seeing nature inside
trans-naturality
eng&arch

EXECUTIVE MASTER

CE&A

Circular
Engineering &
Architecture

ACADEMIC YEAR
2021/2022

presentation

CE&A master is based on the so-called **Eco Generative Architecture**, that is a design method that sets architectural and engineering projects into the Circular Economy chain. CE&A is subdivided in 3 macro categories:

TRANS_NATURALITY

The Eco Generative Architecture makes use of some step-by-step controlled process operations. Steps in which project and construction grow together as a living and natural being, starting from the geometric composition, passing through the construction cycle, the customization, the energy control, up to the recycling.

DIGITAL MANUFACTURED

CE&A places the emphasis on very important issues for the design of a circular architecture and engineering. Our master students will face problems related to materials, national and international legislation, modular structures, and ambient comfort (acoustic and luminous). Part of the lessons will be dedicated to **digital programs** useful for designing, generating surfaces, creating **files to factory**, and **prototyping**.

RESEARCH & COMMUNICATION

As designing with nature means interacting with many areas of knowledge, CE&A also deals with research and communication strategies: research of **materials**, research of **technologies**, research of **modules**, oral communication, communication with images, and web **communication**.

Our master students will attend a specific didactic strategy that faces each challenge that the world of construction will face in the near future; the aim is to prepare new professional figures able to solve part of our environmental problems.

job opportunities

The Earth does not have infinite resources. The 30% of land consumption and pollution is generated by the construction world. The Western world is becoming increasingly sensitive to environmental issues and architects and engineers must meet the new challenges of the Circular Economy. CE&A is addressed to engineers and architects interested in environmental design activities, that already work or want to work in Professional Firms, Private Companies, Public Administrations, International Institutions, ONG, Energy Service Companies, and Utilities Companies.

CE&A trains new professional figures able to work in teams. Our master students will learn how to guarantee, manage and organize architectures or engineering structures and infrastructures related to nature, through software and technologies of last generation. Thanks to the aforementioned skills, the master students will be able to successfully afford the most recent warnings of the European environmental directives.

themes

The training courses of CE&A cover different topics, all however linked to design, realization and promotion of a project that respects nature and the Circular Economy process. These topics are mainly:

- Acquisition of an eco-generative design method. It is an innovative, critical, compositional, conceptual approach, that can involve the entire construction industry, from the starting idea to its final recycling.
- Autonomy in Green designing. This autonomy provides technological skills for the analysis, evaluation and synthesis of the environmental sustainability.
- Autonomy in the legislation that regulates the Circular Economy process.
- Autonomy in technological tools for designing and for creating a file to factory.
- Acquisition of communication skills to promote and advance the project at any level, referring to the construction industry as well as to the Circular Economy world.
- Ability to promote not only in professional, but also in research contexts, the virtuous process of Circular Economy applied to the construction industry.

partners

CE&A is sponsored by the Departments of Civil, Environmental and Architectural Engineering of the University of Padua.

Between our partners there are national and international companies (with offices in the main Italian cities) interested in the issues that link the world of construction with the Circular Economy.

- Agilyx Inc.
- Arca Centro Ricerca
- Arup Italia
- BS Bambùstrutturale
- Carducci Group
- CENTROLEGNO Srl
- Crossfire Srl
- DBA Group
- Delta Phoenix
- DIAB Group
- Gemmo Spa
- Green Economy GS4C
- IEG
- Macro Design Studio
- Nanoprom Chemicals
- Rivierasca Spa
- Wasp Building Engineer 3D Printing Construction
- Wolf System Srl
- Zephir Passive House Italia

main characteristics

The master is divided into 3 thematic areas, Trans Naturality, Digital Manufactured, Research and Communication, which include n. 16 courses divided into modules.

These thematic areas concern the design, management, maintenance, promotion and recycling of an architectural and/or an engineering artefact. The lessons will be on Friday and Saturday (16 hours per week). At the end of the training activities our students will face an internship at the partner companies and organizations.

During this internship the master students will be helped and supervised by a teacher of the master.

information

Start and end dates (approximative)
November 2021 – September 2022
- Classes are held at Dipartimento di Ingegneria Civile Edile e Ambientale, via Marzolo 9, 35131 Padova

Places available (min-max)
10 - 15

Entry requirements
- Lauree ante D.M. 509
- Classi delle lauree specialistiche D.M. 509
- Classi delle lauree magistrali D.M. 270
- Architecture Master's Degree
- Civil Engineering Master's Degree
- Environmental Master's Degree

Credits
60 CFU

Attendance
70% minimum

Enrollment fee
Master € 6.022,50
- First payment € 4.022,50
- Second payment € 2.000,00

Further details are available on the Selection Process Notice 21/22, on UniPD website, Master section.

contacts

Directors
arch. Raffaella Laezza
rlaezza@iuav.it

prof. Cosimo Monteleone
cosimo.monteleone@unipd.it

Organizing Office
UniSMART Academy
academy@unismart.it

Web
unismart.click/master-cea

ICEA - Dipartimento di Ingegneria Civile Edile e Ambientale
Università degli Studi Padova
Via Marzolo, 9 - 35131 Padova

MASTER
E CORSI DI PERFEZIONAMENTO E AGGIORNAMENTO