

FIRST EDITION

29 JUL-02 AUG

LECC

2019

LIME & EARTH CONSTRUCTION COURSE

SUPPORT AND PARTNERS



universidade de aveiro



Universidade Estadual de Goiás



ORGANIZATION

CENTRO da TERRA



SUPPORT

LOCAL
CASA DA ARQUITECTURA
MATOSINHOS

**Summer course 2019
Lime and Earth Construction Course****AIM**

The CdT presents the first edition of the Summer Course, with dedicated to construction systems and traditional mortars with lime and earth, from July 29 to August 2, 2019 in the city of Porto.

This course has the aim of spreading knowledge of traditional construction systems, materials and coatings with earth and lime and the timing is crucial as interventions in the heritage buildings of Porto are being performed at an extremely fast rate.

This activity aims create awareness to designers, builders and the general public in terms of the built heritage that is characterized not only by its façades but also by the richness and uniqueness of building and interior elements.

METHODOLOGY

With the help of experienced instructors / speakers, we will present the different traditional earth building systems and the characteristics and advantages of the materials. The course aims to provide understanding of the advantages of using these techniques through maintenance, conservation and contemporary architectural projects.

The course "LECC_2019" will be realized during 5 days with a total of 40 hours (theoretical and practical).

Each day will be dedicated to a theme developed in two parts: theoretical in the form of seminars and practical workshops.

VENUE

Casa da Arquitectura
Roberto Ivens Street 582, 4450-149, Matosinhos
Porto, Portugal

LUNCH

Casa Açoreana Restaurant
Local - Brito e Cunha Street 243, Matosinhos
Menu - Meat Option - Fish Option - Vegetarian Option, bread, soup, dish, 1 drink per person and coffee.

TRAINERS / SPEAKERS

Arq. Ana Perdigão Antunes – Centro da Terra Association / A³ - Ateliê Academia de Arquitectura (PT)
Prof.^a Ana Velosa – Centro da Terra Association / University of Aveiro / APRUPP (PT)
Arq. Gabriel Andrade e Silva – Centro da Terra Association / CAL - Cultura, Arquitectura, Lugar (PT)
Arq. Maria Fernandes – Centro da Terra Association / ICOMOS – International council on monuments and sites
Prof. ^a Raphaela Gomes – State University of Goiás (BR)
Arq. Sofia Belledonne – Centro da Terra Association / Projeto SUYAI – Bio-Arquitectura | Arte | Design (CHI)
Prof.^a Vera Marques – University of Cape Verde

TARGET AUDIENCE

This workshop is intended for architects and civil engineers, professionals and students, archaeologists, environmentalists, construction professionals and all interested in this subject.

INFORMATION TO PARTICIPANTS

Participants should wear work clothes and boots or work shoes. It is also recommended to wear work gloves, goggles and a gown.

At the end, a Certificate of Participation will be delivered.

REGISTRATIONS

Lunch and Certificate of Participation are included in the registration

Registration value:

450€ for general participants

400€ for members of CdT.

The amount must be paid by bank transfer to the Centro da Terra Association account through the **NIB - 0010 0000 4128 6610 0011 4**

The registration is only considered effective after sending the proof of the bank transfer and registration form for info@centrodaterra.com

Download the application form at:

<https://forms.gle/kFBWo8ocih1qskL69>

SUPPORTS AND PARTNERS

A³ – Ateliê Academia de Arquitectura

CAL - Cultura, Arquitectura, Lugar

Casa da Arquitectura

FRADICAL - Fábrica de Transformação de Cal

ICOMOS – International council on monuments and sites

Projeto SUYAI - Arquitectura | Arte | Design

Só Argilas - Comércio de Barros SA

State University of Goiás

University of Aveiro

University of Cape Verde

ORGANIZATION

Centro da Terra Association

CONTACT

info.centrodaterra@gmail.com

SCHEDULE:

