




Co-funded by the
Erasmus+ Programme
of the European Union



POLITECNICO
MILANO 1863



GEO4D project - WP 4.2

Two-week intensive training course on Engineering Applications of Geomatics

2nd – 13th September 2019
Lecco Campus - Politecnico Milano

Title: Engineering Applications of Geomatics

Main topics:

- Techniques for point-based and areal-based deformation for engineering and geoscience applications (W1)
- Validation techniques for Land Cover Classification (W1)
- Techniques and methods for 3D surveying and modelling of the built environment (W2)
- Introduction to Building Information Modelling and integration with GIS (W2)
- New instrument technology (W1/W2)

Responsible for Training: Prof. Marco Scaioni – marco.scaioni@polimi.it

Complementary activities:

- Two half-day technical visits
- Welcome party and Social dinner

Certificate of attendance: to be released at the end of the training

[Link to the Training agenda](#)



Morning (10:00-12:30)

Lecco Campus, classroom B02

Welcome and registration

Evening (19:00-21:30)

[Lecco, Piazza 20 Settembre](#)

**Welcome dinner at 'L'Ek'
typical restaurant**



Afternoon (13:30-15:30 & 16:00-18:00)

Lecco Campus, classroom B02

Introduction (M. Scaioni)

Lecture 1 (M. Scaioni):

**Deformation monitoring:
introduction, overview on traditional
and modern techniques**



Morning (8:30-13:30)

Caslino d'Erba field lab

Lab 1: (M. Scaioni & L. Barazzetti):

Data acquisition for deformation monitoring of a reinforcement structure

Transfer by bus from Campus @ 8:30

Stop in Valmadrera @ 8:40



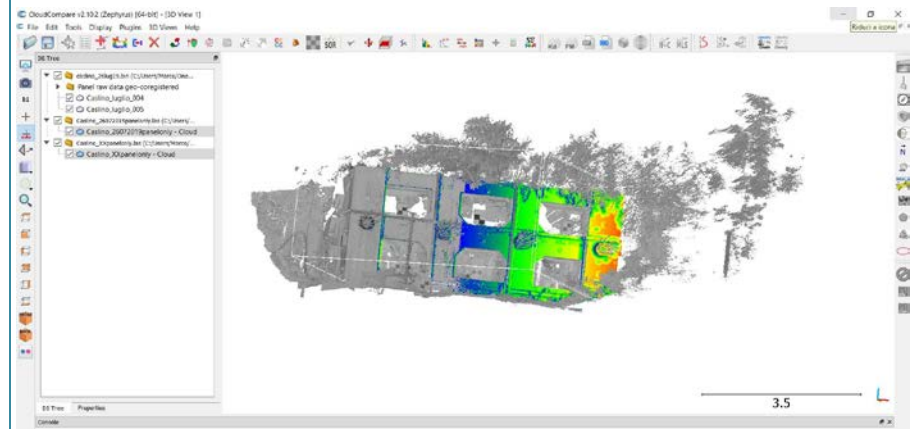
Afternoon (14:30-16:00 & 16:30-18:00)

Lecco Campus, classroom B02

Lab 2: (M. Scaioni & L. Barazzetti):

Data processing for deformation monitoring

SW: CloudCompare



Morning (9:30-13:30)

Milano Cathedral

Technical visit 1 (L. Barazzetti):

3D surveying and monitoring activities at Milano Cathedral

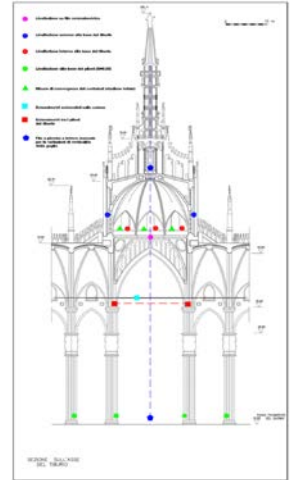
Transfer by train:

(Valmadrera Train St. @7:39
(Train S7-5132) -> Lecco Train St.)

Lecco Train St. @8:30 (Train
2559) -> Milano Centrale

Metro Line 3 from 'Centrale'-
>'Duomo'

Start of the visit: 10:00



Afternoon (14:30-15:30)

Polimi Leonardo Campus, Milano

Technical visit 2 (M. Scaioni):

Polimi Leonardo Campus

After visit: free time and trip back to
Lecco (www.trenitalia.com)



