Course guide
390249 - CONS3 - Construction III

Last modified: 26/01/2024

Unit in charge: Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit: 740 - DUTP - Department of Urbanism, Territory and Landscape.

Degree: BACHELOR'S DEGREE IN LANDSCAPE ARCHITECTURE (Syllabus 2019). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: Mar Pérez Cambra

Others: Miguel Mayorga Cárdenas

PRIOR SKILLS

will, tenacity and commitment

REQUIREMENTS

minimum knowledge about which construction systems can build the landscape

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE-PS-01. (ENG) Aplicar los conocimientos adquiridos en las enseñanzas que permitan la planificación, diseño y gestión del paisaje.

CE-PS-04. (ENG) Desarrollar un talento creativo, de una sensibilidad a la forma, color y textura; La capacidad para generar conceptos en el espacio y el tiempo; Para evocar, proyectar y transferir imágenes.
CE-PS-02. (ENG) Aplicar los conocimientos adquiridos en las enseñanzas que permitan la planificación del espacio abierto urbano.
CE-PS-10. (ENG) Identificar los fundamentos de las políticas paisajísticas y ambientales, en base a la legislación y planificación ambiental y el papel de los organismos internacionales, nacionales, regionales y locales en la planificación y diseño ambiental.
CE-PS-11. (ENG) Obtener las bases de geología y morfología del terreno y su aplicación en problemas relacionados con el paisaje. Climatología
CE-PS-15. (ENG) Elegir y emplear los materiales y las técnicas constructivas adecuadas para la ejecución del proyecto de paisaje.
CE-PS-18. (ENG) Comprender los modelos de organización de empresas públicas y privadas. Redactar documentos técnicos, presupuestos, dirección de obra y mantenimiento.

Generical:
CG2. (ENG) Recurrir a conocimientos en materias básicas, científicas y tecnológicas adquiridos en los estudios que permitan un aprendizaje continuo, así como adaptarse a nuevas situaciones o entornos cambiantes.

Transversal:
CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

CT4. (ENG) Trabajo en equipo. Ser capaz de trabajar como miembro de un equipo interdisciplinar, ya sea como un miembro más o realizando tareas de dirección, con la finalidad de contribuir a desarrollar proyectos con pragmatismo y sentido de la responsabilidad, asumiendo compromisos teniendo en cuenta los recursos disponibles.
CT7. (ENG) Tercera lengua. Conocer una tercera lengua, preferentemente el inglés, con un nivel adecuado oral y escrito y en consonancia con las necesidades que tendrán los titulados y tituladas.

TEACHING METHODOLOGY

The course is mainly practical. The aim is to develope the specific technology in a Landscape project designed previously by the students in one of the Projects Workshops . The project will be firstly analyzed environmentally with the aim of implementing environmental improvements through an environmental microacupuncture exercise. Being aware of landscape construction systems (explained in CII) they will finally choose the construction systems that will allow this environmental improvement to be materialize, as if it were part of a landscape execution project.
The methodology focuses on developing a construction landscape project deeping into the most important aspects of every projet . They will start from the terrain, topography, earth movements, going through different quantifications related to an execution project that solve the most important technical and environmental problems specific to each project. The final point is to capture, on a detail scale, the construction systems and solutions that allow the chosen project to be developed up to the detail scale, as in an execution project. They will also be provided with the information of the written part of an execution project.
In both blocks there will be visits and conferences on the subject matter related with the theory and practices worked in class.The objective is also that they are capable of repeating the process in the future, from the field, implementing the technology as a project resource.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the semester, the student will have completed the workshops in which they will have learned, under a critical vision, to implement the construction systems that build their landscape projects. The implementation will take place in different ways: three-dimensionally, two-dimensionally and through the visual experience starting from environmental analysis and quantification. Everyone will learn to use technology for environmental analysis and improvement of their project with the aim of mitigating climate change through their landscape project. This methodology will establish a criterion for choosing the construction systems that will be included in a landscape execution project. It will also allow the student to learn to think about the technical problems that can be found in a landscape project with what tools and criteria to solve them.

