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Technische Universität Dresden
"Friedrich List" Faculty of Transport and Traffic Sciences

Study Regulations for the consecutive Master's degree program Transportation Economics

as of

On the basis of § 36 para.1 of the Act on the Autonomy of Institutions of Higher Education in the Free State of Saxony in the version published on January 15, 2013 (SächsGVBl. p. 3), Technische Universität Dresden issues the following Study Regulations as statutes.

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§ 1

Scope of application

On the basis of the Act on the Autonomy of Institutions of Higher Education in the Free State of Saxony (*Sächsisches Hochschulfreiheitsgesetz*) and the examination regulations, these study regulations stipulate the objectives, content, structure and organization of the postgraduate Master's program Transportation Economics at Technische Universität Dresden.

§ 2

Objectives of the degree program

(1) The degree program enables students to recognize and formulate questions and tasks in the field of transportation economics, to analyze them scientifically, and to independently develop possible solutions. Due to the interdisciplinary design of the program, students are able to recognize and present interdisciplinary interdependencies and integrate these into their own suggestions for solutions. As a result, students are enabled to conduct a systematic and theoretically sound analysis of socio-politically relevant issues, even beyond the field of transportation, allowing them to act responsibly for society as a whole and to engage in activities that benefit society. Moreover, the international and English-language character of the program qualifies students for intercultural cooperation and contributes to the development of their personality.

(2) Due to their broad knowledge of transportation and economics, their knowledge of scientific methods and their competence in abstraction and transfer, graduates are - after an initial training period in professional practice - particularly qualified to handle diverse and complex tasks as part of managerial activities related to mobility, transportation, logistics and data analysis in companies, national and international organizations, public administrations, associations, politics and policy consulting as well as research and teaching institutions. They can respond quickly to changing requirements of the professional world, in particular due to their strong methodological skills. Moreover, the degree program provides the basis for further academic qualification, such as a dissertation in the field of economics.

§ 3

Admission requirements

To be admitted to the degree program, candidates must have a first university degree that is recognized in Germany and qualifying for a profession (*berufsqualifizierender Hochschulabschluss*), or a degree from a state or state-recognized university of cooperative education (*Berufsakademie*) in the field of transportation, economics, or from the STEM subjects (science, technology, engineering, and mathematics) or a degree in another degree program with a strong quantitative orientation in terms of content. In addition, specialist knowledge in the fields of economics, business administration, and quantitative methods (mathematics, statistics, econometrics, operations research, programming, data analytics) is required. Furthermore, knowledge of English at B2 level of the Common European Framework of Reference for Language is a prerequisite. The proof of this specialist knowledge according to sentence 2, as well as the English language proficiency, is assessed according to the aptitude assessment regulations for the Master's degree program Transportation Economics.

§ 4

Start and duration of the degree program

(1) The program can be started each winter semester.

(2) The standard period of study is four semesters and includes on-site attendance, independent study, the Master's examination and a period of professional practice, if applicable.

§ 5

Teaching and learning methods

(1) The syllabus is structured in modules. In the individual modules, the course content is taught, consolidated and deepened through lectures, practicals, tutorials, seminars, language courses, projects, laboratory training, as well as through professional practice and independent study. In modules that are subject to more than one study regulation, synonyms are permitted for teaching and learning methods with the same content.

(2) The individual teaching and learning forms according to para. 1 sentence 2 are defined as follows:

