Module number	**Module name**	**Module coordinator**
3027856	Machine Learning for Civil Engineering	Prof. Dr.-Ing. Jörg Blankenbach blankenbach@gia.rwth-aachen.de
		Other lecturers: Dr.-Ing. Dirk Kemper kemper@isac.rwth-aachen.de
Learning goals	Students learn underlying concepts and ideas of machine learning. They learn different learning algorithms, understand their advantages and disadvantages and gain an intuition which algorithms can be used for which problems. Students are able to apply the learned algorithms in a suitable programming language (Python), to analyze new large data sets.	
Content	Introduction to programming, Classification and regression of traffic data with Supervised Learning, Clustering with Unsupervised Learning, Basics of Neural Networks, Application of larger neural networks, Graded group project.	
Teaching and learning methods	2 SWS lectures, 2 SWS exercise per week, and self-study.	
Prerequisites	None	
(recommended) Requirements	First programming experiences, preferably Python. Basic knowledge of statistics.	
Language	English	
Applicability	Elective module in the Master's program Transport Engineering and Mobility.	
Requirements for earning credit points	Graded project work (group work) and graded oral or written examination. The module grade is weighted according to the credit point distribution. There is no prerequisite for participation in the project work and the oral or written examination.	
Credit points and grades	5 ECTS Credits (3 ECTS for project work + 2 ECTS for Oral or Written Exam)	
Module frequency	The module is offered every academic year in summer semester.	
Workload	The total workload is 150 hours.	
Module duration	The module lasts one semester.	