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## **PROFESSIONAL DEVELOPMENT COURSE UAV AND LASER SCANNER FOR 3D MAPPING A.Y. 2026/2027**

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|--------------------------|----------------------|
| Total duration           | 48 hours             |
| Teaching period          | January - March 2027 |
| Total credits (CFU/ECTS) | 7                    |

### **Awarding Institution**

University of Siena - Via Banchi di Sotto 55 - 53100 Siena (Italy)

### **Programme Type**

Professional Development Course

### **Aims and Objectives**

The course aims to train professionals in the acquisition, management, processing and analysis of 3D geospatial data acquired through UAV-based photogrammetric surveys and terrestrial laser scanning.

The programme provides a comprehensive introduction to the theoretical principles of photogrammetry (aerial, satellite, UAV-based and terrestrial) and laser scanning (airborne, UAV-based and terrestrial).

The teaching approach, which has already been successfully established at the University of Siena's Centre for GeoTechnologies, has attracted public officials, technical staff, professionals, and graduates in disciplines such as geology, engineering, architecture, forestry, agricultural sciences and archaeology. The course is also open to holders of upper secondary technical qualifications, including surveyors, industrial technicians and other technical professionals.

Throughout the course, participants will learn advanced techniques for acquiring and extracting topographic and thematic information, as well as methods for producing geospatial datasets incorporating multitemporal information. Practical activities include image processing at different spatial and spectral resolutions for the generation of Digital Elevation Models (DEMs), stereoscopic models and orthorectified datasets. Participants will also gain hands-on experience in the acquisition and processing of 3D point clouds and the creation of new vector datasets.

The course combines theoretical instruction with extensive practical training, maintaining an approximate 1:3 ratio between lectures and practical activities, including fieldwork, laboratory sessions and computer-based exercises, thereby providing a highly applied learning experience.

### **Schedule and Duration**

January – March 2027 (Classes are held on Fridays and Saturdays)  
48 hours (lectures, practical exercises and laboratory sessions)

### **Tuition Fees**

Tuition fee for the Professional Development Course: **€ 600**

The tuition fee is payable in a single instalment of € 600, to be paid at the time of enrolment, plus a € 16 electronic stamp duty, payable through the University's online enrolment procedure.



## Language of instruction

Italian. A good command of the Italian language is therefore required.

## Course Venue

The Professional Development Course is delivered entirely in person at the Centre for GeoTechnologies, University of Siena, Via Vetri Vecchi 34, 52027 San Giovanni Valdarno (AR), Italy.

## Entry Requirements

Applicants must hold at least an upper secondary school diploma to be eligible for enrolment in the Professional Development Course in UAV and Laser Scanner for 3D Mapping.

## Programme Structure

| Disciplinary Area                                       | Learning Activities                            | Hours     | ECTS     |
|---------------------------------------------------------|------------------------------------------------|-----------|----------|
| <b>DRONE-BASED PHOTOGRAMMETRY (3DEARTH – DRONE)</b>     |                                                | <b>24</b> | <b>3</b> |
|                                                         | Fundamentals of Drone-Based Photogrammetry     | 8         | 1        |
|                                                         | Drone Photogrammetry Data Acquisition Survey   | 8         | 1        |
|                                                         | Photogrammetric Data Processing                | 8         | 1        |
| <b>AIRBORNE AND TERRESTRIAL LiDAR (3DEARTH – LiDAR)</b> |                                                | <b>24</b> | <b>3</b> |
|                                                         | Fundamentals of Airborne and Terrestrial LiDAR | 8         | 1        |
|                                                         | LiDAR Data Acquisition Survey                  | 8         | 1        |
|                                                         | LiDAR Data Processing                          | 8         | 1        |
| <b>FINAL ASSESSMENT</b>                                 |                                                |           | <b>1</b> |
|                                                         | Final Assessment                               |           | 1        |

## Contact Information

### TEACHING SECRETARIAT:

Training Activities Coordination Office - e-mail [master.cgt@unisi.it](mailto:master.cgt@unisi.it) - Tel. +39 055.9119449

### ACADEMIC CONTACT:

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### ACCOMMODATION:

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