1. Lectures introduce the subject areas of the modules of the individual subject topics on a conceptual level, address the central themes and structures of the subject area in a coherent presentation, and provide an overview of the current state of research.
2. Practical exercises serve to acquire the necessary methodological and technical skills. They allow the application of the subject matter in exemplary sub-areas.
3. Tutorials are courses designed to provide support for students. In tutorials, students reflect on issues, approaches to solutions, and results of their independent study with a student tutor and are given the opportunity for individual feedback. Moreover, students are taught technical, methodological and content knowledge in small groups. They serve to supplement, continue and deepen the knowledge already acquired through other types of courses, and also to acquire technical know-how for the first time.
4. Seminars enable students to familiarize themselves under supervision in a selected subject area or area of interest on the basis of specialist literature or other material, to report on the results of their work, to discuss them within the group and / or to present them in writing. In addition to the subject matter, students have the opportunity to acquire key competencies. Seminars serve to apply the subject matter in a structured manner and to acquire methodological, analytical, communicative and social skills.
5. Language courses serve to convey and train knowledge, skills and abilities in a foreign language. They foster the development of communication and intercultural competences in academic and professional contexts, as well as in everyday situations.
6. Projects support the combination of theory and practice and explore particular topics at a specific object of observation, thereby including interdisciplinary as well as subject-specific issues of the professional field. Projects allow students to apply and deepen their methodological and social skills in particular.
7. Laboratory training serves the application of the theoretical subject matter taught, the acquisition of further practical skills. It supports the combination of theory and practice, and explores specialist topics while considering interdisciplinary research questions.
8. Professional practice serves to apply the subject matter taught and to acquire practical skills in potential areas of employment.
9. Through independent study, the course content is acquired, repeated and deepened individually. Moreover, basic subject knowledge is acquired independently in individual work or in small groups using various media (literature, eLearning, etc.).

§ 6

Structure and organization of the degree program

(1) The program is organized in modules. The curriculum is divided into three semesters. The third semester is particularly suitable for a temporary stay at another university (mobility window). The fourth semester is dedicated to the preparation of the Master's thesis including the colloquium. Part-time study is possible in accordance with the regulations on part-time study.

(2) The degree program comprises five compulsory modules and elective compulsory modules with a total of 65 credits, which allows the student to choose their focus. The elective compulsory area includes the module groups specializations, research tasks as well as supplements. In the specializations module group, the specializations Computational Logistics, Transport Policy, Spatial and Environmental Economics, Statistics and Data Analytics in Transportation are available, of which two must be chosen. In the research tasks module group, there are five elective compulsory modules to choose from, one of which must be selected depending on the chosen specializations. From the supplement module group, modules amounting to 30 credits must be selected. Of these, a maximum of 10 credits can be earned from the area of foreign language specialized communication and a maximum of 5 credits from the area of additional general qualification.

(3) The selection of the specializations as well as of the modules in the research tasks and supplement module groups is made by registration. The form and deadline for registering will be announced to students as is customary at the faculty. The selection is binding. A specialization can be re-selected once; the student must submit a written request to the Examination Office stating the specialization to be replaced and the newly selected specialization. The module of the research task module group can be re-selected only once in justified exceptional cases by submitting a written application to the Examinations Office, stating the module to be replaced and the newly selected module. The modules of the supplement module group can be re-selected; the student must submit a written application to the Examination Office stating the module to be replaced and the newly selected module. An elective compulsory module cannot be selected if the module examination of this module or of a module with essentially the same content was already included in the final examination of a Bachelor's degree program through which the admission requirement for the Master's degree program Transportation Economics was acquired; registration will not be confirmed in such cases.

(4) The Master's thesis must usually be written in the selected specialization in which the module of the research task module group was taken.

(5) Qualification objectives, contents, comprehensive teaching and learning methods, requirements, usability including applicable combination restrictions, frequency, workload, and duration of the individual modules are listed in the module descriptions (Annex 1).

(6) The courses are held in English or, if indicated by the module descriptions, in German.

(7) The appropriate allocation of the modules to the individual semester, the observance of which makes it possible to complete the program within the standard period of study, as well as the type and scope of the respective courses included, and the number and standard time of the required study achievements and examined assessments are defined in the study schedule attached (Annex 2), or in an individual study schedule for part-time studies approved by the faculty.

(8) Upon proposal of the Academic Affairs Committee, the Faculty Board may change the range

of elective compulsory modules as well as the study schedule. The current selection of elective compulsory modules available shall be announced at the beginning of the semester as is customary at the faculty. An amended study schedule shall apply to all students who have been informed about this as is customary at the faculty at the beginning of their studies. The Examination Board shall decide, upon application by the student, on any exceptions to sentence 3.

(9) If participation in an elective course of a compulsory or elective compulsory module or in a non-elective course of an elective compulsory module is limited by the number of available places as specified in the module description, the selection of participants shall be based on the chronological order of registration. To this end, students must register for the appropriate course. The form and deadline for registering will be announced to students as is customary at the faculty in due course.

§ 7

Content of the degree program

(1) Transportation Economics is a research-oriented Master's degree program.

