

Module description: Transportation Systems - Basics

Module Code	t.BA.MO.VSG.24HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	IDP
Module Coordinator	Stephan Bütikofer
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.
Module Characteristic	Type 2a 4 consecutive lecture lessons per semester week and class
Module Description	The passenger and freight transport market: Determination of demand in the context of settlements and traffic. Transport systems: Modes, characteristics, market shares, costs and cooperation. Public and private transport planning procedures: Principles, concepts and dimensioning of infrastructure

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<p>Module Content</p>	<p>Public and Private Transport Service Planning</p> <p>(1) Transport Market (Passenger and Freight Traffic)</p> <ul style="list-style-type: none"> - Trip End Values (potentials of origins and destinations, mobility requirements) - Trip Interchange Values (mode of transport trip purpose, transport route, volume and time, distances of domestic and transit transport) <p>(2) Transport systems (passenger- and freight traffic); technical characteristics and impacts of transport modes and carriers</p> <ul style="list-style-type: none"> -Performances, capacities Mode shares of transport modes and carriers -Environment including interaction of settlements and traffic -Macro-economic relevance -Efficiency and funding <p>(3) Principles of Traffic Planning</p> <ul style="list-style-type: none"> -Planning levels and phases -Evaluation of mobility requirements (O/D relations, desire lines, adaption to transport networks (segments/nodes, domestic / transit traffic) -Decision-making factors of potential user groups with respect to transport modes -Interactions and contexts Service supply - Production - Infrastructure - Transport -Objectives of transport politics and acceptance of transport projects -Impacts on third parties and environment <p>(4) Planning Procedures for Public Transportation</p> <ul style="list-style-type: none"> -Market-/structure analysis of space/network, utilisation, service supply and production according to the network hierarchy for long distance, regional, urban and local traffic including transport chains from door to door or from suppliers to purchasers - Planning steps: from demand desire lines to service concepts - Specific use of different transport modes for major, medium and local distributors - Service principles with respect to capacity, connectivity, effectiveness (radials, diameters, cross-country or cross-city) - Formulation of goals for accessibility, spatial and temporal availability, travel time, safety, comfort, convenience including interchanging, effectiveness (patronage) - Service concepts using network graphics - Economic impact and measurement - Evaluation of service options from perspective of users, transport carriers, politics and concerned population. <p>(5) Planning Procedures for Private Transportation</p> <ul style="list-style-type: none"> - Network hierarchies according to its function and road types - Network configuration including interactions subject to settlement developments and requirements from domestic/transit traffic - Principles of traffic sequences and dimensioning of sections and nodes - Traffic concepts including traffic regimes and management - Design concepts for road space, sections(nodes, circulation/lanes, public transport, public space, interchanges Principles of road project planning (alignment including cross-sections, gradients, visibility, nodes/roundabouts) - Road infrastructure costs (investments, maintenance) - Feasibility studies taking into account transport demand, political and technical feasibility, environmental-friendly, realisability) - Principles of Slow Traffic (Performance and infrastructure requirements and request for space) <p>(6) Realisation of Rail Infrastructure Projects</p> <ul style="list-style-type: none"> - Planning principles: Development of rail networks being based on technical characteristics and operational functionalities - Core elements: topology of sections, junctions and stations - Development processes, simulations of different options including assessments <p>(7) Concepts for Freight Transportation</p> <ul style="list-style-type: none"> - Market reviews (good types, , requests for different transport modes, transfers, transport times and distances) - Significance of freight transport as part of the entire logistic chain - Different kinds of freight transport according to purposes (domestic or transit on road or rail
<p>Prerequisite Knowledge</p>	<p>none</p>

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Learning Objectives (Competences)	Students...		Competencies	Taxonomies		
	The students perform a typical planning procedure in form of a group assignment.		SE	K3		
	The students are able to develop a common planning procedure and to carry this out in a group assignment		F	K3		
	The students are able to evaluate accurately current mobility issues		F	K2		
	The students know the relevant characteristics and interdependencies of dedicated planning steps of public and private transport systems, its specific ranges of application and potential service		F	K2		
Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form	
	written exam	Grade	90	80	acc. to module agreement	
	Performance assessment during the semester		Assessment	Length (min.)	Weighting	Form
	report		Grade		20	acc. to module agreement
	Classroom Attendance Requirement		None			
Learning material	<ul style="list-style-type: none"> Slides will be handed out in the lecture 					
Comments						