CERTIFICATE COURSE

DIGITAL DOCUMENTATION OF BUILT HERITAGE

2nd - 6th January, 2023

CPP | CEPT UNIVERSITY

Image Credit: Center for Heritage Conservation (CHC), CRDF

CPP

CEPT Professional Programs (CPP) bridge the gap between academics, practice, policy-making, and implementation through short certificate courses. The mission of CPP is to support individual and organizational learning by creating opportunities to acquire new skills and capabilities, thus allowing professionals to stay relevant in the current knowledge based global context. It will achieve this by offering professional development, continuing education, and up-skilling opportunities for professionals and in-service persons across disciplines concerned with urban development and the built habitat.

CPP draws from the expertise and capacity of the accomplished faculty at CEPT University, enhanced further by experts and practitioners from the field. Its programmes are built on deep research, vast consultancy projects and innovative pedagogies. CPP offers a repertoire of short courses and topic-focused programs across disciplines of architecture, design, planning, and management with immersive learning approaches combining interactive lectures, case studies, and peer-to-peer exchanges.

ABOUT THE COURSE

This 5-day workshop aims to develop the skill for digital documentation of historic buildings and structures through hands-on engagement. It will be conducted at CEPT Conservation Site School at Pragmahal, Darbargadh, Bhuj in Kutch, Gujarat - an initiative of the Center for Heritage Conservation (CHC), CRDF, in collaboration with local communities. The course will be supported by Pragmahal, MMKB Trust, Darbargadh, Bhuj.

Methodical documentation is a prerequisite for scientific conservation. It can significantly contribute towards a deeper understanding of built heritage and its existing condition. Digital methods for documentation are emerging as primary tools to record detailed and accurate information within relatively shorter time spans.

The course will introduce participants to three techniques - GIS Mapping, Photogrammetry and 3D LiDar Scanning. This course is developed and curated by Centre for Heritage Conservation (CHC), CRDF in consultation with CEPT Professional Programs (CPP), CEPT University.

CHC CENTER FOR HERITAGE CONSERVATION | CRDF CEPT RESEARCH AND DEVELOPMENT FOUNDATION

COURSE STRUCTURE

The course is structured as four independent yet interlinked topics –
1. Principles and methods of documenting for architectural conservation 2. Application of GIS in heritage documentation 3. Architectural Photography and Photogrammetry 4. 3D LiDAR Scanning for creating a digital twin

The five days are planned in detail to enable the identified learnings:

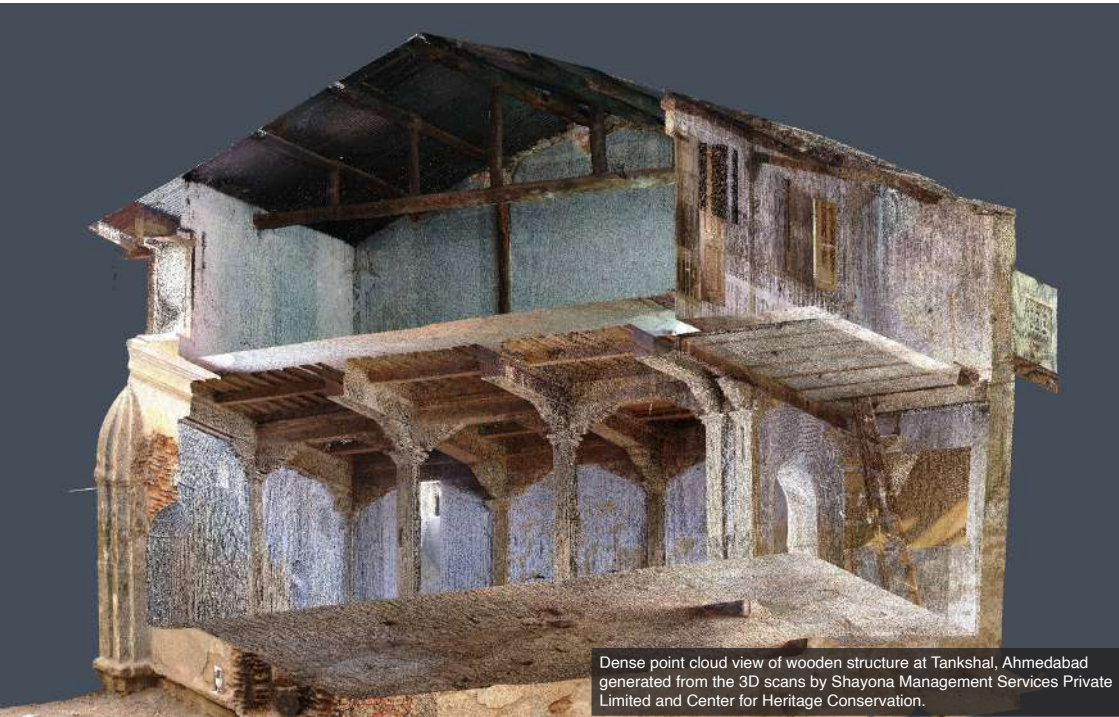
Day 1: Introduction to the site and overview of the documentation process
The opening day will be an introduction to the site. A brief overview of manual and digital documentation methods and key considerations for applying them in historical environments will be made. This will be followed by a discussion on the prerequisites of the documentation process and the selection of a tool or combination of tools as per the site situation.
A guest lecture on GIS will be organised on day one.