(2) The program includes fundamental methods and their application to transportation economic issues, in particular numerical optimization approaches of operations research and logistics including the fundamentals of machine learning, methods of multivariate statistics such as cluster, variance and discriminant analysis, methods for the analysis of unstructured data, such as missing data analysis, classification methods, neural networks and deep learning, econometric methods including spatial econometrics and discrete choice models, microeconomic approaches, programming and application in algebraic optimization software, and spatial computable general equilibrium models. Furthermore, the degree program covers the preparation of literature reviews as well as the use, preparation and analysis of data. Specialist content is generated through the application of the methods to transport economic issues with regard to the design, planning and solution of decision problems of transport networks, the optimal provision of transport services in freight and passenger transport, planning of timetables and staffing, as well as shared mobility. Moreover, approaches of cost-benefit analysis and solutions for traffic and environmental problems such as congestion, land consumption, emissions or noise are part of the degree program. In addition, the following issues are part of the program, which arise from the interdependencies of transportation i.e. land use, agglomeration effects, location decisions, and spatially disaggregated markets. In the supplementary area, additional modules from the fields of transportation economics, transportation engineering, business administration, economics, business informatics, foreign language specialized communication, additional general qualification and/or professional practice can be selected.

(3) The Master's degree program in Transportation Economics offers five specializations:

1. Computational Logistics: The content includes analytical methods for problem-solving and decision-making support in transport and logistics companies as well as for the management of transport systems and services.
2. Transport Policy: The content includes economic and econometric methods for the analysis of a variety of transportation economics and transport policy issues as well as the development and evaluation of adequate transport policy measures.
3. Spatial and Environmental Economics: The content includes economic and econometric methods for analyzing the spatial, economic and environmental impact of mobility in cities and regions as well as the evaluation and development of relevant policy interventions.
4. Statistics: The content includes methods of multivariate statistics. This comprises a presentation

of the theoretical principles as well as the application of the methods to data from transportation and economy.

5. Data Analytics in Transportation: The content includes methods of data analysis and their application, which are relevant e.g. for the creation and evaluation of surveys and experiments as well as the processing of structured and unstructured traffic-related data in the transport sector.

§ 8

Credit points

(1) ECTS credits document the average workload of the students and their individual study progress. One credit point corresponds to 30 hours of workload. Normally, 60 credit points are awarded per academic year, i.e. 30 credit points per semester. The total workload for the program corresponds to 120 credits and comprises the teaching and learning methods according to type and scope stipulated in the module descriptions, the study and examination achievements, the Master's thesis, and the colloquium.

(2) The module descriptions indicate the number of credits that can be earned by each module. Credits are awarded upon passing the module examination. § 28 of the examination regulations shall remain unaffected.

§ 9

Academic advisory and counseling service

(1) General advice will be provided by the Central Student Information and Counseling Service at TU Dresden. It covers questions regarding study options, enrollment modalities and general student affairs. Subject-specific advice during studies will be provided by the "Friedrich List" Faculty of Transport and Traffic Sciences. This subject-specific advisory service is assisting students especially with regard to the design of their studies.

(2) At the beginning of the third semester, each student who has not yet provided proof of academic performance shall make use of the subject-specific advisory services.

§ 10

Amendments to module descriptions

(1) In order to amend to changed conditions, the module descriptions may be changed in a simplified procedure in order to optimize study organization, with the exemption of the fields 'module name', 'qualification objectives', 'contents', 'teaching and learning methods', 'requirements for earning credit points', and 'credit points and grades' as well as 'duration of the module'.

(2) In a simplified procedure, the Faculty Board will adopt the amendments to the module descriptions upon proposal of the Academic Affairs Committee. The amendments shall be published as is customary at the faculty.

§ 11

Entry into force and publication

(1) These Study Regulations shall enter into force on the day following their publication in the Official Announcements of TU Dresden.

(2) They apply to all students enrolled in the Master's program in Transportation Economics in the 2021/2022 winter semester or later.

Issued based on the resolution of the Faculty Board of the "Friedrich List" Faculty of Transport and Traffic Sciences as of February 15, 2021, and the approval of the University Executive Board as of April 6, 2021.

Dresden,

The Rector
of Technische Universität Dresden

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