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Geodesy and geoinformatics for sustainable development in Jordan (GEO4D)

GIS Course Program

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The course is aimed primarily at trainee experts in geospatial information (at different levels) and therefore can be considered as an advanced GIS course.
It consists of some theoretical lessons and a series of practical, computer-based sessions covering the most recent topics of geoinformation, providing the attendees the knowledge of the technologies with actual case studies.

In addition, the programme includes 2 days of technical visits to:

(week 1, Friday) Scientific and Technological Park ComoNEXT (Lomazzo, Como) and Monitoring Networks of Como (Subsidence and Cultural Heritage Monitoring) (http://www.comonext.it/)
(week 2, Wednesday) JRC Ispra (VA) (https://ec.europa.eu/jrc/en/about/jrc-site/ispra)

In preparing the syllabus, we gave for granted that everybody already has known ArcGIS and therefore we propose the Network Analyst as an advanced tool of the package.

The days of lessons (8) are organized as follows:

9:30 – 10:45 (lesson 1)
10:45-11:15 coffee break
11:15-13:00 (lesson 2)
13:00-14:20 lunch
14:20 – 17:30 practice/case studies/discussion (lesson 3) with short coffee-break at 16:00

The days of scientific/technical visits (2) are organized as follows:

8:30 Departure from Lecco (gathering point: Politecnico di Milano)
18:30 Arrival to Lecco (stop at Politecnico di Milano)

Social activities:

Ice-breaker party (Giro-pizza in a restaurant in Pescarenico, an old fisherman village close to the University Campus in Lecco): Monday 18 June 2018, 18:30
Social dinner (at restaurant “Canottieri” in a private sport-club at the border of the Lake of Lecco): Thursday 28 June 2018, 19:00

In both cases, we will gather at the university campus and walk together to the restaurants.

SYLLABUS FIRST WEEK (Scientific Visit: Friday 22 June 2018)

	Monday 18 June 2019 (Room B12)	Tuesday 19 June 2018 (Room B12)	Wednesday 20 June 2018 (Room B12)	Thursday 21 June 2018 (Room B24)
Topic of the day	**Managing geospatial data**	**Geospatial Databases**	**OpenStreetMap**	**Network Analysis**
Lesson 1 (1h15m) 9:30-10:45	Welcome. Introduction of the course. Present and future of GIS (Prof. Brovelli)	Global geospatial databases (Prof. Carrion)	What is OpenStreetMap; armchair mapping with OpenStreetMap (Dr. Eng. Minghini)	Visit to the Labs • Geology Lab • 3D printing Lab • Index Lab (Dr. Eng. Molinari, Dr. Eng. Barazzetti)
Lesson 2 (1h45m) 11:15-13:00	Introduction to QGIS Basics of QGIS with examples (Eng.Oxoli)	Geospatial database management systems; geospatial database management systems for big data (Eng. Kilsedar)	Downloading and using OpenStreetMap data (Dr. Eng. Molinari)	Network Analyst ArcGIS (Prof. Carrion)
Lesson 3 (3h) 14:20 -17:30 16:00 - 16:15 coffee-break	Hands-on session: QGIS (with a case study) (Eng. Oxoli)	Hands-on session: PostGIS (with a case study) (Eng. Kilsedar)	OpenStreetMap Mapping with a Smartphone, GPS or Paper (Dr. Eng. Minghini, Dr. Eng. Molinari)	Practice with the Network Analyst of ArcGIS (Prof. Carrion)

SYLLABUS SECOND WEEK (Scientific Visit: Wednesday 27 June 2018)

	Monday 25 June 2018 (Room B24)	Tuesday 26 June 2018 (Room B12)	Thursday 28 June 2018 (Room B12)	Friday 29 June 2018 (Room B12)
Topic of the day	**Case study: soil erosion analysis**	**Web mapping**	**Web mapping**	**Mobile mapping Cloud mapping**
Lesson 1 (1h15m) 9:30-10:45	Introduction to RUSLE equation for soil-loss estimation and on landscape changes observation. (Dr. Arch. Cuca)	Introduction to Web mapping. Web Services. (Prof. Brovelli)	The Geospatial Web. SDIs (INSPIRE) (Prof. Brovelli)	Overview of Volunteered Geographic Information (Dr. Eng. Minghini)
Lesson 2 (1h45m) 11:15-13:00	Hands-on session: Use of RUSLE equation in GIS environment. Case study of Paphos district, Cyprus (Dr. Arch. Cuca)	Web mapping from QGIS: QGIS Server and LizMap (Dr. Eng. Minghini)	How to create my webGIS: the client side (OpenLayers) (Eng. Kilsedar)	Examples of mobile mapping applications (Eng. Kilsedar)
Lesson 3 (3h) 14:20 -17:30 16:00 - 16:15 coffee-break	Land use changes observation using multi-temporal datasets. Theory and hands-on session. (Dr. Arch. Cuca)	How to create my webGIS: the server side (Geoserver) (Dr. Eng. Minghini)	How to create my webGIS: the client side (OpenLayers) (Eng. Kilsedar)	Cloud mapping with Geonode (Dr. Eng. Molinari)