JULY 29 - LIME		
09:30 - 10:00	Receiving participants	
Opening of the Seminar - Library		
10:00 - 11:00	Binders, lime cycle, types of lime and characteristics of the material	Ana Velosa
11:00 - 11:15	Debate open to the public	
11:15 - 11:30 Coffee Break		
11:30 - 12:00	Air lime production - Tradition and current state	Vera Marques
12:00 - 12:15	Debate open to the public	
12:15 - 13:00 Workshop Start - Shipyard		
	Preparation of material and tools	Ana Velosa
13:00 - 14:30 Luch		
14:30 - 16:30 Workshop - Shipyard		
	Quicklime for hydrated lime and lime water production	Ana Velosa
16:30 - 16:45 Coffee Break		
16:45 - 18:00	Production of hydrated lime powder and lime paste	Gabriel de Andrade e Silva
JULY 30 - CHARACTERIZATION OF THE EARTH		
09:30 - 10:00 Receiving participants		
Opening of the Seminar - Library		
10:00 - 10:30	Earth, building material and sustainability	Ana Perdigão Antunes
10:30 - 10:45	Debate open to the public	
10:45 - 11:15 Workshop Start - Shipyard		
	Material characteristics	Ana Perdigão Antunes
11:15 - 11:30 Coffee Break		
11:30 - 13:00	Soil identification and characterization tests	Ana Perdigão Antunes
13:00 - 14:30 Luch		
14:30 - 16:15 Workshop - Shipyard		
	Behavioral tests, Carazas exercise	Ana Perdigão Antunes and Sofia Belledonne
16:15 - 16:30 Coffee Break		
16:30 - 17:30	Carazas exercise	Ana Perdigão Antunes
17:30 - 18:00	Evaluation of results and conclusions	and Sofia Belledonne

JULY 31 -ADOBE		
09:30 - 10:00	Receiving participants Opening of the Seminar - Library	
10:00 - 10:30	Adobe in the World and in Portugal	Maria Fernandes
10:30 - 11:00	Adobe, constructive technique	Raphaella Gomes
11:00 - 11:15	Debate open to the public	
11:15 - 11:30 Coffee Break		
11:30 - 13:00	Workshop Start - Shipyard Preparation of mortar for Adobe	Raphaella Gomes and Ana Perdigão Antunes
13:00 - 14:30 Lunch		
14:30 - 16:15	Workshop - Shipyard Adobe Blocks Production	Raphaella Gomes and Ana Perdigão Antunes
16:15 - 16:30 Coffee Break		
16:30 - 18:00	Drying and storage of Adobes	Raphaella Gomes and Ana Perdigão Antunes
01 OF AUGUST - BTC		
09:30 - 10:00	Receiving participants Opening of the Seminar - Library	
10:00 - 10:30	What is BTC?	Ana Perdigão Antunes
10:30 - 10:45	Debate open to the public	
10:45 - 11:15	Workshop Start - Shipyard Recognition of the Earth and adaptation to the production of BTCs	Ana Perdigão Antunes
11:15 - 11:30 Coffee Break		
11:30 - 13:00	Organization of construction site and logistics Method and process of execution	Ana Perdigão Antunes and Raphaella Gomes
13:00 - 14:30 Lunch		
14:30 - 16:15	Workshop - Shipyard Production of BTCs	Ana Perdigão Antunes and Raphaella Gomes
16:15 - 16:30 Coffee Break		
16:30 - 18:00	Production of BTCs BTC masonry assembly	Ana Perdigão Antunes e Raphaella Gomes

02 OF AUGUST - MORTAR AND COATINGS OF EARTH AND CAL		
09:30 - 10:00	Receiving participants	
	Opening of the Seminar - Library	
10:00 - 11:00	Lime mortars, composition and characteristics	Ana Velosa
11:00 - 11:15	Debate open to the public	
11:15 - 11:30	Coffee Break	
11:30 - 12:00	Lime mortars in the building conservation and rehabilitation	Gabriel de Andrade e Silva
12:00 - 12:15	Debate open to the public	
12:15 - 13:00	Workshop - Shipyard	Ana Velosa e
	Execution of lime mortars, hydraulic lime and cement	Gabriel de Andrade e Silva
13:00 - 14:30	Lunch	
14:30 - 15:00	Opening of the Seminar - Library	
	Earth Coatings, Composition and Finishing Techniques	Sofia Belledonne
15:00 - 15:15	Debate open to the public	
15:15 - 16:30	Workshop - Shipyard	
	Preparation of support, layers and composition	Sofia Belledonne
16:30- 16:45	Coffee Break	
16:45 - 18:00	Implementation, methods of application and decorative techniques	Sofia Belledonne
18:00 - 18:15	Course closure	

CENTRO DA TERRA ASSOCIATION

It aims to be a forum for discussion of techniques, materials, construction and earth architecture, in a perspective of preserving the existing heritage and promoting the new earth architecture. Thus, since 2003, the CdT has supported, collaborates with or divulges all initiatives, events, works, books, etc., whose theme is "Construction on Earth" or the whole associated theme.