STUDY LOAD

Type	Hours	Percentage
Hours large group	40,0	26.67
Hours small group	20,0	13.33
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

LANDSCAPE CONSTRUCTION UNDER AN ENVIRONMENTAL POINT OF VIEW

Description:
The main goal is to develop the criteria and methodology for building the landscape from an environmental point of view in a context of climate change.
BLOCK A: ON BUILT SYSTEMS:
The goal of this part is to develop the criteria and methodology to build landscape on a built enviroment.
Based on the basic knowledge that students have about the construction systems that make up the landscape, the most important technical issues of each project will be resolved, such as: support, skin, composition and possible problems: maintenance, management, drainage, irrigation, etc...
The environmental analysis of the site and the environmental microacupuncture exercise to improve environmental parameters of the landscape project, being aware of the sensory effect that it will produce. The construction systems proposed in the practical exercises will materialize this environmental improvement and graphically quantify/explain the improvement to mitigate the effects of climate change.
BLOCK B: ABOUT PROJECTS:
The practice is based on using technology as a design resource . The departure point is to make an environmental diagnosis of the project chosen by the students. Subsequently, the environmental improvements of the Masterplan will be quantified and shown with respect to the initial conditions of the project approach.
It will go on to implement it from the topographic analysis, through the movement of earth and the resolution of the most

important technical problems of each project. The technical solutions will be expressed numerically and graphically, on a more general scale, of setting out, and later, on a detail scale (approx. 1/20-1/5). The issues to be resolved and the format could become part of the project for the execution of the landscape project. The construction details will be the result of an analysis and environmental microacupuncture carried out with the masterplan. The final landscape construction project must mitigate the effects of climate change.
In class they will be provided with environmental quantification tools to be able to carry out this diagnosis and improvement as a basis for work. They may also provide their own tools.
They will be provided with the information of the written part to develop a landscape project.

Specific objectives:
The specific objectives are learning and using the following concepts lot reach to specific construction systems which will materialize the environmental improvement:
CONCEPTS AND TOOLS:
0. Walkability: concept.
1.1. Thermal comfort.*:
plant shade, surface temperatures according to species (and building).
urban morphology
Albedo
heat kinematics
specific heat.
1.2. Acoustic comfort.*:
decibels and frequencies in humans and ecosystems.
1.3. Wind: directionality, intensity, urban morphology.
1.4. Water strategy:
infiltration, transport, management
thermal effect.
reduction of water in the execution of my construction system.
1.5. Atmosphere:
Co2 emitted by my project.
Execution of my project reducing CO2.
Green-CO2 sink
1.6. Light comfort.
1.7. Physical comfort.
1.8. psychological comfort.
THE INFORMATION WILL BE PROVIDED:
1.Memory:
1.1. Descriptive memory
1.2. environmental memory
1.3. urban memory
1.4. constructive memory
2.Impact study:
2.1. Geological.
2.2.Sociological.
2.3.Biodiversity
3.Safety and health in the work.
4.State of measurements:
4. Status of measurements.
4.1. Technical prescriptions.
4.2. Measuring system.
5. Budget.
5.1. Budget summaries and advance
5.2.Price table.
5.3. General budget
6. Specifications:
6.1.General conditions
6.2. Earthworks
6.3.Irrigation and drainage
6.4. Elements of vegetation
6.5.Civil works
6.6.Lighting.