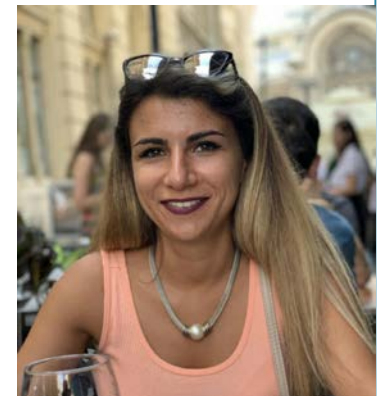
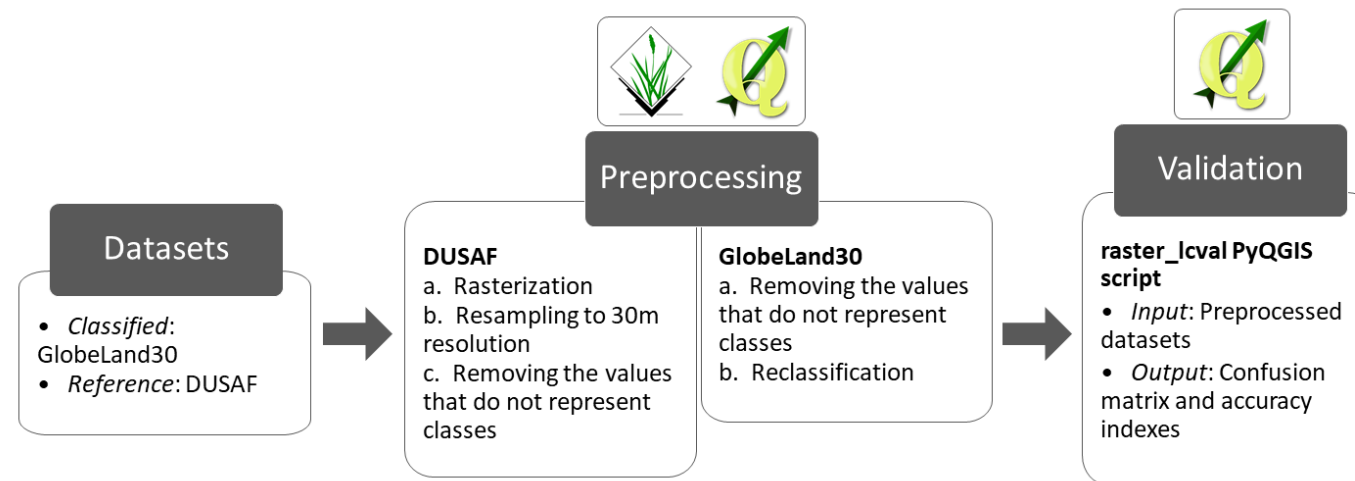
Full day (9:30-11:00 & 11:30-13:00 & 14:00-15:30 & 16:00-17:30)

Lecco Campus, classroom B02

Lab 3 (M. Brovelli & G. Bratic):

Validation Techniques for Land Cover Classification

SW: QGIS 2.18.27 with GRASS 7.4.2



Friday 6th September

Morning (9:30-13:00)

[Laorca Historical Cemetery](#)

Lab 4: (M. Scaioni):

**Demo by Trimble Company of
Terrestrial Laser Scanning and
GNSS sensors**

Transfer by cars from Campus @
8:45



Afternoon

Lecco Campus, classroom B02

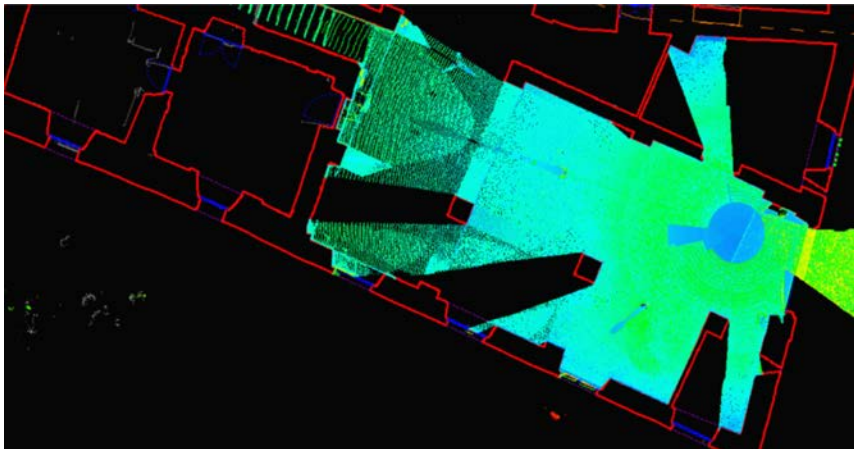
Project development and review



Morning (9:30-11:00 & 11:30-13:00)

Lecco Campus, classroom B02

**Lecture 2: (L. Barazzetti):
Terrestrial laser scanning for 3D
modelling of the built
environment**



Afternoon (14:00-15:30 & 16:00-17:30)

Lecco Campus, classroom B02

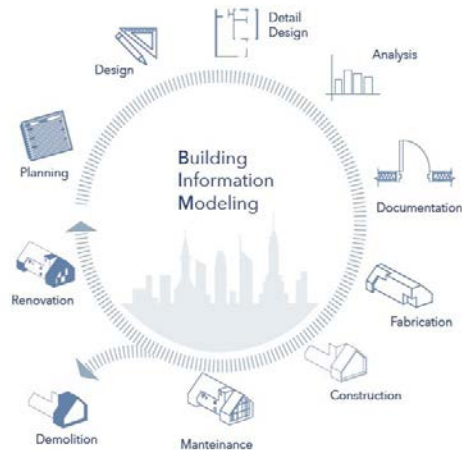
**Lab 4: (M. Scaioni & L.
Barazzetti):
Deliverable products from point
clouds**

