

Appendix 2: Aptitude Assessment

Aptitude Assessment for the Master's Program in Transportation Systems at the Technical University of Munich

1. Purpose of the Aptitude Assessment

¹Apart from fulfilling the admission requirements for the Master's Program in Transportation Systems in § 36 (1) numbers 1 and 2, candidates have to proof their eligibility according to § 36 (1) number 3 according to the following regulations. ²The particular qualifications and capabilities of the applicants should correspond to the vocational field of Transportation Systems. Single aptitude parameters are:

- 1.1 Ability to work scientifically respectively principle-based and method-oriented;
- 1.2 Knowledge and skills in the field of mobility and transportation as well as in the field of engineering science, gained in the previous academic education;
- 1.3 Oral and written subject related language skills;
- 1.4 Scientifically oriented interest in engineering problems from the field of transportation systems.

2. Aptitude Assessment Procedure

- 2.1 The aptitude assessment procedure is held annually by the TUM Department of Civil, Geo and Environmental Engineering.
- 2.2 ¹Applications for admission to the aptitude assessment must be submitted to the Technical University of Munich no later than 31st May for the winter semester (absolute deadline), including the documents pursuant to No. 2.3.1 to 2.3.6 below and § 36 (1) No. 2 in the online application procedure. ²Certificate and diploma must be submitted within five weeks after the start of the lecture period.
- 2.3 The application must include:
 - 2.3.1 A transcript of records amounting to at least 180 (ECTS) credits; the transcript of records must be issued by the responsible examination authority or the responsible university office,
 - 2.3.2 A curriculum vitae formatted as a table,
 - 2.3.3 A statement of purpose written in the English language of up to 2 DIN A4 pages at maximum, outlining the motivation for choosing the Master's Program in Transportation Systems at the Technical University of Munich, in which the applicants demonstrate, based on their particular skills and interests, what specifically qualifies them for the Master's Program in Transportation Systems at the Technical University of Munich; hereby, they should explicate based on which specific talents and interests they think they are particularly eligible for the Master's Program in Transportation Systems at the Technical University of Munich; the exceptional motivation and commitment is to be justified by, e.g. statements about study program related vocational trainings, internships, periods abroad or by a subject-oriented training, achieved during the bachelor's program which was not compulsory for receiving the program degree; this is to be proven in the enclosure.
 - 2.3.4 A written confirmation of the applicant justifying that the statement of purpose for choosing the Master's program represents his/her own work and that no other sources than those listed were used.
 - 2.3.5 ¹In addition, the online application form is to be accompanied by a presentation portfolio of previous academic works and application-related academic records. ²Therefore, the applicants have to provide an English digital copy of their Bachelor's thesis or an abstract of it as a zip or pdf file. ³If the Bachelor's program is not yet completed and/or if a copy of the thesis cannot be provided, applicants have to submit a meaningful sample of their previous academic works.

3. Aptitude Assessment Commission

- 1.1 ¹The aptitude assessment is administered by a commission that, as a general rule, consists of the dean of studies in charge of the Master's Program in Transportation Systems, at least two university professors and at least one research assistant. ²At least half of the commission members must be university professors. ³A student representative shall contribute to the commission in an advisory capacity.
- 1.2 ¹The members are appointed by the department council in consultation with the dean of studies. ²At least one university professor is appointed as deputy member of the commission. ³As a rule, the commission will be chaired by the dean of studies. ⁴Procedural regulations will be in accordance with article 41 of the BayHSchG as lastly amended.
- 1.3 ¹If the commission acts in accordance with these statutes, the revocable allocation of certain tasks to individual commission members is permitted. ²If, according to sentence 1, only one commission member is active in the performance of certain tasks, he or she must be a university professor. ³If two or more committee members are active in the performance of certain tasks according to sentence 1, at least half of them must be university professors. ⁴The commission ensures an appropriate distribution of business. ⁵If there is a margin with an evaluation criterion of the aptitude test and if at least two commission members are involved in the evaluation of this criterion, the commission members evaluate independently according to the specified weighting, unless otherwise regulated. ⁶The number of points results from the arithmetic mean of the individual assessments, rounded up to whole points

4. Admission to the Aptitude Assessment Procedure

- 4.1 Admission to the aptitude assessment requires that all documents stated in No. 2.3 have been submitted fully completed and in due time.
- 4.2 ¹Applicants who have fulfilled the requirements pursuant to No. 4.1 will take part in the aptitude assessment according to No. 5. ²Otherwise, a notification letter will be issued specifying the reasons for rejection and providing information on legal remedies.

5. Procedure of the Aptitude Assessment

5.1 First level of the Aptitude Assessment Process

- 5.1.1 ¹On the basis of the required written application documents pursuant to No. 2.3, the commission evaluates the applicants' qualification for the program, according to No. 1 (first level of the aptitude assessment process). ²The commission has to evaluate the submitted documents on a scale from 0 to 100 points, where 0 is the worst and 100 is the best obtainable result:

The following evaluation criteria are to be considered:

a) Subject-related Qualifications

¹The curricular analysis is not performed by schematic comparison of the modules, but based on competencies. ²It is aligned to the subject areas pursuant to § 36, to the chosen specializations and examination subjects as well as to the scientific works or projects produced during the previous academic education (see No. 2.3.5 portfolio). ³The applicant receives 60 points at maximum; competencies can be proved in the following areas:

1. Subject-related basics in engineering science: In this field there can be achieved 40 points at maximum.

Subject group „Subject-related basics in “engineering science”	Points at max.	ECTS	Points at max.
1. Algorithmic, Informatics, Programming, Computer-aided Simulation	10	10	40
2. Drive Engineering, Automation Engineering, Energy Technology, Automotive Engineering	10	10	
3. Communication Technology, Communications Engineering, Control	10	10	

Technology/ Cybernetics, Circuit Technology, Sensor Technology		
4. Geographic Information Systems, Surveying	10	10
5. Hydromechanics, Engineering Mechanics, Bridge Construction	10	10
6. Descriptive Geometry, Higher Mathematics, Statistics	10	10

2. Subject-related basics, special skills in the field of "Mobility and Transportation": In this field there can be achieved 40 points at maximum.

