CORE CONCEPT

Digital Heritage Documentation Course: Photogrammetry, Laser Scanning and HBIM

4 – 8 January 2027
Amsterdam - Zuidas business district hotel

Digital Heritage Documentation Course: Photogrammetry, Laser Scanning and HBIM

Ref: 2132_30847 **Date:** 4 – 8 January 2027 **Location:** Amsterdam - Zuidas business district hotel **Fees:** 23500 SAR

Introduction:

Digital heritage documentation with photogrammetry, laser scanning and HBIM is the subject of this 1-week course for heritage commission, destination project and museum documentation units, and it ends with a Heritage Digital Documentation Plan for a case organisation. Many monuments, historic buildings and collection objects are recorded once with mismatched cameras, scanners and file names, so point clouds cannot be combined, conservation models lack evidence and datasets become unreadable. Nominees already commission or carry out survey and recording work, and teaching runs as software labs on real capture data. CoreConcept Training Center delivers this digital heritage documentation course.

Course Objectives:

- Plan a heritage recording campaign that sets accuracy targets, control networks and capture methods for monuments, interiors and collection objects
- Capture drone and close-range photogrammetry image sets with ground control and scale bars and process them into dense point clouds, orthoimages and textured meshes
- Register terrestrial laser scans and photogrammetric clouds into one controlled dataset and report residual errors before modelling
- Build HBIM models of historic fabric from point clouds with element libraries, levels of detail and condition attributes for conservation decisions
- Describe survey datasets and models with CIDOC CRM metadata and paradata so their origin, method and reliability can be traced
- Set up long-term preservation and public access for 3D heritage data using the OAIS reference model, PREMIS records and fixity checks

Target Audience:

- Heritage commission documentation units responsible for recording monuments, historic buildings and archaeological remains
- Destination development project units responsible for survey baselines before restoration, adaptive reuse or construction near heritage assets
- Museum documentation and digitisation units responsible for 3D recording of collection objects and their catalogue records
- Conservation architecture units responsible for measured drawings and models that guide repair and intervention works
- Heritage data and archive units responsible for storing, describing and publishing survey datasets and 3D models

Course Outline:

Day 1: Heritage Recording Needs, Accuracy Targets and Survey Planning

- UNESCO Charter on the Preservation of Digital Heritage Scope Review
- Recording Levels From Reconnaissance Sketch to Detailed Measured Survey
- Accuracy and Resolution Targets Matrix for Sites, Facades and Objects
- Survey Control Network Design With Total Station and GNSS Points
- Recording Campaign Brief With Capture Methods, Roles and Deliverables

Day 2: Photogrammetry and Terrestrial Laser Scanning Capture Methods

- Structure From Motion Principles and Bundle Adjustment Error Reporting
- Drone Flight Planning With Image Overlap, Altitude and Ground Sampling
- Close-Range Camera Network for Facades, Interiors and Museum Objects
- Terrestrial Laser Scanner Station Layout, Targets and Scan Resolution
- Combined Capture Strategy Using Laser Depth and Photographic Colour

Day 3: Point Cloud Registration, Processing and Survey Products

- Target-Based and Cloud-to-Cloud ICP Registration With Residual Checks
- CloudCompare Cleaning, Subsampling and Noise Filtering of Heritage Clouds
- Dense Matching to Textured Mesh With MeshLab Repair Steps
- Orthoimage and Elevation Drawing Production for Facades and Floors
- Deformation and Change Comparison Between Repeat Survey Epochs

Day 4: HBIM Modelling, Heritage Metadata and Digital Preservation

- HBIM Element Library for Arches, Vaults, Walls and Openings
- Level of Detail and Geometric Deviation Checks Against Point Clouds
- Condition, Material and Intervention Attributes Linked to HBIM Elements
- CIDOC CRM Event Mapping for Survey Activities and Datasets
- OAIS Information Packages, PREMIS Records and Checksum Fixity Routines

Day 5: Software Lab and Heritage Digital Documentation Plan Build

- Lab Exercise Registering a Case Building Scan and Image Set
- Lab Exercise Modelling a Case Facade Bay in HBIM
- Case Dataset Metadata Record and Paradata Statement Drafting
- Public Access Tiers for Web Viewers, Researchers and Conservators
- Heritage Digital Documentation Plan Completion and Peer Review Panel

Skills You Will Gain:

- Heritage Survey Planning
- Photogrammetric Image Processing
- Laser Scan Registration
- Point Cloud Quality Control
- HBIM Element Modelling
- Heritage Metadata Mapping
- 3D Data Preservation Management
- Survey Accuracy Reporting

Why Attend This Course:

- Deliver a Heritage Digital Documentation Plan for a case organisation to the head of documentation and the conservation project lead
- Choose between drone photogrammetry, close-range imaging and laser scanning for each asset on accuracy and cost evidence
- Prevent repeat survey spending, unusable point clouds and 3D datasets lost to file obsolescence or missing records
- Train survey, museum and archive colleagues with the campaign brief, registration checklist and metadata templates built in the labs

Conclusion:

Back at work, the participant gives the head of documentation, the conservation project lead and the archive owner a Heritage Digital Documentation Plan that fixes accuracy targets, capture methods, registration checks, HBIM detail levels, metadata fields and preservation routines for the case assets. Project teams use it to brief survey contractors and accept their deliverables, and conservation teams use the models to scope repairs. After the first recording campaign, the unit should compare achieved accuracy, data volumes and archive ingest results with the plan and revise its targets and templates.

Frequently Asked Questions FAQ:

What should participants know before a digital heritage documentation course on photogrammetry, laser scanning and HBIM?

Participants should already commission or carry out survey, recording or digitisation work and be comfortable with basic CAD or BIM software. No programming is needed. Bringing sample photographs, scans or drawings of a monument or object helps them use the labs on their own material.

How does a digital heritage documentation course differ from a heritage site management course?

It concentrates on producing and keeping reliable measured data: capture, registration, HBIM models, metadata and preservation. Site management courses deal with significance, conservation policy, visitor numbers and income, and they use survey outputs rather than create them.

Why does digital heritage documentation combine photogrammetry with laser scanning?

Each method covers the other's weakness. Laser scanning gives dependable depth and geometry on complex surfaces, while photogrammetry adds colour, texture and quick drone coverage of large sites. Registering both into one controlled dataset gives conservators accurate geometry with realistic surface detail.

What do participants take back from the digital heritage documentation course on photogrammetry, laser scanning and HBIM?

Participants take back a Heritage Digital Documentation Plan for a case organisation, with a recording campaign brief, accuracy targets, a registration checklist, an HBIM detail specification, a metadata and paradata template and a preservation and access routine.