Day 2: Architectural Photography and Photogrammetric Processes
Day two will be dedicated to systematic documentation of the built heritage through photography, informing participants about selecting appropriate cameras, lenses and settings, understanding light conditions as per the site situations, and capturing information in different formats as per the output requirements. After understanding the fundamental principles of architectural photography and demonstrating the same on-site, the next stage will be capturing photographs for generating photogrammetric output. The demonstration will continue for the processing of the captured data in the prescribed software.

Day 3: Architectural Photography and Photogrammetric Processes
The photogrammetric explorations and post-processing will continue on day three.

Day 4: Demonstration of recording with 3D LiDAR Scanner
Day four will cover the introduction to the recording technique of 3D LiDAR Scanning. The demonstration will consist of understanding the scanner and its interface, planning for data collection as per the site conditions, and managing the quantity and quality during data capture. The session will conclude with the demonstration of data transfer, registration and creation of a base model for vectorisation and quantification.

Day 5: Post-processing of data captured
Day five will reflect upon the fieldwork carried out during the first four days. All the data will be collected and compiled into output to understand the advantages and limitations of each method. The aim is to gain insights to optimise the time and efforts required for the documentation of built heritage while improving the accuracy and quality of the record.



Dense point cloud view of wooden structure at Tankshal, Ahmedabad generated from the 3D scans by Shayona Management Services Private Limited and Center for Heritage Conservation.

COURSE TUTORS

MRUDULA MANE
Course Tutor

Mrudula Mane is a Conservation Architect and expert of digital documentation techniques at CHC, CRDF. She holds an MA in Conservation of Historic Buildings from the University of York, UK. Her expertise is in 3D Lidar Scanning, with experience of working from building to settlement level documentation. She has conducted and coordinated a series of workshops on Digital Documentation from CHC and CEPT. She is presently pursuing a PhD from CEPT University with a focus on challenges of conserving military heritage in Western Maharashtra. Today, technological advancements redefine how we perceive, document, analyse and interpret structures and spaces of yore. WIn this context, Mrudula is investigating how technology can improve the management and conservation of heritage assets situated in complex topography.

MANIYARASAN R
Course Tutor

Maniyarasan R, an architect and photographer, specialises in documenting built heritage. He works as an architectural photographer and visual documentation consultant; he works on projects related to aerial mapping, photogrammetry and technical imaging in architecture/conservation practice. He did B.Arch from SPA Delhi, PG Photography Design from NID Ahmedabad & UCA Farnham UK. He teaches Design and History at CARE School of Architecture, Trichy. An alumnus of the Leon Levy Foundation Centre for Conservation, Maniyarasan works with various government and private organisations and has conducted workshops in heritage documentation with various institutions including CEPT. As a research scholar, architectural documentation was his primary area of research.

ZEUS PITHAWALLA
Course Tutor

Zeus Pithawalla is a Conservation Architect at CHC, CRDF. His experience extends to policy, design, and planning interventions for heritage sites through assessments, exhibitions, reports, publications, and short films. Zeus has been involved in the project '3D for Heritage India' within which he and M.Mane scanned the spine of Bela (a village in Kutch) alongwith the interiors of 18 houses in a span of 5 days. He has also processed and developed outputs for the 3D scans undertaken at Tankshal-ni-Pol Masjid, Ahmedabad. Zeus has been teaching at the Faculty of Architecture, CEPT since 2020. He graduated with an M.Arch (Conservation and Regeneration) from CEPT. Zeus has worked with Flying Elephant Studio, Museum Art Conservation Center at CSMVS and Design Guidance (Mumbai), MCR FA CEPT (Ahmedabad), and engaged with projects as a freelance architect (Mumbai and Goa).