SW: Autodesk Autocad + [Recap 360°](#)

Morning (9:30-11:00 & 11:30-13:00)

Lecco Campus, classroom B02

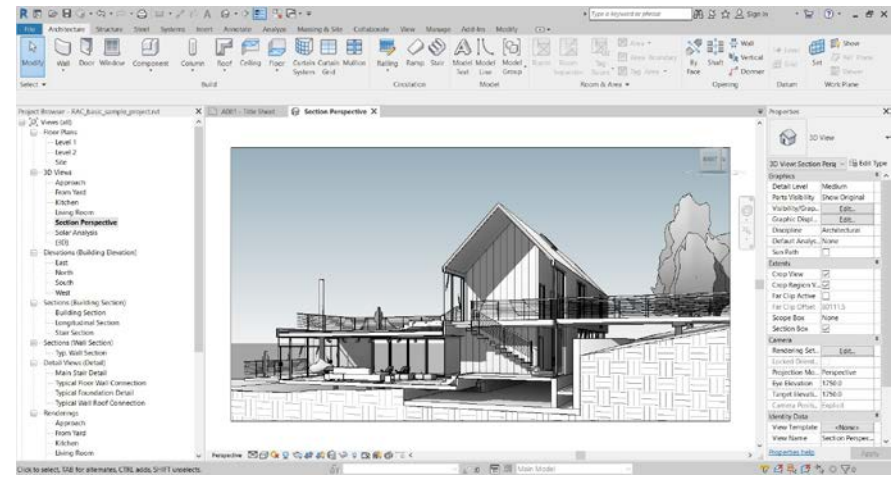
Lecture 3 (L. Guzzoni): Introduction to Building Information Modelling – The case study of Lyrics Theatre, Milano



Afternoon (14:00-15:30 & 16:00-17:30)

Lecco Campus, classroom B02

Lab 6 (L. Guzzoni): First steps using BIM software Revit SW: Autodesk Revit 2019



Morning (10:15-12:30 & 13:45-15:00)

Polimi Leonardo Campus (Milano)
Room Castigliano

**Seminar on Innovative teaching
at Politecnico di Milano (chaired
by M. Brovelli)**

Preliminary programme:

- Opening
- Prof. L. Duò, delegate for teaching at Polimi
- Prof. L. Biagi (president of MSc. Course on Geo-Informatics)
- Round table

Afternoon (15:15-19:00)

Lissone

**Technical visit to the Headquarter
of Stonex Company**

Transfer by bus from Leonardo
Campus @ 15:15 and return by bus
to Lecco @ 19:00



All day (9:30-11:00 & 11:30-13:00 & 14:00-15:30 & 16:00-17:30)

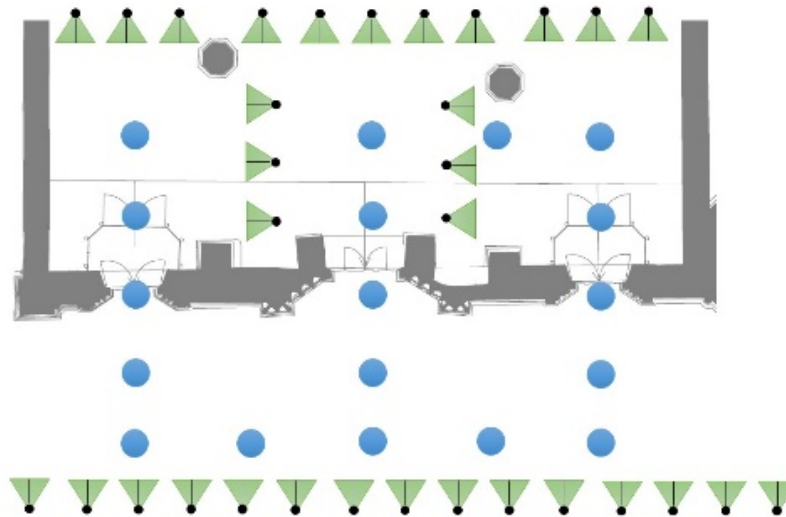
Lecco Campus, classroom B02

Lecture 4 / Lab 7 (L. Barazzetti):

Innovative indoor 3D surveying techniques

SW: [Recap 360°](#)

Agisoft Metashape



Friday 13th September

Morning (9:30-11:00 & 11:30-13:00)

Lecco Campus, classroom B02

Lecture 5 (L. Barazzetti):

BIM and GIS integration

SW: Autodesk Infraworks



Afternoon

Lecco Campus, classroom B02

Project development and review





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A wide-angle photograph of the town of Lecco at night, with the city lights reflecting on the calm water of Lake Lecco. The large, dark mountain of Monte Inverigo dominates the background under a twilight sky.

**Welcome in Lecco
and
Enjoy the Training on
‘Engineering applications of Geomatics!’**

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