Module number	Module name	Module coordinator
21.00095	Advanced Fundamentals of Building Information Modelling	Univ.-Prof. Dr. Jakob Beetz beetz@dc.rwth-aachen.de
Learning goals	This subject aims to provide students with an understanding of process modeling for collaboration, data modeling with UML and STEP EXPRESS, and object-oriented design. Topics include data serialization and interoperability with formats like CSV, JSON, XML, STEP, and RDF, as well as AECO interoperability standards such as IFC, IDM, buildingSMART Data Dictionary, and BCF. The course also introduces hands-on BIM scripting with Python, applying these concepts using Python modules, the ifcopenshell library, Pandas, and RDFLib.	
Content	Introduce students to underlying technical concepts of Building Information Modelling. It addresses students who want to conduct their own research-oriented design and development including software-prototypes such as scripts, plugins and services in research projects.	
Teaching and learning methods	2 SWS Lecture, bi-weekly hands-on exercises using a variety of tools. and self-study.	
Prerequisites	None	
(recommended) Requirements	-	
Language	English	
Applicability	Elective module.	
Requirements for earning credit points	-	
Credit points and grades	3 ECTS Credits	
Module frequency	The module is offered every academic year in winter semester.	
Workload	-	
Module duration	The module lasts one semester.	