



Course Description

Through a blended theoretical and practical work, students will become familiar with the concepts of condition monitoring and assessment of assets, exploring methodologies for the collection and processing of condition data in different contexts. They will link condition assessment data to BIM and GIS data, exploring the representation, modelling and manipulation of information describing the assets and the built environment. The integrated and interoperable data (from the three different disciplines – AM/FM, BIM and GIS) are managed within a relational database to develop examples of typical use in the construction sector.

At the end of the course participants will:

- Have a basic knowledge of GIS science and of 3D city modelling (CityGML);
- Be able to create GIS 3D model with semantic information;
- Have basic knowledge of BIM, openBIM (IFC) and of geoBIM as the integration of BIM and GIS;
- Be able to transfer BIM data to GIS and to use georeferenced BIM models;
- Have a basic knowledge of Condition Assessment for built assets;
- Be able to use BIM or GIS model to store and retrieve information on Condition Assessment of buildings, infrastructures and urban areas;
- Have a basic knowledge of decision-making techniques in AM;
- Be able to compute Key Performance Indicators to prioritize asset maintenance according to the result of a condition assessment using either BIM or GIS data.



**POLITECNICO
MILANO 1863**

DIPARTIMENTO DI ARCHITETTURA,
INGEGNERIA DELLE COSTRUZIONI
E AMBIENTE COSTRUITO



Program

Italian time	Monday	Tuesday	Wednesday	Thursday	Friday
09:00 - 09:30	Welcome and introduction NM	Asset and Facility Management processes NM	Condition Assessment GIS/outdoor building areas, built environment, infrastructures NM	GIScience and 3D city models HF	Keynote
09:30 - 10:00	Geo, Coordinate Reference Systems CE	Building Condition Assessment for AM NM	Outdoor Condition Assessment/QGIS demo CE	CityGML (ADE), Data collection and processing HF	
10:00 - 10:30	BIM theory and practice CE	Condition Assessment BIM: building CA on rooms (and contained objects), building envelope FRC	Condition Assessment in BIM NM	Theory - 3D modelling including indoor modelling HF	workshop - hacking
10:30 - 11:00	break				
11:00 - 11:30	GeoBIM CE	DT approach for AM applications in the built environment NM	Decision making using multi-scale, cross-domain data (the Maintenance Priority Index - MPI example) NM		Workshop - hacking/presentation
11:30 - 12:00	BIM data to GIS conversion and management (FME) MP	Data for DT for AM - CE	Maintenance Priority Index calculation NM	Interactive 3D-modelling with semantic information HF	Workshop
12:00 - 12:30	Conclusions and remarks (students' questions, further readings, further insights)	Conclusions and remarks (students' questions, further readings, further insights)	Conclusions and remarks (students' questions, further readings, further insights)	Conclusions and remarks (students' questions, further readings, further insights)	Workshop
12:30-13:30	break		Lunch		
13:30-16:30	BIM to GIS conversion - MP	Document Review - Data for AM Digital Twins - NM/CE	Condition Assessment - Data Capture on Site/staff research meeting	Creating 3D Data - HF	Presentation by the students' groups
			Students go to Milano	Dinner in Como	
		Tutorials			
		Theory			
		Workshop			



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GeoBIM for Asset and Facility Management

Lake Como School of Advanced Studies - 4-8 September 2023

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Contact

For enquiries about the **venue** of the school, please contact:

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