SHAILY GANDHI
Guest Speaker

Shaily Gandhi is a GIS expert with more than 10 years of experience. She has a Ph.D. from CEPT University in Geospatial Technology, and expertise in bridging the gap between GIS & governance. Shaily has recently been appointed as the Program Chair for the M.Tech programme in Geomatics (MGeo), at the Faculty of Technology. She is an executive committee member for the Committee on Data of the International Science Council (ISC) and Joint Secretary of ISRS, Ahmedabad Chapter. She is an active member of IEEE, ISG, and ISRS societies. She contributes to important research projects as a data scientist and is a GIS expert with different centers at CRDF. She works closely on projects with GIDB, ISRO, GIZ, CODATA, DST Nagoya. Shaily is keen on exploring the implementation of GIS and data science in the domain of Urban Analytics.

COURSE CALENDAR

All 5 days of the course will be at the site in Bhuj. The day-to-day schedule of the course will be shared with participants at the beginning of the course.

Days	Description	Contact Hrs	Mode
Day 1 2 Jan '23	**Introduction to the site and overview of the documentation process** Tutor: Mrudula Mane The opening day will be an introduction to the site. A brief overview of manual and digital documentation methods and key considerations for applying them in historical environments will be made. This will be followed by a discussion on the prerequisites of the documentation process and the selection of a tool or combination of tools as per the site situation. Guest lecture on GIS: Shaily Gandhi (Online)	2 2	On-site
Day 2 3 Jan '23	**Architectural Photography and Photogrammetric Processes** Tutors: Maniyarasan R. and Mrudula Mane Day two will be dedicated to systematic documentation of the built heritage through photography, informing participants about selecting appropriate cameras, lenses and settings, understanding light conditions as per the site situations, and capturing information in different formats as per the output requirements. After understanding the fundamental principles of architectural photography and demonstrating the same on-site, the next stage will be capturing photographs for generating photogrammetric output. The demonstration will continue for the processing of the captured data in the prescribed software.	6	On-site
Day 3 4 Jan '23	**Architectural Photography and Photogrammetric Processes** Tutors: Maniyarasan R. and Mrudula Mane The photogrammetric explorations and post-processing will continue on day three.	4	On-site

Days	Description	Contact Hrs	Mode
Day 4 5 Jan ‘23	**Demonstration of recording with 3D LiDAR Scanner** Tutors: Mrudula Mane and Zeus Pithawalla Day four will cover the introduction to the recording technique of 3D LiDAR Scanning. The demonstration will consist of understanding the scanner and its interface, planning for data collection as per the site conditions, and managing the quantity and quality during data capture.	6	On-site
Day 5 6 Jan ‘23	**Post-processing of data captured** Tutors: Mrudula Mane and Zeus Pithawalla Day five will reflect upon the fieldwork carried out during the first four days. All the data will be collected and compiled into output to understand the advantages and limitations of each method. The aim is to gain insights to optimise the time and efforts required for the documentation of built heritage while improving the accuracy and quality of the record.	4	On-site

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ADMISSIONS AND APPLICATIONS

Application Process	Online applications have already commenced. To apply to the course visit the CPP website http://cpp.cept.ac.in/ Applicants should complete the online form and attach their CV/resume along with their work portfolios.
Application Deadline	15 December 2022 (The deadline for this course is indicative. All applications will be considered as they are received, and seats will be allotted on a first come first serve basis. Admissions will be closed once all seats are full)
Course Dates	2nd January to 6th January 2023
Who can Apply?	1. Students of architectural conservation, heritage management, architecture, design, civil and structural engineering or any other field allied to built-environment studies and heritage studies. 2. Professionals with a background in the same fields of study and practice. 3. Teachers and researchers in architecture, urban design and conservation.
Fees	INR 20,000/- + GST (The fee is inclusive of lunch on all 5 days of the course and exclusive of travel cost, accommodation etc.)

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Certificate & Evaluation	Certificate will be awarded by CEPT University (Participation Certificate / Completion Certificate) Completion Certificate will include evaluation. Assessment will be based on the submission of the data collected and processed by the individual participants during the workshop. Participants will be expected to submit their explorations in 8 to 10 self-explanatory slides on the last day of the workshop.

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