

Geotechnical Engineering in Transportation and Pavement Design

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LV 101-0367-00 G

ECTS: 3
Time: Fr. 09:45-11:30
Place: HCP E 47.3

Outline

Date	Type	Topic	Category	Information
20/09/2024	Lecture 1	Introduction: administration of the course, Terms and designation	Geotechnical Fundamentals in Transportation	
27/09/2024	Lecture 2	Geotechnical fundamentals: classification, artificial compaction, bearing capacity (CBR, Plate, LFW)D)	Geotechnical Fundamentals in Transportation	Assignment 1
04/10/2024	Lecture 3	Frost: frost action on soil, simple geotechnical design model	Geotechnical Fundamentals in Transportation	
11/10/2024	Lecture 3	Frost: governing equations, models	Geotechnical Fundamentals in Transportation	Assignment 2 Jupyter NB
	Lecture 4	Stabilisation: binders and soil		
18/10/2024	Lecture 4	Stabilisation: binders and soil	Geotechnical Fundamentals in Transportation	09:45 HCP E47.3
	Lab visit	Lab & field test devices, soil stabilisation		10:45 HIF C25
25/10/2024	Lecture 5	Subgrade & Pavements: materials and construction methods, recycling, unbound pavements	Technology and Materials	
01/11/2024	Lecture 6	Bituminous pavements: types of bitumen & asphalt mixtures, design rules and construction methods	Technology and Materials	
08/11/2024	Lecture 7	Concrete pavements: types of concrete pavements, joints and design rules	Technology and Materials	
15/11/2024	Lecture 8	Empiric pavement design: EPD on the example of Swiss standards	Pavement Design	Assignment 3
22/11/2024	Lecture 9	Basic structural models: basic structural models for pavements, effects of temperature action	Mechanical Models	Assignment 4 Jupyter NB
29/11/2024	Exercise 1	Rigid Pavements: structural behaviour of rigid pavements, numerical analysis (ABAQUS)	Mechanical Models	Assignment 5 ABAQUS 09:45 HIL G15.4
06/12/2024	Lecture 10	Rheology of asphalt: viscoelasticity and effects of temperature	Mechanical Models	Assignment 6 Jupyter NB
13/12/2024	Exercise 2	Flexible Pavements: structural behaviour of flexible pavements, numerical analysis (ABAQUS)	Mechanical Models	Assignment 7 ABAQUS 09:45 HIL G15.4
20/12/2024	Lecture 11	Mechanistic-empiric pavement design: Introduction into MEPD	Pavement Design	Assignment 8 Jupyter NB
	Lecture 12	Guest Lecture: Track geotechnics	Technology and Materials	