SPEAKERS AND TRAINERS**Ana Perdigão Antunes**

Graduated in Architecture from the *Escola Superior de Arte do Porto*. To develop a PhD in the University of Beira Interior. Advisor Environmental LiderA certification system. Current President of the Centro da Terra Association. Coordinator of the projects "Legal and Normative Framework of Earth Construction in Portugal" and "Mapping of Earth Construction in the Portuguese Territory". Founder of the cabinet *A³ - Ateliê Academia de Arquitectura*, where he conciliates the strands of the formation and architecture. It develops projects in the ambit of Eco-Architecture and Sustainability - incorporating works on Earth (BTC, Taipa, Adobe), use of rainwater, reuse of black and gray water and implantation of passive and bioclimatic solar strategies. She performs the skills of author and project coordinator, monitoring and construction management, as well as consulting and training for construction on Earth, Eco-Architecture and Sustainability. Train workers to build on land. He works in Portugal and India. With participation in several congresses and national and international events, presentation lecture at TedX Aveiro 2016. With publication of several articles and magazines of the congress.

Ana Velosa

Associate Professor with Aggregation at the Civil Engineering Department of the University of Aveiro. Graduated in Civil Engineering (FEUP), Master in Urban Environmental Planning (FAUP). He has a PhD in Civil Engineering at the University of Aveiro in 2006. He has coordinated and participated in several research projects, having published a significant number of articles in international and national journals and congresses. He participates in RILEM and has held a sabbatical year at the Norwegian Institute for Cultural Heritage Research.

She was Deputy Director of the Civil Engineering Department of the UA, Director of the Integrated Master in Civil Engineering and Director of the Degree in Heritage Rehabilitation. She is currently Pro-Rector of the University of Aveiro with the Campus and Sustainability department, Vice-President of the Centro da Terra Association and member of the board of APRUPP.

Gabriel de Andrade e Silva

Graduated in Architecture by the Faculty of Architecture of the University of Porto in 1992, and specialization in Restoration of Architectural and Landscape Heritage by the University of Évora. With work mainly related to the rehabilitation, restoration and conservation of Heritage classified both in the project and in the monitoring and supervision of the work, he worked in the National Monuments in the Porto Regional Directorate and since 2006 in the House of Ramalde in the Regional Directorate of Culture of the North with interventions in northern Portugal. Consultant in rehabilitation and construction has participated in several national and international conferences and seminars with publications of articles in journals of the specialty. It belongs to the direction of the Centro da Terra Association.

Maria Fernandes

Graduated in Architecture (FA/UTL 1986), Degree in Architectural Conservation (ICCROM, Rome 1991) Courses PAT92 and PAT96, Conservation and management of the earth Archaeological and Architectural Heritage (ICCROM, CRATerre, GCI, INCultura Peru, Trujillo) Master in Restoration of Architectural and Landscape Heritage (UÉVORA 1999) and PhD in Architecture (University of Coimbra 2013) Responsible for interventions and projects in classified properties. Author of articles and books on earth architecture.

Raphaëla Christina Costa Gomes

Graduated in Agricultural Engineering from the State University of Goiás, GO, Brazil. Master in Rural Constructions / Agricultural Engineering from the Federal University of Lavras, MG, Brazil. PhD in Environment for animal production / Animal Science, Federal University of Goiás, GO, Brazil. Professor of Civil Engineering at the State University of Goiás, Campus Anápolis. He teaches the subjects of Experimental Planning for Engineering, Construction Technology II and Planning and budget of works. It carries out research projects with materials of sustainable construction and construction with earth and workshops of practice with construction with earth.

Sofia Belledonne

Architect graduated at the Finis Terrae University, Santiago, Chile (2010), later at the State University of Campinas, São Paulo, Brazil (2012) and currently doing a PhD at the University of Coimbra (FCTUC) in the research of compatible coatings with earth construction and natural materials.

With professional experience developed since 2010 in several companies and institutions, she is the author of projects of traditional and earth architecture, among other technical and artistic works. Collaborator at the Centro da Terra Association. Consultant and trainer in the area of eco-architecture and earth and lime plasters. Founder of *Projeto SUYAI*, provider of services in different areas, namely Architecture, Art and Design, working in Chile, Brazil and Portugal mainly.

Vera Marques

Graduated in Civil Engineering from Tomar's Technical School of Technology at the Polytechnic Institute of Tomar, Master in Civil Engineering from the University of Aveiro and attending the Doctorate Program in Civil Engineering at the University of Aveiro in the area of Heritage Conservation, Construction Materials and Construction Technologies. He participates in several research projects, among them GEOBIOTEC and RISCO of the University of Aveiro, and has published a series of articles in national and international congresses. She is currently a graduate assistant in the Faculty of Engineering and Marine Sciences of the University of Cape Verde in the area of Civil Engineering.