7. Instructions for use and maintenance (or maintenance sheet).
8.Planning.
9.Address

Related activities:
The main goal is to develop the criteria and methodology for building the landscape from an environmental point of view in a context of climate change.
The practice is based on using technology as a design resource . The departure point is to make an environmental diagnosis of the project chosen by the students. Subsequently, the environmental improvements of the Masterplan will be quantified and shown with respect to the initial conditions of the project approach.
The departure point is the topographic analysis, through the movement of earth and the resolution of the most important technical problems of each project. The technical solutions will be expressed numerically and graphically, on a more general scale, of setting out, and later, on a detail scale (approx. 1/20-1/5). The issues to be resolved and the format could become part of the project for the execution of the landscape project. The construction details will be the result of an analysis and environmental microacupuncture carried out with the masterplan. The final landscape construction project must mitigate the effects of climate change.
We'll use their previous knowledge about landscape construction learnt by the students.
In class they will be provided with environmental quantification tools to be able to carry out this diagnosis and improvement as a basis for work. They may also provide their own tools.
They will be provided with the information of the written part to develop a landscape project.

Full-or-part-time: 144h
Theory classes: 15h
Practical classes: 69h
Self study : 60h

GRADING SYSTEM

The evaluation system is based on the continuous evaluation of the student. The practices are evaluated but also the evolution of the student in class. In "Test rules" is specified the percentatges of the evaluation system..

EXAMINATION RULES.

The assessment is made up of a 40% of the synthesis exercises that will be carried out on the visits and the theoretical concepts learnt on the site and in class.
A 45% of the grade corresponds to the practice that quantifies environmental improvements proposed which will be materialized in construction systems up to the level of detail in their landscape projects.
The 15% depends on the practical exercise about the execution rppoject. which will remain to all as a Guide.
Thus, the assessment is as follows:
N= N1*0,4+N2*0,45+N3*0,15
N1= synthesis exercises that will be carried out on the visits and practical concepts
N2= environmental improvement project up to the level of construction detail.
N3=practical exercise on the execution project.

BIBLIOGRAPHY

Basic:
- Arquitectura y paisaje. Detail no .50,
- Ochoa de la Torre, José Manuel. La Vegetación como instrumento para el control microclimático [on line]. Universitat Politècnica de Catalunya, 1999 [Consultation: 22/09/2021]. Available on: http://hdl.handle.net/10803/6124. ISBN 9788469069134.
- Tectónica nº 30: espacios Exteriores: monografías de arquitectura, tecnología y construcción [on line]. Madrid: ATC ediciones, 2009 [Consultation: 11/01/2022]. Available on: https://dialnet.unirioja.es/servlet/revista?codigo=5782.- Pérez Cambra, María del Mar. Construcción sostenible de espacio público [Recurs electrònic] [on line]. [Consultation: 22/09/2021]. Available on: http://hdl.handle.net/2099.3/36868. ISBN 9788498805161.
- Paisea : revista de paisajismo = landscape architecture review. Valencia: Paisea Revista, 2007-2016. ISBN 1887-2557.
- A+t: Strategy space. Vitoria: a+t ediciones : Colegio Oficial de Arquitectos Vasco-Navarro, 1992-.
- Pérez Luque, Gabriel; González i Barroso, Josep Maria. Façanes vegetades [Recurs electrònic] : estudi del seu potencial com a sistema passiu d'estalvi d'energia, en clima mediterrani continental [on line]. 2010 [Consultation: 11/01/2022]. Available on: http://hdl.handle.net/2117/93456. ISBN 9788469370667.
- A+t: Strategy: Strategy Public [on line]. Vitoria: a+t ediciones : Colegio Oficial de Arquitectos Vasco-Navarro, 1992- [Consultation: 22/09/2021]. Available on: http://dialnet.unirioja.es/servlet/revista?codigo=8922.- A+t: Strategy: Strategy and tactics in public space [on line]. Vitoria: a+t ediciones : Colegio Oficial de Arquitectos Vasco-Navarro, 1992- [Consultation: 22/09/2021]. Available on: http://dialnet.unirioja.es/servlet/revista?codigo=8922.

Complementary:
- Zimmermann, Astrid. Construir el paisaje : materiales, técnicas y componentes estructurales. Basilea: Birkhäuser, cop. 2011. ISBN 9783034606943.

RESOURCES

Other resources:

Tools and information uploaded in Athena.