Subject group „Mobility and Transportation“	Points at max.	ECTS	Points at max.
1. Urban Development/ Urban Planning	12	6	40
2. Transportation Planning	12	6	
3. Traffic Engineering and Control	12	6	
4. Transportation Infrastructure	12	6	

For the subject-related qualifications, there can be achieved 60 points at maximum.

b) Final Grade

¹For every tenth grade better than 2.0, the applicant receives one point. ²The maximum amount of points is 10. ³There are no negative points distributed. ⁴For foreign degrees, the final grade will be converted by using the Bavarian formula.

c) Motivation Letter

¹The written motivation letter will be evaluated by two commission members on a scale from 0 to 30 points. ²The content of the motivation letter will be evaluated according to the following criteria:

1. Ability to present the relation between personal interests and the contents of the Master's Program in Transportation Systems in a well-structured way (15 points at maximum);
2. Ability to justify the exceptional motivation and commitment for the Master's Program in Transportation Systems in a convincing way by means of arguments and meaningful examples (see 2.3.3) (10 points at maximum);
3. Ability to linguistically highlight essential aspects of the motivation in an appropriate way (5 points at maximum).

5.1.2 ¹The applicant's number of points in Level 1 is determined by the sum of the individual scores. ²Remaining decimal places are to be rounded up.

5.1.3 Applicants who achieved at least 70 points, have passed the aptitude assessment.

5.1.4 Applicants with an overall score less than 60 points, have not passed the aptitude assessment.

5.2 Second level of the Aptitude Assessment Process

5.2.1 ¹The remaining applicants are invited to an aptitude interview. ²Within the second level of the aptitude assessment the qualification obtained during the previous education as well as the result of the aptitude interview are evaluated, where the qualification obtained in the first degree must be considered at least equally. ³The date of the interview is to be announced at least one week in advance. ⁴Time windows for potential aptitude interviews to be held must be set before the application deadline. ⁵The applicant has to keep the fixed date for the interview. ⁶If the application is well-founded and approved by the commission, an aptitude interview via video conference is possible. ⁷The applicant bears the risk in the event of any technical problems, unless the Technical University of Munich is responsible for them. ⁸If the applicant is unable to take part in the aptitude test for reasons beyond his/her control, a makeup date can be arranged for at the latest two weeks before the start of the lecture period, given that a reasonable application is submitted.

5.2.2 ¹The aptitude interview is held individually for each applicant. ²The interview lasts at least 20 minutes and 30 minutes at maximum. ³Contents of the interview are the following main topics:

1. The exceptional motivation and commitment for the Master of Science Program in Transportation Systems pursuant to the criteria mentioned in no. 2.3.3 for the evaluation of the motivation letter (20 points),
2. Basic and implementation-related questions from the field of transportation engineering for evaluation of the technical qualifications (20 points),
3. Explanations about the topic of the final thesis of the Bachelor's program (20 points).
4. Reflecting own talents and skills and connecting them with the objectives of the Master's program – with regards to the offered fields of study (specialization) within the Master's program (20 points),

⁴Subjects of the interview can also be the submitted documents pursuant to 2.3. ⁵Technical knowledge which is part of the Master's Program in Transportation Systems will not be counted. ⁶With the consent of the applicant a student representative can be admitted as a listener.

5.2.3 ¹The aptitude interview is carried out by at least two commission members. ²The commission members independently assess each of the 4 key areas. ³Every member records the result of the aptitude interview on a scale from 0 to 80, where 0 is the worst and 80 the best obtainable result. ⁴The number of points is determined by the arithmetic mean of the individual scores. ⁵The remaining decimal places are to be rounded up.

5.2.4 ¹The result of the second level is determined by the sum of the number of points in No. 5.2.3 and the sum of the number of points in No. 5.1.1a (subject-related qualifications) and no. 5.1.1b (final grade). ²Applicants who obtained 115 or more points will be classified as eligible. ³Applicants with an overall score of less than 115 points have not passed the aptitude test.

5.3 Announcement of the result

¹ The result of the aptitude assessment will be announced in a notification letter. ²If there is no scope for assessment when assessing the individual criteria or when determining the overall results of the first and second level, the commission does not need to pass a resolution. ³Rejection letters must be justified and provided with information on legal remedies.

5.4 The ascertained eligibility applies to all subsequent applications for this degree program.

6. Documentation

¹The course of the aptitude assessment must be documented; in particular, the names of the commission members involved, the assessment of the first and second level and the overall result must be evident. ²A record is to be made of the interview, in which the day, duration and place of the assessment, the names of the commission members involved, the names of the applicants and key topics of the interview are presented.

7. Repetition

Applicants who have not passed the aptitude assessment procedure, can register once again for the aptitude assessment.

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Issued on the basis of the resolution of the Academic Senate of the Technical University of Munich on 15th July 2020 and the approval of the President of the Technical University of Munich on 17th August 2020.

Munich, 17th August 2020
Technical University of Munich

Thomas F. Hofmann
President

These statutes were laid forth at the university on 17th August 2020; the statutes were announced on 17th August 2020 by a notice in the university. The date of the announcement is therefore 17th August 2020.