) Final grade

¹ For each one-tenth of a grade that the overall grade average is better than 2.5, the applicant will be awarded one point. ² The maximum number of points is 15. ³ For foreign degrees, the grade converted using the Bavarian formula is used. ⁴ If a degree certificate with more than 140 credits is available at the time of application, the evaluation will be based on the best graded modules amounting to 140 credits. ⁵ It is the responsibility of the applicants to list these as part of the application and to confirm in writing that the information provided is correct. ⁶ If this is done, the average is calculated from the best graded module examinations amounting to 140 credits; if this information is missing, the overall average grade submitted by the applicant is used. ⁷ The overall grade point average is calculated as the weighted grade point average of the modules. ⁸ 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	2,1	2,2	2,3	2,4	≥2,5
Points	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

c) GMAT score

Proof of a current GMAT score of at least 650 is valued at 1 point. All other scores will be evaluated as follows:

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

5.1.2 The applicant's points in the first stage is calculated as the sum of the individual points.

²Decimal points that remain in the final figure will be rounded up.

5.1.3 Applicants who have achieved at least 62 points have passed the aptitude assessment test.

5.1.4 Applicants with a total score of fewer than 50 points have failed the aptitude assessment test.

5.2 Second stage of the aptitude assessment process

Assessment Essay

5.2.1 For the remaining applicants, the second stage is the evaluation of the essay. In the second stage of the aptitude procedure, the professional qualifications acquired in the bachelor program, the grade of the ranking or the final grade and the result of the essay are evaluated, whereby the qualification acquired in the bachelor program is to be given at least equal consideration. The essay will be assessed by two members of the commission on a scale of 0-40 points. The content of the essay will be evaluated according to the following criteria:

The applicant 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 and to cite sources correctly,
2. Classify the question in the context of economic-technical facts,
3. Express themselves in English.

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

1. scientific-logical reasoning skills with basic and applied method-oriented text structure, and to present the essay in a scientific manner and under correct indication of sources: maximum 20 points
2. Classification of the question in the context of economic-technical facts: maximum 10 points
3. English language proficiency: maximum 10 points

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

5.2.4 ¹The 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) Final grade. ²Applicants with 80 or more points will be deemed suitable. Applicants or candidates with an overall application score of less than 80 points have failed the aptitude test.

5.3 Determination and announcement of the result:

¹The result of the aptitude test as decided by the committee will be communicated in writing. ²Rejection notices shall state the reasons for the rejection and contain instructions on how to appeal.

5.4 Eligibility once determined shall apply to all subsequent applications for this degree program.

6. Documentation

The aptitude assessment process must be documented; in particular, the documentation must show the names of the involved committee members, the assessment outcome of the first and second stages, the overall result, as well as the essential reasons for the assessment of the essay; the essential reasons may be listed in key words.

7. Repetition

Applicants who fail the aptitude test for the Master's degree program in Management may register to repeat the Aptitude Assessment Test once.